UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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September 20, 2013

Oswald Inglese, Jr., Director
Bureau of Water Management
Department of Energy and Environmental Protection (CTDEEP)
79 Elm Street
Hartford, CT 06106-5127

Subject: Final Region 1 Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) Connecticut Permit Quality Review

Dear Mr. Inglese,

Enclosed please find the Final Region 1 Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) Connecticut Permit Quality Review (PQR) dated September 19, 2013 (the "Final PQR"). PQRs are the key review mechanism for EPA to promote national consistency, identify successes in implementation of the NPDES program, and describe opportunities for improvement in the development of NPDES permits. The primary focus of the PQR is 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.

For Connecticut, this PQR permit review was conducted in 2012 and 2013 by the Region 1 Office of Ecosystem Protection (OEP) and the Headquarters Office of Water (OW), and the PQR included a site visit to your offices in Hartford on July 11-12, 2012. Following the permit reviews, EPA prepared a Draft PQR which was sent to the Connecticut Department of Energy and Environmental Protection (CTDEEP) for comments on March 1, 2013. CTDEEP provided initial comments on May 13, 2013 and the remaining comments on July 1, 2013.

EPA appreciates CTDEEP's thoughtful comments, many of which indentified examples of where CTDEEP was planning to implement or was already implementing some of the recommendations from the PQR.

EPA considered all comments provided by CTDEEP on the Draft PQR. Most of the comments and suggested language provided by CTDEEP have been adopted totally or in part into the Final PQR. In response to other CT DEEP comments where CT DEEP provided notes of explanation, EPA has incorporated that information into the Final PQR. Examples where EPA has not incorporated CTDEEP's suggestions include the following:

1. EPA has retained the recommendation that CTDEEP evaluate a means to allow general permits to be administratively extended for more than one year beyond their expiration date and avoid rolling over general permits at the expiration date, without permit changes.

2. EPA has retained the finding of the need to explicitly include in permits certain pretreatment notification requirements found at 40 CFR 122.42(b) and the pre-treatment industrial waste survey requirements found at 40 CFR 122.44(j)(1).

3. EPA has retained a number of the pre-treatment recommended action items that CTDEEP suggested to delete and has modified others based on CTDEEP's comments and on-going EPA-CTDEEP discussions on this topic.

4. EPA retained recommended action items that in the next permit re-issuances of the Industrial Stormwater permit and the Construction Stormwater permit CTDEEP should eliminate the permit eligibility distinction between stormwater and non-stormwater based on the size or recurrence interval of the associated rainfall event. While EPA understands staff limitations and the absence of a discharge except for rare occasions, EPA does not see a regulatory basis for this eligibility distinction in the Clean Water Act (CWA) or NPDES regulations.

5. EPA is reducing from Category 2 to Category 3 EPA's recommendation that in the next permit re-issuance of the Industrial Stormwater permit CTDEEP consider making all facilities subject to ELGs eligible for coverage. EPA understands from CTDEEP that the activities EPA listed as examples presently do not occur in Connecticut, but they may in the future, and their inclusion would facilitate coverage either under an individual permit or the Industrial Stormwater permit.

6. EPA modified, but retained, a Category 3 recommended action item that in the next permit re-issuance of the Industrial Stormwater permit CTDEEP should consider a stormwater retention standard for facilities discharging to freshwater similar to the current retention standard for discharges within 500 feet of a tidal wetland. EPA acknowledges that this may be challenging for facilities with highly impervious areas and other site constraints, but encourages the exploration of such green infrastructure options where possible.

In addition, in certain cases EPA is aware of events that have occurred since the summer of 2012 when permits were reviewed that may affect PQR findings. In places the Final PQR makes note of such updated information. However, in accordance with the national PQR program, EPA has not re-done any significant accompanying evaluation for the Final PQR. Examples are as follow:

1. The PQR notes that since the summer of 2012 the Small MS4 general permit was re-issued without modification for at least a third time on January 9, 2013. This re-issued Small Municipal Separate Storm Sewer System (MS4) general permit will expire January 8, 2015. Rolling over this permit without modification perpetuates provisions that require updates such as including Total Maximum Daily Load (TMDL) requirements, including new MS4 communities based on the 2010 census, including non-traditional MS4s, and including the state department of transportation. Consequently, the related PQR recommended action item has been changed from Category 2 to Category 1.

2. While the PQR found that the clarity and transparency of information provided during the public comment period could be improved, since the summer of 2012, CTDEEP has taken actions to improve this situation. For example, CTDEEP commented that it has been including information indicating whether public comments were received during the public comment period, what those comments were, and that CTDEEP's responses to these comments are in a separate section of the Fact Sheet. Thus, in the Final PQR there is no action item to follow up this finding.

3. For this PQR file review, EPA reviewed the following construction general permit: DEEP-WPED-GP-015 General Permit for the Discharge of Stormwater and Dewatering Wastewater from Construction Sites (CGP), DRAFT permit. This draft CGP was expected to be effective on October 1, 2012. Since the PQR file review during the summer of 2012, the draft CGP that was reviewed was not reissued in 2012, but rather the CGP that was originally issued April 4, 2004 was rolled over on October 1, 2012, with an expiration date in October 1, 2013. This is noted in the Final PQR.

4. The Draft PQR included a nutrient recommended action item indicating that when Concentrated Animal Feedlot Operations (CAFO) and MS4 permittees discharge to receiving waters with approved nutrient TMDLs, Connecticut should include provisions in these permits consistent with the assumptions and requirements of the TMDL's waste load allocations. Based on CTDEEP's comments, EPA understands that since the PQR visit CTDEEP is now developing such language for the next CAFO and MS4 permits. This is acknowledged in the Final PQR, however the recommended action item has been retained for this development of permit provisions to be completed.

We very much appreciate your assistance and support during the entire PQR process, including your hospitality and assistance with files and program information during our visit in July 2012. We also greatly appreciate the hard work demonstrated by all of you in CTDEEP developing sound NPDES permits that further the protection and restoration of our surface waters.

Feel free to contact me at 617-918-1791 if you have questions.

Sincerely,

David M. Webster

David M. Webster, Chief
Water Permits Branch
Office of Ecosystem Protection
Region 1 EPA

Enclosure

Cc: Sharmin Syed, OW (by E-mail)

Stephen Perkins, RA Office (by E-mail)
Ken Moraff, OEP (by E-mail)
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REGION 1 NPDES PERMIT QUALITY REVIEW

CONNECTICUT

September 19, 2013

EPA New England
5 Post Office Square
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Boston, MA 02109-3912

Contents

I. PQR BACKGROUND

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

EPA's Connecticut PQR consisted of two components: permit reviews and special focus area reviews. The permit reviews focused on core permit quality and included a review of the permit application, permit, fact sheet, correspondence, documentation, administrative process, and select core topic areas, as well as other factors.

The core permit review process involves evaluating selected permits and supporting materials using basic NPDES program criteria. Reviewers complete the core review by examining selected permits and supporting documentation, assessing these materials using standard PQR tools, and talking with permit writers regarding technical questions related to the permit development process. The core review focuses on evaluation of the aspects identified in the Central Tenets of the NPDES Permitting Program. In addition, discussions between EPA Region 1 and state staff addressed a range of topics including program status, the permitting process, relative responsibilities, organization, and staffing. Core topic area permit reviews are conducted to evaluate specific issues or types of permits in all states. The core topics reviewed in Connecticut were nutrients, the pesticide general permit, pretreatment, and stormwater.

Special focus area reviews target specific types or aspects of permits. These include special focus areas selected by EPA regional offices on a state-by-state basis. Region 1 special focus area reviews addressed the following areas: Combined Sewer Overflows (CSOs), CWA Section 316(a) and (b), and Concentrated Animal Feeding Operations (CAFOs). The results of these reviews provide important information to the EPA region, EPA Headquarters and the public.

The region followed the NPDES Permit Quality Review Standard Operating Procedures (SOP) (rev. 4/2/12) during the process of selecting permits for the Connecticut PQR. Specifically, the region selected permits in accordance with the SOP in order to conduct a: (1) Core Review, (2) Core Topic Review and (3) Special Focus Area Review. The Core Topic Review areas, nutrients, pretreatment, stormwater and pesticides are topics of national significance while the Special Focus Area Review are topics of regional or state interest. The region selected CSOs, CWA 316(a) and (b) and CAFOs as areas of regional interest.

As a starting point, the region compiled a list of all of Connecticut's individual NPDES permits using the Integrated Compliance Information System (ICIS). The list identified, the permit number, facility name, facility type (POTW or non-POTW), municipality of location, receiving water, facility size (expressed as minor or major), and date of last issuance. 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 Connecticut's entire individual permit universe and for the individual permits issued within the last two year period, May 2010 – May 2012 (see Table 1).

Table 1. Summary of Connecticut Individual Permits by Categories for Entire Permit Universe and for Permits Issued during the Two-Year period (May 2010-2012)

Total Universe of CT Individual NPDES Permits				CT Individual Permits Issued in Two year period (May 2010 – 2012)		
Categories	**No. of Permits**	**Percentage of Total as specified %**		**Categories**	**No. of Permits**	**Percentage of Total as specified %**
All Individual Permits	167	**-**		**All Individual Permits**	33	**-**
Majors	96	**55%**		**Majors**	12	**36%**
POTW	72	75% of Majors		POTW	5	42% of Majors
Non-POTW	24	25% of Majors		Non-POTW	7	58% of Majors
Minors	71	**45%**		**Minors**	21	**64%**
POTW	18	25% of Minors		POTW	2	10% of Minors
Non-POTW	53	75% of Minors		Non-POTW	19	75% of Minors

Core Review: The region selected 10 individual permits for the Core Review. The region chose to select permits from the sub-universe of permits that were issued within the most recent two-year period (May 2010 to May 2012) in order to best reflect CTDEEP's current practices for developing and issuing permits. Furthermore, consistent with PQR guidance, the region chose to focus permit reviews mostly on major permits and selected eight major permits and two minor permits. Upon consideration of (1) the distribution of POTW and non-POTW permits issued in the most current two year period and (2) the CTDEEP's organization structure in which POTW and non-POTW permits are developed in two separate Bureaus, the region chose to select 5 POTW and 5 non-POTW permits for the Core Review.

Prior to selecting the permits for the Core Review, the region determined for each permit within the most recent two-year period whether the permit also would address any of the topic areas in the Core Topic Review and Special Focus Area Review categories. Also, the region determined whether or not a given permit was included in the region's most recent enforcement file review conducted in 2011. The region used this associated information to select permits that would provide for maximum cross-coverage for the Core Review, Core Topic Review, and Special Focus Areas review while including as many permits as possible that were subject to the recent enforcement program review. Through this process eight core review permits were selected (6 major and 2 minor permits). The last two major permits (one POTW and one Non-POTW) were selected randomly from the remaining potential candidates.

Nutrients: The selection of the permits for nutrient review was largely accomplished through the selection of permits for the Core Review with the goal of maximizing cross-coverage among the Core Review, the Core Topic Review and the Special Focus Area Review. For example, four Core Review individual permits (3 POTW and 1 non-POTW) also implemented CTDEEP's nitrogen permitting strategy and therefore were selected for the nutrient review. The same was true for phosphorus in one case. Regarding phosphorus, at the time of selecting Core Review permits there was only one applicable permit had been finalized that reflected CTDEEP's current phosphorus permitting strategy. At this time, the region had planned on reviewing two draft permits that reflected CTDEEP's phosphorus strategy. However, following selection of the Core Review permits, CTDEEP issued the two phosphorus permits as final permits. In addition to the 7 individual permits reviewed for nitrogen and phosphorus, the region reviewed the General

Permit for Nitrogen Discharges for Connecticut. This permit covers all POTW discharges in the state of Connecticut.

Pesticides and Stormwater: CTDEEP has issued a General Permit for pesticides and four (4) general permits for stormwater discharges: (1) Construction; (2) Industrial/Commercial; (3) Municipal-MS4 and (4) Stormwater Discharges Associated with Commercial Activities. These were all selected for review.

Pretreatment: CTDEEP administers the pretreatment program and issues pretreatment permits directly to industrial discharges. The region compiled a list of all permits and randomly selected four permits from the entire universe for review.

CWA 316A and B: The region selected four (4) permits for 316(a) and 316(b) review. The region chose to select the most recently issued permits related to this focus area within the most recent two-year period. The region identified four permits that were issued in this period and all were selected for review.

CSO: The region selected two CSO permits from the small CSO permit universe for CSO discharges in six (6) Connecticut communities. The two most recently issued CSO permits were selected; one within the last two-year period (also a Core Review permit) and the other issued in 2008.

CAFO: CTDEEP has not yet issued a CAFO permit. A draft CAFO permit is under development by CTDEEP. The region has tracked progress on the CAFO permit development during the PQR process and intends to review the draft permit once CTDEEP shares it with EPA.

Based on these steps, the following permits were selected for review during the PQR.

LIST OF PERMITS FOR 2012 CT PQR			
Review Focus	**NPDES ID**	**Facility Name**	**Facility Type Indicator**
Core	CT0100552	SUFFIELD WPCF	POTW
Core	CT0100226	GLASTONBURY WPCF	POTW
Core	CT0003921	NAVAL SUB BASE NEW LONDON	FEDERAL
Core	CT0090182	NORTHEAST FISHERIES SCIENCE	FEDERAL
Core	CT0002968	ANSONIA COPPER & BRASS INC.	NON-POTW
Core	CT0100714	SHELTON, CITY OF	POTW
Core	CT0003107	NRG DEVON OPERATIONS, INC	NON-POTW
Core	CT0100366	NEW HAVEN EAST SHORE STP	POTW
Core	CT0101061	BEACON FALLS WPCF	POTW
Core	CT0003212	KIMBERLY-CLARK CORPORATION	NON-POTW
Nutrients	CT0100960	PUTNAM WPCA	POTW
Nutrients	CT0101061	BEACON FALLS WPCF	POTW
Nutrients	CT0100072	CANTON WPCF	POTW
Nutrients	CT0100552	SUFFIELD WPCF	POTW
Nutrients	CT0100226	GLASTONBURY WPCF	POTW
Nutrients	CT0100714	SHELTON, CITY OF	POTW

LIST OF PERMITS FOR 2012 CT PQR			
Review Focus	**NPDES ID**	**Facility Name**	**Facility Type Indicator**
Nutrients	DEP-PERD-GP-019	GENERAL PERMIT NITROGEN DISCHARGES	POTW
Stormwater	DEP-PERD-GP-015	GENERAL PERMIT STORMWATER CONSTRUCTION	Stormwater
Stormwater	DEP-PERD-GP-014	GENERAL PERMIT STROMWATER -INDUSTRIAL	Stormwater
Stormwater	DEP-PERD-GP-021	GENERAL PERMIT STORMWATER SMALL MS4	Stormwater
Pesticides	DEP-WPED-GP-026	GENERAL PERMIT PESTICIDES	Pesticides
Pretreatment	SP0000114	Merit Metal Finishing	Pretreatment
Pretreatment	SP0000063	Bass Plating Company	Pretreatment
Pretreatment	SP0001442	Metal Finishing Technologies	Pretreatment
Pretreatment	SP0002366	Kerite Company	Pretreatment
316A&B	CT0003921	NAVAL SUB BASE NEW LONDON	FEDERAL
316A&B	CT0026476	ALGONQUIN WINDSOR LOCKS LLC	NON-POTW
316A&B	CT0020389	ANO-COIL CORPORATION	NON-POTW
316A&B	CT0003263	MILLSTONE POWER STATION	NON-POTW
CAFO	DEP-PERD-GP-???	GENERAL PERMIT CAFO	CAFO
CSO	CT0100366	NEW HAVEN EAST SHORE STP	POTW
CSO	CT0101010	BRIDGEPORT EAST SIDE WPCF	POTW

EPA Region 1 conducted a comprehensive core review in Connecticut, including an on-site visit in Hartford. The review team consisted of Region 1 NPDES permit staff, EPA Headquarters PQR staff, and contractor support. The site visits occurred on July 11-12, 2012.

The information in Section II is based on written feedback to PQR pre-state visit questions and an interview with state personnel.

This Connecticut NPDES PQR begins a transition for how EPA is conducting PQRs nationally and in Region 1. EPA Region 1 is in the process of assuming responsibilities for conducting Permit Quality Reviews (PQRs) for the Region 1 states with delegated NPDES programs. PQRs that were started prior to FY 2012 were performed by the Water Permits Division in the Office of Water (OW) at EPA Headquarters with assistance from each region. Such PQRs also covered all NPDES programs within a region, both authorized state programs and regional EPA NPDES programs in non-authorized states. Beginning with the PQRs started in FY 2012, such as this Connecticut PQR, the scope of each PQR was narrowed to cover only one state with the EPA region serving as the lead for PQRs for authorized state programs and with OW as the lead for PQRs for non-authorized state programs.

Simultaneously, in accordance with the Clean Water Act Action Plan, PQRs began a transition to being jointly conducted with enforcement program State Review Framework (SRF) assessments. The Connecticut PQR is part of that transition. As such, the Region 1 EPA NPDES permitting program, located organizationally in the Office of Ecosystem Protection (OEP) coordinated with the Region 1 EPA NPDES enforcement office, located in the Office of Environmental Stewardship (OES), in several ways during the Connecticut PQR as described below.

- OEP and OES communicated in the selection of CTDEEP permits to be reviewed in the Connecticut PQR so that there was some overlap with those permits OES had selected for the Connecticut SRF.
- Since EPA's Combined Sewer Overflow (CSO) Policy outlines a process requiring interaction between a facility's POTW NPDES permit and the NPDES long term control plan (as documented in an enforcement order or Consent Decree), representatives of OEP and OES discussed this interaction during the PQR review of POTW permits covering CSO dischargers.
- Since both OEP and OES (as well as OW and OECA) have a strong interest in state industrial pretreatment programs, OEP, OES, OW and OECP engaged on the topic of pretreatment significant industrial users inspection requirements. This interaction contributed to a clarification memorandum from OECA, "Clarification of Frequency Goals for Significant Industrial User Inspections Under NPDES CMS" from Lisa C. Lund, Office of Compliance, July 5, 2012.
- OEP offered OES an opportunity to review the draft PQR

For other elements reviewed by the PQR and SRF, permitting and enforcement staff and managers at both Region 1 EPA and CTDEEP focused on issues which were of independent concern. The PQR focused on permit quality issues such as the inclusion of water impairment status, the inclusion of TMDL status, appropriate use of Effluent Limit Guidelines, a documented determination of reasonable potential, appropriate document of the derivation permit limitations in the fact sheet or the administrative record, public notice requirements, monitoring requirements, the coverage of facilities under new rules such as CAFO regulations, permits for facilities previously not covered by NPDES such as for pesticide handlers, and the appropriate inclusion of standard permit conditions. These topics are not in the scope of the SRF. On the other hand the SRF focused on compliance and enforcement issues such as the state's enforcement response policy, the timeliness of enforcement actions, whether the appropriate enforcement action was taken, whether economic benefit was considered in the magnitude of the penalty, and the use of supplemental environmental projects. These are not the subject of the PQR and typically are documented in other documents than those reviewed for the PQR. Thus, the majority of the elements of the PQR and SFR were appropriately handled separately by permitting and enforcement staffs and managers at EPA and CTDEEP that are responsible for either permit quality or compliance. This allowed for the most efficient use of time for both the state and region.

The Connecticut SRF was completed in September 2012, and OEP received a copy of the final report.

II. STATE PROGRAM BACKGROUND

A. Program Structure

The Connecticut Department of Energy and Environmental Protection (DEEP) develops, issues and administers NPDES permits in Connecticut. Municipal wastewater permitting is conducted within the Bureau of Water Protection and Land Reuse. Industrial wastewater permitting is conducted within the Bureau of Materials Management and Compliance Assurance.

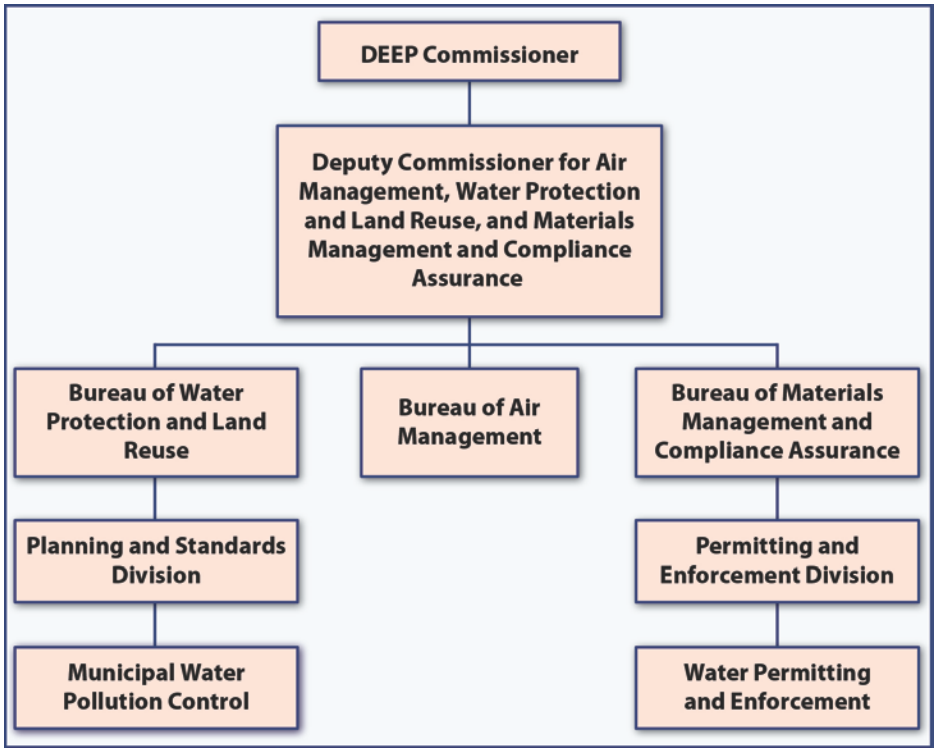

Figure 1. Select DEEP Environmental Program Bureaus

DEEP has its headquarters in Hartford, and this office administers all wastewater permits and oversees most of the major programs and services offered by DEEP. The Eastern and Western District headquarters manage the inland fisheries offices, and provide technical support to the permit staff. The NPDES permit staff consists of 13.5 FTEs (6 industrial, 3 municipal, 3 planning, 1 stormwater, and 0.5 support). Support for NPDES permitting is provided by 1 water quality modeler and total maximum daily load (TMDL) staff (2.5 FTEs), as well fishery biologists, wildlife biologists, discharge monitoring report (DMR) staff, hydro-geologists, planning and standards staff, and program support staff.

With regard to training, new permit staff are paired with more experienced engineers to mentor and to assist with training. Staff are also offered training (e.g., NPDES Permit Writers Course, National Stormwater Conference). Each new permit writer is provided with both technical and administrative documents to review as part of their training and to use for future reference. Also, permit staff are routinely invited to attend hearings and meetings to observe proceedings to better prepare them for future cases. DEEP maintains a library of technical review manuals, books and other resources that staff can use to assist them. Permits are assigned to permit writers based on

several factors, including job specification, existing workload, experience (senior permit writers get more complex or controversial permits), and areas of expertise.

The water permitting staff use the Integrated Compliance Information System (ICIS) and the Site Information Management System (SIMS) to track permit data. SIMS contains permit data, enforcement information, document management, and geo-spatial site information. The state also has an electronic DMR system (Net DMR). Excel spreadsheets are used to track stormwater permit data.

The water permitting group has developed a significant number of tools that support the permit development process. Following a LEAN process (i.e., customer-focused, continual improvements in process) in 2009/2010 that addressed NPDES permit processing coordination,[1] the group has developed NPDES permitting Standard Operating Procedures (SOPs).[2] Permit writers also use water quality spreadsheets to conduct reasonable potential (RP) analysis and to develop water quality-based effluent limits. Permit writers also conduct statistical effluent quality reviews using Excel to calculate average, maximum and typical pollutant ranges when developing limits. Other information sources include DMR and Monthly Operating Report (MOR) monitoring data, and CT-ECO, which is a map and geospatial data management system.

Connecticut DEEP has used permit and fact sheet templates for many years. The origin, refinement and use of these tools have developed separately for municipal permits in the Bureau of Water Protection and Land Reuse and for industrial permits in the Bureau of Materials Management and Compliance Assurance. The Bureau of Water Protection and Land Reuse has one comprehensive template for municipal permits (41 pages) and fact sheets (6 pages). In the Bureau of Materials Management and Compliance Assurance, a comprehensive set of SOPs linked to various tools and templates are used for industrial facility permits. Over the years, each set of tools have been improved. The tools for the Bureau of Materials Management and Compliance Assurance were reviewed and enhanced as part of the 2009/2010 LEAN NPDES permitting event. Templates are updated on a regular basis to keep up with new regulations and policies and to improve them.

The Connecticut DEEP has an existing internal review process, which is documented in its NPDES SOPs. All permit documents are reviewed by the supervisor and management. This review process helps to ensure that draft permits are consistently written with the appropriate permit language, limits, monitoring, and regulation references. Prior to issuing a notice of tentative determination for a 30-day public notice period, every permit is routed for technical review and approval by senior staff of the municipal facilities section, the Bureau of Materials Management and Compliance Assurance's Water Permitting and Enforcement Division, and the Aquatic Toxicity Program. The draft is then reviewed and approved by management prior to the issuance of a public notice. Once the draft permit has cleared the 30-day public notice period with no adverse comments, the draft permit is re-routed for final review and approval by the management. New municipal POTW permits and renewals that include flow increases are routed

[1] In addition, DEEP has used the LEAN process to address evaluation of the water permitting and enforcement programs (2008), SIMs enforcement data entry SOPs (2009 and 2010), evaluate permit hearing procedures and rules of practice (2010), industrial stormwater general permit on-line registrations (2010), and optimizing municipal permit renewal processing (2011).

[2] Industrial permit SOPs are organized on the DEEP intranet and municipal permits are developed using a template document that includes SOP information.

for review and approval by DEEP's Commissioner. There is an NPDES permit review checklist that permit writers complete and the supervisor and assistant director review. For municipal permits, the permit template is used as a reference document in the permit developing process. Permit writers for individual permits frequently discuss permits with each other and share experiences and language to assist with the permit development. The permit supervisor routinely directs staff to similar operations and permits, which helps facilitate this process. Permit supervisors also have permit status meetings with management to identify complicated issues and to discuss ways to solve them. All individual permits go through the same basic review process, except different supervisors review different categories of individual permits. In addition, reviews for all industrial pretreatment permits for discharges to publicly owned treatment works (POTWs) are coordinated with the Municipal Facilities Section to ensure that any relevant POTW issues are addressed during the permit process. In many cases, draft NPDES permits to surface waters are reviewed by the Planning and Standards Division, Aquatic Toxicity Section.

Regarding the development of all general permits, in-house DEEP workgroups review and comment on initial drafts and stakeholder workgroups (including environmental and business advocacy groups) provide input on later drafts and throughout the hearing/public notice process. Both the Bureau of Materials Management and Compliance Assurance, and the Bureau of Water Protection and Land Reuse develop general permits depending on the specific focus of the permit.

Permit files are maintained in both electronic and hard copy form. Electronic copies of documents such as draft permits, water quality-based limit data, and public notices that are generated as part of the permit development process are stored electronically with the respective program files. Copies of public notices are uploaded to SIMS and the DEEP website, and final permits are uploaded to SIMS. Hard copies of municipal permit application materials and general permits are held within the program office, individual industrial and stormwater permit application materials are stored in the DEEP's public file room after permit issuance. Hard copy correspondence documents are stored by the program office for municipal and general permits, and in the DEEP's file room for individual industrial and stormwater permits.

With regard to monitoring and reporting, recent individual industrial and stormwater permit aquatic toxicity reports (ATMRs) and DMRs are maintained within the program office, while older DMRs are sent to the public file room. DMR information is received, entered into ICIS, and filed by water permitting and enforcement division staff. Copies of MORs, ATMRs, and Nitrogen Analysis Reports (NARs) are received and filed by municipal facilities section staff within their program office.

Hard copy enforcement action paperwork is entered into SIMS and ICIS. Copies of non-confidential enforcement documents are stored in the file room. Copies of stipulated judgments, orders and Notices of Violation are uploaded to SIMS.

For general permit NOIs, electronic versions are maintained in SIMS, while paper versions are maintained within the relevant program office.

B. Universe and Permit Issuance

Connecticut DEEP administers individual permits for 86 POTWs (67 major and 19 minor; 6 of these major facilities have CSOs) and 90 individual permits for non-municipal facilities (31 major and 59 minor). Twelve of these 59 minor facilities are private sewerage plants. In addition to these individual permits, DEEP administers stormwater general permits that cover 114 municipal permittees (1 Phase I and 113 Phase II municipal separate storm sewer systems (MS4s)), 1334 industrial permittees, and 489 construction permittees. In addition, unlike the federal program, Connecticut DEEP has a fourth stormwater general permit for paved commercial sites that encompass 5 acres or more of impervious surface. There are 233 commercial permittees covered under this Commercial General Permit. Connecticut DEEP also has 6 non-stormwater water NPDES general permits that address discharges from categories of activities to surface waters (i.e., Water Treatment Wastewaters, Remediation Wastewaters, Minor Non-contact Cooling Water, Hydrostatic Pressure Testing Wastewater, Swimming Pooling Wastewaters and Point Source Discharges from the Application of Pesticides). Unlike most states, Connecticut DEEP also issues permits directly to indirect dischargers as part of its Pretreatment Program. Two hundred and twelve (212) individual pretreatment permits are issued by Connecticut DEEP to significant industrial users (SIUs)). In addition, Connecticut DEEP has developed pretreatment general permits that address 15 categories of industrial discharges to POTWs. Significant industries within the state include metal finishing, aircraft and aircraft engine manufacturing, submarine manufacturing, paper making, pharmaceutical manufacturing, steam electric power, organic chemical manufacturing, and food processing. (See Section III.H.3 for more information on, Connecticut DEEP's industrial pretreatment program.)

Notices of Intent (NOIs) to be covered under a general permit are tracked through SIMS.

At the time of the July 2012 PQR site visit, DEEP estimated that 46 percent of NPDES permits were backlogged. This represents 47 of 67 major POTWs; 21 of 31 minor POTWs; 8 of 31 major non-POTWs; and 2 of 39 minor non-POTWs. Most of these backlogged permits were for POTWs. Sixty-nine (69) percent of POTWs were backlogged as opposed to only 14 percent of non-POTW permits. Fifteen (15) percent of pretreatment SIU (indirect) permits were backlogged.

The large backlog in municipal permits largely stems from the challenge of translating narrative nutrient water quality criteria into numerical water quality-based effluent limits (WQBELs) and the rigorous modeling and technical justifications involved in issuing these often controversial permits. In recent years Connecticut has aggressively worked to address nutrient-related water quality issues for fresh water. Specifically, the state developed a phosphorus reduction strategy in 2009, which should help facilitate timely POTW permit renewals and reduce the backlog of POTW permits. (See Section III.H.1 for more information on nutrient permits). Challenging permits for facilities subject to CWA Section 316(b) is a prime factor in the industrial permit backlog.

Connecticut DEEP uses its own NPDES permit applications forms (updated 10/2009). For municipal permits, a pre-application meeting letter is mailed to the applicant 310 days prior to permit expiration, and a pre-application meeting is held approximately 300 days prior to expiration. For industrial permits the Bureau of Materials Management and Compliance Assurance also uses a certified letter. In this case it is generated from SIMS 270 days prior to expiration. Applicants submit applications at least 180 prior to permit expiration and such

applications are assigned to a permit writer by a supervisor. The permit writer reviews the application for completeness and technical sufficiency, and notifies the permittee if the application is not complete or technically sufficient. Each general permit has a distinct registration process that includes review and approval of each NOI. DEEP is working to allow for online general permit registration in 2013.

In the Bureau of Materials Management and Compliance Assurance the application review process for industrial permits is conducted in accordance with the State's NPDES LEAN SOP. The LEAN procedures allow approximately 90 days for permit development. In the Bureau of Water Protection and Land Reuse, municipal permit writers use the municipal permit and fact sheet template as an SOP. For both municipal and industrial permits, the permit writer assigned to the permit application conducts a file review (i.e., DMRs, inspection reports, etc.) to gather information, conducts a site visit at the facility to review the facility's operations, determines which regulations apply to the discharges, checks the classification of the receiving water and determines whether any TMDLs apply. The permit writer conducts reasonable potential analyses to determine which pollutants of concern need to be included in the permit and performs the calculations necessary to develop permit limits (TBELs, WQBELs, etc.). Finally, the permit writer determines whether any special conditions or compliance schedules need to be included in the permit, and contacts divisions of DEEP such as the Divisions of Planning and Standards, Fisheries, Wildlife, Inland Water, and Long Island Sound, if permit coordination is necessary.

General permit development involves staff review of the appropriate EPA permit and guidance, collection of key information, staff development of an initial draft, and formation of an in-house DEEP workgroup to review the draft general permit and to develop a working draft for external stakeholders. DEEP then conducts a stakeholder workgroup review and attempts to address stakeholder comments. The draft general permit is released for public notice either concurrently or after stakeholder workgroup review. A public hearing may be held with opportunity for oral public comment. In Connecticut a draft permit is subject to appeal with an evidentiary hearing. After the close of the public comment period and the resolution of appeals, if any, the staff develops responses to comments and a final draft general permit for the Commissioner's signature. The Commissioner then issues the final general permit.

Connecticut can administratively extend general permits beyond their expiration dates for only up to one year provided that the Department has publicly noticed intent to reissue the general permit at least 180 days prior to the expiration date of the general permit currently in effect. In cases where a stormwater or non-stormwater general permit expires, Connecticut DEEP will re-issue or "rollover" the general permit without changes on a short term basis while a revised general permit is being prepared. This is typically a two year permit extension. Connecticut DEEP to date has been successful in obtaining stakeholder buy-in for this rollover process by conducting intensive stakeholder involvement as a general permit with updated provisions is being prepared. While DEEP appropriately provides a public comment period on rollover general permits, this process does not allow for necessary and appropriate upgrades to the general permit, such as incorporating newly approve TMDL waste load allocations, incorporating new Effluent Limit Guidelines, using new effluent data, using new ambient water quality data, or incorporating new electronic reporting requirements. This general permit issuance process allows for both stakeholders and the general public to comment on the draft permit at separate stages of permit development. DEEP is working to merge the two general permit comment processes

Technology-based effluent limits (TBELs) in NPDES permits are determined by using one or more of the following:

1) national effluent guideline regulations established by EPA for various industrial categories that specify Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) for existing sources, and New Source Performance Standards (NSPS) for new sources;

2) Section 22a-430-3 and 4 of the Regulations of Connecticut State Agencies; and

3) case-by case analyses based on best professional judgment (BPJ).

Under state regulations, TBELs need to be at least as stringent as required under the national effluent guideline regulations.

Case-by-case BPJ limits are determined using the following:

1) permit file information including current and previous NPDES application forms and correspondence files, previous NPDES permits and fact sheets, statistical evaluation of effluent performance data from discharge monitoring reports (DMRs), and compliance inspection reports;

2) information from existing facilities and permits including NPDES individual and general permits issued to other facilities in the same region or state, or that include case-by-case limitations for the same pollutants;

3) toxicity reduction evaluations (TREs) for selected industries, ICIS-NPDES data, literature (e.g., technical journals and books), treatability manuals, and state guidance documents; and

4) effluent guidelines development and planning information including: a) industry experts within EPA or the states, b) the relevant ELG Technical Development Documents, c) responses to CWA section 308 questionnaires and inquiries, d) final regulations, e) EPA guidance manuals, and f) EPA's Technical Support Document (TSD).

In Connecticut, technology-based effluent limits in stormwater permits are referred to as control measures.

Water quality-based effluent limitations (WQBELs) are included in permits based on Connecticut Surface Water Quality Standards (WQS) and criteria. This is required by 40 CFR 122.44(d). Parameters of concern are compared to available aquatic life criteria (acute and chronic) and human health criteria, considering the zone of influence (ZOI) allocated to the facility where appropriate. The reasonable potential statistical procedures outlined in the EPA Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001) are employed to calculate the limits.

Permittees with NPDES discharges are typically required to submit a Discharge Toxicity Evaluation (DTE). A ZOI is established using all known river conditions and discharge mixing characteristics in accordance with the Connecticut Surface Water Quality Standards, paragraph 10, as part of or from the information provided by the DTE. The starting or assumed value for upstream pollutant levels is zero. A water quality spreadsheet is used to calculate reasonable potential and water quality-based effluent limits (WQBELs) based on current water quality criteria, established ZOI, average daily flow, hours of discharge, and any analytical data available (application, DMRs, and inspection data). The methods used to develop WQBELs for

an individual permit are documented in the permit's Data Tracking and Technical fact sheet (fact sheet). DEEP's responses to the site visit interview questions indicates that the water quality spreadsheet and any ZOI memos are attached to the fact sheet and in general this was the case.

For stormwater general permits, water quality assessments include a review of EPA stormwater permit conditions, a review of state historic monitoring data (metals), developing dilution/mixing and safety factor criteria, and developing metals WQBELs from Connecticut-specific analyses.

Monitoring requirements for individual permits are developed using a variety of tools. First, Section 22a-430-3 (j) and (r) of the Regulations of Connecticut State Agencies contain tables specifying frequency that are keyed to flow. Second, all pollutants with limits specified in national effluent guidelines by category are required to be monitoring at least once per year, unless a waiver is obtained from DEEP in accordance with federal and state laws. Third, the permit writer uses relevant reports, studies, process line diagrams, chemicals usage data, and effluent data associated with permit applications, DMRs, Aquatic Toxicity Monitoring Reports (ATMRs), Monthly Operating Reports (MORs), TMDLs, state effluent sampling, or stream surveys.

Monitoring requirements in general permits are based on a review of EPA permits, analysis of the state's monitoring history, and developed monitoring protocols. Ambient monitoring may be required for individual permits to determine background.

Individual permit reporting requirements for DMRs and compliance schedules are contained in the permit template. DMR reports are due within 60 days of sampling (i.e., by the end of the month following the sampling month); and compliance schedules are based on the required work (the template includes reminders to add language in specific circumstances and sample language with blanks for the specific schedule dates). Other reporting requirements are part of standard conditions. General permit reporting is based on permit requirements, review of EPA permits (e.g., national stormwater general permits), review of state regulations, and review previous state permits. Net-DMR reporting requirements are being included in individual permits as they are reissued. Also, new and renewed general permits will contain electronic effluent data filing requirements, when they are not "roll-overs."

Standard Conditions: Connecticut DEEP uses boilerplate templates that reference the state regulation pertinent to the same topic as the standard conditions. Although not word-for-word, CT DEEP regulations RCSA Sections 22a-430-3 and 22a-430-4 contain the most provisions of 40 CFR 122.41 and are cited by reference in each permit. These templates were updated in 2012, and are reviewed at least annually. For narrative permit conditions other than the federal "standard conditions," DEEP's NPDES permit templates contain regulation citations, definitions, general effluent limitations, sample collection, handling and analytical techniques, recording and reporting requirements, aquatic toxicity requirements, compliance schedules, and specific special conditions (e.g. BMPs, WWTS upset protocols, etc.).

Anti-backsliding: With regard to anti-backsliding, permit changes to make permits less stringent (e.g., higher permit limits, removing certain permit conditions, etc.) must be consistent with federal and state law. DEEP can make such changes if one of the anti-backsliding exemptions apply (See 22a-430-4 (l)(4)(A)(xxiii) of the RCSA). In addition, such changes can be made when limits were imposed on a case-by-case basis (i.e., BPJ) as technology-based effluent limits in accordance with state regulations, but cannot be met with a properly approved, operated, and

maintained treatment system, subject to variance requirements. DEEP staff indicated that all anti-backsliding reviews are documented in the fact sheet and in general, where relevant, anti-backsliding was discussed at some level.

Antidegradation: With regard to antidegradation, the state's Antidegradation Policy is contained in Standards 2 through 5 of the Water Quality Standards. The Antidegradation Implementation Policy is Appendix E of the Water Quality Standards. During the permit development process, the permit writer will evaluate which tier of antidegradation protection applies to the receiving water, and ensure that the permit limits protect all existing uses and that designated uses are maintained and protected for Tier I receiving waters, or that the procedures in Appendix E for Tier II or Tier III are implemented. Decisions concerning antidegradation are documented in the fact sheet.

Fact Sheets: All NPDES permits have fact sheets that are drafted during the permit development process. For municipal permits, the Bureau of Water Protection and Land Reuse uses an NPDES fact sheet template. This municipal template is six pages, and includes headings for the following information to be filled in: Permit, Address and Facility Data; Permit Information; Compliance Schedule; Ownership Code; Permit Fees; Drainage Basin Code and Segment; Nature of Business Generating Discharge; Process and Treatment Description; Resources Used to Draft Permit (as a series of check boxes); Basis for Limitations, Standards and Conditions (as a series of check boxes); General Comments; Other Comments; and Water Quality Limit Calculations (indicated as "attached"). Industrial permits use SOPs (available on the DEEP intranet) and existing fact sheets as templates. For both municipal and industrial permits, the fact sheets accompanying the draft permits are edited rather than supplemented with a new document or attachment when accompanying the final permit.

Public Notice: Once the public notice, draft permit, and fact sheet are finalized, the signed public notice is sent to the local newspaper for publication, and there is a 30-day period for public review and comment. The public notice in called a Notice of Tentative Determination. This Notice does not mention the availability of a fact sheet, but that the administrative record, including the permit application, the permit and the proposed modified permit, are available for inspection by contacting Connecticut DEEP. In Connecticut a draft permit is subject to appeal with an evidentiary hearing. After the close of the public comment period and the resolution of any appeal, the staff develops responses to comments and a final draft permit is prepared for the Commissioner's signature. All comments are reviewed by DEEP staff, who develop written responses. The written responses are included in the administrative record, but not necessarily in the fact sheet, which is updated for the final permit. If responses to comments are made publicly available, without a party making a special request for inspection, they are typically including in the "Other Comments" section of the revised fact sheet, commingled with other information written for the draft and final permits.

Hearings are held when DEEP receives a written petition with 25 signatures at the time of the draft permit or at the Commissioner's discretion. Hearings require an additional 30-day notice and are administered by the DEEP's Adjudication Division. Hearings typically have an informal component to identify and resolve issues and a formal adjudicatory process component. The Hearing Officer issues a proposed final decision. A request for oral arguments can be made to the Commissioner. The Commissioner issues final decisions on permits. Final permits also can be appealed.

According to DEEP, all final administrative records are managed in accordance with a Records Retention Plan, which specifies management of records within the file room, within the program office, off-site, or through disposal.

C. State-Specific Challenges

State-specific NPDES permitting-related challenges include the following.

DEEP lacks the legal authority to allow general permits to be administratively extended for more than one year beyond their expiration date. This is a barrier to updating permits in a timely manner, and is being addressed by CTDEEP by rolling over general permits at the expiration date, with public notice, but without permit changes that reflect new requirements or changed circumstances. CTDEEP's limited legal authority to extend general permits beyond their expiration date for a period not to exceed one year is available only if CT DEEP's tentative decision to reissue the general permit has been publicly noticed at least 180 days prior to such expiration date.

DEEP has a challenging sequence of appeals, with draft permits being open for appeals and such appeals requiring resolution, prior to the final permit issuance. This makes issuing final permits more challenging in Connecticut than in other states.

DEEP has an NPDES permit backlog particularly for municipal permits and CWA Section 316(b) permits.

DEEP is currently implementing its new phosphorus strategy to translate narrative phosphorous WQS into numeric WQBELs and to facilitate permit issuance.

Like other states, DEEP is challenged with the timely issuance of complete and protective CWA Section 316(b) permits, given the specialized needs, the lack of regulations for existing facilities, the uncertain regulatory future, the nature of the required case-by-case BPJ technology decisions, and the challenges of considering costs and benefits in the most defensible way.

DEEP would appreciate a way to streamline permit data management where DEEP believes the state is required to enter the same data several times into different information management systems between the state and federal levels.

DEEP would appreciate a way to implement e-filing for aquatic toxicity monitoring reports (ATMRs) within NetDMR.

DEEP would appreciate a way to modify the NetDMR reporting system to include weekly sample results.

D. Current State Initiatives

State initiatives that have the potential to strengthen permitting include the following:

- DEEP is working on the issuance and consolidation of several general permits for discharges to POTWs to reduce the pretreatment permit backlog.
- DEEP continues to implement the Long Island Sound TMDL for nitrogen, which has reduced monthly average total equalized nitrogen from approximately 17,000 lbs./day of nitrogen to approximately 10,000 lbs./day since 2002 through a comprehensive watershed

permitting strategy (for periods in 2010 and 2012 the reductions have reached the 2014 target); and

- DEEP has developed and is implementing a phosphorus strategy to reduce fresh water eutrophication and to facilitate more timely permit development and issuance for POTWs.

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 a facility. For example, information regarding facility type, location, processes and other factors is required by NPDES permit application regulations (40 CFR 122.21) because such 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 Connecticut DEEP permits and fact sheets reviewed during the core review include permit issuance and expiration dates, authorized signatures, and specific authorization-to-discharge information. The permits indicate that they are effective upon issuance unless otherwise specified. These permits and fact sheets identify the location of the facility, identify the receiving waterbody by name and basin code, generally include a very brief description of the types of activities and treatment, and identify outfalls, typically in the limits tables. Outfall locations and other facility information are also included in the permit applications. One permit fact sheet did not describe the treatment process (CT0100522).

2. Permit Application Requirements

Federal regulations at 40 CFR 122.21 and 122.22 specify application requirements for facilities seeking NPDES permits. Federal forms are available, but 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.

DEEP has a very good, pro-active pre-application process that includes early contact and a site visit with each permittee. In general, permit files contain current, appropriate, and complete permit applications. The state uses state permit application forms. These were last updated in October, 2009. In some cases, it was difficult to identify the sampling data submitted with the application. The organization of the permit file was not always apparent. In one instance, only one set of results for WET sampling was identified, although numerous previous WET tests had been submitted under the prior permit (CT0101061). In another instance, it was difficult to identify the WET sampling data (CT0100552).

B. Technology-based Effluent Limitations (TBELs)

NPDES regulations at 40 CFR 125.3(a) require that permitting authorities develop technology-based treatment requirements. Permits, fact sheets and other supporting documentation for

POTWs and non-POTWs were reviewed to assess whether these TBELs represent the minimum level of control that must be imposed in a permit.

1. TBELs for POTWs

POTWs must meet secondary or equivalent to secondary standards (including limits for BOD, TSS, pH, and percent removal). Thus, permits issued to POTWs must contain limits for all of these parameters (or authorized alternatives) in accordance with the Secondary Treatment Regulations at 40 CFR Part 133.

The permits and fact sheets developed for municipal facilities that were part of the core review generally provide a very brief description of the wastewater treatment processes. This description was omitted in one fact sheet (CT0100522). The fact sheets use a check box to indicate the basis of TBELs (e.g., Secondary Treatment – Section 22a-430-4(r)). The permits reviewed apply the secondary treatment standards that are in the state's regulations. For BOD_5 and TSS, the state regulations specify monthly average effluent limitations not to exceed 30 mg/l, weekly averages of 45 mg/l, and daily maximums of 50 mg/l, as well as monthly effluent concentration not to exceed 15 percent of influent concentration (i.e., 85 percent removal) and pH of 6.0 – 9.0. (22a-430-4(r)). The permits reviewed included limitations for the monthly average, daily maximum, pH and BOD and TSS percent removal directly in the limits table portion of the permit, and four of five permits included a "remark" below the limits table that indicated that "[t]he Average Weekly discharge Limitations for BOD5 and Total Suspended Solids shall be 1.5 times the Average Monthly Limit listed above." This practice is acceptable, although one permit omitted this remark (CT0101061). Connecticut DEEP staff indicated that it is their current practice to include weekly BOD and TSS limits in all applicable permits. The federal regulations specify monthly and weekly average limitations for BOD5 and TSS of 30 mg/l and 45mg/l, respectively, as well as 85 percent removal and pH of 6.0 – 9.0. In addition, one permit authorizes the bypass of secondary biological treatment when influent flows exceed 60 MGD due to storm events and maximum daily limits and 85 percent removal limits are waived for BOD5 and TSS during such events (CT0100366). The fact sheet discusses this CSO-related discharge but does not indicate whether no feasible alternatives are available.

2. TBELs for Non-Municipal Dischargers

Permits issued to non-municipal dischargers 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 effluent limitations guidelines (ELG) have been developed for a category of dischargers, the technology-based effluent limits in a permit must be based on the application of these guidelines. If ELGs are not available, a permit must include TBELs developed on a case-by-case, based on best professional judgment (BPJ), in accordance with the criteria outlined at 40 CFR 125.3(d).

The fact sheets for the five non-municipal permits reviewed include a good description of the facility including processes, waste streams and pollutants, and treatment, as well as the applicable standards and any special considerations. Two of these facilities are subject to ELGs. The ELGs appear to be properly applied and expressed. The fact sheet for one of the facilities that is not subject to an ELG includes a good explanation of why the ELG does not apply (CT0003107). Another fact sheet (CT0090182) for a facility that potentially could be covered by

an ELG does not include any discussion of whether the ELG was considered and why it is not applicable. Several permits include effluent limitations based on BPJ. For these permits, the fact sheets use a check-box to indicate that some limits are based on a case-by-case determination using the criteria of best professional judgment pursuant to Section 22a-430-4(m) and 40 CFR 125.3(d). Documentation of the application of these BPJ criteria was not clearly identified in the fact sheet or the file materials reviewed. In a few permits, TBELs were maximum daily limits only, or maximum daily limits with instantaneous maximum limits (CT0090182; CT0003921). Finally, in some permits, limits were carried forward from prior permits (e.g., CT0003921; CT0090182). The fact sheet for two of these permits indicates that the facilities have been able to meet the existing limits (CT0003921; CT0090182). The fact sheet for another permit indicates that the limits are retained because they are more stringent than the effluent guideline (CT0003212).

Overall, the TBELs for the municipal permits appeared to be consistent with applicable requirements although one permit (CT0101061) appeared to omit the average weekly BOD5 and TSS limits. For all of the other municipal permits reviewed, the average weekly limits for these parameters were included in remarks rather than within the limits table and the reasons for this were not entirely clear. With regard to documentation, although the check boxes in each fact sheet indicate the basis for permit requirements some additional discussion could help clarify how and on what basis permit requirements were derived. Similarly, the fact sheet for one permit would benefit from some further discussion of the basis for authorizing the wet weather bypass included in the permit (CT0100366). As for TBELs for the non-municipal permits, these appeared to be properly applied and expressed. The fact sheets generally identified applicable ELGs, however, one fact sheet (CT0090182) would benefit from discussion of a relevant ELG. The fact sheets for the non-municipal permits documented the basis for permit requirements, yet documentation of the basis for BPJ requirements could be more specific and complete. Where permit limits are carried forward; the basis for the original limit should be provided if possible.

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, the permitting authority must evaluate the proposed discharge and determine whether technology-based requirements are sufficiently stringent, and whether any pollutants or pollutant parameters has a reasonable potential (RP) to cause or contribute to an excursion of any applicable water quality standard.

The PQR for Connecticut DEEP 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. These determinations require the permit writers and water quality modelers to (1) evaluate and characterize the effluent and receiving water, (2) identify the pollutants of concern, and (3) determine and apply critical conditions, such as low flow. These determinations should incorporate information on ambient pollutant concentrations, assess any dilution considerations, determine whether limits are necessary for pollutants of concern and, where necessary, calculate such limits or other permit conditions. For impaired waters, the PQR also

assessed whether and how permit writers consulted and developed limits consistent with the assumptions of applicable EPA-approved TMDLs.

The fact sheets for the permits reviewed identify the receiving streams by name and include the drainage basin code and the water quality classification code(s), which are defined in the state regulations. Seven of the fact sheets do not expressly discuss the impairment status of the receiving water but do include waterbody classification codes that indicate, in part, when a waterbody may not be meeting all such uses (CT0090182; CT0003212; CT0003921; CT0100366; CT0100226; CT0100714; CT0100552). This information appears to be required by the fact sheet template. Two of the fact sheets that discuss impairment status are associated with industrial permits (CT0002968; CT0003107) and one is associated with a municipal permit and discusses a watershed approach for addressing phosphorus (CT10101061). A TMDL is identified in one of the industrial permit fact sheets (CT0002968), and the second (CT0003107) indicates no impairment. This suggests that the municipal and industrial groups may have slightly different practices regarding documenting how permits address impairments.

Given the template structure of the fact sheets and the inconsistent inclusion of further explanations, it was not always clear whether a limit is a TBEL or WQBEL. The fact sheets include check boxes indicating the basis for limitations, standards, or conditions. The fact sheets for the industrial permits generally list the parameter addressed under each basis category (e.g., federal ELG, etc.). However, the discussion in several fact sheets address more than one basis (e.g., BPJ, RP, performance-based, previous permits) and, as a result, it was not always easy to understand whether the limits were TBELs, WQBELs, or retained to meet antibacksliding requirements (e.g., CT0003921; CT0003212; CT0090182; CT0003107).

The spreadsheets used to calculate WQBELs consider the zone of influence (ZOI) as one of several facility information inputs. The allocated ZOI is set on a case-by-case basis in accordance with state water quality standards. The fact sheets reviewed generally do not discuss whether and how ZOIs are used in calculating WQBELs other than to indicate that they are considered. Two fact sheets included dilution calculations (CT0003212; CT0002968). The municipal permit water quality limit worksheets include a criterion for the size of the zone of influence, which is part of the water quality spreadsheet calculations.

The fact sheets for the permits reviewed do not specifically discuss how pollutants of concern are selected, and some aspects of this process are not clear. The fact sheets indicate that the need for WQBELs is evaluated consistent with state water quality standards and 40 CFR 122.44(d) and that “each parameter was evaluated for consistency with the available aquatic life criteria (acute and chronic) and human health (fish consumption only) criteria, considering the zone of influence allocated to the facility where appropriate.” The state uses an RP/WQBEL spreadsheet with formulas based on EPA’s Technical Support Document (TSD). The spreadsheet used for POTWs includes 18 parameters (i.e., compounds) and completed versions of these spreadsheets were identified for the POTWs permits. The fact sheets for the industrial permits reviewed generally discuss the basis for WQBELs but do not always clearly explain which pollutants of concern were assessed.

Reasonable potential and WQBELs are developed using the state spreadsheets which, as noted, are based on EPA’s TSD. Background data is not routinely considered (i.e., the assumed value for upstream pollutant levels is zero). The fact sheets describe WQBEL development at a very general level (i.e., reference to state and federal regulations and federal TSD), but the fact sheets

do not consistently describe the basic steps in the process, provide calculations (the calculations provided in the fact sheets varied), or reference relevant documents. For the municipal spreadsheet, the state provided a document that explains the structure of and inputs to the spreadsheet in detail.

Overall, the limits in the permits appeared consistent with the documentation available. It was noted that for one permit, the fact sheet indicates that water quality-based limits are based, in part, on data from other comparable wastewater discharges present at significant levels (CT0003921). This did not appear to be a watershed model. For another permit (CT0003107), limits for six parameters were removed. That fact sheet explains that the RP assessment did not support including these limits in the permit and that the discharge levels of these parameters were below the state water quality standards; however, the fact sheet did not explain why anti-backsliding requirements were satisfied. Note that the permit development process described by DEEP indicates that anti-backsliding reviews are documented in the fact sheet, and while anti-backsliding is mentioned in several fact sheets a discussion of how anti-backsliding requirements were addressed was not identified in this particular fact sheet. Finally, some permits include limits for fecal coliform. DEEP staff explained that state *E. coli* water quality standards are relatively recent and that the state is in the process of transitioning to use of the new standards.

Information provided by DEEP regarding the municipal WQBEL spreadsheet indicates that the number of detects are used to determine whether a parameter receives a limit or a monitoring requirement including a minimum quantification level. If there are less than three detects, then monitoring with a minimum level is required.

D. Monitoring and Reporting

The NPDES regulations require facilities discharging pollutants to waters of the United States 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, the regulations at 40 CFR 122.44(i) require NPDES permits to contain monitoring requirements 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. The regulations at 40 CFR 122.48 also require 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, developed on a case-by-case basis, with a frequency dependent on the nature and effect of the discharge.

The permits reviewed included appropriate monitoring requirements based on the facility type, type of discharge and corresponding limit basis. Influent monitoring is required for BOD_5 and TSS for POTWs. Monitoring frequencies and locations are specified in the limits tables. Locations are identified by number or letter code, although the key for the codes was not included. The permits contained a general requirement that monitoring must be conducted according to test procedures approved under Part 136. In addition, the permits routinely required that the value for monitoring parameters must be reported to the maximum level of accuracy and

precision possible. In some cases (e.g., numerous metals, total residual chlorine), the minimum quantification level (minimum level or ML) was specified in the permit conditions. All but one of the permits (CT0090182)[3] reviewed required monitoring for whole effluent toxicity. One of the fact sheets reviewed included maps or flow diagrams (CT0003107). Several of the fact sheets discussed monitoring changes and monitoring requirements for parameters without limits (e.g., CT0003107; CT0002968; CT0003212).

E. Special and Standard Conditions

The 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 certain 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 these required narrative permit conditions, permits may also contain additional narrative requirements that are unique to a particular permittee. These case-specific narrative requirements are generally referred to as "special conditions." Special conditions might include requirements such as additional monitoring or special studies; best management practices (see 40 CFR 122.44(k)); and/or permit compliance schedules (see 40 CFR 122.47). When a permit contains special conditions, such conditions must be consistent with applicable regulations.

Common special conditions in the CTDEEP permits reviewed include acute and chronic toxicity testing and TIE/TRE requirements if toxicity is indicated. All of the permits reviewed prohibit a discharge from causing acute or chronic toxicity beyond the zone of influence. Additional special conditions include sludge and biosolids requirements, stormwater requirements, CWA section 316(b) requirements, and compliance schedules (in three permits). Generally, these requirements appeared to be consistent with federal and state requirements.

One of the permits reviewed included provisions authorizing CSOs (CT0100366). This permit identified the name and location of each CSO, prohibited dry weather overflows, prohibited CSOs from causing violations of state water quality standards, and required the use of available sewerage system transportation capabilities for the conveyance of combined sewerage to treatment facilities. The other Nine Minimum Controls (NMC) and a requirement for the development and implementation of a Long Term Control Plan (LTCP) were not identified in the permit. DEEP personnel indicated that some conditions may have already been satisfied, and the PQR team did not discuss CSO implementation with the state CSO Coordinator. When certain special conditions are included in a permit (e.g., 316(b), compliance schedules, CSO), the relevant fact sheet generally explains the basis and nature of the requirement.

Standard conditions established at 40 CFR 122.41 and 122.42 are incorporated in the DEEP permits reviewed under Section 1: General Provisions. This section lists and incorporates by reference specific sub-sections of state regulations at 22a-430-3 (General Conditions) and 22a-430-4 (Procedures and Criteria). These required conditions typically have not been adopted by

[3] This facility is a fishery science center. The fact sheet indicates that because the facility does not add chemicals to the water and is designed to provide water quality sufficient to maintain healthy aquatic populations within the laboratory, treatment and toxicity testing are not necessary.

Connecticut word-for-word from the federal regulations. In general, these state conditions were found to be more extensive than, but not inconsistent with, federal requirements. However, for a few requirements, it was difficult to identify comparable language. The review found three examples where this was the case.

First, the permits reviewed include a condition that references state criminal penalty statutory provisions for the submittal of false statements in the information submitted under the permits. Although the referenced state provisions are generally consistent with 40 CFR 122.41(j)(5), and potential state penalties are greater than the potential federal penalty amounts, the state provisions do not address additional penalties for a second or subsequent conviction (e.g., in such a case federal provisions provide for imprisonment of up to 4 years, whereas, state provisions provide for imprisonment of up to 2 years per violation).

Second, the requirements for notice of anticipated noncompliance (40 CFR 122.41(l)(2)) appear to be conditioned under the state regulations such that not all anticipated noncompliance need be reported (22a-430-3(j)(11)(D)). The state provision requires notice for actual or anticipated noncompliance of a maximum daily limit, and any condition that may endanger human health, the environment, or POTW operation. However, for a weekly or monthly limit, such noncompliance, if it does not endanger human health, the environment, or POTW operation, must be greater than two times the permitted level to trigger notice. The federal provision does not define non-compliance in this way.

Third, although the regulations require notification of meeting compliance schedule conditions, the review did not identify a requirement to report compliance or noncompliance within 14 days of a compliance schedule date for interim and final requirements under compliance schedules (40 CFR 122.41(l)(5)). State regulations specify that when a compliance schedule is included in a permit the permittee must notify the Commissioner in writing when compliance with each step is complete. This provision would be consistent with federal requirements in the case where compliance is achieved, but it does not require notice of non-compliance within 14 days of a compliance schedule date. State regulations also indicate that any report or information pertaining to a compliance schedule and required under a permit must be submitted by the dates specified in the permit. This provision could address the federal requirement in cases where the permit requires a report and target dates are specified in the permit. However, this provision does not require that compliance schedule dates must be specified in each permit and does not specify that notices of compliance or noncompliance be submitted within 14 days.

F. Administrative Process

The administrative process includes documenting all permit decisions, coordinating EPA and state review of the draft (or proposed) permit, providing public notice, conduct hearings (if appropriate), and responding to public comments, and defending the permit and modifying it (if necessary) after issuance. The PQR team discussed each element of the administrative process with the Connecticut DEEP permitting staff, and reviewed materials from the administrative process as they related to permits reviewed for the core permit review.

The supporting records for the permits reviewed include documentation that demonstrated that public notice procedures were implemented and, in certain cases, that comments had been received and addressed. In five files, a comment and response to comment document was not identified (CT0101061; CT0100366; CT0002968; CT0090182; CT0003212) and it was not clear

whether any comments had been received. DEEP staff noted that responses to comments have been moved from the final determinations memo to the fact sheet, and that responses are provided to commenters. Several permits have undergone minor modifications and these changes appeared to be consistent with federal requirements.

It was noted that draft permits and fact sheets are at times referenced as a proposed application, which could be misunderstood. Further, the public notice of the opportunity to comment on draft permits and fact sheets are called Notices of Tentative Determinations, and do not mention a draft permit or fact sheet or provide a web site where they can be obtained. DEEP staff explained that their new template should more clearly indicate that a draft permit and fact sheet are available for review. They also noted that the DEEP website has a public notice link. However, this link is not provided in the public notice, and this link lists all DEEP actions from all DEEP Departments that are subject to public notice without an easy way to find or sort out the NPDES permits on public notice.

Regarding general permits, as previously noted, DEEP lacks the legal authority to allow general permits to be administratively extended for more than one year beyond their expiration date. This is a barrier to updating permits. It is now being addressed by CTDEEP by rolling over general permits at the expiration date, with public notice, but without permit changes.

Also as previously noted, DEEP has a challenging sequence of appeals, with draft permits being open for appeals and such appeals requiring resolution, prior to the final permit issuance. This makes issuing final permits more challenging in Connecticut than in other states.

G. Documentation

The administrative record is the foundation that supports the NPDES permit. If EPA issues the permit, the contents of the administrative record are prescribed by regulation, with 40 CFR 124.9 identifying the required content of the administrative record for a draft permit and 40 CFR 124.18 describing the requirements for final permits. Authorized states should have equally strong documentation. The record allows personnel from the permitting agency to reconstruct the justification for a given permit and defend the permit during any legal proceedings regarding the permit. The administrative record for a draft permit consists, at a minimum, of 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 with the applicant and regulatory personnel, all other items supporting the file and, for new sources where EPA issues the permit, any Environmental Assessment, Environmental Impact Statement, or Finding of No Significant Impact.

The available permit records generally included the permit, fact sheet, application (including data), some correspondence, and public notice, but at times did not appear to have a standard structure. Water quality spreadsheets and limits calculations (including BPJ documentation) and comparisons were not always identified in these materials. These spreadsheets may reside on the network or with permit writers. DEEP is in the process of transitioning to an electronic records system. In several files, a document containing the public comments received and DEEP's responses those comments was not identified, and it was not clear whether any comments had been received.

Fact Sheet or Statement of Basis

Under 40 CFR 124.8 and 124.56 fact sheets are required for major NPDES permits, general permits, permits that incorporate a variance or warrant an explanation of certain conditions, and permits subject to widespread public interest. Current regulations require that fact sheets include:

- General facility information
    - Description of the facility or activity
    - Sketches or a detailed description of the discharge location
    - Type and quantity of waste/ pollutants discharged
- Summary rationale of permit conditions
    - Summary of the basis for draft permit conditions
    - References to the applicable statutory or regulatory provisions
    - References to the administrative record
- Detailed rationale of permit conditions
    - Explanation and calculations of effluent limitations and conditions
    - Specific explanations of:
        - Toxic pollutant limitations
        - Limitations on internal waste streams
        - Limitations on indicator pollutants
        - Case-by-case requirements
        - Decisions to regulate non-publicly owned treatment works under a separate permit
    - For EPA-issued permits, the requirements for any state certification
    - For permits with a sewage sludge land application plan, a description of how all required elements of the land application plan are addressed in the permit
    - Reasons why any requested variances do not appear justified, if applicable
- Administrative requirements
    - A description of the procedures for reaching a final decision on the draft permit, including:
        - Public comment period beginning and ending dates
        - Procedures for requesting a hearing
        - Other procedures for public participation
    - Name and telephone number of the person to contact for additional information.

The fact sheet and supporting documentation were reviewed with the administrative record in the permit file as part of the PQR to assess whether the basis or rationale for limitations and other permit decisions were documented in the development of the final permit. DEEP developed fact sheets for all of the permits reviewed. Overall, the fact sheet quality varied, even though the fact sheets included much of the information required. Some fact sheets were quite good and many of the fact sheets included a sufficient discussion explaining the basis for the requirements in the

permits. However, a few fact sheets did not provide enough information to fully understand the process of permit development or reflect the considerable work DEEP conducts to develop NPDES permits (e.g., CT0100552; CT0100714; CT0101061; CT0003212; CT0002968).

As discussed above, the fact sheets do not discuss the designated uses of the receiving waterbodies, but do include water quality classification codes based on state regulations. Similarly, seven of the fact sheets do not discuss the impairment status of the receiving water but do include waterbody classification codes that indicate where a waterbody may not be meeting all such uses. Three of the fact sheets include some discussion of the receiving waters' impairment status (CT0002968; CT0003107; CT10101061).

The municipal permit fact sheet template is six pages, however, some municipal permit fact sheets were very brief (e.g., two pages) and included very brief explanation of the facility process and treatment (e.g., CT0100552; CT0100226; CT0100366). The industrial permit fact sheets ranged from 4 to 21 pages and typically included additional facility process and treatment information.

Both the municipal and industrial permit fact sheets use check boxes in part to indicate the basis for permit requirements. In some cases, those items that are checked are not discussed further. For example, for the municipal permits, these check boxes indicate the application of federal and state secondary treatment requirements, but the fact sheets do not discuss these requirements. The industrial permit facts sheets vary in the amount of discussion of ELGs, with some including very good discussion of applicability and requirements. The discussion of BPJ-based limits did not always explain why such limits are appropriate and how required criteria were considered.

Regarding water quality-based requirements, state and federal requirements are identified in the relevant check boxes, and template language is used in part to discuss the state's approach. Some of this discussion is general and does not specifically describe which data were considered and how they were evaluated for this particular permit. The fact sheets for the municipal permits indicate that water quality-based limits calculations are attached, and these were part of the permit file. These sheets include RP results for a set of 18 parameters and water quality-based limits. These sheets also present current effluent data for these parameters, final limits, interim limits, and minimum levels (i.e., minimum quantification level for monitoring) for permits. DEEP personnel identified and shared a document that explains the municipal spreadsheets. This document is not included or referenced in the municipal permit fact sheets, and would likely make the derivations of limits more assessable to the public. With regard to the industrial permit fact sheets, these included a mix of effluent, RP and limit derivation documentation. Examples include effluent data (e.g., CT0003107), RP/water quality limit evaluation for 199 parameters (e.g., CT0090182); phosphorus limit calculations (e.g., CT0003212); effluent data and RP/limit calculations for 12 parameters (e.g., CT0003107); RP summary sheets (e.g., CT0003107); RP data summaries (e.g., CT0003107); performance based limit calculations (e.g., CT0003212, CT0003107); an existing/proposed limit table (CT0003107); limit calculations for three parameters and toxicity (e.g., CT0003921); a comparison of limits based on different criteria (e.g., CT0002968); example ELG calculations (e.g., CT0002968); and example dilution calculations (e.g., CT0003212, CT0002968). It is not clear why different levels of information are included the different fact sheets (i.e., whether permit writers tailor attachments based on each permit) but the variability made it challenging to understand and verify which analyses were completed in support of the permits reviewed.

A comparison of potential limits was not identified in each file. Also, in a few instances, limits were increased or removed from a permit. The fact sheets for these permits generally discussed the reason for these changes, but did not always explain how anti-backsliding requirements were satisfied (e.g., CT0003107; CT0003921).

While the use of the fact sheet template is helpful as a consistent format and a check on the completeness of the fact sheet, the fact sheet template allows for abbreviated, or at times insufficient, explanation of permit conditions. Fact sheets are updated in the transition from the draft permit to final permit so that the pre-draft content of the fact sheet is not distinguishable from the post-draft content. Reponses to comments, if made available to the public without a specific request to inspect the administrative record, are typically included in the "Other Comment" section and not necessarily identified as public comments received during the public comment period. Thus, the public comments received and CTDEEP's responses to these comments could be more transparent, assessable, and clearly identified.

Finally, fact sheets do not include a discussion of the public notice, public comment, public hearing, and EPA review requirements and process. Specifically, fact sheets did not clearly include procedures for reaching a final permit decision as required by 40 CFR 124.8(b)(6)). These procedures must include the following: 1) public comment period beginning and ending dates, 2) procedures for requesting a hearing, 3) other procedures for public participation.

H. Core Topic Areas

Core topic areas are specific aspects of the NPDES permit program that warrant review based on the specific requirements applicable to the selected topic areas. These topic areas have been determined to be important on a national level**.** Core topic areas are reviewed for all state PQRs.

1. Nutrients

For more than a decade, both nitrogen and phosphorus pollution has consistently ranked as one of the top causes of degradation of surface waters in the U.S. Since 1998, the EPA has worked at reducing the levels and impacts of nutrient pollution and, as a key part in this effort, has provided support to States to encourage the development, adoption and implementation of numeric nutrient criteria as part of their water quality standards (see the EPA's *National Strategy for the Development of Regional Nutrient Criteria*). In a 2011 memo to the EPA regions titled *Working in Partnerships with States to Address Nitrogen and Phosphorus Pollution through use of a Framework for State Nutrient Reductions*, the Agency announced a framework for managing nitrogen and phosphorus pollution that in large part relies on the use of NPDES permits to reduce nutrient loading in impaired or priority watersheds. The framework specifically identified permits for municipal and industrial wastewater treatment facilities that contribute significant nitrogen and phosphorus loads, CAFOs, and urban stormwater sources that discharge into nutrient impaired waters. To assess how nutrients are addressed in the CT DEEP permitting program in Connecticut and implementation of this framework, the EPA reviewed POTW and industrial permits with discharges directly or indirectly to waters that are or are likely to be water quality-limited for nutrients. EPA also assessed how nutrients were being addressed in CT DEEP's stormwater and CAFO permitting programs.

For this PQR, EPA Region 1 reviewed six individual POTW permits, one individual industrial permit related to nutrient discharges (nitrogen and phosphorus) and one general permit for

nitrogen discharges (NGP). Additionally, the Region reviewed several other supporting documents that provide the status and progress of the nitrogen trading program for CT's 79 POTW dischargers covered by the Nitrogen GP. Table Nutrients-1 identifies the permits, fact sheets and related documents reviewed for assessing nutrients for this PQR.

Connecticut has long since adopted narrative nutrient criteria related to cultural eutrophication but has not yet developed numeric nutrient criteria. Instead, Connecticut has focused its efforts on developing and implementing programs to manage POTW and industrial discharges of both nitrogen and phosphorus to the state's surface waters. Connecticut's permitting program follows two distinct approaches for establishing permit effluent limitations for nitrogen and phosphorus as pollutants contributing to excessive nutrient enrichment in CT's surface waters. In short, nitrogen limitations are based on waste load allocations established in the EPA approved Long Island Sound Dissolved Oxygen TMDL, while phosphorus limitations are based on watershed specific water-quality based loading analyses which serves as the reasonable potential analyses for phosphorus. Due to the differences in these permitting approaches for nitrogen and phosphorus, each is addressed separately in this report.

Nitrogen: Connecticut began implementing water quality based total nitrogen (TN) limits in 2002 in response to the Long Island Sound Dissolved Oxygen Total Maximum Daily Load (TMDL) approved by EPA on April 3, 2001. The TMDL was developed to address low dissolved oxygen conditions (hypoxia) that occur in much of the bottom waters of the Sound during the summer seasons. Through extensive study, excessive nitrogen loading was identified as the primary contributing factor to the hypoxia. The approved TMDL established waste load allocations (WLAs) for all 79 of Connecticut's POTWs and for industrial discharges known to discharge nitrogen that collectively amounts to a 63.5% reduction in annual nitrogen loading that enters the Sound.

Table Nutrients-1: List of key documents reviewed for 2012 CT PQR Nutrient Topic Area

Document	Description
Permit & Fact Sheet –Suffield WPCF, CT0100552	Issue date: 2/17/12 - nitrogen
Permit & Fact Sheet – Beacon Falls WPCF, CT0101061	Issue date: 4/28/11 - phosphorus
Permit & Fact Sheet - Putnam WPCA, CT100960	Issue date: 5/9/12 - phosphorus
Permit & Fact Sheet – City of Shelton, CT0100714	Issue date: 12/13/2010 - nitrogen
Permit & Fact Sheet – Canton WPCF, CT1000072	Issue date: 4/25/11 - phosphorus
Permit & Fact Sheet - Glastonbury WPCF, DEP-PERD-GP-019	Issue date: 2/15/11 - nitrogen
Permit & Fact Sheet – Kimberly Clark Corp., CT0003212	Issue Date: 2/16/11 – nitrogen & phosphorus
General Permit for Nitrogen Discharges, Permit & Fact Sheet	Issue date: 1/1/11 - nitrogen
Report of the Nitrogen Credit Advisory	Annual report on status of CT's Nitrogen

Board for Calendar Year 2010, CTDEEP, 9/30/11	Exchange program for CY 2010.
Connecticut's Nitrogen Credit Exchange- An Incentive-based Water Quality Trading Program, CTDEP, March 2010	Overview of program and an update of progress through 2009
Chart: Monthly Average Total Equalized Nitrogen Loading to Long Island Sound Projection to 2014, CTDEEP, 7/2/12	Plot showing historic monthly average loading and 12 month moving average of total equalized nitrogen loading to LIS for 2002 through May 2012
Information document: Connecticut's Nitrogen Control Program, CTDEP, October, 2005	Overview of CT's nitrogen control program describing the general permit and trading program
Total Nitrogen Balance Sheet -2012 Monthly Averages by Plant, CTDEEP, 6/28/12	Tracking of 79 POTWs performance relating to nitrogen limits
A Total Maximum Daily Load Analysis to Achieve Water Quality Standards for Dissolved Oxygen in Long Island Sound, NYDEC, CTDEP, December, 2000	WLAs for nitrogen

In 2002, Connecticut issued a General Permit for Nitrogen Discharges (NGP) and established the Nitrogen Credit Exchange Program (NCE). Together the NGP and the NCE, managed by the State, established a trading program and set the course for the 79 POTWs to collectively achieve the WLAs by 2014. Connecticut has incentivized the trading program by continuously providing substantial state funding for construction of nitrogen removal projects. Connecticut's trading program has been recognized as an innovative approach for maximizing the use of limited financial resources to achieve large reductions in nitrogen loadings from its POTWs. In 2007, EPA awarded its first Blue Ribbon for Water Quality Trading to the Connecticut program.

For this PQR, EPA reviewed the most recently issued Nitrogen GP (1/1/2011) as well as four individual permits (3 POTW, 1 industrial) for facilities that have nitrogen limits (see Table Nutrients-1). For POTWs, Connecticut effectively uses requirements specified in both the NGP and the facility's individual permits to achieve the overall nitrogen reduction program objectives (e.g., limits, monitoring and reporting). As in the previous NGPs, allowable annual TN loading limitations are expressed for each POTW for each year of the permit term. The NCE allows POTWs to purchase or sell credits. Purchased credits may be applied towards achieving compliance with annual TN limits. EPA reviewed recent annual reports on the NCE as well as current tracking information for the POTWS provided by Connecticut. This information indicates that the program is presently on target to achieve compliance with the TN WLAs in 2014. The NCE annual reports are well written and provide excellent documentation of the program's status and progress.

For the industrial facility not subject to the NGP, the individual permit reviewed included TN limits that are consistent with the 63.5% reduction identified in the WLA of the TMDL. The Factsheet clearly explains that the TMDL WLA of 63.5% is basis for the limit.

While, the TMDL includes a Load Allocation equivalent to a 10% reduction in annual TN load for urban stormwater and agricultural areas, this review has not identified any specific requirements that specifically address nitrogen loading from these sources. However, the most recent draft of the Construction General Permit requires implementation of post-development controls (e.g., retention of 1 inch of runoff) which will certainly result in stormwater pollutant removal. Currently, the small MS4 GP does not specifically require nitrogen load reductions.

Connecticut reports that there are ten large CAFOs in Connecticut that are expected to apply for NPDES permit coverage once Connecticut issues the NPDES CAFO general permit. Connecticut has drafted an NPDES CAFO general permit that is currently undergoing internal review. Connecticut will make the draft permit available to the Region for its review, prior to the GP's public notice period expected to occur in late 2012. Concurrent with Connecticut drafting an NPDES CAFO GP, the National Resource Conservation Service (NRCS) is revising its 590 Nutrient Management Plan technical standard to comply with the 2008 CFO rule and to support the State's CAFO GP.

Phosphorus: During the past several years, Connecticut has developed and begun implementing its *Interim Nutrient Management Strategy for Non-Tidal Waste Receiving Streams*. This strategy specifically addresses the nutrient phosphorus and provides watershed specific water-quality based assessments for including effluent total phosphorus (TP) limitations in applicable POTW permits. EPA Region 1 has reviewed Connecticut's Phosphorus Strategy and has concurred that it represents a scientifically sound approach for a reasonable analysis determination and for developing TP effluent limitations. Essentially, Connecticut has translated its narrative nutrient criteria to conduct reasonable potential analyses of all POTW discharges that discharge to freshwaters on a watershed basis.

As part of EPA's PQR review relating to phosphorus, the Region reviewed 4 individual permits (3 POTW, 1 industrial). At the time of conducting the permit reviews for this PQR (March 2012), Connecticut had issued only three POTW permits that incorporated TP limits based on Connecticut's recently developed interim strategy. Consequently, these permits were selected for review. The industrial permit reviewed was selected as a core permit review but because it included both nitrogen and phosphorus limits it was also included in the nutrient topic area. Several other permits with freshwater discharges that were selected and reviewed for the core review did not included phosphorus effluent limits. The absence of phosphorus limits was noted and found to be consistent with the state's watershed assessments for nutrients (i.e., reasonable potential analyses).

In all cases, TP limits were included in the permits. For the three POTW permits, the TP limitations were consistent with Connecticut's interim strategy and are based on watershed specific phosphorus loading analyses that serve as reasonable potential analyses. The permit Fact Sheets provide a clear and thorough discussion describing the basis for the TP limits. In the case of the industrial permit, the TP effluent limitations in the permit were based on past performance at the facility. However, the permit Fact Sheet also provided a water-quality based calculation for TP that took available low-flow dilution of the receiving water into account and provided an interpretation of its narrative nutrient criteria by selecting an in-stream TP concentration from EPA's Gold Book. Since the performance based TP limit was determined to

be more stringent than the water-quality based TP limit, the performance based limit was included in the permit. Of note is the different approaches applied to developing TP limits for the POTW and industrial permits. Where appropriate, CT should consider developing TP limits for the industrial and POTW permits using the same watershed based approach.

2. Pesticide General Permit

Background

On October 31, 2011, the EPA issued a final NPDES *Pesticide General Permit (PGP) for Discharges from the Application of Pesticides*. This action was in response to a 2009 decision by the U.S. Sixth Circuit Court of Appeals (National Cotton Council of America v. EPA, 553 F.3d 927 (6th Cir. 2009)) in which the court vacated the 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 Connecticut, have issued state pesticide general permits.

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

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. The 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 May 9, 2012, the CTDEEP issued its own *General Permit for Point Source Dischargers to Waters of the State from the Application of Pesticides* (WPED- GP-026). The general permit is effective from May 9, 2012 to October 31, 2016. Eligibility criteria are contained within Section 3(a) of the General Permit.

For the 2012 Connecticut PQR, the EPA reviewed the CT DEEP PGP with a focus on verifying its consistency with NPDES program requirements.

Findings

Although issued beyond the court ordered date of October 31, 2011, Connecticut's PGP is believed to meet the requirements of EPA's PGP. Connecticut appeared to benefit from its

existing pesticide permitting program and seemed to build off that to develop its PGP. It is believed 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 would require submittal of an NOI and preparation of 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, 2012, of the approximately 550 licensed applications in the State in 2012, only two were above the threshold requiring an applicator to file an NOI. These two NOIs both involved applications in private lakes with the total area treated exceeding 80 acres during the calendar year. The State had previously estimated that 5-10 NOIs would be submitted for coverage under this permit. Water utilities which had not been licensed by the State of Connecticut for copper sulfate applications, now require coverage under the State's PGP.

For the most part, the ongoing/existing recordkeeping conducted by pesticide applicators will satisfy the recordkeeping requirements of the PGP. Connecticut does not have an electronic submission system for its NOIs, but it will accept paper NOIs which will be logged into an electronic system and tracked electronically thereafter.

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 to an impaired water or outstanding national resource water (ONRW). It is expected that the Connecticut PGP would be used as a template for such an individual permit.

3. Pretreatment

Background

The General Pretreatment Regulations (40 CFR 403) establish responsibilities of Federal, state, 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. This pretreatment program review assessed the status of the Connecticut pretreatment program and assessed specific language in POTW permits. With respect to NPDES permits, focus was placed on regulatory requirements for pretreatment activities and pretreatment programs (40 CFR Parts 122.42(b), 122.44(j), 403, and 403.12(i)).

The goal of this pretreatment program review was to assess the status of the State of Connecticut's Industrial Pretreatment Program. The Connecticut Department of Energy and Environmental Protection (DEEP) 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 Connecticut is not required to perform Pretreatment Compliance Inspections (PCI) or Pretreatment Audits (Audits) of its POTWs. Connecticut 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 Connecticut includes 195 SIUs. It is unknown how many of those are categorical industrial users.

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:

The Kerite Company
Bass Plating Company
Merit Metal Finishing Company
Metal Finishing Technologies, LLC.

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

Special Program Information

The following special programs were identified during the review. They do not have any national pretreatment regulatory requirement associated with them, however, they are mentioned here for informational purposes.

Mercury Dental Amalgam Program

Section 22-616(d) of the Connecticut General Statutes (CGS) requires dental schools and training facilities to develop and implement a plan, approved by the DEEP Commissioner that assures BMPs are used to prevent discharge of mercury into the waters of the state of Connecticut. The State of Connecticut developed BMPs in 2006.

Fats, Oil and Grease (FOG) Program

The Department has developed a statewide Fats, Oils and Grease Program.

Findings

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

Significant Industrial User Inspections:

The General Pretreatment Regulations at 40 CFR 403 include a requirement for approved publicly owned treatment works (POTWs) and states that implement the POTW pretreatment program under 40 CFR 403.10(e) to "inspect and sample the effluent from each significant industrial user at least once per year". (See 40 CFR 403.8(f)(2)(v)). The state failed to meet this 100% requirement and has only inspected 111 of 195 SIUs or 57% of the universe in the past year.

Significant Industrial User Monitoring:

In accordance with 40 CFR 403.8(f)(2)(v), the state must "sample the effluent from each significant industrial user at least once per year". The state has failed to meet this 100% requirement and has only monitored 57 of 195 SIUs or 29% of the universe in the past year.

Significant Industrial User Permits:

In accordance with 40 CFR 403.8(f)(1)(iii), the state must control through permit, the contribution to the POTW by each industrial user to ensure compliance with applicable Pretreatment Standards and Requirements. In no case shall the statement of duration be more than five years. The review found that 25 of 195 permits, or 13% of the SIU permits, were currently expired.

Local Limits:

In accordance with 40 CFR 403.5(c), local limits should be evaluated at each POTW to ensure renewed and continued compliance with the NPDES permit and sludge use or disposal practices. There is no evidence that technically based local limits have ever been evaluated at any of the POTWs within Connecticut or that technically based local limits have been established in accordance with 40 CFR 403.5(c) to ensure compliance with the NPDES permit and sludge use or disposal

Annual Pretreatment Reports:

In accordance with 40 CFR 403.12, the state must submit an annual pretreatment report to EPA that describes pretreatment program activities. In a letter dated October 23, 2002, EPA reiterated that annual pretreatment reports must be submitted and clarified the annual report due dates since this issue was one of many findings as a result of the 2000 Pretreatment Audit. The last annual report submitted by Connecticut was August 2007. Given that EPA has not received a report since 2007, the state continues to fail to meet the annual report submission requirement. EPA is aware that DEEP enters DMR information for SIUs directly into ICIS, and EPA and DEEP can explore approaches that reference that information in the annual reports required under 40 CFR 403.12.

Calculation of Significant Non Compliance (SNC):

In accordance with 40 CFR 403.8(f)(2)(vii), the state must identify any SIUs in SNC. The review did not reveal evidence of any evaluation indicating that the state has performed SNC evaluations of its SIUs. The state must calculate SNC for SIUs using EPA's definition of SNC. While compliance information for DEEP SIUs is in ICIS, this does not fulfill not all of the 40 CFR 403.8(f)(2)(vii) requirements .

Publication of Significant Non-Compliance:

In accordance with 40 CFR 403.8(f)(2)(vii), the state must publish annually all SIUs which, at any time during the previous twelve months, were in SNC with applicable Pretreatment requirements. Based on a review of recent records, there is no evidence that the state has published any SIUs in SNC in any newspaper.

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. CTDEEP has not updated its statutes or regulations, and has not submitted the required modifications to EPA.

National Pollutant Discharge Elimination System (NPDES) Permit Language:

The NPDES permits reviewed did not contain the following requirements.

- Notification requirements at 40 CFR 122.42(b)(1) for any new introduction of pollutants to the POTW
- Notification requirements at 40 CFR 122.42(b)(2) for any substantial change in volume or character of pollutants
- Notification requirements at 40 CFR 122.42(b)(3) for the 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)

Summary

Overall, the review found that the State of Connecticut needs to take a number of actions to fully carry out their responsibilities as a delegated 40 CFR 403.10(e) state program. Some of these review findings are already action items based on the EPA Permit Quality Review conducted in 2010. These include items that are basic requirements of the industrial pretreatment program, and Connecticut needs to implement its pretreatment program in accordance with 40 CFR Part 403.

4. Stormwater

Background

The NPDES program requires stormwater discharges from certain municipal separate storm sewer systems (MS4s), industrial activities, and construction sites to be permitted. Generally, the EPA and NPDES-authorized states issue individual permits for medium and large MS4s and general permits for small MS4s, industrial activities, and construction activities. CTDEEP is authorized to issue stormwater permits under the NPDES program.

At this time, CTDEEP has four general permits associated with the regulation of stormwater discharges from construction activities, municipalities, industrial facilities, and commercial facilities. These permits were all reviewed as part of the Connecticut 2012 PQR. No findings are presented regarding the general permit for discharges from commercial activities since the

coverage of these activities are beyond the scope of the federal stormwater permitting program. The four CTDEEP stormwater general permits are listed below:

1. General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems (without modification) (Effective October 1, 2011)
2. General Permit for the Discharge of Stormwater Associated with Industrial Activity, DEP-PED-GP-014 (Effective October 1, 2011)
3. General Permit For The Discharge of Stormwater Associated With Commercial Activity, DEP-PERD-GP-004 (effective May 1, 2009)
4. General Permit for the Discharge of Stormwater and Dewatering Wastewater from Construction Sites. DEEP-WPED-GP-015 DRAFT permit, tentative effective date October 1, 2012

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

Municipal Stormwater General Permit

CTDEEP issues one individual large Municipal Separate Storm Sewer System (MS4) permit to Stamford, Connecticut, and the remaining MS4 municipalities in the state are covered under a single Small MS4 General Permit. The MS4 permit for municipal stormwater discharges that was reviewed was the Small MS4 general permit issued on January 9, 2011, expiring on January 9, 2013. This permit is the 2004 MS4 general permit that was reissued without modification. This is at least the second re-issuance of the 2004 MS4 general permit. The 2010-2012 Regional PQR (started in 2010 and completed on December 14, 2012) reviewed a previous re-issuance of the 2004 MS4 general permit without modification, effective January 12, 2009. In 2012, CTDEEP indicated that they expect to begin working on a new draft permit in the near future. Re-issuance of this permit without any changes limits the effectiveness of the planned iterative approach to permits as described in the preamble of the Phase II rule.

It should be noted that since the PQR review of the 2011 Small MS4 general permit, CTDEEP has again re-issued this permit without modification. This is at least the third re-issuance of the Small MS4 general permit. This latest Small MS4 general permit expires on January 8, 2015. New MS4 communities based on the 2010 census do not appear to be addressed.

The new MS4 permit should address all regulated MS4s (traditional cities and towns, non-traditional MS4s such as universities and military bases; and transportation agencies). It should include enhanced requirements for water quality such as requirements to meet the assumptions and requirements of approved TMDLs, anti-degradation, and discharges to impaired waters without approved TMDLs. The language implementing the minimum control measures should be expanded beyond the regulatory language (40 CFR 122.34(b)). It should incorporate the new MS4s brought into the program based on the 2010 Census.

Many areas of the MS4 permit would benefit from expanded language. Public education should include targeted audiences and/or messages for public education. The illicit discharge detection and elimination program should require mapping of all outfalls, not just those 12 inches or greater, requirements to prioritize areas for illicit discharge potential, and procedures for tracking and removal of illicit connections. The construction program requirements need to include provisions for site plan review, inspections, and enforcement. The post construction management

should include opportunities for use of low impact development (LID) techniques. The permit should expand the operations and maintenance (O&M) expectations and best management practices (BMPs) for the various municipal operations. In addition to catch basin cleaning and street sweeping, municipalities should also be required to maintain infrastructure, and to implement source control and pollution prevention practices at all municipal operations. The permit should include more comprehensive assessments of overall program effectiveness. The permit must include other regulatory conditions associated with NPDES permits.

Industrial Stormwater General Permit

For this portion of the Connecticut PQR, EPA reviewed the state's *General Permit for the Discharge of Stormwater Associated with Industrial Activity*, DEP-PED-GP-014 (Effective October 1, 2011). Consistent with EPA's MSGP 2008, this permit authorizes eligible discharges associated with industrial activities, with the addition of public works facilities and small-scale composting facilities. The permit includes some progressive elements with respect to effluent monitoring, facility inspections, professional certification of SWMPs, and specific control measures. Notable control measures include strong requirements for the siting and containment of deicing material storage piles, and requiring that loading docks be equipped with a roof or shelter for industrial activities initiated after July 2003. In addition to requiring professional certification of SWMPs and elimination of non-stormwater discharges, the permit also requires that any evaluation, construction or modification of the design of a stormwater drainage system be certified by a registered P.E. Additional or clarifying language to eligibility and other provisions of the permit is recommended for reissuance.

Findings

- Although the permit appropriately makes ineligible discharges entirely to groundwater, this is defined as no surface discharge up to a 100-yr, 24-hour rainfall event. Though this may be practical, this is inconsistent with how EPA defines a stormwater discharge (i.e., does not distinguish based on size or recurrence interval of the associated rainfall event).
- The permit allows discharges from non-pressure washing, bilge water, ballast water and cooling water originating from recreational vessels up to eighty (80) feet in length as they are considered to be incidental to the normal operation of a recreational vessel. Allowance for all such discharges should be eliminated in the permit reissuance to be made consistent with EPA's future VGP 2013 that will include these discharges from vessels less than 79-feet in length.
- Unlike EPA's MSGP, the permit does not authorize all discharges that are subject to the full set of stormwater-specific ELGs (i.e., omits hazardous waste landfills, cement or phosphate fertilizer manufacturing, logging/wet decking).
- The permit provides that for stormwater discharges within 500 feet of a tidal wetland, the facility is eligible only where the volume of stormwater runoff generated by 1-inch of rainfall is retained or the commissioner approves an alternate stormwater management system. This is a progressive provision consistent with EPA's current stormwater rulemaking. It is not clear why this eligibility provision is limited to tidal wetlands however, and Connecticut may consider expanding the criteria to freshwaters.

Positive/Progressive Aspects

Eligibility

- Unlike EPA's MSGP, numeric limits for sectors subject to ELGs include only daily maximum and not the monthly average limits. This is appropriate to reduce confusion for the required once per annum monitoring frequency. (Note that Region 1 has already identified this as a proposed modification to the MSGP 2013.)

TBELs

- The permit specifically requires the identification and inspection of roofs subject to drippage, dust, or particulates, and minimization of pollutants as necessary.
- The permit requires that loading docks for industrial activities initiated after July 2003 be equipped with a roof/shelter and protection of adjacent drains.

SWPPP

- The permit includes substantially more significant and prescriptive deicing material storage provisions than those included in the 2008 MSGP. The permit requires that storage piles of de-icing chemicals that are in place for more than 180 days be enclosed or covered by a roof or other structural means. Waterproof covers can be used only as a temporary measure (not to exceed two years from the effective date of this general permit), until a structure can be provided. In areas with a groundwater classification of GA[4] or GAA,[5] an impervious liner is required under any de-icing material pile to prevent infiltration to groundwater. In addition, de-icing materials storage facilities are not allowed within a 100-year floodplain, within 250 feet of a well utilized for potable drinking water supply, or within a Level A aquifer protection area.
- The permit requires that a permittee's SWPPP must comply with applicable requirements in an MS4 permit for a municipality that receives a discharge if the facility has been notified of such conditions. EPA considers it important that the MSGP and MS4 Programs are in alignment where necessary.
- The permit's list of allowable non-stormwater discharges is more restrictive, representing a truncated version of the lists included in EPA's MSGP and 122.26(c)(2)(iv)(B)(1). It also adds discharges from dust control activities and truck load wet-down stations that EPA finds appropriate.

SWPPP Certification & Updates

- The permit requires a pains and penalties certification by a P.E. or CHMM with the preparation of (or significant modification to) the SWPPP that it meets the provisions of the permit, and that the facility only discharges stormwater or allowable non-stormwater that does not contribute to a violation of WQS. The permit also requires that any evaluation, construction or modification of the design of a stormwater drainage system requires certification by a registered P.E. Although not required in the 2008 MSGP,

[4] Designated Use: Designated uses: existing private and potential public or private supplies of water suitable for drinking without treatment; baseflow for hydraulically connected surface water bodies.
[5] Designated uses: existing or potential public supply of water suitable for drinking without treatment; baseflow for hydraulically connected surface water bodies.

requiring certifications by these professionals may improve the quality of SWPPPs and the storm drainage system.

Inspections/Monitoring/Corrective actions

- In addition to routine monthly inspections, the permit requires comprehensive facility inspections at least twice per year.
- Permit expands on EPA's MSGP "natural background" monitoring exception for pre-TMDL waters by adding an exception where it is infeasible to divert pollutants of concern in discharges that are caused by off-site run-on. Region 1 agrees with the provision and had already proposed this as a possible exception to benchmark and impaired waters monitoring in its MSGP 2013.
- Provisions related to benchmark exceedance are sufficiently the same as EPA's MSGP 2008, however, the permit adds that corrective actions are not required for benchmark exceedances where it is infeasible to divert the pollutants in the discharge caused by off-site run-on. Region 1 agrees with the provision and had already proposed this as a possible exception to benchmark and impaired waters monitoring to its MSGP 2013.
- The permit includes substantially more significant benchmark monitoring provisions, requiring twice per year monitoring for all facilities throughout the permit term, with additional monitoring requirements for specific facility sectors. "Baseline" benchmark parameters include discharge temperature, storm depth, and duration; "uncontaminated" rainfall pH; COD, O&G, pH, TSS,TP, TKN, TN, Cu, Pb, and Zn. Annual monitoring for aquatic toxicity is also required for the first two years for all sectors.
- Benchmark values for metals (except copper, lead, and zinc) are set at the 50^{th} percentiles of cumulative relative frequency graphs developed from historic data reported by facilities under the previous general permit. As noted below, benchmark values for parameters other than metals are set at 80% percentiles of the historic data.
- Benchmarks for copper, lead and zinc are based upon state water quality standards and have been determined by CTDEEP to be protective of water quality at typical dilution rates. EPA notes that Connecticut's benchmarks for copper and zinc are higher than the corresponding benchmarks in the 2008 MSGP and that benchmarks for these hardness-dependent metals do not vary based on receiving water hardness. However, CTDEEP notes that its benchmarks are derived from analyses of CT waters and that the limited range of hardness measured in its state waters negates the need to establish benchmarks for these metals based on receiving water hardness.
- Baseline benchmarks for the remaining parameters are set at the 80th percentile of the historic data. EPA notes that Connecticut's benchmarks for these remaining parameters are lower than or equal to the corresponding benchmarks in the 2008 MSGP with the exception of the nitrogen group. Connecticut includes benchmarks for total kjeldahl nitrogen (TKN) and nitrate, whereas the MSGP 2008 uses ammonia and nitrate + nitrite. EPA considers this an acceptable alternative.
- Concentrations for additional benchmark parameters (i.e., beyond the baseline parameters) included in specific sectors match the MSGP 2008 benchmark values with the exception of the nitrogen group as noted above.

In addition to its General Permit for the Discharge of Stormwater Associated with Industrial Activity , CTDEEP has issued a General Permit For The Discharge of Stormwater Associated With Commercial Activity, DEP-PERD-GP-004 (effective May 1, 2009), which applies to additional categories of facilities not covered by to EPA's MSGP. Thus, in this regard Connecticut's stormwater permit is greater in scope than the federal program.

This permit was not formally reviewed as part of the PQR but a summary is provided here as it authorizes stormwater discharges from commercial activity defined as Standard Industrial Classification (SIC) Codes 50-59 (wholesale and retail trade) and 70-79 (Services) with five (5) acres or more of contiguous impervious surface. Owners or operators of such activities must register for coverage and implement a SWMP similar to EPA's MSGP SWPPP requirements. Notable required measures include twice annual sweeping of impervious areas, annual spring cleaning of sediment and debris from structures and outfalls, employee training upon employment and annually thereafter by members of the SWMP team, and avoiding the use of copper and galvanized roofing or building materials for future construction. Like EPA's MSGP, wash waters other than pavement wash water or routine external building washdown are not eligible and must be authorized under a separate permit. For those facilities that discharge less than 100-feet from a tidal wetland, the storm sewer must be designed to store the volume of stormwater runoff generated by 1-inch of rainfall on the site.

Construction Stormwater General Permit

For this PQR, EPA reviewed the following construction general permit: DEEP-WPED-GP-015 General Permit for the Discharge of Stormwater and Dewatering Wastewater from Construction Sites (CGP). DRAFT permit, tentative effective date October 1, 2012.

Since the PQR file review the draft general permit that was reviewed was not reissued in 2012, but rather the CGP that was originally issued April 4, 2004 was reissued on October 1, 2012 with an expiration date in October 1, 2013

The permit that was reviewed contains many progressive elements including post-construction runoff standards for new development and redevelopment, turbidity monitoring, and documentation of low impact development implementation. The permit also requires the SWPPP (referred to by DEEP as a Stormwater Pollution Control Plan, or "SWPCP") to be written and certified by a qualified professional as well as requiring inspections to be completed by a qualified professional. In both cases qualified professional is well defined in the permit.

Findings

Eligibility

- Although the permit appropriately makes ineligible discharges entirely to groundwater, this is defined as no surface discharge up to a 100-yr, 24-hour rainfall event. Though this maybe practical, this is inconsistent with how EPA defines a stormwater discharge (i.e., does not distinguish based on size or recurrence interval of the associated rainfall event). Therefore, discharges resulting from storms greater than this would be discharging without a permit.
- Re-registration of existing projects does not require the updating of the SWPCP and recertification by a qualified professional as required for new projects. Connecticut DEEP should consider requiring the updating of the SWPCP for all existing projects. The intent

is not to require a redesign, but rather to incorporate any enhanced SWPPP requirements for existing projects when a new permit is issued during construction. The 2012 CGP identified practices which do not have to be met for existing projects if infeasible.

- Unlike the 2012 EPA CGP, the permit does not prohibit the use of cationic treatment chemicals.
- Unlike the EPA CGP, the permit does not specify the types of discharges authorized by the permit. Thus it is not clear how non-stormwater discharges such as those in Part 1.3.d of the EPA CGP are addressed at construction sites
- 40 CFR 122.28(b)(iii) provides that operators may request to be excluded from a general permit and apply for an individual permit. CTDEEP should consider explicitly providing that an operator may seek coverage under an individual permit or alternative permit.
- The permit provides that for stormwater discharges within 500 feet of a tidal wetland, the facility is eligible only where the volume of stormwater runoff generated by 1-inch of rainfall is retained or the Commissioner approves an alternate stormwater management system. This is a progressive provision consistent with EPA's current stormwater rulemaking. It is not clear why this eligibility provision is limited to tidal wetlands, however Connecticut may consider expanding the criteria to freshwaters. The provision allows any portion of the 1 inch rainfall event that cannot be infiltrated be treated with stormwater controls; however, the permit does not specify the level of treatment needed to satisfy this requirement beyond that it needs to protect water quality.
- While the permit covers land disturbances between 1 and 5 acres consistent with EPA's CGP, the permit does not require registration of land disturbances between 1 and 5 acres if the erosion and sediment control plan is reviewed by a municipal entity (i.e. planning/zoning, wetland, conservation, etc.). 40 CFR 122.28(b)(2)(v) allows authorization of small construction without an NOI.

Erosion and Sediment Controls

- Unlike the 2012 EPA CGP, the permit does not address natural buffer requirements discussed in the 2009 Construction and Development Effluent Limitation Guideline (ELG). The CTDEEP CGP should incorporate any final ELGs, including provisions to maintain natural buffers or equivalent treatment.

Soil Stabilization

- While the Connecticut CGP mandates the initiation of stabilization immediately, it relies on 2002 guidelines for stabilization schedule and does not require a period where stabilization must be final. Consider adding stabilization timelines similar to the 2012 EPA CGP.
- The permit should discuss and have a standard for what is considered to be stabilized land similar to the 2012 EPA CGP

Pollution Prevention and Prohibited discharges

- Waste disposal discussed in the permit only requires the permittee to minimize the discharge of litter, debris, building materials, hardened concrete waste, or similar materials to waters of the state. CTDEEP should consider making such discharges

prohibited and should include any prohibited discharges from the C&D rule Effluent Limitations Guideline.

- Unlike the 2012 EPA CGP, the permit does not discuss requirements for the use of fertilizers on site.

Water Quality Based Effluent Limitations

- The permit requires additional controls for activities discharging to waters impaired for the following:
    - Site Clearance (Land Development or Redevelopment)
    - Post-Development Erosion and Sedimentation
    - Source Unknown (if cause of impairment is Sedimentation/Siltation)
- A permanent stabilization schedule of 30 days is allowed for sites discharging to impaired waters. Consider reducing the time allowed for stabilization to be consistent with the 2012 EPA CGP.

Inspections, Corrective Actions and Training

- The permit requires that inspections be completed by a Civil Engineer, Soil Scientist or Landscape Architect with a minimum of 2 years of experience.
- Unlike the 2012 EPA CGP, the permit does not require training for personnel on the requirements of the permit. CTDEEP should consider adding training requirements consistent with the 2012 EPA CGP.

SWPCP (SWPPP)

- The permit is progressive with its requirements for documentation of LID practices in the SWPCP as well as long term maintenance plans of any LID practices installed on site.

IV. SPECIAL FOCUS AREA FINDINGS

A. Concentrated Animal Feeding Operations

Background

Federal regulations at 40 CFR 122.23 define an animal feeding operation (AFO) as a lot or facility where animals are confined and fed or maintained for at least 45 days per year, and where vegetation is not sustained. Concentrated Animal Feeding Operations (CAFOs) are the largest AFOs and are defined as point sources by the Clean Water Act. The NPDES CAFO regulations authorize the permitting authority to designate any AFO as a CAFO subject to permitting if the facility is a significant contributor of pollution to waters of the U.S.

The EPA first developed federal effluent guidelines (ELGs) for CAFOs in 1974. In 2003, the EPA revised the CAFO requirements at 40 CFR 122.23 and the ELGs at 40 CFR Part 412. As a result, all CAFOs are subject to the development and implementation of a nutrient management plan (NMP) and annual reporting requirements. Following challenges in federal court to the CAFO regulations, the EPA published revisions to the CAFO regulations and ELGs in 2008 and 2012 (73 Fed. Reg. 70418, November 20, 2008, and 77 Fed. Reg. 44494, July 30, 2012). The revised regulations require that a CAFO must be covered by a NPDES permit at the time that it

discharges. In addition, NMPs have to be reviewed by the permitting authority and incorporated into the permit, making it a requirement to public notice the NMP. Pursuant to 40 CFR 123.62(e), states permitting authorities are required to update state law and regulations to be at least as stringent as the revised CAFO regulations.

The Connecticut Department of Environmental Protection (CTDEEP) administers the NPDES regulatory program that addresses waste management issues associated with agricultural operations. The CTDEEP reports that its state regulations comply with the revised federal CAFO regulations. Among other requirements, the federal CAFO 40 CFR 123.62(e) regulations require that the state permitting authority submit, within 6 months of program approval, copies of their permit forms for EPA review and approval. To date, CTDEEP has not submitted CAFO permit forms, such as Federal CAFO NOI form, Form 2B, to EPA.

Based upon the information provided to the region by representatives of the Connecticut agricultural programs, there are ten large CAFOs in Connecticut, divided amongst the dairy sector and poultry sector, that are expected to apply for NPDES permit coverage once CTDEEP issues the NPDES CAFO general permit. To date, no Connecticut CAFOs have NPDES permit coverage.

Rather than issue individual NPDES CAFO permits to all regulated CAFO discharges, Connecticut has decided on a CAFO strategy to permit most or all regulated CAFO discharges through the use of a CAFO general permit (GP). Based on this strategy, individual CAFO permits would be reserved for CAFOs that do not meet the eligibility requirements of the general permit or that opt for individual permit coverage. According to CTDEEP, a NPDES CAFO general permit was under development during 2011 and 2012, and the GP has been undergoing internal state environmental and agricultural agency review. CTDEEP stated that it would make the draft permit available to the region for its review, prior to the GP's public notice period. As of December 12, 2012, EPA has not received a copy of the draft GP.

CTDEEP further reported that concurrent with CTDEEP drafting an NPDES CAFO GP, the Connecticut NRCS is revising its 590 Nutrient Management Plan (NMP) technical standard to comply with the 2008 CAFO rule and to support the CTDEEP CAFO GP. As of December 12, 2012, CTDEEP reports that CTDEEP and NRCS are close to finalizing the NMP 590 technical standard.

Since the PQR file review in 2012, CTDEEP reports that in 2013 the draft CAFO general permit has undergone substantial development, preliminary internal review, and subsequent coordination with USDS-NRCS to ensure clarity and consistency with recent proposed changes to NRCS's Code 590 Standard for Nutrient Management. As of May 2013, CTDEEP reports that the draft general permit is in the process of final review and development in preparation for coordination with agriculture stakeholders and public notice.

B. Facilities Subject to Sections 316(a) and 316(b) of the CWA:

Thermal Variances and Cooling Water Intake Structures

Section 316(a) of the Clean Water Act addresses variances from thermal effluent limitations, and Section 316(b) addresses impacts from cooling water intake structures (CWISs). The goal of this permit review was to identify how the CTDEEP incorporated these two provisions of Section

316 into permit requirements and how this was documented in fact sheets and administrative records.

The universe of potential NPDES permits for review was determined using a list of permits subject to Sections 316(b) supplied by CTDEEP. EPA selected the 4 most recent permits. These permits were Millstone (CT0003263), Ano-coil (CT0020389), Algonquin (CT0026476), and New London Sub Base (CT0003921).

Thermal Variances Under Section 316(a)

Background:

In any permit, thermal effluent limitations can be: a) water quality-based, b) technology-based, or c) 316(a) variance-based. Most often NPDES limitations are water-quality based relying, in part, on a mixing zone provision in the state water quality standards (or zone of influence as it is referred to in Connecticut Water Quality Standards (WQS)). The NPDES permitting authority may grant a 316(a) variance from meeting otherwise applicable effluent limits if the permittee applies for a 316(a) variance and the permitting authority finds that less stringent thermal limits still assure the projection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water into which the discharge is to be made (BIP). Specially, the CWA Section 316(a) reads as follows:

> CWA Section 316(a) Effluent limitations that will assure protection and propagation of balanced, indigenous population of shellfish, fish, and wildlife. With respect to any point source otherwise subject to the provisions of section 1311 of this title or section 1316 of this title, whenever the owner or operator of any such source, after opportunity for public hearing, can demonstrate to the satisfaction of the Administrator (or, if appropriate, the state) that any effluent limitation proposed for the control of the thermal component of any discharge from such source will require effluent limitations more stringent than necessary to assure the projection [assumed protection] and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water into which the discharge is to be made, the Administrator (or, if appropriate, the state) may impose an effluent limitation under such sections for such plant, with respect to the thermal component of such discharge (taking into account the interaction of such thermal component with other pollutants), that will assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on that body of water.

EPA reviewed four permits and fact sheets to assess how each permit addressed the requirements of Section 316(a). These permits were Millstone (CT0003263), Ano-coil (CT0020389), Algonquin (CT0026476), and New London Sub Base (CT0003921). In this review EPA examined the permit documentation to determine if a 316(a) variance was requested, and if so, how it was considered and if a determination to grant or deny the variance was explained and documented. Absent a 316(a) variance, the permit's administrative record was checked to see if information was present connected with the derivation of water quality-based thermal limits.

Millstone:

Regarding the Millstone Permit and Fact Sheet (CT0003263), the fact sheet is clear that the thermal limits are not based on a § 316(a) variance, but rather on limits that meet state surface WQSs. Thus, the permit and fact sheet need not address 316(a) in its derivation of thermal limits. It is implied that there was no request for a § 316(a) variance. Although not required, this might

be made clear in the fact sheet. CTDEEP has determined that its proposed thermal limits in the permit meet WQSs, including the use of a mixing zone. The fact sheet refers to the thermal distribution models in the administrative record to support the WQ-based thermal limits.

Ano-coil:

Regarding the Ano-coil Permit and Fact Sheet (CT0020389), there is no record of a 316(a) variance request. Therefore, a 316(a) variance need not be granted, and a discussion of 316(a) is not required in the fact sheet. CTDEEP has determined that its proposed thermal limits in the permit meet state WQSs. This could be better explained in the fact sheet and administrative record. Also, numeric effluent limits and monitoring requirements to confirm compliance are recommended as opposed to temperature limits which are merely general effluent limitations. Thermal effluent limits are required if there is a reasonable potential that the discharge will cause or contribute to an exceedance of water quality standards.

Algonquin:

Regarding the Algonquin Permit and Fact Sheet (CT 0026476), the permit states that the thermal discharge will a) assure the protection and propagation of a balance indigenous population of fish, shellfish, and wildlife in and on the receiving water body (BIP) and b) not cause an exceedance of Connecticut WQSs. It would appear that the 316(a) determination to assure the protection of the BIP is not necessary since no 316(a) variance from meeting water quality standards is necessary based on CTDEEP's finding that the discharge cannot contribute to a temperature WQS violation. It may be that the conclusion that the thermal discharge will assure the protection and propagation of the BIP is to support a 316(a) variance from technology-based thermal effluent limits. This would be appropriate, but is not explained in the fact sheet. The permit's WQ-based thermal effluent limits are supported by calculations in the fact sheet and response to comments, and there are technical studies in the administrative record that CTDEEP claims support CTDEEP's determination that temperature WQ standards (including the use to a mixing zone) are satisfied under the permit conditions.

New London Sub Base:

Regarding the New London Sub Base Permit and Fact Sheet , the permit states that the thermal discharge will a) assure the protection and propagation of a balance indigenous population of shellfish, fish, and wildlife in and on the receiving waters (BIP) and b) not cause an exceedance of Connecticut WQSs. Assuming the second determination (meeting WQS) is justified, it would appear that the 316(a) determination to assure the protection of the BIP is not necessary since there is no variance from meeting water quality standards. It may be that the conclusion that the thermal discharge will assure the protection and propagation of the BIP is to support a 316(a) variance from technology-based thermal effluent limits. This would be appropriate, but is not explained in the fact sheet. The permit includes end-of-pipe thermal effluent limits, and a technical report in the administrative record is cited as demonstrating the basis for these limits meeting temperature WQSs with the use of a mixing zone (zone of influence).

Thermal Variances Under Section 316(a) Findings and Recommendations:

No instance of a request for a 316(a) variance was identified, and therefore there was no instance of a 316(a) variance being granted or denied. In each case the thermal effluent limits were selected based on water quality, typically using a mixing zone. End-of-pipe numeric thermal limits were included in most permits (Millstone, Algonquin, and New London Sub Base), but not

all permits (Ano-coil). Thermal limits are supported by thermal monitoring and/or modeling in the administrative record. Numerical thermal limits should be derived whenever there is a reasonable potential to cause or contribute to an exceedance of temperature water quality standards. Further, it is recommended that the derivation and basis for numerical thermal limits be more fully explained in the fact sheet or elsewhere in the administrative record.

Cooling Water Intake Structure Limits Under Section 316(b)

Background:

Four permits and fact sheets were reviewed to assess how each permit addressed the requirements of Section 316(b). These permits were Millstone (CT0003263), Ano-coil (CT0020389), Algonquin (CT0026476), and New London Sub Base (CT0003921).

As background, with any NPDES permit issuance or reissuance the NPDES permitting authority (CTDEEP in this case) is required to evaluate or re-evaluate compliance with applicable standards, including those stated in CWA Section 316(b) regarding cooling water intake structures (CWISs). CWA §316(b) applies if the permit applicant seeks to withdraw cooling water from waters of the United States. To satisfy §316(b) the permit applicant must demonstrate to the satisfaction of the NPDES permitting authority that the location, design, construction, and capacity of the facility's CWIS(s) reflect the best technology available (BTA) for minimizing adverse environmental impacts. Such impacts include death or injury to aquatic organisms by impingement (being pinned against screens or other parts of a CWIS) or entrainment (being drawn into cooling water systems and subjected to thermal, physical or chemical stresses).

Nationally, EPA has taken the following regulatory actions relative to §316(b) to provide or propose BTA technology standard requirements as follows.

1. Final regulations for new facilities with CWISs (so-called "Phase I" facilities) were issued on Dec. 18, 2001 (66 Fed. Reg. 65255). The effective date of the Phase 1 regulations is January 17, 2002.
2. A proposed Existing Facilities Rule ("Phase II") that addresses all existing electric generating facilities as well as existing manufacturing facilities with cooling water intake structures was proposed as the Draft Existing Facilities Rule in April, 2011. A Final Rule is expected in November, 2013.[6]
3. Final regulations for new offshore oil and gas extraction facilities that have a design intake flow threshold of greater than 2 million gallons per day were issued June 16, 2006 ("Phase III" facilities, 71 Fed. Reg. 35006). This rule became effective July 17, 2006.

The Existing Facilities Rule will apply to existing power plants and other facilities with cooling water intake structures, but this Rule has not yet been finalized. In the absence of applicable compliance standards, §316(b) permit requirements for existing facilities, such as the four CTDEEP facilities reviewed, continue to be established on a case-by-case, best professional judgment (BPJ) basis. In each case, the NPDES permitting authority should determine what

[6] A previous "Phase II" Rule regulated power plants with flows of 50 million gallons per day or more ("Phase II" facilities) 69 Fed, Reg. 41576 (July 9, 2004) (effective date was September 7, 2004). On January 25, 2007, the United States Court of Appeals for the Second Circuit remanded several aspects of the Phase II Rule to EPA. As a result of the remand, EPA suspended the Phase II Rule on March 20, 2007.

aspects of the operations, location, design, construction, and/or capacity of the CWIS at that particular facility reflect the BTA for minimizing adverse environmental impacts.

Millstone:

Regarding the Millstone permit, in advance of the draft permit and in light of a 20-year decline in the size and long-term viability of the Niantic River winter flounder stock, DEEP required the permittee to evaluate possible technology alternatives to reduce entrainment. This type of evaluation is valuable in documenting adverse environmental effects triggering a case-by-case §316(b) CWIS BTA determination and in documenting an evaluation of possible technologies to minimize adverse environmental impacts. Further, the fact sheet correctly indicates that BTA for an existing facility such as Millstone must be determined on a case-by-case basis at the time of permit development. (An earlier draft, that was prepared when the Phase II 316(b) facilities were in effect, was revised once EPA stayed the §316(b) Phase II regulations in 2007, except for the provision to conduct case-by-case BTA determinations.)

As documented in the fact sheet, CTDEEP selected the best technology available (BTA) for the CWIS. The BTA components identified are as follows:

a. The installation of variable frequency drives at the cooling water intake structures (CWISs) for both Unit 2 and Unit 3,
b. Planned outages scheduled during spring winter flounder spawning season (April 4 until May 14), and
c. Continued flow reduction until June 5th or when the intake water temperature exceeds 52 degrees Fahrenheit – marking when the winter flounder spawning season peak is over.

While, the permit and fact sheet make a BTA determination, several points could be made more clearly in the fact sheet or administrative record to explain and support this BTA determination.

First, the permit states the above BTA components are to reduce both entrainment and impingement. On the other hand, the fact sheet describes the BTA for entrainment and impingement separately and identifies the above BTA components as needed to minimize entrainment. There could be more definitive statements and systematic justifications regarding what is the BTA for each: entrainment and impingement.

Second, it could be more clearly stated and supported that there is an adverse environmental impact to be minimized with the BTA. Once the fact sheet concludes there is an adverse environmental effect, then the selected BTA should be clearly identified and justified.

Third, the process and factors used to select BTA for this particular facility could be identified and described more fully. There are precedents for using the regulatory factors for Best Available Technology (BAT) by analogy for the best professional judgment BTA analysis.

Fourth, while the permit requires BTA measures such as flow reductions and the installation of variable speed pumps, the permit also states that the Best Technology Available (BTA) determination will be revised next permit cycle based on study materials required under this permit. Thus, along with the current BTA, the permit also required a number of studies to be used in a subsequent BTA determination. Requiring studies to inform subsequent BTA determinations can be a valid approach as long as it does not substitute for a BTA determination

and permit requirement in this permit cycle. (DEEP has made such a BTA determination and permit requirement.)

Fifth, in the Draft Permit CTDEEP states that it determined that reducing cooling water withdrawals to intake flows achieved with closed cycle cooling is BTA, but did not conclude that it could be implemented. Since the feasibility of the technology is an inherit factor as to whether it is "available" as BTA, EPA recommends implementability (or availability or feasibility) be an integral factor in the draft permit's BTA determination rather than be solely the subject of future studies. EPA notes that a technology selected as BTA need not be "proven" and it can be a technology transferred from other applications.

As a final note, an independent exercise of gathering and assessing the relevant information for a case-by-case BTA determination has not been undertaken for the PQR. Such an exercise could result in a different BTA determination.

Ano-coil:

Because of a lengthy appeal after the notice of the initial draft permit, this permitting process extended over four and a half years between the issuance of the draft permit and the issuance of the final permit (between June 2006 and December 2010). It should be noted that there were changes in the regulatory regime of §316(b) during that time. Regarding the Ano-coil permit, there is no discussion of §316(b) or BTA determination documented in the fact sheet. There are provisions related to the CWIS in the permit. These are the requirements for studies and a report to evaluate alternatives to reduce the amount of river water used for non-contact cooling water. While the study is an acceptable permit condition related to the CWIS and/or for water conservation or reducing of dilution, the study is not a technology and not a BTA determination or a substitute for a BTA determination. There is no reference in the fact sheet to other administrative record documents regarding a BTA determination or an explanation for the basis of a BTA determination. CWIS information, the adverse environmental effects of the CWIS, an evaluation of potential BTA technologies, and how the permit complies with 316(b) should be included in the fact sheet. A BTA determination is required in the fact sheet or elsewhere in the administrative record, and the resulting BTA conditions are required in the permit.

Algonquin:

Regarding the Algonquin permit, the fact sheet correctly states that BTA shall be determined for this CWIS on a case-by-case basis. However, the permit states that the current CWIS is not BTA, and the fact sheet does not state and document a case-by-case BTA determination of what is BTA. Despite a claim in the permit that the permit contains a 316(b) determination, the permit contains no required technology, operating practices, or permit limitations identified for the CWIS. The permit must require BTA for the facility, and it should be based on a BTA determination in the fact sheet or elsewhere in the administrative record. The BTA should be a required technology and/or operating practices expressed as permit provisions. While requiring studies to support a future CWIS BTA determination and specifying the scope, schedule and sequence for those studies can be appropriate permit provisions, studies are not a substitute for BTA requirements. In addition, while the permit implies that the CWIS has an adverse environmental effect, it is recommended that this be more clearly stated and supported in the fact sheet.

New London Sub Base:

Regarding the New London Sub Base Permit, the fact sheet correctly states that BTA shall be determined for this CWIS on a case-by-case basis. The permit contains 316(b) requirements. The permit states that the current CWIS is not BTA, and then goes on to require a new cooling tower system for the diesel generator heat exchangers as BTA. It is recommended that a BTA determination explain the rationale for the CWIS permit requirement and that this BTA determination be included in the fact sheet or elsewhere in the administrative record and cited in the fact sheet. The BTA determination should include a description of this BTA, the anticipated result of this BTA, and how it was selected. If a new cooling tower system is the BTA for this CWIS that provides the cooling water for DSN 001, it is recommended that this be clearly stated in the fact sheet along with a BTA determination that describes how this BTA was selected to minimize adverse environmental effects. Also, it appears there may be multiple CWISs which withdraw cooling water that is then discharged. If this is the case, then in the fact sheet there should be a 316(b) BTA determination for the NCCW discharge from each CWIS. Each BTA determination should include a description of this BTA, the anticipated result of this BTA, and how it was selected. Finally, the fact sheet projects the CWIS through screen velocity to be 0.08 feet per second (fps). If this is the maximum through screen velocity it would be an appropriate component of BTA. If so, it should be identified as such and there should be a permit condition requiring that it not be changed.

Cooling Water Intake Structure Limits Under Section 316(b) Findings and Recommendations:

As reflected in most of the fact sheets, CTDEEP recognizes that BTA for an existing facility must be determined on a case-by-case basis at the time of permit development. Connecticut should include §316(b) cooling water intake structure permit conditions in its applicable permits and a determination of Best Technology Available for existing facilities on a BPJ basis in the accompanying fact sheet or elsewhere in the administrative record supporting the permit.

C. Combined Sewer Overflows (CSOs)

Background

Combined sewer overflows (CSOs) present environmental and health problems because they discharge untreated 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), 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 the implementation of nine minimum controls (NMC) and development of a Long-Term CSO Control Plan (LTCP). Phase II permits must contain requirements for 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 to implement nine minimum controls and develop a LTCP:

a. Immediately implement the nine minimum controls;

b. Develop and submit a report documenting the implementation of the nine minimum controls;

c. Comply with applicable water quality standards, expressed in the form of a narrative limitation; and

d. Develop and submit, based on a schedule in an appropriate enforceable mechanism, a LTCP.

2. Phase II Permits – Requirements for Implementation of a LTCP:

a. Requirements to implement the technology-based controls, including the nine minimum controls determined on a BPJ basis;

b. Narrative requirements which ensure that the selected CSO controls are implemented operated and maintained as described in the LTCP;

c. Water quality-based effluent limits under 40 CFR 122.44(d)(1) and 122.44(k), requiring compliance with, no later than the date allowed under the state water quality standards, the numeric performance standards for the selected CSO controls. This can be expressed as a maximum number of overflow events per year or a minimum percentage capture of combined sewage by volume for treatment;

d. 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 state water quality standards and protection of designated uses as well as to determine the effectiveness of CSO controls;

e. A requirement to reassess overflows to sensitive areas;

f. Conditions establishing requirements for maximizing the treatment of wet weather flows at the POTW facility; and

g. A reopener clause authorizing the permitting authority to reopen and modify the permit upon determination that the CSO controls fail to meet state water quality standards or protect designated uses.

As part of the 2012 PQR, the EPA reviewed two permits with special focus on the CSO requirements and whether the permits met the conditions of the EPA's 1994 CSO Control Policy. These two permits are: (1) New Haven, East Shore WPAF (CT0100366) and (2) Bridgeport East Side WPCF (CT0101010).

Findings

Connecticut has five CSO communities and CSO permit universe of 6 facilities. Bridgeport has two facilities subject to CSO permit language. CTDEEP is implementing the 1994 CSO Control Policy primarily through enforcement actions. The permits reviewed provide few specific requirements related to CSO discharges and do not reflect all the requirements laid out in EPA's

1994 CSO Control Policy. Specifically, the region's review of the permits found the following key points:

1. CSO outfalls authorized under the permits are identified but do not include numeric effluent limitations;
2. Neither permit includes all of the nine minimum controls;
3. Both permits specifically require that the permittee shall use, to the maximum extent practicable, available sewerage system transportation capabilities for the conveyance of combined sewage to treatment facilities; and
4. Both permits require that discharges from combined sewer overflows shall not cause violations of state water quality standards.

V. ACTION ITEMS

This section provides a summary of the main findings of the review and provides proposed action items to improve the Connecticut NPDES permit program. This list of proposed action items will serve as the basis for ongoing discussions between Region 1 and Connecticut 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 a federal regulation.
- **Recommended Actions** (Category Two) - Recommended: Proposed action items will address a current deficiency with 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 proposed action items should be used to augment the existing list of "follow up actions" currently established as an indicator performance measure and tracked under EPA's Strategic Plan Water Quality Goals and/or may serve as a roadmap for modifications to the region's program management.

A. Basic Facility Information and Permit Application

The DEEP fact sheets and permit files reviewed provide a good level of facility information upon which to base permit requirements. In general, permit applications appear to be appropriate, timely, and complete. Proposed action items to help the Connecticut DEEP strengthen its NPDES permit program include the following:

- Consistently identify and discuss as relevant the impairment status (303(d), TMDL) of the receiving water in the fact sheet. (Category 3)

- In the fact sheet, identify the location of outfalls associated with the permitted discharges. (Category 2)
- In addition to providing water quality classification codes, consider describing the designated use of the receiving water in the fact sheets. (Category 3)

B. Technology-based Effluent Limitations

In general, the DEEP permits reviewed properly implement TBELs for municipal and non-municipal facilities. Proposed action items to help the Connecticut DEEP strengthen its NPDES permit program include the following.

- Ensure that the secondary treatment weekly average BOD_5 and TSS requirements are included in all POTW permits. Including these requirements in the remarks at the end of the limits table is sufficient. (Category 1)
- Ensure that the basis for an authorized bypass of secondary treatment due to high inflow due to storm events is documented in the permit file, including whether no feasible alternatives are available. (Category 2)
- Include an explanation of how secondary treatment requirements are implemented in POTW fact sheets. (Category 3)
- In fact sheets for non-municipal permits, consistently include a discussion, and the calculation if used, of how each TBEL is derived, including a discussion of how a ELGs applies or any ELG that was considered and determined not to apply. (Category 2)

C. Water Quality-Based Effluent Limitations

The permits reviewed include WQBELs and the fact sheets and permit files document the basis for these limits. Proposed action items to help the Connecticut DEEP strengthen its NPDES permit program include the following:

- Ensure that a completed version the most current DEEP reasonable potential (RP) and limits spreadsheet is included in the fact sheet (or identified if located elsewhere in the administrated record) and that final limits are consistent with the calculations in the spreadsheets or are otherwise explained. (Category 2)
- In fact sheets include an additional description of the process used to determine reasonable potential and to derive WQBELs. This could be a consistent set of tables and an accompanying explanation of the assumptions, calculations and inputs that are applied in the process. (Category 3)
- When limits are removed or made less stringent, in addition to explaining in the fact sheet why these changes were made, discuss how anti-backsliding requirements are satisfied. (Category 2)
- When the data is available, consistently consider background concentration when determining reasonable potential and deriving WQBELs. (Category 2)

D. Monitoring and Reporting

Monitoring and reporting requirements in the permits reviewed generally appeared to be consistent with program requirements. Proposed action items to help the Connecticut DEEP strengthen its NPDES permit program include the following:

- There are no action items under this topic.

E. Special and Standard Conditions

The standard conditions reviewed were extensive and predominantly consistent with federal requirements and the special conditions generally appeared to be appropriate and reasonably documented. Proposed action items to help the Connecticut DEEP strengthen its NPDES permit program include the following:

- Ensure standard permit conditions in permits meet all requirements of 40 CFR 122.41 and are no less stringent. For the issues identified, a cross-walk between 40 CFR 122.41 and state regulations (22a430-3 and 22a-430-4) would be useful in this process. (Category 2)

F. Administrative Process (including public notice)

The permits reviewed appeared to be compliant with the administrative process requirements. A single proposed action item to help the Connecticut DEEP strengthen its NPDES permit program is included below. Note that while the PQR found that the clarity of information provided during the public comment period could be improved, since the PQR file review, CTDEEP has also been including information indicating whether public comments were received during the public comment period, what those comments were, and CTDEEP's responses to these comments in a separate section of the Fact Sheet. Since the review CT DEEP's posted public notices also have links directly to the draft permit and fact sheet. Thus, there is no action item to follow up this finding.

- Evaluate means to allow general permits to be administratively extended for more than one year beyond their expiration date and avoid rolling over general permits at the expiration date, without permit changes. This would facilitate the adoption of new ELGs or rules in expired permits. (Category 2)

G. Documentation (including fact sheet)

The fact sheets reviewed were of variable quality and the permit files were generally found to be complete. Proposed action items to help the Connecticut DEEP strengthen its NPDES permit program include the following:

- Discuss the impairment status of receiving waters in each fact sheet. (Category 2)
- Ensure that permit documentation includes calculations of TBELs, if calculations were used. (Category 2)
- Continue to include or attach reasonable potential determinations and limits calculations in fact sheets and consider referencing RP and limits spreadsheets. (Category 3)
- Where TBELs are developed on a case-by-case basis based on best professional judgment, document in the fact sheet the basis for such limits, consistent with the factors listed in 40 CFR 125.3(d). (Category 3)
- Although the fact sheets explain that TBELs and WQBELs are compared and the most stringent limit is placed in the permit, include in the fact sheet (or in the administrative record) documentation of the comparison of TBELs and WQBELs. (Category 3)

- Consider including discussions in fact sheets of all items addressed as relevant (i.e., checked) in the check-boxes. (Category 3)
- Although the fact sheet discussion references the Technical Support Document (TSD), consider adding more specific discussion of how pollutants of concern are determined and how water quality-based limits are determined. (Category 3)
- For permit fact sheets, include more explanation for permit limits in the fact sheet, possibly including a more consistent set of attachments in support of industrial permit limits. (Category 3)
- Include additional discussion in relevant fact sheets of why the anti-backsliding requirements were satisfied, such as which specific regulatory exception is the basis for a less stringent limit. (Category 2)
- Consider identifying comments and responses that are part of the administrative record and if the Response to Comments is in a separate section of the fact sheet, then clearly indicate which portions of the fact sheet have been modified after the public comment period. (Category 3)
- Consider using the same or unified formats, templates, level of detail, and SOPs in the Bureau of Water Protection and Land Reuse and the Bureau of Materials Management and Compliance Assurance in preparing fact sheets and other documentation. (Category 3)

H. Core Topic Areas

Proposed actions items for core topic areas are provided below.

1. Nutrients

Connecticut has adopted narrative nutrient criteria related to cultural eutrophication but has not yet developed numeric nutrient criteria. Instead, Connecticut has focused its efforts on developing and implemented programs to manage POTW and industrial discharges of both nitrogen and phosphorus to the state's surface waters. Connecticut's permitting program follows two distinct approaches for establishing permit effluent limitations for nitrogen and phosphorus as pollutants contributing to excessive nutrient enrichment in Connecticut's surface waters. Nitrogen limitations are based on waste load allocations established in the EPA approved Long Island Sound Dissolved Oxygen TMDL, while phosphorus limitations are based on watershed specific water-quality based loading analyses. Proposed action items to help Connecticut strengthen its NPDES permit program include the following:

- When CAFOs and MS4 permittees discharge to receiving waters with approved nutrient TMDLs, Connecticut should include provisions in these permits consistent with the assumptions and requirements of the TMDL's waste load allocations. Since the PQR visit, EPA understands that CTDEEP is now developing such language for the next CAFO and MS4 permits. (Category 1)
- Connecticut needs to continue to include phosphorous nutrient effluent limits in all applicable POTW permits using its *Interim Nutrient Management Strategy for Non-Tidal Waste Receiving Streams*. (Note that EPA has approved this interim phosphorus strategy and is monitoring its implementation.) (Category 2)

- Connecticut should continue to document reasonable potential determinations and derivations of WQBELs in permit fact sheets, or the administrative record if a fact sheet is not required. (Category 2)
- Connecticut should consider developing total phosphorous limits for the industrial and POTW permits using the same watershed based approach as is done for POTW permits, where appropriate. (Category 3)

2. Pesticide General Permit

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

3. Pretreatment

The Connecticut DEEP 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 directly, and, unlike most states, Connecticut issues permits directly to its Significant Industrial Users. Proposed action items to help the Connecticut DEEP strengthen its program include the following:

- Connecticut needs to ensure that it is attaining all CMS goals for conducting inspections of Significant Industrial Users and perform annual monitoring of each of its Significant Industrial User. CMS goals are addressed on an annual basis through performance partnership agreements. (Category 1)
- Connecticut should work to reissue expired Significant Industrial User permits to reduce the current backlog. (Category 2)
- For its authorized Pretreatment Program, on a continuing basis Connecticut needs to evaluate local limits for each POTW in accordance with 40 CFR 403.5(c) or demonstrate that this is not necessary as provided in EPA's 2004 Local Limit Guidance Manual. (Category 1)
- Connecticut should work with Region 1 to determine a format for annually reporting of pretreatment data which may include reference to information available through ICIS. (Category 2)
- Connecticut should evaluate whether each Significant Industrial User has met the criteria for Significant Non Compliance and annually publish a list of all Significant Industrial Users in Significant Non Compliance consistent with the public notice requirements of 40 CFR 403.8(f)(2)(vii). (Category 2)
    - Connecticut DEEP has indicated it regularly runs noncompliance reports from ICIS. These may be used as a source of the information published annually.
- Connecticut should review its regulations in accordance with the 2005 Federal Streamlining Rule and update them if necessary. (Category 2)
- Connecticut should include all 40 CFR 122.42(b) notification requirements in its POTW permits as well as the industrial waste survey requirements in accordance with 40 CFR 122.44(j)(1). (Category 1)

  To comply with these requirements, Connecticut needs to include timeframes in NPDES permits issued to POTWs for the following pretreatment program provisions:

- Notification requirements at 40 CFR 122.42(b)(1) for any new introduction of pollutants to the POTW;
- Notification requirements at 40 CFR 122.42(b)(2) for any substantial change in volume or character of pollutants;
- Notification requirements at 40 CFR 122.42(b)(3) for the quantity and quality of effluent to POTW and anticipated impact of the change in effluent to the POTW; and
- Requirements at 40 CFR 122.44(J)(1) to identify Significant Industrial Users (i.e. industrial waste survey).

4. Stormwater

CTDEEP is authorized to issue stormwater permits under the NPDES program. At this time, CTDEEP has issued general permits associated with the regulation of stormwater discharges from municipal separate storm sewer systems, industrial facilities, and construction activities. Although not required by federal regulations, CTDEEP has also issued a general permit to control pollution from large scale commercial activities. Action items for the federally required municipal, industrial, and construction stormwater permits are presented separately.

Municipal Stormwater Action Items

CTDEEP reissued the 2004 Small MS4 general permit without modification in 2009 and again in 2011. Reasons for rolling over these general permits included staff resource constraints. In addition, since the PQR file review, on January 9, 2013 CTDEEP again reissued the Small MS4 general permit without modification for at least the third time. Rolling over this permit without modification perpetuates provisions that require updates such as including TMDL requirements, including new MS4 communities based on the 2010 census, including non-traditional MS4s, and including the state department of transportation.

Connecticut's 2004 Small MS4 general permit also seems to automatically authorize permittees to discharge. The permit states that authorization by this general permit is on the date the permit is effective. This seems to allow MS4s to be authorized to discharge without submitting an NOI. Authorization should occur after review of information submitted by the MS4.

An iterative approach to MS4 permits as described in the preamble of the Phase II rule is appropriate to improve the quality of MS4 discharges. The next reissuance of the MS4 permit would benefit from expanded requirements, specificity, and language.

- CTDEEP should modify or reissue its Small MS4 General Permit with revised and updated requirements that include requirements to meet the assumptions and requirements of approved TMDL, include new MS4 communities based on the 2010 census, include non-traditional MS4s, and include the state department of transportation. (Category 1)
- CTDEEP's Small MS4 General Permit should expand its requirements, specificity, and language, including in the following areas:
    - enhanced requirements for water quality;
    - opportunities for use of low impact development (LID) techniques;

- include language for the minimum control measures beyond the regulatory language (40 CFR 122.34(b));
- site map requirements such as mapping of all outfalls (not just those 12 inches or greater);
- illicit discharge detection and elimination program requirements to prioritize areas for illicit discharge potential and procedures for tracking and removal of illicit connections;
- the Operations and Maintenance (O & M) expectations and best management practices (BMPs) for the various municipal operations;
- implementing source control and pollution prevention practices at all municipal operations;
- inspection requirements; and
- more comprehensive assessments of overall program effectiveness

(Category 2)

Industrial Stormwater Action Items

Connecticut's 2011 General Permit for the Discharge of Stormwater Associated with Industrial Activity is largely consistent with EPA's MSGP 2008, authorizing eligible discharges associated with industrial activities. The permit includes some progressive elements as well as some notable control measures beyond the provisions of EPA's MSGP. There are also some areas where the permit could be improved when reissued as noted in these action items.

- In the next permit re-issuance, eliminate the permit eligibility distinction between stormwater and non-stormwater based on the size or recurrence interval of the associated rainfall event so that such stormwater discharges beyond the 100-yr, 24-hour rainfall event are eligible and therefore not discharging without a permit. (Category 1)
- In the next permit re-issuance, eliminate language that identifies discharges from non-pressure washing, bilge water, ballast water and cooling water originating from recreational vessels up to eighty (80) feet in length may be discharged as they are considered to be incidental to the normal operation of a recreational vessel. These discharges will be eligible under EPA's 2013 Vessel General Permit upon issuance. (Category 1)
- In the next permit re-issuance, Connecticut should consider making all facilities subject to ELGs eligible for coverage. Unlike EPA's MSGP, the permit does not authorize discharges that are subject to the full set of stormwater-specific ELGs (i.e., omits hazardous waste landfills, cement or phosphate fertilizer manufacturing, logging/wet decking). EPA understands that presently there are no such activities in Connecticut, however CT DEEP might consider keeping the option open by making such facilities eligible for coverage to facilitate coverage of future facilities under either an individual permit or this general permit. Also, consider referencing for clarity the 40 CFR Part for each ELG included in the permit. (Category 3)
- In the next permit re-issuance, incorporate the requirements from the May 16, 2012 Airport Deicing ELG that are appropriate to the kinds of discharges the permit authorizes (40 CFR Part 449). (Category 1)

- Permit provides that existing coverage under an individual permit can be revoked and replaced by this MSGP. In the next permit re-issuance, Connecticut should consider including explanatory language similar to that provided in Part 1.1.4.3 of EPA's 2008 MSGP. (Category 3)
- Permit provides that for stormwater discharges within 500 feet of a tidal wetland, the facility is eligible only where the volume of stormwater runoff generated by 1-inch of rainfall is retained or the commissioner approves an alternate stormwater management system. In the next permit re-issuance, Connecticut may consider expanding such a stormwater retention criteria to freshwaters as well, while acknowledging that many facilities may have site constraints. (Category 3)
- In the next permit re-issuance, Connecticut should consider defining a "qualifying rainfall event" and refining it to include a measurable event that produces a stormwater discharge for clarity (e.g., "All samples must be collected from discharges resulting from a qualifying storm event. A qualifying storm event is a storm event that results in an actual discharge from the site that occurs at least 72 hours after the preceding qualifying storm event." (Category 3)
- In the next permit re-issuance, Connecticut should consider incorporating modifications similar to those made to EPA's 2013 MSGP once finalized. (Category 3)

Construction Stormwater Action Items

Connecticut's 2012 General Permit for the Discharge of Stormwater Associated Construction that was reviewed for this PQR was planned for issuance in 2012. Since the permit review, on October 1, 2012 CTDEEP re-issued the existing General Permit for the Discharge of Stormwater Associated Construction without modification. This reissued general permit is effective October 1, 2012.

The general permit reviewed for the PQR, expected to be issued in 2013, is largely consistent with EPA's 2012 CGP, authorizing eligible discharges associated with the disturbance of one or more acres of land. The permit includes some progressive elements and some control measures beyond the provisions of EPA's GP. Connecticut has proposed modifications to the 2012 General Permit (proposed 2013 General Permit) and plans to incorporate volume-based post construction performance standards and require monitoring of stormwater discharges. There are also some areas where the next reissuance of the General Permit could be improved when reissued as noted in these action items.

- In the next permit re-issuance, eliminate the permit eligibility distinction between stormwater and non-stormwater based on the size or recurrence interval of the associated rainfall event so that such stormwater discharges beyond the 100-yr, 24-hour rainfall event are eligible and therefore not discharging without a permit. (Category 1)
- In the next permit re-issuance, Connecticut should consider incorporating requirements, as appropriate, for sites which use cationic treatment chemicals. (Category 3)
- In the next permit re-issuance, consider adding a standard and timelines for site stabilization similar to EPA's 2012 CGP or referring to those in CT's Guide for Soil Erosion and Sediment Control to be consistent with the Construction and Development effluent limitation guidelines (ELGs). (Category 3)

- In the next permit re-issuance, Connecticut should consider a prohibition on the discharge of waste, garbage, floatable debris, construction debris, and sanitary waste consistent with EPA's Construction and Development ELGs. (Category 3)
- In the next permit re-issuance, Connecticut should consider requirements for the storage and application of fertilizers containing nitrogen or phosphorus. (Category 3)
- In the next permit re-issuance, Connecticut should consider mandating corrective action reporting and scheduling similar to EPA's CGP 2012. (Category 3)
- In the next permit re-issuance, Connecticut should consider adding training requirements consistent with EPA's 2012 CGP. (Category 3)
- In the next permit re-issuance the permit should incorporate any relevant final ELGs or standards that are not included in the current permit. (Category 1)
- In the next permit re-issuance, explicitly provide that an operator may seek coverage under an individual permit or alternative permit consistent with 40 CFR 122.28(b)(iii). (Category 3)
- Connecticut's permit provides that for stormwater discharges within 500 feet of a tidal wetland, the facility is eligible only where the volume of stormwater runoff generated by 1-inch of rainfall is retained or the commissioner approves an alternate stormwater management system. In the next permit re-issuance, Connecticut may consider expanding the criteria to freshwaters. (Category 3)

I. Special Focus Areas

Proposed actions items for special focus areas are provided below.

1. Concentrated Animal Feeding Operations Action Items

CTDEEP reported to EPA that it has the authority to implement the current federal CAFO regulations (2003 and 2008) under its state environmental regulations, however the Agency has not issued any CAFO permits to date. Action items aimed at CTDEEP strengthening its NPDES permit program are as follows:

- CTDEEP should move expeditiously to issue permits to the Connecticut facilities with CAFO related discharges. CTDEEP should proceed with its plans to public notice the draft state CAFO general permit and update EPA on its progress toward attaining permit coverage for all regulated CAFO discharges. (Category 1)
- CTDEEP should submit to EPA copies of their permit forms for EPA review and approval pursuant to 40 CFR 123.62(e). (Category 3)

2. Facilities Subject to Sections 316(a) and 316(b) of the CWA Action Items

Proposed action items to help the CTDEEP strengthen its NPDES permit program with regard to facilities subject to Sections 316(a) and 316(b) of the CWA include the following:

- Connecticut should include §316(b) cooling water intake structure permit conditions in its applicable permits and a determination of Best Technology Available for existing facilities on a BPJ basis in the accompanying fact sheet or elsewhere in the administrative record supporting the permit. (Category 1)

- Numerical thermal limits should be derived when there is a reasonable potential to cause or contribute to an exceedance of temperature water quality standards, and the derivation and basis for numerical thermal limits be more fully explained in the fact sheet or elsewhere in the administrative record. (Category 2)

3. Combined Sewer Overflows (CSOs) Action Items

Proposed action items to help the CTDEEP strengthen its NPDES permit program with regard to facilities subject to CSO requirements include the following:

- All CSO permits should include the nine minimum controls. (Category 2)