

**Region 1 NPDES Permit Quality Review**  
**Vermont**  
**Final**

September, 23 2015

U.S. EPA Region 1  
5 Post Office Square  
Boston, MA 02109-3912

## Contents

I.	PQR BACKGROUND.....	4
II.	STATE PROGRAM BACKGROUND .....	7
	A. Program Structure .....	7
	B. Universe and Permit Issuance .....	8
	C. State-Specific Challenges.....	13
	D. Current State Initiatives .....	14
III.	CORE REVIEW FINDINGS.....	14
	A. Basic Facility Information and Permit Application .....	14
	1. Facility Information .....	14
	2. Permit Application Requirements .....	15
	B. Technology-based Effluent Limitations.....	16
	1. TBELs for POTWs .....	16
	2. TBELs for Non-POTW Dischargers .....	16
	C. Water Quality-Based Effluent Limitations.....	17
	D. Monitoring and Reporting.....	19
	E. Standard and Special Conditions.....	19
	F. Administrative Process .....	20
	G. Administrative Record.....	21
	1. Documentation of Effluent Limitations.....	22
	H. National Topic Areas .....	23
	1. Nutrients.....	23
	2. Pesticides.....	26
	3. Pretreatment.....	27
	4. Stormwater.....	30
IV.	REGIONAL TOPIC AREA FINDINGS .....	36
	A. Combined Sewer Overflows (CSOs) .....	36
	B. Effluent Limit Guidelines (ELG).....	41
	C. Whole Effluent Toxicity .....	42
V.	ACTION ITEMS .....	45
	A. Basic Facility Information and Permit Application .....	46
	B. Technology-based Effluent Limitations.....	46
	C. Water Quality-Based Effluent Limitations.....	47
	D. Monitoring and Reporting.....	47
	E. Standard and Special Conditions.....	47
	F. Administrative Process (including public notice) .....	47
	G. Documentation (including fact sheet).....	47
	H. National Topic Areas .....	48
	1. Nutrients.....	48
	2. Pesticides.....	49
	3. Pretreatment.....	49

- 4. Stormwater..... 49
- I. Regional Topic Areas ..... 52
  - 1. Combined Sewer Overflows (CSOs) ..... 52
  - 2. Effluent Limitations Guidelines (ELGs) ..... 52
  - 3. Whole Effluent Toxicity ..... 52

## I. PQR BACKGROUND

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

EPA's review team consisting of three EPA Regional staff and one contractor conducted a review of the Vermont NPDES permitting program which included an on-site visit to the Vermont Department of Environmental Conservation (VT DEC) office in Montpelier, Vermont on November 5 – 6, 2014.

The Vermont PQR consisted of core permit reviews, national topic permit reviews and regional topic area reviews. The core permit reviews focused on core permit quality and included a review of the permit application, permit, fact sheet, and any correspondence, reports or documents that provide the basis for the development of the permit conditions.

The core permit review 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* to evaluate the Vermont NPDES program. In addition, discussions between EPA and state staff addressed a range of topics including program status, the permitting process, responsibilities, organization, and staffing.

National topic area permit reviews are conducted to evaluate similar issues or types of permits in all states. The national topics reviewed in the Vermont NPDES program were: nutrients, pesticide general permit, pretreatment, and stormwater.

Regional topic area reviews target regionally-specific permit types or particular aspects of permits. The regional topic areas selected by EPA Region 1 included: combined sewer overflows (CSOs), effluent limitations and guidelines standards (ELGs), and whole effluent toxicity (WET). These reviews provide important information to Vermont, EPA Region 1, EPA HQs and the public on specific program areas.

A total of thirty two distinct permits were reviewed as part of the PQR. Ten permits were reviewed for the core review - of these, nine permits were also reviewed for either national (i.e., nutrients) and/or regional topic areas (i.e., CSO, WET, or ELG).

As a starting point in selecting the permits to be reviewed, the region obtained a list from EPA HQ, specifically the Office of Wastewater Management, of all of Vermont's individual and general NPDES permits. The list originated from a June 2014 data pull from the Integrated Compliance Information System (ICIS). The inventory identified the permit number, facility

name, city, facility type (publicly owned treatment works [POTW] or non-POTW), facility size (expressed as minor or major), date of last issuance and expiration, and limit/monitoring requirement information. After analyzing and sorting the data, the list was forwarded to the state of Vermont for verification. Additional information regarding the facility type for each individual permit was also requested of the state. Necessary corrections to the list were made and all individual permits issued by July 2014 were included in the Vermont universe of permits. This totaled 184 permits, of which 32 were major facilities and 152 were minor facilities.

The permits were listed in order according to the latest issuance date, starting with most recently issued permit. The region determined percentages of major and minor permits by type (i.e., POTW and NON-POTW) for Vermont's entire individual permit universe and for all final individual permits issued within the last four year period (i.e., October 2010 – October 2014). This decreased the VT permit universe to 70 individual permits, consisting of 3 major and 67 minor facilities. This four year timeframe served as the basis for the core permit review, in accordance with the *NPDES Permit Quality Review Standard Operating Procedures* (revised July 2013). This emphasis on recently issued permits, which was utilized for the permit selection of national and regional topics, was also based on the assumption that more recently issued permits would more accurately reflect Vermont's current permitting practices.

As a result of the demographics of the state, Vermont issued a significantly higher percentage of permits to minor facilities than major facilities and to Non-POTWs than POTWs. For example, 4% (i.e., 3 out of 70) of the permits issued during the past four years were to major facilities while the remaining 96% (i.e., 67 out of 70) were issued to minor facilities. Also 11% (i.e., 8 out of 70) of the individual permits issued by VT DEC over the past four years were to POTWs while the remaining 89% (i.e., 62 out of 70) were to non-POTWs. Therefore this influenced the number of major and POTW facilities that could be selected for the PQR.

Table 1, below, lists the permits which were selected for review during the Vermont PQR.

**TABLE 1: LIST OF PERMITS FOR 2014 Vermont PQR**

Review Focus	NPDES ID	Facility Name	Facility Type Indicator
CORE	VT0101010	HARTFORD - WRJ	POTW - Major
CORE	VT0100021	BENNINGTON	POTW - Major
CORE	VT0000248	FIBERMARK NORTH AMERICA INC	NON-POTW - Major
CORE	VT0101109	WHITINGHAM	POTW - minor
CORE	VT0100978	HARTFORD - QUECHEE	POTW - minor
CORE	VT0100765	WOODSTOCK - TAFTSVILLE	POTW - minor
CORE	VT0022969	COLUMBIA FOREST PRODUCTS	NON-POTW - minor
CORE	VT0001341	IRVING OIL CORP	NON-POTW - minor
CORE	VT0120013	BARNET HYDRO	NON-POTW - minor
CORE	VT0001198	EAGLE RIVER MINING	NON-POTW - minor

NUTRIENTS	VT0101281	POWNAAL	POTW - minor
NUTRIENTS	VT0100021	BENNINGTON	POTW - Major
NUTRIENTS	VT0000248	FIBERMARK NORTH AMERICA INC	NON-POTW - Major
NUTRIENTS	VT0101109	WHITINGHAM	POTW - minor
NUTRIENTS	VT0100170	MANCHESTER	POTW - minor
NUTRIENTS	VT0100765	WOODSTOCK - TAFTSVILLE	POTW - minor
PESTICIDES GP	VTPGP	PESTICIDE APPLICATION - GENERAL PERMIT	PESTICIDE
PRETREATMENT	3-0303	Energizer Battery – Mini Alkaline	NON-POTW
PRETREATMENT	3-1410	Otter Creek Brewing	NON-POTW
PRETREATMENT	3-1485	Vishay Electronics -Bennington	NON-POTW
PRETREATMENT	3-1546	VT Hard Cider – Exchange St	NON-POTW
PRETREATMENT	3-1475	VT Hard Cider – Pond Rd	NON-POTW
STORMWATER	GP-3-9020	STORMWATER - CONSTRUCTION GENERAL PERMIT	STORMWATER
STORMWATER	VTR050001	STORMWATER - INDUSTRIAL GENERAL PERMIT	STORMWATER
STORMWATER	VTR040000	STORMWATER - MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) - GENERAL PERMIT	STORMWATER
CSO	VT0100790	RICHFORD	POTW - minor
CSO	VT0100323	ST ALBANS CITY	POTW - Major
CSO	VT0100196	MONTPELIER	POTW - Major
CSO	VT0100153	BURLINGTON MAIN	POTW - Major
ELG	VT0001198	EAGLE RIVER MINING	NON-POTW - minor
ELG	VT0000442	ISOVOLTA INC	NON-POTW - minor
ELG	VT0022951	S D IRELAND - GREEN ACRES QUARRY	NON-POTW - minor
ELG	VT0020711	WHITE RIVER NAT'L FISH	NON-POTW - minor
ELG	VT0000051	ETHAN ALLEN	NON-POTW - minor
ELG	VT0001163	IMERY'S TALC - RAINBOW MINE	NON-POTW - minor
ELG	VT0001112	PIKE INDUSTRIES (WILLIAMSTOWN QUARRY)	NON-POTW - minor
ELG	VT0001121	CHAMPLAIN BLACK MARBLE	NON-POTW - minor
ELG	VT0022969	COLUMBIA FOREST PRODUCTS	NON-POTW - minor
ELG	VT0001341	IRVING OIL CORP	NON-POTW - minor
WET	VT0101010	HARTFORD - WRJ	POTW - Major
WET	VT0100021	BENNINGTON	POTW - Major
WET	VT0000248	FIBERMARK NORTH AMERICA INC	NON-POTW - Major
WET	VT0101109	WHITINGHAM	POTW - minor
WET	VT0100978	HARTFORD - QUECHEE	POTW - minor

The information in Section II is based on the state's responses to PQR questions.

## II. STATE PROGRAM BACKGROUND

### A. Program Structure

Within the Vermont Department of Environmental Conservation (VT DEC), the Watershed Management Division (WSMD) administers wastewater discharge permits and stormwater permits. The Direct Discharge Permit Program administers permits for discharges directly to surface waters as well as indirect dischargers (i.e., pretreatment). The stormwater permits are administered by the Stormwater Program of the WSMD. The main office for VT DEC is located in Montpelier. DEC has five regional offices throughout the state; Stormwater Program staff are located in certain regional offices, however, NPDES Direct Discharge Program staff are not located in regional offices. Vermont DEC is authorized to administer the core NPDES program, as well as general permits and the pretreatment program. EPA Region I administers NPDES permits for federal facilities. The Biosolids Section in WSMD administers the biosolids program for Vermont pursuant to the Vermont Solid Waste Management Rules.

The Vermont NPDES program has 10 full-time permit writers; 8 are dedicated to stormwater permits and 2 are dedicated to wastewater permits. Permit writers receive training as well as internal mentoring to support their development. The Vermont NPDES program is also supported by staff in the Monitoring, Assessment, and Planning Program (MAPP), administrative services, wastewater treatment facilities operations and maintenance staff, and two water quality and two TMDL modelers (one of which is dedicated to the Lake Champlain TMDL). VT DEC expects to add two additional permit writers to the Direct Discharge Permit Program in fiscal year 2016. A Program manager designates permit assignments for the direct discharge and pretreatment permits; stormwater permits are distributed to permit writers according to seven specific districts.

Vermont permit staff use electronic databases, models, spreadsheets, and document templates during various phases of permit development. The Division maintains separate databases for stormwater and wastewater permits. Permit information and data are uploaded to EPA's Integrated Compliance Information System (ICIS) and NOIs are tracked using a SQL database. Permit writers currently use spreadsheet analyses for determining reasonable potential (RP) and to conduct an independent evaluation of dilution calculations used during permit development.

Permit writers use template documents for permit development, but templates are not used for fact sheet development. Permit writers use the same type of fact sheet document as a starting point and for similar types of facilities. Permit writers use several different boilerplate language sections (e.g., standard conditions, special conditions, and whole effluent toxicity) that can be added as appropriate for each facility, based on facility type (i.e., municipal or non-municipal).

Permit writers use a spreadsheet to evaluate reasonable potential (RP). The RP spreadsheet incorporates data for stream flow and specific pollutants. Division staff, within the MAPP, have 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 water quality-based effluent limitations (WQBELs) during permit development. In addition, permit writers consult guidance and procedural documents addressing the Vermont wasteload allocation rule, water quality standards, anti-degradation policy, CSO policy, waste management zone designation policy, and the water pollution control regulations. Further, the Division uses the CORMIX, QUAL2, and a modified Streeter-Phelps model to calculate mixing zones.

As part of the Division's quality assurance/quality control (QA/QC) process, wastewater permit staff review each other's permits as a first-level review, followed by the Program Manager's review. The Program Manager in the Stormwater group reviews all stormwater permits. Stormwater permits receive a higher level of review; whereas only high-profile wastewater permits receive an additional level of review.

Permit files are maintained in paper and electronic formats and are filed at the main office in Montpelier, as well as at a storage facility off-site. Permit writers maintain hard copy files of permit development documentation during the permit development and review process, followed by scanning and electronic storage only. 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 Enforcement 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) and 149 minor non-stormwater facilities (60 POTWs and 89 non-municipal). A year earlier when EPA was preparing for the PQR, these numbers were slightly different. Based on information obtained from VT DEC in July 2014 and conversations with VT DEC staff, WSMD administered individual permits for 32 major facilities (28 POTWs and 4 non-municipal and 152 minor non-stormwater facilities (59 POTWs and 93 non-municipals.) In addition to these individual permits, the Division administers 7 stormwater general permits that cover 15 municipal permittees (Phase II municipal separate storm sewer systems (MS4s)), 850 construction permittees, and 363 industrial permittees. The Division also has 3 non-stormwater NPDES general permits that address discharges from categories of similar facilities to surface waters, including discharges from petroleum remediation (state and NPDES permits) and pesticide applications. In addition, under Vermont's Residual Designation Authority (RDA), in 2009, VT DEC issued General Permit 3-9030 for designated discharges to Bartlett, Centennial, Englesby, Morehouse, and Potash Brook watersheds. VT DEC designated discharges to these receiving waters if the discharge is not covered under the NPDES municipal separate storm sewer system (MS4), another NPDES permit covering stormwater discharges, or has not been issued a state stormwater discharge permit resulting in no net contribution to the receiving water. VT DEC plans to designate similar dischargers in the remaining stormwater impaired watersheds: Allen, Indian, Munroe, Rugg, Stevens, and Sunderland.



Based on information obtained from VT DEC in July 2014, approximately 99 permits of the total universe are backlogged (54% backlogged). Of municipal permits, approximately 87.5% are backlogged and within the major permits category, approximately 91.2% are backlogged. Since July 2014, the backlog has decreased. As of July 2015, VT DEC reported that 92 permits of the total universe are backlogged (48% backlogged), approximately 77.8% of municipal permits are backlogged and approximately 85.3% of permits in the major category are backlogged. Division staff indicated permit backlog is due to concerns with implementing TMDLs, notably the Long Island Sound TMDL and the upcoming Lake Champlain TMDL, and with staffing issues. VT DEC indicated that with EPA's issuance of the final TMDL for Lake Champlain, the Division will begin to eliminate this backlog as expeditiously as possible. It should be noted that the Division employs two wastewater permit writers and as stated previously, plans to add two more to their staff in FY 2016. It is expected that this will improve Vermont's ability to manage their workload, issue more permits, and reduce their backlog.

Significant industries in Vermont include semiconductor manufacturing, paper products production, agriculture, construction, and light manufacturing.

WSMD administrative staff send out renewal reminder letters approximately six to eight weeks prior to the application due date. Vermont DEC uses state application forms, some of which were updated as recently as September 2012. Permit application form WR-82 10 V.S.A. Chapter 47 is required for all applicants and was revised in September 2012. 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.

Upon receipt of the wastewater discharge application, administrative staff review it for administrative completeness and then forward the application to one of the two permit writers to review it for technical completeness. Permit writers review available data analyses or the applicant's basis for final design (new facilities only). Administrative staff send a letter indicating the application is administratively complete and their permit is administratively extended and authorization to operate continues. Wastewater discharge permits are assigned to the two wastewater discharge permit writers; if a POTW permit has industrial contributions, that permit writer will also be responsible for the pretreatment aspect of permit development and administration.

Notices of Intent (NOIs) to be covered under general permits are also reviewed for administrative completeness. Inaccurate NOIs are returned to the applicant for correction. Complete NOIs receive a permit number, logged into the database, and then public noticed for 10 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.

Generally, permits that are renewals without any changes are finalized approximately 100 days from the date the application is received. For new permits, permit development is dependent on the applicant and the applicant's consultant's support.

For permit renewals that do not have any changes, 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 will seek consultation with MAPP staff for appropriate effluent limitations. Upon receipt of MAPP's written summary of the data reviewed, conclusion with respect to compliance with Vermont's WQS and the potential for the discharge to cause or contribute to a water quality violation, the wastewater permit writer will finalize the permit and provide a 30-day public notice period for the permit.

For permits to new facilities, permit writers collaborate with operations and maintenance staff and 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 provide MAPP staff 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 their evaluation of the need for WQBELs. Upon receipt of MAPP staff's summary document, permit writers make a finding that water quality is protected and antidegradation requirements have been met. Permit writers finalize the permit and provide a 30-day public notice period for the permit.

POTW permits contain technology-based effluent limitations (TBELs) based on secondary treatment standards. TBELs for industrial facilities are based on applicable effluent limitation guidelines (ELGs) and standards or effluent limitations based on best professional judgment (BPJ) and examination of permits for similar facilities and discharges.

Fact sheets do not discuss how pollutants of concern are identified. Permit writers use data from discharge monitoring reports (DMRs) to supplement application data in assessing reasonable potential (RP). MAPP staff identify pollutants of concern from a water quality protection aspect and permit writers identify pollutants of concern based on the activity the applicant proposes (e.g., nutrient-based parameters are identified as pollutants of concern at quarry operations). 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. Permit writers collaborate with MAPP staff to develop effluent limitations. MAPP 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 WQS do specify the applicable flow conditions (i.e., low median monthly flow or 7Q10) for certain criteria parameters.

WSMD developed the Procedure for Development of WQBELs in NPDES Permits in 2010 – 2011 and VT DEC's Commissioner signed the procedural document on December 3, 2012. The document serves as a guide to WSMD permit writers for developing WQBELs in NPDES permits, specifically for assessing the receiving waters upstream and downstream of permitted discharges to determine if there is reasonable potential for the discharge to cause or contribute to a water quality violation and if so, developing WQBELs for the discharge. The procedure involves steps implemented independently by MAPP staff and permit writers. Permit writers first compile 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 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 to MAPP staff. Permit writers develop effluent limitations based on DMR effluent data, using design flows and absent of background data.

WSMD staff assert theirs is a conservative approach as they factor in a reserve for background concentrations. MAPP staff first determine the assessment status of the upstream and downstream waters by reviewing the water quality assessment database, applying best professional judgment to evaluate downstream waters, and reviewing TMDLs and WLAs applicable to the water body. Next, MAPP 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, MAPP staff will consult four databases: Water Quality (maintained by MAPP staff), Biomonitoring (maintained by WSMD BASS staff), LaRosa Partnership (maintained by MAPP staff), and the Stormwater Monitoring database. MAPP staff will also consult other external databases if data quality are adequate (e.g., Fish and Wildlife database, universities, and private organizations). MAPP 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. MAPP staff will provide permit writers 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 written summary becomes a part of the administrative record.

MS4 Stormwater permits contain TBELs based on the minimum control measures. Further, stormwater 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 water body. The construction general permit uses a risk factor assessment that drives which BMPs are required to be implemented.

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. WSMD staff indicated that ultraviolet (UV) disinfection is more prevalent than disinfection using chlorination. WSMD staff indicated that with newer application

requirements, all major facilities are required to conduct four WET tests and three priority pollutant scans. In addition, WSMD staff noted that for WET monitoring, the application requirements are the minimum requirements established. Permit writers may 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 reporting requirements as well; generally, reports are submitted on a quarterly basis. Permits may also specify specific monitoring studies as appropriate.

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, and sewer ordinance and contributing waste streams.

WSMD staff uses boilerplate language 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 regulation and Vermont regulation. Permits also contain standard definitions. Some standard conditions are lacking from the permits and some are not verbatim to the 40 CFR 122.41 standard conditions.

Permit writers draft fact sheets for facilities that discharge more than 0.5 MGD and draft fact sheets concurrent with permit development. Permit writers do not use a template for fact sheets, but they use the same type of document as a starting point and use the same working document for similar facility types. 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 documents are retained electronically as far back as 1971.

Section 401 Water Quality Certifications are conducted by staff in the MAPP, Wetlands or Lakes Programs, within the Watershed Management Division.

WSMD staff are responsible for providing the public notice of the draft permit. The public comment period lasts 30 days for general and individual permits and 10 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 on VT DEC’s website. 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. WSMD staff indicated that hearings are rare. WSMD staff indicated that there have been no objections or appeals on Vermont NPDES permits since 2009.

WSMD’s administrative record is kept in hard-copy and electronic format and is comprised of 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.

The state's Antidegradation Policy is contained in Section 1-03 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, WSMD would retain the limit from the previous permit and require the facility to install treatment to comply with effluent limitations. Decisions arising from antidegradation reviews are documented in the fact sheet.

WSMD staff indicated that anti-backsliding requirements are rarely triggered in permits; typically, more stringent limitations from the previous permit are carried forward unless there is justification for a less stringent effluent limitation. WSMD staff indicated the last occurrence of anti-backsliding was during permit development in 2007 when new standards for *E.coli* were instituted.

Permit writers and MAPP 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 will reissue the Lake Champlain permits once the TMDL is finalized. However, Vermont has already started reissuing the Long Island Sound permits after the Long Island Sound Permitting Plan was approved. WSMD and MAPP staff indicated they will still conduct a RP evaluation even where a TMDL is in effect, for evaluation of effects further downstream.

Vermont water quality standards establish criteria for *E. coli*.

Permits require the use of analytical methods authorized in 40 CFR 136. Permits do not include language specifically requiring the use of sufficiently sensitive analytical methods.

### C. State-Specific Challenges

In August 2008 a petition was initiated for EPA to withdraw its approval for Vermont to administer the NPDES program based on a number of allegations related to the implementation and enforcement of the NPDES program. Permitting related issues raised in the petition included the adequacy of water quality-based effluent limits in permits and anti-degradation. Over the next five years EPA and VT DEC evaluated the various issues raised by this petition. A subsequent productive dialog among EPA, DEC and the petitioners resulted in a 2013 Interim Response and Corrective Action Plan. As of the date of the PQR visit, VT DEC has completed all of the corrective actions agreed upon in the Interim Response and Corrective Action Plan with one exception. The exception was a legislative constraint on regulating municipal discharges of phosphorus where DEC has agreed to take interim measures that ensure its permits are consistent with the Clean Water Act while the permanent legislative corrective action is pursued. Since the PQR process started, this constraint was revoked by statute by the Vermont

Legislature during the 2015 legislative session. The results of the various corrective actions have resulted in a number of NPDES program improvements. Some of these improvements are reflected in this PQR, particularly in the area of instituting general written procedures for determining reasonable potential and, when appropriate, establishing water quality-based effluent limits in permits.

Vermont NPDES staff identified that an additional current state priority is the completion of the upcoming revised Lake Champlain TMDL. The TMDL was the subject of litigation, and EPA acknowledges that in this particular atypical situation, there have been delays in permitting in this watershed. Establishing waste load allocations as part of the Lake Champlain TMDL process will facilitate permit development for a number of wastewater NPDES permits that have been administratively continued in the Lake Champlain watershed.

Staffing in the face of new work demands also was identified by VT DEC as a current challenge. For example, WSMD currently employs two wastewater permit writers who are also responsible for the pretreatment program. Their pretreatment workload has increased greatly due to the recent influx of breweries and additional dairies into the state of Vermont. Therefore, staff resources present a challenge as it directly relates to permit backlog rates.

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

Vermont NPDES staff have taken initiative in converting hard copy permit and enforcement files to electronic files through an extensive file scanning effort. The NPDES program is the leader within DEC to convert hard copy files for electronic storage. Further, DEC completed a Lean Government event that resulted in streamlining the public notice process using a web-based system. In addition, WSMD staff noted they plan to hire two additional wastewater permit writers during FY 2016. According to VT DEC, funding of these two positions was secured by legislative action in the 2015 session through increases in application and annual operating fees.

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

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

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

Basic facility information is necessary to properly establish permit conditions. For example, information regarding facility type, location, processes and other factors is required by NPDES permit application regulations (40 CFR 122.21). This information is essential for developing technically sound, complete, clear and enforceable permits. Similarly, fact sheets must include a description of the type of facility or activity subject to a draft permit.

The ten 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; the level of detail varied

among the fact sheets reviewed. Fact sheets for the municipal permits reviewed contain detailed descriptions of the wastewater treatment process. Facility descriptions in fact sheets for the non-municipal permits reviewed 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. 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. Further, generally fact sheets lack a clear description of the location within the receiving waterbody, or name of the stream segment, where the discharge occurs.

In general, the permits and fact sheets reviewed lack process flow diagrams. VT DEC stated that flow diagrams are presented in a facility's original application and are not recreated in each subsequent fact sheet unless there is a change in the process. Although it is a regulation that flow diagrams are included in a permit application, VT should consider including a flow diagram in the fact sheet or permit for additional clarity. Most of the fact sheets reviewed include aerial photographs, using Google Earth View, to depict facility locations. All permits list the name of the facility and address on the permit cover page.

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

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

WSMD administrative staff send out renewal reminder letters approximately six to eight weeks prior to the application due date. Vermont DEC uses state application forms, some of which were updated as recently as September 2012. Permit application form WR-82 10 V.S.A. Chapter 47 is required for all applicants and was revised in September 2012. 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. Federal regulations established at 40 CFR 122.21(j)(3)(i) require applicants to provide outfall locations, including latitude/longitude information. Vermont's form WR-82 indicates latitude/longitude information is optional and Schedule A does not require submittal of latitude and longitude information. In addition, 40 CFR 122.21(g)(4)(ii) requires every applicant provide analytical results for certain parameters (BOD, fecal coliform, design flow rate, pH, temperature, and TSS). For facilities with a design capacity greater than or equal to 0.1 million gallons per day (MGD), 40 CFR 122.21(j)(4)(iii) requires results for specific parameters (ammonia, chlorine, dissolved oxygen, nitrate-nitrite, total Kjeldahl nitrogen, oil and grease, phosphorus, and total dissolved solids). Further, 40 CFR 122.21(j)(5)(i) and (ii) require submittal of WET results and for facilities with a design capacity greater than or equal to 1 MGD priority pollutants, respectively. However, Schedule A does not require submittal of analytical data for any parameters. For industrial applicants, federal regulations established at 40 CFR 122.21(g)(1) require applicants to provide outfall locations, including latitude/longitude information. Schedule B does not require submittal of latitude and longitude information. In addition, 40 CFR 122.21(g)(7)(iii) requires

every applicant provide analytical results for certain parameters (BOD, COD, TOC, TSS, ammonia, temperature, and pH); 40 CFR 122.21(g)(7)(v) requires data for primary industry categories; and 40 CFR 122.21(g)(11) requires indication of WET tests conducted within the last three years. Schedule B, section B-14, instructs applicants to provide data for certain parameters only for those parameters which the applicant knows or has reason to believe are present. As such, most of the applications reviewed lacked effluent data required by 40 CFR 122.21. Vermont plans to revise applicable forms to ensure they conform to federal requirements.

All applications reviewed in the permit file contained appropriate signatures. Eight of the applications reviewed were received at least 180 days prior to permit expiration.

## **B. Technology-based Effluent Limitations**

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

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

POTWs must meet secondary or equivalent to secondary standards (including limits for BOD<sub>5</sub>, TSS, pH, and percent pollutant removal), and must contain numeric limits for all of these parameters (or authorized alternatives) in accordance with the secondary treatment regulations at 40 CFR Part 133. A total of five POTW permits were reviewed as part of the VT PQR core review.

Vermont permits contain effluent limitations for BOD<sub>5</sub> and TSS in appropriate units and forms. POTW permits contain technology-based effluent limitations (TBELs) based on secondary treatment standards.

40 CFR 133.102(a) and (b) require the 30-day average percent removal shall not be less than 85% for BOD<sub>5</sub> and TSS. Permits for municipal facilities establish minimum percent removal requirements consistent with secondary treatment standards. All of the municipal permits reviewed establish influent monitoring requirements for BOD<sub>5</sub> and TSS.

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

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



Five non-POTW permits were reviewed during the core review, two of which were subject to ELGs. ELGs were applied in the development of effluent limitations in the permit for the paper making facility and the seasonal log spraying facility; effluent limitations based on the ELGs are in the correct units and form.

Fact sheets for these facilities include a general description of facility operations, waste streams produced and wastewater treatment processes. Both fact sheets reviewed lack discussion of expected pollutants in the discharge. The fact sheets for both non-POTW permits reviewed for which ELGs applied (VT0000248 and VT0022969) lack discussion of facility categorization and specific reference to whether effluent limitations are based on BCT, BPT, or BAT.

The fact sheet for the paper making facility (VT0000248) presents calculated values both for subcategory limits and final limits; however, the final limit results are unclear. The fact sheet would benefit from more information and explanation of the calculations of TBELs.

The fact sheet for the seasonal log spraying facility (VT0022969) briefly mentions categorization and further, states the facility manufactures veneer; however, the fact sheet lacks discussion of why 40 CFR 429 Subpart B does not apply to the discharge from the facility. Although the facility in this case did not discharge wastewater from the manufacturing of veneer, a sentence stating this fact would provide clarity about the process.

### C. Water Quality-Based Effluent Limitations

The NPDES regulations at 40 CFR 122.44(d) require permits to include any requirements in addition to or more stringent than technology-based requirements where necessary to achieve state water quality standards, including narrative criteria for water quality. To establish such “water quality-based effluent limits” (WQBEL), the permitting authority must evaluate the proposed discharge and determine whether technology-based requirements are sufficiently stringent, and whether any pollutants or pollutant parameters could cause or contribute to an excursion above any applicable water quality standard.

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

- determined the appropriate water quality standards applicable to receiving waters,
- evaluated and characterized the effluent and receiving water including identifying pollutants of concern,
- determined critical conditions,
- incorporated information on ambient pollutant concentrations,
- assessed any dilution considerations,
- determined whether limits were necessary for pollutants of concern and, where necessary,

- calculated such limits or other permit conditions.

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

The cover page of the permits and the fact sheets reviewed identify the receiving stream, applicable classification, and designated uses of the receiving streams. Two of the ten fact sheets reviewed discuss the impairment status of a stream, and of those that discharge to an impaired stream, there were no TMDLs that had been developed.

Fact sheets consistently address each parameter that is either limited or monitored; however, they do not discuss pollutants of concern thoroughly and do not describe why the limited parameters are appropriate to limit for the facility.

As stated previously, WSMD developed the Procedure for Development of WQBELs in NPDES Permits in 2010 – 2011. The document serves as a guide to WSMD permit writers for developing WQBELs in NPDES permits, specifically, assessing if there is reasonable potential for the discharge to cause or contribute to a water quality violation and if so, developing WQBELs for the discharge. The procedure involves steps implemented independently by MAPP staff and permit writers. MAPP staff provide permit writers 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 written summary becomes a part of the administrative record. The MAPP memo provides general procedures rather than a detailed description of the methodology and assumptions for the RP assessment, and often these are absent from the Fact Sheets as well. It is a regulatory requirement to perform a reasonable potential analysis and include “any calculations or other necessary explanation of the derivation of specific effluent limitations” in the fact sheet (40 CFR 124.56). Although VT would be meeting the basic regulatory requirement by including calculations, the fact sheets would be greatly enhanced if they included a brief, but clear explanation of the RP methodology.

The 2010-2011 Procedure involves use of best professional judgment for some aspects of the water quality investigation such as how far downstream to investigate. In addition, the Procedure is non-prescriptive in how to weigh various factors in making WQ-related permit determinations and the amount of documentation regarding the determination of a WQBEL to include in the memo that summarizes the data and provides conclusions. As an outcome, permit files generally lack sufficient evidence of how the effluent limitation was developed. The MAPP memo provides summary information; however, the permit files lack detailed information regarding effluent limitation development. In addition, WQBELs established in the permits reviewed are established as maximum values only (e.g., daily maximum or instantaneous maximum); there are no long-term average WQBELs established in the permits reviewed. According to Section 6.3.2.4 of EPA’s Permit Writers’ Manual, permit writers need to document the details of the reasonable potential analysis in the NPDES permit fact sheet. The permit writer should clearly identify the information and procedures used to determine the

need for WQBELs. The goal of that documentation is to provide the NPDES permit applicant and the public a transparent, reproducible, and defensible description of how each pollutant was evaluated, including the basis (i.e., reasonable potential analysis) for including or not including a WQBEL for any pollutant of concern.

A formal antidegradation analysis is conducted for new and increased discharges. This additional analysis was documented for the Hartford-Quechee permit (VT0100978), which had an increase in the discharge due to an upgrade of the facility, and Barnet Hydro Company (VT0120013), which represented a new discharge.

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

NPDES regulations at 40 CFR 122.41(j) require permittees to periodically evaluate compliance with the effluent limitations established in their permits and provide the results to the permitting authority. Monitoring and reporting conditions require the permittee to conduct routine or episodic self-monitoring of permitted discharges and where applicable, internal processes, and report the analytical results to the permitting authority with information necessary to evaluate discharge characteristics and compliance status.

Specifically, 40 CFR 122.44(i) requires NPDES permits to establish, at minimum, annual monitoring for all limited parameters sufficient to assure compliance with permit limitations, including specific requirements for the types of information to be provided and the methods for the collection and analysis of such samples. In addition, 40 CFR 122.48 requires that permits specify the type, intervals, and frequency of monitoring sufficient to yield data which are representative of the monitored activity. The regulations at 40 CFR 122.44(i) also require reporting of monitoring results with a frequency dependent on the nature and effect of the discharge.

The core permits reviewed establish at least annual monitoring for all limited parameters and at frequencies appropriate to determine compliance with effluent limitations. All of the core permits indicate monitoring shall be conducted at the outfall location (e.g., “outfall serial No. 001”). Six of the ten core permits reviewed require WET monitoring; three of the six permits reviewed require acute and chronic WET monitoring.

All core permits indicate sample collection and analysis shall be in compliance with procedures pursuant to 40 CFR 136. Permits reviewed did not appear to consistently specify that sufficiently-sensitive analytical methods be used. VT DEC plans to address this issue. All core permits required results of all monitoring of permitted discharges conducted using approved methods to be submitted to VT WSMD on a regular basis, generally monthly; six of the ten core permits reviewed required monthly reporting.

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

Federal regulations at 40 CFR 122.41 require that all NPDES permits, including NPDES general permits, contain an enumerated list of “standard” permit conditions. Further, the regulations at 40 CFR 122.42 require that NPDES permits for certain categories of dischargers must contain

additional standard conditions. Permitting authorities must include these conditions in NPDES permits and may not alter or omit any standard condition, unless such alteration or omission results in a requirement more stringent than required by the federal regulations.

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

Common special conditions in the core permits reviewed generally address requirements related to pollution prevention, dry weather flows, influent monitoring, WET, and sewer ordinance and contributing waste streams.

WSMD staff uses boilerplate language 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 Vermont regulations. Permits also contain standard definitions. Some standard conditions are lacking from the permits and some are not verbatim to the 40 CFR 122.41 standard conditions. Vermont permits lack the following standard conditions required by: 40 CFR 122.41(c) (need to halt or reduce activity not a defense); 122.41(l)(8) (other information); 122.41(m)(1)(i)-(ii) (bypass definitions); 122.41(m)(2) (bypass not exceeding limitations); 122.41(n)(1) (upset definition); 122.41(n)(2) (effect of an upset); 122.41(n)(3) (conditions necessary for a demonstration of upset); 122.41(n)(4) (burden of proof); and 122.42(b)(1)-(3) (additional reporting for POTWs). No condition was identified that provides a general duty to provide information (122.41(h)), although the permits include reporting requirements (I.E.2), and notice requirements for modifications, changes (II.A.1), and transfers (II.B.2). No condition was identified that specified the schedule for compliance schedule reporting was identified (122.41(l)(5)). Standard condition language that differs than Federal regulation includes duty to comply in that it does not list penalty amounts; duty to mitigate uses more general language; proper operation and maintenance lacks QA procedures required by Federal regulation. Further, language addressing inspection and entry, planned changes, and twenty-four hour reporting differs from Federal regulation.

All of the municipal permits include the additional standard condition regarding notification of new introduction of pollutants and industrial users (40 CFR 122.42(b)); however, three of the five non-municipal permits contained the additional standard condition regarding notification levels (40 CFR 122.42(a)).

## **F. Administrative Process**

The administrative process includes documenting the basis of all permit decisions (40 CFR 124.5 and 40 CFR 124.6); coordinating EPA and state review of the draft (or proposed) permit (40 CFR 123.44); providing public notice (40 CFR 124.10); conducting hearings if appropriate (40 CFR 124.11 and 40 CFR 124.12); responding to public comments (40 CFR 124.17); and, modifying a

permit (if necessary) after issuance (40 124.5). EPA discussed each element of the administrative process with VT DEC, and reviewed materials from the administrative process as they related to the core permit review.

The permit records reviewed were well-organized. The permit records for the core permits contain appropriate public notice documents that indicate public notice procedures were implemented accordingly. In general, the cover letter for each permit indicated whether or not comments were received. However, a few cover letters (e.g., Bennington, Barnet Hydro, Burlington, and Richford) did not indicate the presence or absence of comments. VT DEC should ensure that this information is included in all cover letters.

## G. Administrative Record

The administrative record is the foundation that supports the NPDES permit. If EPA issues the permit, 40 CFR 124.9 identifies the required content of the administrative record for a draft permit and 40 CFR 124.18 identifies the requirements for a final permit. Authorized state programs should have equivalent documentation. The record should contain the necessary documentation to justify permit conditions. At a minimum, the administrative record for a permit should contain the permit application and supporting data; draft permit; fact sheet or statement of basis; all items cited in the statement of basis or fact sheet including calculations used to derive the permit limitations; meeting reports; correspondence between the applicant and regulatory personnel; all other items supporting the file; final response to comments; and, for new sources where EPA issues the permit, any environmental assessment, environmental impact statement, or finding of no significant impact.

Current regulations require that fact sheets include information regarding the type of facility or activity permitted, the type and quantity of pollutants discharged, the technical, statutory, and regulatory basis for permit conditions, the basis and calculations for effluent limits and conditions, the reasons for application of certain specific limits, rationales for variances or alternatives, contact information, and procedures for issuing the final permit. Generally, the administrative record includes the permit application, the draft permit, any fact sheet or statement of basis, documents cited in the fact sheet or statement of basis, and other documents contained in the supporting file for the permit.

Fact sheets for the core permits reviewed are of good quality and include a general discussion explaining the basis for the requirements in permits. However, it should be noted that two of the ten core permits reviewed did not have fact sheets. Both of these permits (VT0001341 and VT0120013) were for minor facilities. While a fact sheet or a statement of basis is not a regulatory requirement of all state-issued minor permits, such documentation is highly recommended for public transparency, documentation for future reference, and to make permits defensible in the event of a challenge. The fact sheets reviewed for major facilities address each parameter for which effluent limitations or monitoring requirements are established but they do not provide explanation for why they are considered pollutants of concern. Fact sheets lack a thorough discussion of RP evaluations and WQBELs development. The administrative record for most permits reviewed included a MAPP memo summarizing the

RP evaluation; however, the memo lacks description of the RP methodology. Further, fact sheets do not comment on antidegradation or anti-backsliding requirements even in general terms. Overall, fact sheets did not provide sufficient information to fully understand the basis of specific effluent limitations. For example, a fact sheet for a non-municipal facility (VT0000248) does not describe the process by which final effluent limitations are selected.

WSMD's administrative record is kept in hard-copy and electronic format and is comprised of two basic components: the permit development file and enforcement and compliance file. The permit development file contained 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 were also reviewed as part of a separate file within the administrative record. Permit files do not contain extensive documentation regarding RP evaluation and effluent limitation development.

### *1. Documentation of Effluent Limitations*

Permit records for POTWs and industrial facilities should contain comprehensive documentation of the development of all effluent limitations. Technology-based effluent limits should include assessment of applicable standards, data used in developing effluent limitations, and actual calculations used to develop effluent limitations. The procedures implemented for determining the need for water quality-based effluent limitations as well as the procedures explaining the basis for establishing, or for not establishing, water quality-based effluent limitations should be clear and straight forward. The permit writer should adequately document changes from the previous permit, ensure draft and final limitations match (unless the basis for a change is documented), and include all supporting documentation in the permit file.

Overall, permit records lack details regarding the basis for effluent limitations and calculations. Permit records would be improved with a discussion of the basis of the original effluent limitation. Further, it was not evident that permit writers perform a comparison of TBELs and WQBELs, and that the most stringent effluent limitation was selected.

For the core permits reviewed, documentation of the basis for TBELs generally lacks detail. The fact sheets for the non-municipal permits reviewed do not include a detailed description of facility operations, expected waste streams, and wastewater treatment processes. The fact sheet for a paper making facility (VT0000248) includes calculations of effluent limitations based on ELGs but does not identify if the limitations are based on BPT, BCT, or BAT. Further, the fact sheet does not clearly identify how the final TBELs were determined. For the second non-municipal permit reviewed, the seasonal log spraying facility (VT0022969), the fact sheet briefly mentions categorization and states the facility manufactures veneer; however, the fact sheet lacks discussion of why 40 CFR 429 Subpart B does not apply to the discharge from the facility. As stated in Section III.B.2, although the facility in this case did not discharge wastewater from the manufacturing of veneer, a sentence stating this fact would provide clarity about the process.

With regard to the documentation of WQBELs, the core permit fact sheets reviewed identify the receiving stream, classification, and designated uses of the water body. While fact sheets consistently include discussion of all limited parameters, they do not specifically identify why they are considered pollutants of concern. The MAPP memo provides summary information; however, the permit files lack detailed information regarding effluent limitation development. The basis for effluent limitations in the fact sheets reviewed is generally a continuation of effluent limitations from the previous permit. Even if the majority of permits reviewed were renewals with no requested changes from current permit, the explanation from the previous permit's fact sheets should be provided or summarized in the new permit's fact sheet.

The fact sheets generally lack discussion of antidegradation and anti-backsliding requirements. A general discussion of these two topics is recommended, with a more specific explanation needed for permits when either antidegradation or anti-backsliding requirements are triggered.

## H. National Topic Areas

National topic areas are aspects of the NPDES permit program that warrant review based on the specific requirements applicable to the selected topic areas. These topic areas have been determined to be important on a national scale. National topic areas are reviewed for all state PQRs. The national topics areas are: nutrients, pesticides, pretreatment and stormwater.

### 1. Nutrients

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

#### *Background*

When the permits were reviewed for the PQR process, Vermont had a combination of numeric and/or narrative nutrient water quality standards for fresh waters.

#### Phosphorus

- TP shall not exceed 0.01 mg/l at low median monthly flow for streams above 2500 ft. elevation.
- Discharges to lakes, ponds, and reservoirs with drainage areas less than 40 square miles, and their tributaries, shall not increase instream total phosphorus by more than 0.001 mg/l at low median monthly flow.

- TP criteria for Lake Champlain range from 0.01 mg/l – 0.054 mg/l.
- TP loadings shall not contribute to the acceleration of eutrophication or the stimulation of aquatic biota growth that prevents full support of uses.

### Nitrogen

- Nitrates shall not exceed 5.0 mg/l in lakes, ponds, or reservoirs.
- Nitrates shall not exceed 5.0 mg/l at low median monthly flow in class B waters and shall not exceed 2.0 mg/l at low median monthly flow in class A1 and A2 waters.
- In all waters nitrates 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.

To assess how nutrients are addressed in the VT NPDES permitting program, EPA Region I reviewed six permits (five POTWs and one non-POTW) as part of the PQR National Topic area nutrient review. These permits are as follows:

Review Focus	NPDES ID	Facility Name	Facility Type Indicator
NUTRIENTS	VT0101281	POWNA	POTW - minor
NUTRIENTS	VT0100021	BENNINGTON	POTW - Major
NUTRIENTS	VT0000248	FIBERMARK NORTH AMERICA INC	NON-POTW - Major
NUTRIENTS	VT0101109	WHITINGHAM	POTW - minor
NUTRIENTS	VT0100170	MANCHESTER	POTW - minor
NUTRIENTS	VT0100765	WOODSTOCK - TAFTSVILLE	POTW - minor

### *Program Strengths*

Vermont has a very capable technical staff who have recently developed combined numeric criteria for total phosphorus and corresponding biologic response indicators for lakes and ponds (other than Lake Champlain and Lake Memphremagog) as well as medium and high gradient streams. These combined criteria have been adopted by Vermont and were submitted to EPA for review and approval in 2014. Vermont had previously adopted (and EPA had approved) numeric phosphorus criteria for Lake Champlain and Lake Memphremagog. Additionally, Vermont has just recently developed procedures for conducting reasonable potential analyses for nutrients and the same capable technical staff that is developing the criteria also conduct the reasonable potential analyses.



### *Critical Findings*

Of the concerns EPA found in reviewing these permits, most related to the adequacy of the reasonable potential analyses and the incompleteness of the documentation in the Fact Sheets. While a significant tool for enhancing permit documentation and quality, VT's written procedures for conducting and documenting the reasonable potential analyses could be more prescriptive in how to handle situations such as those described below. Alternatively, the administrative record for a particular permit could provide a more complete analysis and explanation.

- While Vermont has recently been conducting reasonable potential analyses for nutrients in permits, the Manchester and Whitingham permits do not contain a reasonable potential analysis. A reasonable potential analysis would be expected based on the NPDES regulations and Vermont's procedures.
  - It should be noted that the Manchester facility was the first facility to go through the reasonable potential analysis process, prior to its signature, and during the initial run of the procedure. According to VT DEC, a memo was never developed at that time, however additional monitoring requirements were imposed in the permit by the permit analysts as a result of the RP process that was being developed. For Whitingham, VT DEC stated that it was a unique facility that discharges approximately .0123 MGD to the forebay of a very large reservoir (of approximately 69,000 acre-feet.) Since the IWC for the Whitingham WWTF discharge was 0.00000045 mg/L and MAPP does not have the biomonitoring procedures in place for this type of system, no reasonable potential analysis was submitted.
- The reasonable potential analyses conducted include an evaluation of available upstream ambient data but do not indicate if the data is representative of low flow conditions. Identifying the flow conditions in the RP Memo is consistent with the MAPP Procedures, so flow conditions should be documented. Additionally, the reasonable potential analyses generally do not include a description of effluent pollutant levels.
- Reasonable potential conclusions are not based on appropriate worst case discharge and receiving water conditions but are based on a comparison of upstream and downstream ambient data. Potential downstream reaches that might be more sensitive to nutrient loads than the immediate receiving water are not discussed.
- Where there is reasonable potential to exceed criteria, bioassessment data from a single downstream site has been used to conclude that there is no reasonable potential (see Bennington). In such cases where limited bioassessment data is available, VT should consider requiring further biomonitoring assessment as a permit condition, as has been done in the Bennington permit.

- The reasonable potential analyses are not included in Fact Sheets. The lack of available information on receiving water and effluent discharge quality, as well as reasonable potential analysis conclusions, make it difficult to have meaningful public input.

## 2. Pesticides

On October 31, 2011, the EPA issued a final NPDES *Pesticide General Permit (PGP) for Discharges from the Application of Pesticides*. This action was in response to a 2009 decision by the U.S. Sixth Circuit Court of Appeals (National Cotton Council of America v. EPA, 553 F.3d 927 (6<sup>th</sup> Circuit 2009)) in which the court vacated EPA's 2006 Final Rule on Aquatic Pesticides (71 Fed. Reg. 68483, November 27, 2006) and found that point source discharges of biological pesticides and chemical pesticides that leave a residue, into waters of the U.S. were pollutants under the CWA. The federal PGP applies where the EPA is the permitting authority. All delegated state NPDES authorities, including Vermont, have issued state pesticide general permits.

### *Background*

On January 7, 2009, the Sixth Circuit vacated the EPA's 2006 NPDES Pesticides Rule under a plain language reading of the CWA. National Cotton Council of America v. EPA, 553 F.3d 927 (6<sup>th</sup> Circuit 2009). The Court held that the CWA unambiguously includes "biological pesticides" and "chemical pesticides that leave a residue" within its definition of "pollutant." In response to this decision, on April 9, 2009, EPA requested a two-year stay of the mandate to provide the Agency time to develop general permits, to assist NPDES-authorized states to develop their NPDES permits, and to provide outreach and education to the regulated community. On June 8, 2009, the Sixth Circuit granted EPA the two-year stay of the mandate. On March 28, 2011, the U.S. Court of Appeals for the Sixth Circuit granted EPA's request for an extension to allow more time for pesticide operators to obtain permits for pesticide discharges into U.S. waters. The court's decision extended the deadline for when permits would be required from April 9, 2011 to October 31, 2011.

As a result of the Court's decision to vacate the 2006 NPDES Pesticides Rule, NPDES permits are required for discharges of biological pesticides and of chemical pesticides that leave a residue, to waters of the United States. EPA proposed a draft pesticide general permit on June 4, 2010 to cover certain discharges resulting from pesticide applications. The EPA Regional offices and state NPDES authorities may issue additional general permits or individual permits if needed.

On November 9, 2011, the VT DEC issued its own NPDES Pesticides General Permit. The general permit is effective from October 31, 2011 to October 31, 2016. Eligibility criteria are contained within Part 1.1 of the General Permit.

For the 2014 Vermont PQR, the EPA reviewed the VT DEC PGP with a focus on verifying its consistency with NPDES program requirements.

### *Program Strengths*

Although issued slightly beyond the court ordered date of October 31, 2011, Vermont's PGP is consistent with the requirements of EPA's PGP. Vermont has existing aquatic nuisance control (ANC) and pesticides licensing programs which cover the majority of use patterns in EPA's PGP and these licenses are still required. VTDEC has indicated that the State has the staff and the knowledge to administer this new permit effectively and the State has conducted initial outreach regarding the new permit for commercial applicators and held informational meetings with other interested parties.

Only larger applications of pesticides require submittal of an NOI and preparation of annual reports, so the State should be able to track the compliance of these large applicators with the permit's NOI requirements. All other applicants are covered automatically, similar to EPA's PGP. As of December 1, 2014, only three pesticide applications were above the threshold requiring the filing of an NOI, one of which was classified as a large entity by the PGP. Among the ANC and pesticide licensing programs, there are only a handful of each which are expected to result in applications that would be subject to the PGP.

In 2012, a United States Fish and Wildlife (USFWS) office in Vermont had applied for and received authorization under the Vermont PGP to apply larvacides for sea lamprey control for a portion of Lake Champlain and adjacent waterbodies. EPA's PGP noted that applications associated with "Federal facilities" in Vermont and other states could be authorized by EPA's PGP. Since the applicant was a Federal Agency, the Vermont PGP petitioned the USEPA to cover these applications under its PGP, arguing that these discharges could be considered to be associated with as a "Federal facility". EPA agreed with this classification and these discharges were authorized by EPA's PGP in July of 2013.

For the most part, the existing recordkeeping conducted by pesticide applicators is consistent with the recordkeeping requirements of the PGP. Vermont does not have an electronic submission system for its NOIs, but does require NOIs to be mailed for technical review and approval.

The State does not expect that it will need to issue individual permits for pesticide applications. However, this is a possibility if an applicant proposes to apply pesticides to an impaired water or outstanding national resource water (ONRW). It is expected that the Vermont PGP would be used as a template for such an individual permit.

### *Critical Findings*

No critical findings were identified for the PGP.

### **3. Pretreatment**

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

### *Background*

The goal of this pretreatment program review was to assess the status of the State of Vermont's (State) Industrial Pretreatment Program. The Vermont Department of Environmental Conservation (VTDEC) has assumed authority of the Pretreatment Program pursuant to 40 CFR 403.10(e) and therefore implements the Control Authority responsibilities under 40 CFR 403. There are no approved Publicly Owned Treatment Works (POTW) pretreatment programs and Vermont is not required to perform Pretreatment Compliance Inspections (PCI) or Pretreatment Audits (Audits) of its POTWs. Vermont issues permits directly to its Significant Industrial Users (SIUs), and among many other things, is responsible for conducting inspections and monitoring of all its SIUs on an annual basis. With respect to SIU permits reviewed, focus was placed on the following regulatory requirements for pretreatment activities and pretreatment programs:

- 40 CFR 122.42(b) (POTW requirements to notify Director of new pollutants or change in discharge);
- 40 CFR 122.44(j) (Pretreatment Programs for POTWs);
- 40 CFR 403.8 (Pretreatment Program Requirements: Development and Implementation by POTW);
- 40 CFR 403.10 (Development and submission of NPDES State pretreatment programs);
- 40 CFR 403.12 (Reporting requirement for POTWs and industrial users); and
- 40 CFR 403.18 (Modification of POTW Pretreatment Program).

The pretreatment universe in Vermont includes 30 SIUs, 11 of which are considered Categorical Industrial Users (CIUs). Vermont also issues permits to an additional 13 Industrial Users which are not considered SIUs.

As part of the review, four SIU permits were evaluated to determine whether they contained control mechanism components required at 40 CFR 403.8(f)(1)(iii)(B) and those facilities are as follows:

- Energizer Battery
- Vishay Electronics
- Otter Creek Brewing
- Vermont Hard Cider

To aid in the review, a Pretreatment Checklist was used to summarize some of the following information: number of significant industrial users (SIUs) both inspected and sampled; number of expired permits; submission of annual reports; and the status of streamlining rule implementation.

### *Program Strengths*

Overall, the review found that the State of Vermont has effectively carried out most of the responsibilities as a delegated 40 CFR 403.10(e) State program. Over the past several years, there have been resources added to the industrial pretreatment program in an effort to achieve full compliance with all applicable pretreatment requirements.

- Mercury Dental Amalgam Program

Vermont requires all dentists to collect amalgam waste before it goes down the drain, using amalgam separators. The Dental Best Management Practices (BMPs) required all dental practices to self-certify for compliance with the requirements by January 31, 2007. The State has achieved 100% compliance with installation of separators to date.

- Local Limits

It appears many POTWs (with VT approval) have developed technically based local limits for conventional pollutants (i.e. BOD & TSS). The State should be commended on requiring local limit development by POTWs.

- Permitting and Inspections

Vermont has issued permits to 13 Industrial Users (IUs) beyond its SIU universe. Although not required to do so, each of these IUs are inspected annually by the State and they should be commended on this activity.

- Monitoring Requirements

Many of the SIU permits require weekly, if not daily, monitoring for conventional pollutants. This is a very stringent monitoring frequency and the State should be commended on this activity.

These programs were identified during the review since they not only go beyond the regulatory requirements, but some are voluntary. They may not have any national pretreatment regulatory requirement associated with them, however, they are mentioned here for informational purposes.

### *Critical Findings*

Based on our review, EPA presents the following findings that were identified from the PQR Checklist:

- National Pollutant Discharge Elimination System (NPDES) Permit Language

The NPDES permits reviewed did not contain the following:

- Notification requirements for 40 CFR 122.42(b)(3) quantity and quality of effluent to POTW and anticipated impact of the change in effluent to the POTW
- Requirements at 40 CFR 122.44(j)(1) to identify SIUs (i.e., industrial waste survey)

- Publication of Significant Non-Compliance (SNC)

In accordance with 40 CFR 403.8(f)(2)(viii), the State must annually publish all SIUs which, at any time during the previous twelve months, were in SNC with applicable Pretreatment requirements. As of the time of the review, the State had never initiated a SNC publication. However, the State has calculated SNC for 2014 and will be performing its first publication, if applicable, in early 2015.

- State Pretreatment Regulations

On October 14, 2005, EPA published in the Federal Register final changes to the General Pretreatment Regulations. The final "Pretreatment Streamlining Rule" required the State to submit to EPA all required modifications of the Streamlining Rule in order to be consistent with the provisions of the newly promulgated Rule. To the extent that the State's legal authority is not consistent with the required changes, they must be revised and submitted to EPA for review. The State has not submitted its modification to EPA and has not updated its regulations.

#### *4. Stormwater*

##### *Background*

The Clean Water Act requires stormwater discharges from certain municipal separate storm sewer systems (MS4s), industrial activities, and construction sites to be authorized by an NPDES Permit. Generally, the EPA and NPDES-authorized states issue individual permits for medium and large MS4s and general permits for smaller MS4s, industrial activities, and construction activities. VTDEC issues its stormwater general permits pursuant to the Department's federally-delegated NPDES program.

As part of this PQR, EPA reviewed the following three general permits, which are associated with the regulation of stormwater discharges and administered by VTDEC:

- General Permit – For Stormwater Discharges from Small Municipal Separate Storm Sewer Systems: 3-9014 (2012); NPDES #: VTR040000
- Multi-Sector General Permit – For Stormwater Discharges Associated with Industrial Activity: MSGP 3-9003 (2011); NPDES #: VTR050001
- General Permit – For Stormwater Runoff from Construction Sites: GP3-9020 (2006); As Amended February 2008;

Findings are presented separately for the municipal, industrial, and construction stormwater permits.

In addition to the permits that fall under the NPDES program, Vermont also issues both individual and general State Stormwater Permits under State law. These permits address stormwater discharges in many of Vermont's municipalities since the majority of the State is not located within the designated urbanized areas for small MS4 general permit eligibility. These state-issued permits were not reviewed as part of the official PQR process, but are being summarized to provide a complete overview of the state's robust stormwater permitting program.

The Vermont Agency of Natural Resources (ANR) has been regulating stormwater discharges to surface waters since the 1980s, and the issuance of these permits still absorbs a significant amount of the staff's resources. Chapter 18 of Vermont ANR's Environmental Protection Rules provides the authority to issue state stormwater discharge permits to waters that are not stormwater-impaired. These include stormwater discharges from new development and redevelopment, as well as previously permitted stormwater discharges. Chapter 22 of Vermont ANR's Environmental Protection Rules provides the authority to issue state stormwater discharge permits to waters that are principally impaired and the authority to require Individual Offset permits for projects built in stormwater-impaired watersheds without adequate existing offset capacity.

It should be noted that during the VT PQR review, in some cases involving individual permits, the description of effluent included with the *letter* from VT DEC that accompanied some permits did not match the description of effluent authorized to be discharged in the *permit*. One particular example was an individual industrial (non-POTW) permit whose factsheet also referenced stormwater runoff. Part I.A.1 of NPDES Permit VT0022951 (S.D. Ireland Brothers Corporation) authorizes the discharge of "treated quarry process wastewater and dewatering water." However the letter from the VT DEC states that the permit authorizes "the discharge of treated quarry dewatering water, process wastewater, *and stormwater runoff*." According to the fact sheet, *stormwater* and groundwater seepage is removed to allow for the removal of rock, and *stormwater runoff* generated from haul roads, storage piles, and buildings, is conveyed back into the quarry and discharged. In the future, VT DEC should ensure that the description of effluent in the letter accompanying the permit is consistent with the effluent as described in Part I of the permit.

### *Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s)*

#### *Background*

The Vermont MS4 General Permit that was reviewed was issued in 2012. The effective date and expiration date were not included in the permit document. This permit replaced the previous MS4 permit issued in 2003, amended in February, 2004 and subsequently modified by the Vermont Water Resources Board in July 2005.

### *Program Strengths*

The permit is more prescriptive than the corresponding regulations at 40 CFR 122.34 and expands the regulated universe of MS4s beyond the scope to the federal program. Expanded universe includes municipalities that meet the following criteria:

A small MS4 discharging to a state water that the Secretary determines is significantly impaired by discharges of stormwater runoff and is listed as being impaired due to stormwater runoff on the EPA-approved State of Vermont 303(d) List of Waters prepared pursuant to 33 U.S.C. Section 1313(d).

The permit includes a provision requiring that discharges do not cause or contribute to exceedances of water quality standards and includes specific requirements for those MS4s discharging to waterbodies with an applicable TMDL WLA. In particular, the permit requires that each MS4 permittee submit a comprehensive Flow Restoration Plan (FRP) for stormwater impaired waterbodies with an applicable flow restoration WLA. As part of the process, the Vermont Agency of Natural Resources, Department of Environmental Conservation reviews and approves each FRP which will result in meaningful plans developed and implemented by permittees for the next 20 years, significantly improving the quantity and health of VT waters. The FRP plans approved by the Agency will also provide permittees with certainty that BMPs implemented during the permit term will meet the requirements of the permit and the TMDL WLAs.

### *Critical Findings*

The following items are critical elements, discovered during permit review, that need clarification or attention:

1. The Town of Jericho was issued a waiver from permit conditions on December 5, 2012. One of the assumptions made is that Urbanized Area does not serve a population of greater than 1,000 people. However, the 2010 US Census information indicates that over 2,000 people reside in the regulated area. The waiver criteria for MS4s with populations greater than 1,000 people in the Urbanized Area but less than 10,000 people in the Urbanized Area are found at 40 CFR 123.35(d)(2). Consequently, Jericho's waiver should be revisited to ensure VT DEC used the correct criteria to waive Jericho from permit conditions.
2. Authorization dates and effective date – The effective date of the permit is not clear and should be clearly stated in the body of the permit.
3. Any flow restoration plans approved by VT DEC need to ensure restoration targets are met within 20 years. In approving each flow restoration plan VT DEC should ensure that the interim dates and reporting requirements of 40 CFR 122.47 are met regarding compliance schedules.



4. Future permits that include compliance schedules should include a discussion and documentation of how the schedule represents “as soon as possible” as required by 40 CFR 122.47.
5. The permit contains no milestones for system inspection, outfall screening or illicit removal in the IDDE minimum control measure. Future permits should contain clear milestones for complete system inspection and requirements for illicit connection removal. In addition, VT DEC should consider requiring a set of monitoring parameters tied to IDDE, see <http://www.epa.gov/region1/npdes/stormwater/ma/2014AppendixI.pdf>
6. The construction site stormwater runoff control minimum control measure needs to include a requirement that the permittee develop an ordinance or other mechanism imposing sanctions or enforcement policies to ensure compliance in future permits.
7. VT DEC should consider adding tracking and inventory of existing and new BMPs installed as part of the post construction stormwater management minimum control measure to ensure compliance with 40 CFR 122.34(b)(5) in future permits.
8. Future 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).
9. VT DEC should consider adding minimum street sweeping and catch basin cleaning requirements to the pollution prevention minimum control measure in future permits.

### ***Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity***

#### ***Background***

The substantive provisions of the Vermont Multi-Sector General Permit for Stormwater Discharges Associated With Industrial Activity MSGP 3-9003 are nearly identical to EPA’s MSGP 2008, and it is available to discharges associated with industrial activities defined at 40 CFR 122.26(b)(14)(i)-(ix). Vermont’s general permit was issued on August 4, 2011.

#### ***Program Strengths***

There are a number of positive or progressive aspects of the permit, including the following:

- Allowable non-stormwater discharges are expressly subject to the Secretary's discretion to require an individual permit. (n.b. typographic error in Part 1.2.3: "Part 1.6.1" should read "Part 1.7.1")
- Operators must certify that no interior building floor drains exist which are connected to any storm drainage system or which may otherwise direct interior floor drainage to exterior surfaces, unless approved or permitted by VTDEC.
- Operators required to provide a complete copy of the NOI to the local municipal clerk concurrent with submission to VTDEC.
- New operators are required to submit their SWPPP with their NOI to VTDEC.
- As a condition of maintaining a no exposure exclusion, operators must notify VTDEC within 30 days of a change of ownership or operation of the facility.
- Operators are required to provide, upon written request, a copy of its SWPPP to a member of public in a timely manner.

### *Critical Findings*

#### Antidegradation Provisions for New and Increased Discharges

- Provisions only consider Tier 3 waters (not other High Quality Waters) and do not expressly consider increased discharges with respect to compliance with Vermont's Antidegradation Policy. DEC has begun and will continue to consider the antidegradation requirement in the issuance of their stormwater permits. Antidegradation is expected to be addressed in subsequent permit issuances.

#### Conditional Exclusion for No Exposure

- Though the permit properly permits that the demonstration of a condition of no exposure be made on a facility-wide basis and not for individual outfalls, Part 1.6.4.1 provides that permit requirements may be adjusted for individual discharges that would otherwise satisfy no exposure criteria. The permit already limits requirements such as TBELs, inspections, and pollutant inventories only to those areas/activities exposed to stormwater. However, this is not true for monitoring save for the exceptions available for benchmark and impaired waters monitoring for inactive/unstaffed sites without exposure. Though VT could adjust the individual permit requirements (e.g., monitoring) for those outfalls that would be considered "no exposure" discharges, the scope and implementation mechanism for such a provision is not clear.
- From a reading of Part I of the permit fact sheet, any operator with an active No Exposure Exclusion presumably must reapply under the issuance of the permit, regardless of where the operator stands in the 5-year term of its exclusion. Though not required per NPDES regulations, this more conservative provision could prove timelier in

authorizing operators under a permit that may no longer be able to certify to a condition of no exposure.

### *General Permit for Stormwater Discharges from Construction Activity*

#### *Background*

The general permit, issued on September 13, 2006, and amended on February 5, 2008, was reviewed during the 2014 PQR review. This permit expired on February 5, 2013. This permit was issued before the promulgation of the Effluent Limitations Guidelines and Standards for the Construction and Development Point Source Category (the C&D rule). The effective date of the regulations was February 1, 2010. When the permit is reissued, it must include the ELGs for the construction and development point source category (see 40 CFR Part 450). As of December, 2014, VTDEC is preparing a new draft general permit for construction site stormwater discharges.

#### *Program Strengths*

- The permit includes an innovative process to characterize the risk level of a construction project in order to focus the efforts and resources of VTDEC and the regulated community on construction projects that have a more significant impact on water quality around the state. In addition, permittees are required to reevaluate their risk status when a major change is made to the construction project, ensuring that the permittee is maintaining adequate erosion prevention and sediment control strategies on-site.
- The tiered ranking of construction sites in the permit allows for flexibility in the permit requirements: sites deemed to be low-risk avoid unnecessarily detailed planning efforts. Low-risk sites do not need to develop a site-specific Erosion Prevention and Sediment Control (EPSC) Plan but only need to certify compliance with the Low Risk Site Handbook for Erosion Prevention and Sediment Control. EPA believes that projects which truly meet the requirements for low-risk sites will be adequately regulated by the low-risk site requirements, and that this is an efficient way to streamline the permitting process for sites that are not likely to significantly impact water quality.
- Inspection requirements for moderate-risk sites are detailed and provide for different scenarios found during an inspection. The permit requires outfall sampling and reevaluation of best management practices (BMPs) and reporting of discolored stormwater, when necessary. There are specific time frames established in the permit for completing the above tasks. While not required, the permit requires turbidity sampling of outfalls with discolored stormwater during rain events after additional BMPs are enacted. EPA believes the rigorous inspection and sampling requirements for

moderate-risk sites provides a good framework for construction site operators to work to eliminate sources of sediment pollution to receiving waters.

- Along with requirements for permit applications, transfers of coverage, and permit termination, the general permit also includes practical procedures for several other less common situations unique to construction activities, such as terminating portions of a larger residential development project when ownership is transferred to the homeowners.

### *Critical Findings*

- Vermont's construction stormwater general permit has been expired for two years.
- The permit does not contain technology-based effluent limitations (including requirements for BMPs) within the body of the permit. BMP requirements, as well as inspection requirements for low-risk sites, are included in two supporting documents, the Low Risk Site Handbook for Erosion Prevention and Sediment Control (for low-risk sites) and the Vermont Standards & Specifications for Erosion and Sediment Prevention and Control. These documents contain detailed information on the EPSC plan, as well as useful information about sizing, installation, and maintenance of BMPs suited for construction sites to prevent erosion and sediment discharge. While the permit references the documents and requires compliance with requirements in the documents, they are not part of the permit document, and could be changed without appropriate procedures and public notice that would normally accompany a change in permit conditions.
- The general permit allows the discharge of pollutants associated with construction support activities, but does not include any requirements to prevent spills and leaks or to minimize exposure of likely sources of pollution to precipitation and stormwater.
- The fact sheet provided with the general permit detailed the amendments to the permit in 2008, but did not provide information on the statutory or regulatory basis for the permit requirements.

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

### **A. Combined Sewer Overflows (CSOs)**

#### *Background*

Combined sewer overflows (CSOs) present environmental and health problems because they discharge untreated or undertreated wastewater that contain microbial pathogens, nutrients, suspended solids, toxic chemicals, trash and other pollutants into waterways. CSO discharges

are subject to CWA section 402(q)(1), which requires that any permit, enforcement order or decree for discharges from combined sewer systems shall conform to the EPA's 1994 CSO Control Policy (59 Fed. Reg. 18688, April 19, 1994, 33 U.S.C. 1342(q)).

The CSO Control Policy identifies permit requirements for the development and implementation of CSO controls using a two-phase approach. Initial Phase I permits must include requirements for demonstration of implementation of nine minimum controls (NMC) and development of a Long-Term CSO Control Plan (LTCP). Phase II permits must contain requirements for continuing implementation of NMCs and implementation of the LTCP.

The following are the major elements of Phase I and II permits to implement the 1994 CSO Control Policy and ensure protection of water quality.

#### 1. Phase I Permits –

Requirements for Demonstration of Implementation of Nine Minimum Controls and Development of the Long-term CSO Control Plan. In the Phase I permit issued/modified to reflect the CSO Policy, the NPDES authority should at least require permittees to:

- Immediately implement BAT(Best Available Technology Economically Achievable)/BCT (Best Conventional Pollutant Control Technology), which at a minimum includes the nine minimum controls, as determined on a BPJ(Best Professional Judgment) basis by the permitting authority;
- Develop and submit a report documenting the implementation of the nine minimum controls within two years of permit issuance/modification;
- Comply with applicable WQS, no later than the date allowed under the State's WQS expressed in the form of a narrative limitation;
- Develop and submit, consistent with the CSO Policy and based on a schedule in an appropriate enforceable mechanism, a long-term CSO control plan as soon as practicable, but generally within two years after the effective date of the permit issuance/modification.

#### 2. Phase II Permits –

Phase II Permits require the implementation of a Long-Term CSO Control Plan (LTCP). The Phase II permit should contain:

- Requirements to implement the technology-based controls including the nine minimum controls determined on a BPJ basis;
- Narrative requirements which insure that the selected CSO controls are implemented, operated and maintained as described in the long-term CSO control plan;

- Water quality-based effluent limits under 40CFR 122.44(d)(1) and 122.44(k), requiring, at a minimum compliance with, no later than the date allowed under the State's WQS, the numeric performance standards for the selected CSO controls, based on average design conditions specifying at least one of the following:
  1. A maximum number of overflow events per year for specified design conditions consistent with II.C.4.a.i of CSO Policy; or
  2. A minimum percentage capture of combined sewage by volume for treatment under specified design conditions consistent with II.C.4.a.ii of CSO policy; or
  3. A minimum removal of the mass of pollutants discharged for specified design conditions consistent with II.C.4.a.iii of CSO Policy; or
  4. Performance standards and requirements that are consistent with II.C.4.b of the CSO Policy.
- A requirement to implement, with an established schedule, the approved post-construction water quality assessment program including requirements to monitor and collect sufficient information to demonstrate compliance with WQS and protection of designated uses as well as to determine the effectiveness of CSO controls.
- A requirement to reassess overflows to sensitive areas in those cases where elimination or relocation of the overflow is not physically possible and economically achievable
- Conditions establishing requirements for maximizing the treatment of wet weather flows at the POTW treatment plant, as appropriate, consistent with Section II.C.7. of this Policy;
- A reopener clause authorizing the NPDES authority to reopen and modify the permit upon determination that the CSO controls fail to meet WQS or protect designated uses. Upon such determination, the NPDES authority should promptly notify the permittee and proceed to modify or reissue the permit.
- The permittee should be required to develop, submit and implement, as soon as practicable, a revised CSO control plan which contains additional controls to meet WQS and designated uses
- If the initial CSO control plan was approved under the demonstration provision the revised plan, at a minimum, should provide for controls that satisfy one of presumption approach criteria unless the permittee demonstrate that the revised plan is clearly adequate to meet WQS at a lower cost and it is shown that the additional controls resulting from the criteria in presumption approach will not result in a greater overall improvement in WQ
- Unless the permittee can comply with all of the requirements of the Phase II permit, the NPDES authority should include, in an enforceable mechanism, compliance dates on the fastest practicable schedule for those activities directly related to meeting the requirements of the CWA. For major permittee, the compliance schedule should be placed in a judicial order
- Proper compliance with the schedule for implementing the controls recommended in the long-term CSO control plan constitutes compliance with the elements of the CSO Policy concerning planning and implementation of a long term CSO remedy

Vermont began in earnest to address CSO discharges within Vermont by issuing its own CSO Control Policy in 1990. The development of this policy included an assessment of the CSO universe within Vermont at that time, as well as a status of existing work underway to address CSOs. The Policy established levels of control for CSO abatement, which includes elimination as the corrective measure of choice and for approved CSO discharges that would continue to be active (due to consideration of economic and technical factors), the policy specifies either no discharge or that disinfection and control of floatables/solids is provided for all events up to the 24 hour 2.5 inch depth design storm event (~ 1 year event).

During the past 20+ years, Vermont and its CSO communities have made considerable progress on CSO abatement primarily through sewer separation to eliminate active CSOs or to reduce their discharge frequency such that CSOs do not discharge for any rain event events less than the 2.5 inch design storm. According to VT DEC, since the CSO Policy was adopted, Vermont municipalities have physically eliminated 111 of the 170 CSO outfalls that existed in 1990. Currently, there is one CSO treatment system with disinfection and floatable/solids control in Burlington that is permitted and considered to be in compliance with the Policy. CSO discharges that do not achieve the control levels specified in the Policy are considered in non-compliance and are currently under permit requirements and/or enforcement orders to bring the remaining non-compliant CSO discharges into compliance with VT's Policy.

Vermont is currently re-evaluating the Policy in recognition that the 2.5 inch design storm specified in the 1990 Policy may not be as protective as it was previously thought to be or fully consistent with the EPA CSO Control Policy. This is due to notable changes in precipitation patterns during the last ten years, especially related to the more frequent occurrence of high intensity larger rainfall events.

As part of the 2014/15 PQR, the Region reviewed four permits with special focus on the CSO requirements and whether the permits met the conditions of the EPA's 1994 CSO Control Policy. These four permits are: (1) Town of Richford (VT 3-1147); (2) City of St. Albans (VT 3-1279); City of Montpelier (VT 3-1207); and (4) City of Burlington-Main Wastewater Treatment Facility (VT 3-1331).

### *Program Strengths*

- Generally, VTDEC has made progress on implementing the intent of EPA's 1994 CSO Control Policy primarily through a combination of permit requirements and enforcement actions.
- Each of the permits and/or associated enforcement orders reviewed largely address all of the nine minimum controls as identified in the 1994 CSO Policy with the exception of the control related to the pretreatment program. This is not included in the permits because VT DEC administers the pretreatment programs directly.
- The permits explicitly state that the CSOs discharge shall comply with VT's WQS.

- VTDEC is developing a revised web-based reporting and notification system that is expected to be available shortly. Operators will be required to self-report on a standard web form and any CSO event will be immediately posted at the following website: <https://anrweb.vt.gov/DEC/WWInventory/SewageOverflows.aspx>. The system will also be expanded to include geo-location maps as well as a public subscription service to receive automatic notice whenever an event is posted. It's anticipated this effort will demonstrate an increase in transparency to the public.

### *Critical Findings*

- EPA understands that the VTDEC is in the process of revising its CSO Control Policy dated June, 1990. This presents an opportunity for the VTDEC to make changes to its policy to bring it in conformance with EPA's CSO Policy. To that end, it is recommended that VTDEC coordinate closely with EPA on the changes it is making to the State's CSO Policy.
- CSOs of any significance interfere with VT water quality standard designated uses, including the recreational use of surface waters. For waters to be free of pollutants that impair designated uses, CSOs must be virtually eliminated. EPA's 1994 CSO policy was intended to guide municipalities with CSO discharges toward programs to achieve water quality standards on schedules determined by local conditions, including financial capacity. It is not entirely consistent with the EPA CSO policy for the State CSO Policy to establish control of the 24 hour, 2.5 inch storm as a goal for all long-term control plans ("LTCPs") that do not specify complete elimination.
- To conform to the EPA CSO policy, municipalities with CSO dischargers should evaluate elimination of overflows during development of LTCPs and establish schedules for achieving the highest level of control achievable within the resources of each CSO community. The policy should also be clear that the technology based CSO limits must be determined on a case-by-case basis using best professional judgment, and at a minimum include the nine federal MCMs. In other words, the state may decide that more stringent or detailed technology based requirements are appropriate for a particular facility.
- VTDEC needs to ensure that all CSO permits have language which reflect the federal requirements. In particular, all CSO related permits should provide that all the applicable minimum control measures are required including regular inspection of CSOs and possible continuous monitoring of CSO outfalls. With respect to inspection and monitoring, the permits reviewed require operation and maintenance of the CSOs but do not specifically require regular inspections of CSOs, which EPA has found to be an essential element of a successful O&M program capable of detecting and eliminating dry weather overflows (DWOs). Additionally, EPA has found that continuous monitoring of CSOs has identified previously-unidentified dry weather overflows and has revealed substantial variation between modeled overflows and actual overflows. Vermont



should consider at least a year of electronic monitoring of all outfalls and permanent meters where feasible.

## B. Effluent Limit Guidelines (ELG)

### *Background*

Effluent limitations guidelines (ELGs) are national, technology-based limitations and standards to control industrial wastewater discharges. EPA is required to promulgate technology-based limitations and standards that reflect pollutant reductions that can be achieved by categories, or subcategories, of industrial point sources using specific technologies (including process changes) that EPA identifies as meeting the statutorily prescribed level of control under the authority of CWA sections 301, 304, 306, 307, 308, 402, and 501 (33 United States Code [U.S.C.] 1311, 1314, 1316, 1318, 1342, and 1361). These regulations protect human health and enhance water quality. Discharge permits issued under the National Pollutant Discharge Elimination System (NPDES) incorporate limits on specific pollutants set in effluent guidelines, and facilities must meet those limits to comply with Clean Water Act requirements.

EPA's goal in establishing ELGs is to ensure that industrial facilities with similar characteristics will meet similar effluent limitations representing the best pollution control technologies or pollution prevention practices regardless of their location or the nature of the receiving water into which the discharge is made. ELGs reflect the pollutant reductions that can be achieved by existing facilities in categories or subcategories of industrial point sources using specific control technologies. EPA establishes national ELGs for a specific industrial sector by regulation after considering an in-depth engineering and economic analysis of the industrial sector. The ELGs are promulgated for various industrial categories in 40 CFR, Chapter I, Subchapter N - Effluent Guidelines and Standards - Parts 400-471. For the 2014 Vermont PQR, EPA reviewed the following industrial permits with focus on consistency with ELGs:

- VT0000442 (Isovolta, Inc.)
- VT0020711 (White River National Fish Hatchery)
- VT0001198 (Eagle River Mining)
- VT0001163 (Imery's Talc Vermont, Inc)
- VT0022951 (S.D. Ireland Brothers Corporation)
- VT0000051 (Ethan Allen Operations, Inc.)
- VT0001112 (Pike Industries, Inc.)
- VT0001121 (Champlain Black Marble, LLC)

### *Program Strengths*

The industrial permits listed above appeared to have appropriate water quality-based numeric effluent limitations that were as stringent as, or more stringent than, the applicable technology-based effluent limitations from the national ELGs. Under NPDES regulations at 40 C.F.R. § 125.3(a), technology-based treatment requirements under Clean Water Act section 301(b)

represent the minimum level of control that must be imposed in a permit. The permit may include additional or more stringent effluent limitations and conditions, including those necessary to protect water quality. It was not clear from this review if the Administrative Record for the listed permits included information on the development of technology-based effluent limitations in addition to the water quality-based limitations included in the permit.

### *Critical Findings*

Despite regulating a number of facilities covered by national ELGs, the industrial permits that were reviewed did not consistently identify or reference ELGs. The fact sheets generally neglected to include a discussion of technology-based effluent limitations. For the reviewed permits that did discuss ELGs, only two (S.D. Ireland Brothers Corporation, Isovolta, Inc.) correctly identified the applicable subpart for the specific industry or incorporated narrative requirements of the ELGs. In the future, fact sheets should provide a discussion of applicable ELGs, including as a basis for technology-based effluent limitations using best professional judgment where there is no applicable ELG (*e.g.*, Eagle River Mining, Imery's Talc Vermont, Inc.). It is also recommended that permit limitations and conditions mirror the language of the ELGs, particularly as it applies to narrative requirements (*e.g.*, White River National Fish Hatchery).

## **C. Whole Effluent Toxicity**

### *Background*

Section 101(a)(3) of the CWA prohibits the discharge of toxic pollutants in toxic amounts. Sections 402(a)(2) and 308(a) of the CWA authorize EPA to establish toxicity testing requirements and toxicity-based permit limits in NPDES permits. Section 308 specifically states that biological monitoring methods may be required when needed to carry out the objectives of the Act. Under certain narrative State water quality standards and Sections 301, 303, and 402 of the Clean Water Act, EPA and the States may establish toxicity-based limits to implement the narrative no toxics in toxic amounts criterion.

EPA's Surface toxics control regulation, 54 FR 23868, June 2, 1989, established specific requirements for using an "integrated approach" to water quality-based toxics control. EPA subsequently published the *Technical Support Document for Water Quality-based Toxics Control*, EPA/505/2-90-001, March 1991, which recommends using an "integrated strategy" containing both pollutant (chemical) specific approaches and whole effluent (biological) toxicity approaches to control toxic pollutants in effluent discharges from entering the nation's waterways. Pollutant-specific approaches to control toxics address individual chemicals, whereas, a whole effluent toxicity (WET) approach to toxics control evaluates interactions between pollutants, thus rendering an "overall" or "aggregate" toxicity assessment of the effluent. Furthermore, WET measures the "additivity" and/or "antagonistic" effects of individual chemical pollutants while pollutant specific derived permit limits do not, thus the need for both approaches. In addition, the presence of an unknown toxic pollutant can be

discovered and addressed through the process of WET testing. EPA-Region 1 adopted this "integrated strategy" on July 1, 1991, for use in permit development and issuance.

Federal Regulations at 40 CFR 122.44(d) require NPDES permits to include limitations and conditions in addition to or more stringent than promulgated effluent limitations guidelines or standards under sections 301, 304, 306, 307, 318 and 405 of CWA necessary to: achieve water quality standards established under Section 303 of CWA including State narrative criteria. Water quality criteria for toxic substances are set forth in Section 3-01, B.10.(a) of the Vermont Water Quality Standards (WQS). Numeric human health and aquatic biota-based criteria for toxic pollutants are set forth in Appendix C of the State WQS. Section 3-10, B.10.(d) of the VT WQS contains the following narrative criteria designed to protect the State's waters from toxic discharges "*Where numeric criteria for a toxic substance have not been established, such criteria may be established consistent with general policy in subsection 10(a.) above, based on the procedures set forth in the Vermont Toxic Discharge Control Strategy (1994)*".

As part of the 2014 PQR, EPA reviewed four municipal (POTW) permits and one non-municipal (industrial) permit with special focus on the WET requirements in order to verify overall consistency with NPDES Regulations, including whether an adequate basis or rationale for permit decisions are provided, whether permit requirements are protective of State WQS and whether permits contain citations to current WET test methods.

The permits reviewed included the following:

VT0101010	Town of Hartford-White River Junction	POTW-Major
VT0101109	Town of Whitingham	POTW-Minor
VT0100021	Town of Bennington	POTW-Major
VT0100978	Town of Hartford - Quechee	POTW-Minor
VT0000248	FiberMark North America	Non-POTW-Major

### *Program Strengths*

Each of the permits reviewed contain WET testing requirements, specifying the type(s) of test(s) to be conducted (acute, chronic), the test species to be used, sample type (24-hour composite) as well as the months in which testing shall be conducted. The permits also contain a condition whereby they may be amended to require additional WET testing or a Toxicity Reduction Evaluation (TRE) based upon the results of the WET tests or any other tests conducted on the discharge.

All of the permits include a general reference to the use of analytical methods that conform to those established at 40 C.F.R. Part 136.

### *Critical Findings*

The concerns noted by EPA in its evaluation of the WET provisions in the reviewed permits were primarily related to insufficient documentation of the basis for permit requirements, as described in the following paragraphs.

The administrative records for four out of the five permits that were reviewed (Hartford White River Junction WWTP, Bennington WWTP, Quechee WWTP and FiberMark WWTP) contained memos titled "Monitoring, Assessment and Planning Program (MAPP) evaluation of the Reasonable Potential Determination", which contained language regarding WET reasonable potential determinations that was similar to what was found in the Fact Sheets. The administrative records of all of the reviewed permits lacked sufficient information which would support the findings that the discharges do not present potential to cause toxic instream impacts, such as: the procedure(s) followed in conducting reasonable potential determinations, the rationale for selecting the data that was evaluated (i.e., sample size large enough to be representative of the discharge); the data (or a summary of the data) that was reviewed; and any calculations and/or analyses that were performed. All information relative to reasonable potential determinations, including the methodology applied, data and calculations and/or analyses that were performed, should be well documented and clearly presented. Additionally, it is recommended that information regarding reasonable potential determinations that are documented in Monitoring, Assessment and Planning Program (MAPP) evaluations; Fact Sheets and/or file notes, be consolidated into a single document.

The numeric and narrative criteria for toxic substances contained in the State WQS are not adequately addressed in the administrative records of any of the reviewed permits. A description of how numeric and narrative criteria were factored into WET reasonable potential determinations as well as how permit conditions will ensure protection of WQS should be provided in the administrative record.

The basis for the selection of the WET monitoring requirements contained in the permits, such as the type(s) of tests to be conducted (i.e., acute, chronic), test species, monitoring frequencies and the months in which sampling and analysis shall occur, is not substantiated in the administrative records for any of the permits that were reviewed. Further, the frequency of required WET testing is concerning, as it is unclear how such minimal testing would provide data that is representative of the discharge (one permit requires three tests, three permits require two tests, and one permit requires one test to be conducted over the terms of the permits). It is recommended that the rationale for the selection of monitoring requirements contained in permits, including how minimum monitoring frequencies are determined, be documented in administrative records.

WET test methods cited in the permits include "the most recent versions of the following test methods: Peltier, W and Weber, CI, *Methods for Measuring Acute Toxicity of Effluents to Freshwater and Marine Organisms* and Lewis, PA, DJ Klemm, JM Lazorchak, TJ Norberg-King, WH Peltier, MA Heber, *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*". Based on the aforementioned reference, the

chronic WET tests does include sub-lethal endpoints. However, this was not clearly indicated in Vermont's documentation. It is recommended that the general reference to the "most recent versions" of the aforementioned test methods be replaced with citations to EPA's 2002 WET test methods as shown below:

Environmental Protection Agency, Office of Science and Technology, Washington, DC. USEPA (U.S. Environmental Protection Agency). 2002c. *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*. 5th ed. EPA/821/R-02-012. United States Environmental Protection Agency, Office of Water, Washington, DC.

Environmental Protection Agency, Office of Science and Technology, Washington, DC. USEPA (U.S. Environmental Protection Agency). 2002a. *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*. 4th edition. EPA/821/R-02-013. U.S. Environmental Protection Agency, Office of Water, Washington, DC.

The Fact Sheets for two of the reviewed permits (Hartford White River Junction WWTP and Bennington WWTP) describe the regulatory basis for requiring WET monitoring and toxicity scans in the permits as to "ensure compliance with 40 C.F.R Part 122.21, 122.44(d)(1), and the *Vermont Toxic Discharge Control Strategy*", which suggests that the WET monitoring requirements are driven in part by NPDES permit application requirements. While the results of WET tests required by a permit may be used to fulfill the application requirements of 40 C.F.R. §122.21, WET requirements are included in permits to ensure protection of aquatic life and attainment of instream water quality criteria, in accordance with the requirements of 40 C.F.R. § 122.44(d). Therefore, it is recommended that references to the application requirements as a basis for permit requirements be removed from the Fact Sheets.

## V. ACTION ITEMS

This section provides a summary of the main findings of the review and provides proposed action items to improve Vermont's NPDES permit programs. This list of proposed action items will serve as the basis for ongoing discussions between Region 1 and Vermont as well as between Region 1 and EPA HQ. These discussions should focus on eliminating program deficiencies to improve performance by enabling good quality, defensible permits issued in a timely fashion.

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

- **Critical Findings** (Category One) - Most Significant: Proposed action items will address a current deficiency or noncompliance with respect to a federal regulation.
- **Recommended Actions** (Category Two) - Recommended: Proposed action items will address a current deficiency with respect to EPA guidance or policy.

- **Suggested Practices** (Category Three) - Suggested: Proposed action items are listed as recommendations to increase the effectiveness of the state's or Region's NPDES permit program.

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

## A. Basic Facility Information and Permit Application

The fact sheets for the core municipal permits reviewed generally provide a thorough description of the wastewater treatment process; however, fact sheets for non-municipal permits lack details regarding plant operations and expected waste streams. VT DEC uses state application forms that contain fewer data and submittal requirements than Federal requirements (e.g., requests for data as required in 40 CFR 122.21(g) and (j)). Proposed action items to help VT DEC strengthen its NPDES permit program include the following:

- 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. (Category 1)
- 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. (Category 1).
- 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. (Category 2)

## B. Technology-based Effluent Limitations

For the core permits reviewed, the concentration-based TBELs for municipal facilities are consistent with or more stringent than secondary treatment standards. Fact sheets for non-municipal facilities include a general description of waste streams produced and wastewater treatment processes; however, they lack discussion of facility operations and historical production rates. Therefore, it was difficult to evaluate facility categorization and effluent limitation development with regard to ELGs. Fact sheets reviewed for non-municipal facilities lack a thorough discussion of applicable ELGs and the basis for final effluent limitations. Proposed action items to help VT DEC strengthen its NPDES permit program include the following:

- 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. (Category 3)

### C. Water Quality-Based Effluent Limitations

Fact sheets do not provide a detailed description of the RP evaluation, even though MAPP memos provide a summary of RP evaluation. Proposed action items to help VT DEC strengthen its NPDES permit program include the following:

- 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. (Category 2)

### D. Monitoring and Reporting

The monitoring and reporting provisions reviewed in the core permits appear to be consistent with federal requirements. Permits lack clear identification of monitoring locations. Proposed action items to help VT DEC strengthen its NPDES permit program include the following:

- VT DEC should identify the location for effluent and influent monitoring in permits. (Category 2)

### E. Standard and Special Conditions

Some of the standard conditions appear to include language that creates a less stringent requirement. Core permits reviewed lacked some standard conditions and some are not word-for-word the 40 CFR 122.41 standard conditions. Proposed action items to help VT DEC strengthen its NPDES permit program include the following:

- VT DEC should ensure that permits contain all federal standard conditions and that standard conditions reflect the correct requirements. (Category 1)

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

The permit records for the core permits contain appropriate public notice documents that indicate public notice procedures were implemented accordingly. The permit cover letter indicates whether or not comments were received. If comments were received, VT DEC provides a Response Summary, as required by 40 CFR 124.17. No action items fall under this category.

### G. Documentation (including fact sheet)

Overall, fact sheets did not provide sufficient information to fully understand the basis of specific effluent limitations. For the core permits reviewed, documentation of the basis for TBELs generally lacks detail (e.g., ELG applicability and final ELG-based TBEL determination). Further, permit files do not contain adequate documentation regarding RP evaluation and effluent limitation development. In addition, it was not evident that permit writers perform a comparison of TBELs and WQBELs, and that the most stringent effluent limitation was selected.

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

- 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. (Category 2)
- VT DEC should ensure permit files include complete documentation of RP analyses and effluent limitation calculations. (Category 2)
- EPA strongly encourages the development of a fact sheet (or statement of basis) for all permits. (Category 2)
- 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. (Category 3)

## H. National Topic Areas

Proposed actions items for core topic areas are provided below.

### 1. *Nutrients*

Proposed Action Items to improve the Vermont permitting program and to bring it into compliance with federal permitting requirements include the following:

- 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 MAPP memo. (Category 1)
- 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. (Category 1)
- 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. (Category 1)



- The Reasonable Potential Analyses, including assumptions, calculations, and conclusions should be documented in Fact Sheets in order to facilitate meaningful public input. (Category 2)

## 2. *Pesticides*

The Pesticides General Permit appears to be consistent with program requirements. No action items are proposed based on this PQR.

## 3. *Pretreatment*

Based on the review of Vermont's Industrial Pretreatment Program, EPA requires the following action items be addressed by the State of Vermont:

- 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) (Category 1)
- Vermont needs to perform annual monitoring of each of its Significant Industrial Users. (Category 1)
- 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. (Category 1)
- Vermont needs to update their regulations in accordance with the 2005 Federal Streamlining Rule. (Category 1)

## 4. *Stormwater*

Proposed action items to help Vermont strengthen its NPDES permit program are provided below:

- If the discharge from an individual permit includes stormwater, VT DEC should ensure that *all sources* of effluent are listed in the permit as an authorized discharge from the outfall. (Category 3)

In addition, action items are presented separately for municipal, industrial and construction stormwater general permits.

### *Municipal Stormwater Action Items*

After a review of Vermont's Small MS4 general permit, the following action items are proposed:

- Future MS4 permits should contain clear milestones for complete system inspection and requirements and milestones for illicit connection removal. (Category 1)
- The construction site stormwater runoff control minimum control measure needs to include a requirement that the permittee develop an ordinance or other mechanism imposing sanctions or enforcement policies to ensure compliance. (Category 1)
- 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). (Category 1)
- The Town of Jericho's 2012 waiver from permit conditions should be revisited to ensure VT DEC used the correct criteria to waive Jericho from permit conditions. (Category 2)
- The effective date of the MS4 permit should be clearly stated in the body of the permit. (Category 2)
- Flow restoration plans required by the MS4 permit need to include interim dates and reporting requirements and need to ensure restoration targets are met within 20 years in accordance with 40 CFR 122.47. (Category 2)
- The Fact Sheet for future MS4 permits should contain a discussion of how any compliance schedule represents "as soon as possible" as required by 40 CFR 122.47. (Category 3)
- Future MS4 permits VT DEC should consider requiring a set of monitoring parameters tied to IDDE. (Category 3)
- In future MS4 permits VT DEC should consider adding tracking and inventory of existing and new BMPs installed as part of the post construction stormwater management minimum control measure to ensure compliance with 40 CFR 122.34(b)(5). (Category 3)
- VT DEC should consider adding minimum street sweeping and catch basin cleaning requirements to the pollution prevention minimum control measure in future permits. (Category 3)

### *Industrial Stormwater Action Items*

The substantive provisions of the Vermont Multi-Sector General Permits for Stormwater Discharges Associated With Industrial Activity MSGP 3-9003 are nearly identical to EPA's MSGP 2008, and it is available to discharges associated with industrial activities defined at 40 CFR

122.26(b)(14)(i)-(ix). There are a few areas where the permit could be improved when reissued as noted in the action items below.

- Part 1.6.4.1 of the permit should be clarified as to the scope and implementation of potential modifications to permit requirements for individual facility discharges that would otherwise be “no exposure” discharges. Any adjustment to permit requirements applicable to qualifying operators should already be included in the permit to avoid the need for a formal permit modification. (Category 2)
- If, as provided in the fact sheet, it is the intent of VTDEC to require an operator with an active No Exposure Exclusion to reapply upon the reissuance of the permit, the permit should indicate this in the eligibility section. (Category 2)

### *Construction Stormwater Action Items*

The proposed action items to help strengthen Vermont’s construction stormwater general permit are provided below:

- Since the 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. (Category 1)
- The 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)). (Category 1)
- The accompanying fact sheet should be consistent with 40 CFR §§ 124.8 and 124.56, which, among other information, requires fact sheets to include an explanation of the permit’s effluent limitations as well as the regulatory basis for certain permit conditions. (Category 2)
- EPA recommends incorporating the BMP, inspection, and EPSC plan requirements in the Low Risk Site Handbook for Erosion Prevention and Sediment Control and the Vermont Standards & Specifications for Erosion and Sediment Prevention and Control into the general permit language. The additional guidance provided by both documents on specific BMP installation and maintenance may be more appropriate as an appendix or handbook. (Category 2)
- In the reissuance of the general permit, VTDEC should consider including specific requirements related to discharges to impaired waterbodies rather than general requirements related to these discharges. (Category 3)

- VTDEC should consider adding more effluent limitations (BMP requirements) to the permit to specifically target the pollution risks from permitted projects that are currently required to obtain an individual permit based on the tiered criteria. (Category 3)

## I. Regional Topic Areas

Proposed action items for special focus areas are provided below.

### 1. Combined Sewer Overflows (CSOs)

The following action items are proposed to help Vermont strengthen its NPDES permit program:

- Ensure that the State's updated approach to abating CSOs is consistent with EPA's Policy based on CSO-specific assessments of economic and technical factors in determining the appropriate levels of control. (Category 1)
- Include requirements for all applicable minimum controls in CSO permits that are consistent with federal requirements including a specific requirement for regular inspections of all active CSO outfalls. (Category 2)
- Require metering and regularly scheduled inspection of CSOs as part of permits/enforcement orders to help reduce the likelihood of dry weather overflows from occurring and assess the accuracy of models. (Category 3)

### 2. Effluent Limitations Guidelines (ELGs)

The reviewed permits and fact sheets lacked a consistent and complete evaluation of effluent limitations guidelines. Proposed action items to help strengthen Vermont's NPDES permit program include the following:

- Include the basis for technology-based permit requirements in fact sheets or the administrative record, including discussion of applicable, industry-specific ELG (and subpart) or, in the absence of an ELG, the basis for limitations based on best professional judgment. (Category 1)
- Ensure that technology-based permit limits and conditions accurately reflect the referenced ELG, particularly for narrative requirements. (Category 2)

### 3. Whole Effluent Toxicity

The administrative records of the permits that were reviewed generally lack sufficient rationale supporting permitting decisions regarding WET. Proposed action items to help VT DEC strengthen its NPDES permit program include the following:

- References to specific WET test methods should be the current 2002 EPA WET test methods. (Category 1)
- Provide appropriate citations to NPDES permit requirements (40 C.F.R. § 122.44) rather than to NPDES application requirements, when describing the regulatory basis for the inclusion of permit limits or conditions. (Category 2)
- Document in the Fact Sheet or the administrative record the rationale for reasonable potential determinations such as an explanation of the approach taken or procedure(s) followed, inclusion of the data (or a summary of the data) that was evaluated, any calculations and/or analyses performed in making findings regarding reasonable potential, and an explanation of how such findings are consistent with WQS. (Category 2)
- Describe in the Fact Sheet or the administrative record the rationale for selecting monitoring requirements in permits, such the type(s) of test(s), test species, test frequency and months in which sampling shall be conducted, as well as an explanation of how these requirements will ensure adequate protection of WQS. (Category 2)
- Consider consolidating information relevant to reasonable potential determinations that are included in MAPP evaluations, Fact Sheets, file memos, etc. into Fact Sheets. (Category 3)