UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND - REGION 1
5 POST OFFICE SQUARE, SUITE 100
BOSTON, MASSACHUSETTS 02109-3912

FACT SHEET

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR REMEDIATION ACTIVITY DISCHARGES TO CERTAIN WATERS OF THE COMMONWEALTH OF MASSACHUSETTS AND THE STATE OF NEW HAMPSHIRE

NPDES PERMIT NUMBERS: MAG910000 and NHG910000

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I. Coverage under this Permit

The United States Environmental Protection Agency, Region 1 (EPA and EPA Region 1) is issuing the draft National Pollutant Discharge Elimination System (NPDES) general permit for discharges of remediation and dewatering wastewaters from contaminated or formerly contaminated sites or sources. The Remediation General Permit (RGP) covers discharges to certain waters in the Commonwealth of Massachusetts and the State of New Hampshire. This RGP (2016 RGP) is a reissuance of the RGP issued on September 9, 2010, which expired September 10, 2015.

To obtain authorization to discharge under the 2016 RGP, an applicant must:

- Be a discharge type described in Part 1.1 of the 2016 RGP;
- Be located in the areas listed in Part 1.2 of the 2016 RGP;
- Meet the eligibility requirements in Part 1.3 and Part 1.4 of the 2016 RGP;
- Submit a complete and accurate Notice of Intent (NOI) in accordance with the requirements of Part 3 of the 2016 RGP; and
- Receive a written authorization to discharge from EPA.[1]

Once authorized to discharge under this general permit, the discharge must meet all effluent limitations and requirements included in Part 2 and, if applicable, Part 4 of the 2016 RGP and applicable Federal and State water quality standards (WQSs) to maintain coverage. Operators must also meet the requirements included in Part 4 and 5.1 of the 2016 RGP. To terminate coverage under this general permit, operators must submit a complete Notice of Termination (NOT) in accordance with the requirements of Part 5.2 of the 2016 RGP. Failure to comply with the conditions of the RGP, including, but not limited to submission of the required monitoring data and notifications, could result in penalties generally described in Appendix IX, Standard Conditions. The RGP may be modified, or revoked and reissued in accordance with 40 CFR §122.62.

This fact sheet contains a summary of the following:

- Differences between the 2016 RGP and the 2010 RGP;
- Types of discharges eligible for coverage;
- Proposed effluent limitations;
- Monitoring requirements;
- Reporting requirements;
- Record-keeping requirements;
- Instructions for public participation; and
- Legal information supporting this general permit.

The 2016 RGP is largely the same as the 2010 RGP. EPA has generally proposed changes in the 2016 RGP that update the limitations and/or the basis for limitations, provide updated

[1] Where the 2016 RGP or this fact sheet refer to correspondence in writing from EPA, such correspondence may be by mail, email and/or facsimile transmittal.

information and procedures for obtaining and maintaining permit coverage, including reporting requirements, notices of change and notices of termination, remove redundancies, and standardize the formatting and language used throughout the permit. See Section I.A.1, below, for a summary of the changes proposed in the 2016 RGP.

A. Background Information

The RGP was first issued by EPA Region 1 on September 9, 2005 (2005 RGP) and reissued on September 10, 2010 (2010 RGP). Since September 9, 2005, EPA has authorized approximately 750 discharges under the RGP. Table 1 summarizes the universe of sites that obtained coverage under the 2010 RGP. This table summarizes the 298 sites that received authorization to discharge from EPA during the term of the 2010 RGP, by 2010 RGP category and subcategory, including discharges characterized by multiple subcategories. EPA issued authorization to discharge under the 2010 RGP to 275 sites located in Massachusetts and 23 sites located in New Hampshire.

Table 1: Permit Universe by Discharge Type under the 2010 RGP (2010 to 2015)

Category and Subcategory	Approximate Number
I. Petroleum-Related Site Remediation	
A. Gasoline-Only Sites	34
B. Fuel Oils/Other Oils Sites	31
C. Petroleum Sites with Additional Contamination	18
Both A. and B.	3
Both B. and C.	1
II. Non-Petroleum Site Remediation	
A. VOC-Only Sites	23
B. VOC Sites with Additional Contamination	13
C. Primarily Heavy Metal Sites	4
Both B. and C.	1
III. Contaminated Construction Dewatering	
A. General Urban Fill Sites	62
B. Known Contaminated Sites	55
Both A. and B.	33
A. and/or B. Plus Category I and/or II	13
IV. Miscellaneous Related Discharges	
A. Aquifer Pump Testing to Evaluate Formerly Contaminated Sites	0
B. Well Development/Rehabilitation at Contaminated/Formerly Contaminated Sites	1
C. Hydrostatic Testing of Pipelines and Tanks	2
D. Long-Term Remediation of Contaminated Sumps and Dikes	4
E. Short-Term Contaminated Dredging Drain-Back Waters (if not Covered by 401/404 Permit)	0

EPA believes the RGP continues to be effective in controlling the discharge of pollutants resulting from remediation and/or dewatering activities conducted at contaminated or formerly contaminated sites in Massachusetts and New Hampshire. The RGP has also been effective in controlling discharges resulting from several miscellaneous activities related to remediation and/or dewatering activities conducted at contaminated or formerly contaminated sites (e.g., hydrostatic testing, aquifer pump testing, and well development/rehabilitation).

Because the requirements contained in the 2016 RGP remain largely unchanged from the requirements contained in the 2010 RGP, EPA is not repeating rationale for any unchanged permit effluent limitation or requirement in the body of this fact sheet. The 2005 and 2010 RGP documents are available in their entirety at http://www.epa.gov/region1/npdes/rgp.html. Interested persons may also contact EPA, the Massachusetts Department of Environmental Protection (MassDEP) or the New Hampshire Department of Environmental Services (NHDES) for this information.

1. Changes from the existing RGP

Proposed changes in the 2016 RGP are summarized below.

Revision of activity categories to the following:

- Category I no longer includes the subcategory for petroleum-related sites with additional contamination;
- Category II no longer includes the subcategory for non-petroleum-related sites with additional contamination;
- Category III subcategories distinguish between sites where contaminants are known and quantified from sites where contaminants are unknown or unquantified; and
- Category IV is only for pipeline and tank dewatering; the remaining 2010 RGP subcategories are now Activity Categories V through VIII.

Revision of activity subcategories to the following contamination type subcategories:

- Contamination Type Subcategory A: Inorganics
- Contamination Type Subcategory B: Non-Halogenated Volatile Organic Compounds
- Contamination Type Subcategory C: Halogenated Volatile Organic Compounds
- Contamination Type Subcategory D: Non-Halogenated Semi-Volatile Organic Compounds
- Contamination Type Subcategory E: Halogenated Semi-Volatile Organic Compounds
- Contamination Type Subcategory F: Fuels Parameters
- Contamination Type Subcategory G: Sites with Known Contamination
- Contamination Type Subcategory H: Sites with Unknown Contamination

Addition of effluent limitations and/or monitor-only requirements for the following parameters:

- Ammonia, cyanide, acetone, 1,4-dioxane, ethanol, *tert*-amyl methyl ether (tAME) and *tert*-butyl alcohol (tBA).

Removal of effluent limitations and/or monitor-only requirements for the following parameters:

- Toluene, ethylbenzene, total xylenes, acenaphthene, acenaphthylene, anthracene, benzo(g,h,i)perylene, fluoranthene, fluorene, phenanthrene, pyrene.

Revision of effluent limitations for the following parameters:

- Effluent flow, total residual chlorine, total recoverable metals: antimony, arsenic, cadmium, chromium III chromium VI, copper, lead, mercury, nickel and zinc, benzene, phenol, carbon tetrachloride, tetrachloroethylene (PCE), total Group I polycyclic aromatic hydrocarbons (PAHs), total phthalates, bis(2-ethylhexyl)phthalate, referred to hereafter as diethylhexyl phthalate (DEHP), and methyl *tert*-butyl ether (MtBE).

Revision of requirements for water quality-based effluent limitations (WQBELs) including:

- Specification for use of a State-approved dilution factor for calculation of WQBELs;
- Revision of requirements for calculation of WQBELs (see Appendix V for sites in Massachusetts and Appendix VI for sites in New Hampshire); and
- Revision of the applicability of the WQBEL for total recoverable iron (1,000 µg/L) to discharges to freshwater only and to discharges with dilution factors less than or equal to five only.

Revision of applicability of effluent limitations, including:

- Change in effluent limitation arrangement from activity subcategories to contamination types based on groupings of constituents of concern (COCs);
- Specification of the applicability of effluent limitations by contamination types; and
- Clarification of the applicability of effluent limitations and requirements for a site to which multiple contamination types apply.

Revision of Best Management Practices Plan (BMPP) requirements.

Specification of additional Best Management Practices (BMPs), including:

- A treatment technology BMP, a quality control/quality assurance (QA/QC) BMP, and a materials management BMP.

Revision of influent and effluent monitoring requirements including:

- Specification of sampling frequency, test methods and/or minimum levels;
- Specification of record keeping and/or reporting requirements;
- Requirement for receiving water monitoring assigned by category;
- Reduction of the number of samples required during treatment system start-up;
- Requirement for monitoring immediately prior to permanent treatment system shutdown;
- Elimination of re-certification requirements; and
- Reduction in the minimum number of consecutive months of laboratory data required prior to being eligible for a reduction of influent *and* effluent monitoring.

Revision of recommended NOI, NOC, and NOT formats to reflect permit changes.

Updated timeframes for submission of NOIs for new and existing discharges, NOCs, and NOTs.

Minor changes throughout the general permit that do not warrant further explanation, including:

- Arrangement of the general permit;
- Correction of grammatical and typographical errors; and
- Removal of minor inconsistencies and redundancies.

This fact sheet contains EPA's basis for the changes proposed in the 2016 RGP, including any new or revised effluent limitation or requirement.

2. Public Participation

Any person who believes any condition of the 2016 RGP is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period to:

Shauna Little, Physical Scientist
United States Environmental Protection Agency
5 Post Office Square, Suite 100 (OEP06-1)
Boston, MA 02109

Any person, prior to such date, may submit a written request to EPA Region 1 for a public hearing to consider the 2016 RGP. Such requests shall state the nature of the issue proposed to be raised in the hearing. A public hearing may be held after at least thirty days following the public notice or whenever EPA finds that response to this notice indicates significant public interest. Following the close of the comment period, and after a public hearing, if such hearing is held, the Regional Administrator will respond to all significant comments made on the 2016 RGP and will make the response to comments available to the public at EPA's Region 1 Office and on EPA

Region 1's website for this general permit.[2] EPA will issue a final decision and publish the notice of availability of the final permit decision in the Federal Register. EPA will forward a copy of the final decision to each person who has submitted written comments or requested a copy of the final RGP.

3. EPA Contact

Additional information concerning the 2016 RGP is available between the hours of 9:00 a.m. and 5:00 p.m. Monday through Friday, excluding holidays, from:

Shauna Little, Physical Scientist
United States Environmental Protection Agency
5 Post Office Square, Suite 100 (OEP06-1)
Boston, MA 02109
Telephone: (617) 918-1989
Email: little.shauna@epa.gov

B. Coverage of General Permits

The Clean Water Act (CWA) prohibits the discharge of pollutants to waters of the United States without a NPDES permit unless such a discharge is otherwise authorized by the CWA. See §301(a), 33 USC §1311(a). Although such permits are often issued to individual discharges, EPA's regulations authorize the issuance of "general permits" to categories of discharges. See 40 CFR §122.28. Violations of a condition of a general permit constitute a violation of the Act and subject the discharger to the penalties in §309 of the Act.

The Director of a NPDES permit program is authorized to issue a general permit if there are a number of point sources operating in a geographic area that:

- Involve the same or substantially similar types of operations;
- Discharge the same types of wastes;
- Require the same effluent limitations or operating conditions;
- Require the same or similar treatment technologies or monitoring requirements; and
- In the opinion of the Director, are more appropriately controlled under a general permit than under individual permits.

Discharges EPA intends to cover under this general permit consist of groundwater and certain surface waters resulting from remediation and/or dewatering activities conducted at contaminated or formerly contaminated sites, and/or certain contaminated or formerly contaminated site or source dewatering- or remediation-related activities. EPA believes that discharges from various sources are similar in composition (i.e., they contain specific groups of pollutants), require similar controls, and undergo similar treatment. Therefore, EPA believes that discharges resulting from activities conducted at contaminated or formerly contaminated sites

[2] Currently accessed at: http://www.epa.gov/region1/npdes/rgp.html

warrant coverage under a general permit. EPA has determined that the 2016 RGP meets the criteria for issuing a general permit found in 40 CFR §122.28(a)(2)(ii). These criteria are summarized in this section, below.

Involve the same or substantially similar types of operations

All of the discharges eligible for coverage under the 2016 RGP involve operations related to the management of groundwater and certain surface waters during remediation and/or dewatering activities at contaminated or formerly contaminated sites, and/or certain contaminated or formerly contaminated site or source dewatering- or remediation-related activities. This general permit covers eight broad categories of remediation and/or dewatering activities: 1) petroleum-related site remediation; 2) non-petroleum-related site remediation; 3) contaminated or formerly contaminated site dewatering; 4) pipeline and tank dewatering; 5) aquifer pump testing; 6) well development/rehabilitation; 7) collection structure dewatering/remediation; and 8) dredge-related dewatering. The majority of sites authorized to discharge under this general permit discharge a small volume of water, intermittently, for a short period, following treatment. Treatment of contaminated groundwater extracted from the subsurface, including dewatering during subsurface disturbance, typically consists of an above ground (*ex-situ*) system (i.e., pump-and-treat).

Discharge the same types of wastes

All operators eligible for authorization under the 2016 RGP discharge treated remediation and/or dewatering effluent, which is not co-mingled with other process waters before either monitoring or discharge. These discharges contain a variety of conventional, non-conventional and toxic pollutants. The constituents of concern (COCs) for a given individual site depend upon the type of influent. COCs may include one or more individual pollutant parameters from chemical groups present or likely present at contaminated or formerly contaminated sites, such as: 1) inorganics (e.g., metals, solids, nutrients); 2) non-halogenated volatile organic compounds (VOCs) (e.g., benzene, toluene, ethylbenzene and xylenes); 3) halogenated VOCs (e.g., chlorinated solvents); 4) non-halogenated semi-volatile organic compounds (SVOCs) (e.g., polycyclic aromatic hydrocarbons); 5) halogenated SVOCs (e.g., polychlorinated biphenyls); and 6) fuels parameters (e.g., petroleum hydrocarbons, petroleum additives and oxygenates). The 2016 RGP contains provisions for the variations expected across sites and activities.

Require the same effluent limitations or operating conditions

All discharges eligible for coverage under the 2016 RGP are subject to certain effluent limitations and requirements, regardless of category. Minimum effluent limitations apply based on the activity category of a site, the contamination type subcategory, and the classification of the receiving water. The effluent limitation for any COC applies to any site where that COC is present. The effluent limitation for all COCs are identical, except where the appropriate State allows calculation adjusted for available dilution. Therefore, the applicable limitations and monitoring requirements are the same for all sites excepting the site-specific variation in the activities, the types of contaminants, and the receiving water(s).

As in the 2010 RGP, each site must meet certain uniform operating conditions. Part 2.5 of the 2016 RGP includes requirements for BMPs and a BMPP. In addition to these requirements in the 2016 RGP, each site must include in its BMPP the quality control and quality assurance practices used to meet the sampling, analysis and reporting requirements included in the 2016 RGP.

Require the same or similar treatment technologies or monitoring requirements

Parts 2 and 4 of the 2016 RGP contain the monitoring requirements for sites in Massachusetts and New Hampshire. Part 2.3 of the 2016 RGP contains the monitoring requirements specific for sites located in Massachusetts. Part 2.4 of the 2016 RGP contains the monitoring requirements specific for sites located in New Hampshire. As mentioned previously, the 2016 RGP proposes the same minimum monitoring requirements for all operators who have self-identified in the same category.

Although the 2016 RGP does not prescribe the use of specific treatment technologies, sites in Massachusetts and New Hampshire eligible for coverage under the 2016 RGP are required to employ the chemical and/or physical treatment technologies necessary to meet the effluent limitations in the general permit, which may include one or more of the following:[3]

- Adsorption/Absorption;
- Advanced Oxidation Processes;
- Air Stripping;
- Granulated Activated Carbon (GAC)/Liquid Phase Carbon Adsorption;
- Ion Exchange;
- Precipitation/Coagulation/Flocculation; and
- Separation

In the opinion of the Director, discharges are more appropriately controlled under a general permit than under individual permits

Given the similar nature of operations and effluents at contaminated or formerly contaminated sites, as well as the efficiencies of regulating similar sites under uniform conditions, EPA has determined that these remediation and dewatering discharges are more appropriately controlled under a general permit than under individual permits. In recognition of variations in site location, contamination, treatment, and receiving waters, EPA retained situations where an individual permit is required or may be required by EPA in the 2016 RGP. Based on EPA's experience with the sites covered since 2005, variations in permitting conditions among sites stem most often from variations in the influent and receiving water rather than from variations in the type of operations and treatment.

In conclusion, EPA has determined that, for the class of discharges meeting the 2016 RGP eligibility requirements, coverage under a general permit is appropriate. This 2016 RGP is an

[3] Descriptions of these treatment technologies can be found in the Federal Remediation Technology Roundtable *Remediation Technologies Screening Matrix and Reference Guide, Version 4.0 (2007)* available at http://www.frtr.gov/scrntools.htm.

update of and, when issued final, will supersede EPA Region 1's 2010 RGP, which expired on September 10, 2015.

1. Role of the Commonwealth of Massachusetts and the State of New Hampshire

a. 310 CMR 40.0000, Massachusetts Contingency Plan Sites in Massachusetts

As noted above, the majority of sites covered by the 2010 RGP are located in Massachusetts. Many of these sites discharge because of cleanup activities conducted under Massachusetts General Laws, Chapter 21E, and the Massachusetts Contingency Plan (MCP) administered by the MassDEP, Bureau of Waste Site Cleanup (BWSC). The MCP establishes the procedures for notification of a release or threat of release through the final site cleanup and/or closure.

Several sections of the MCP regulations relate to the issuance of discharge permits and affect the usual procedures established between the EPA and MassDEP for issuance of NPDES permits. Section 40.0042 of the MCP establishes the requirements for "Remedial Wastewater Discharges to Surface Water". Specifically, Section 40.0042(1) requires an EPA-issued individual NPDES permit or a RGP permit.[4] Applicants for both MCP and non-MCP sites are required to submit a NOI to EPA. Applicants continue to be required to self-identify as being subject to State requirements under the MCP in the NOI submitted to EPA. Only applicants for non-MCP sites are required to submit MassDEP a copy of the NOI submitted to EPA.

b. Joint issuance of NPDES Permits in Massachusetts

With few exceptions, EPA Region 1 and MassDEP jointly issue NPDES permits under separate federal and state authorities, respectively. While some operators may be exempt from the State permitting process under the MCP, all operators remain subject to the joint administration of this general permit and any additional State requirements. In the event an applicant is proposing discharge(s) to a Class A waterbody, additional State requirements apply, and applicants should contact MassDEP directly. Discharges to a Class A receiving water are not eligible under the 2016 RGP unless MassDEP determines that such discharges meet the Massachusetts anti-degradation provisions found in 314 CMR 4.04.

MassDEP retains several primary functions: 1) CWA Section 401 certification that the permit meets State WQSs; 2) completion of an anti-degradation review, if required; 3) ensuring compliance with the permit provisions of the MCP; and 4) general coordination and consultation on administrative and technical issues. The Massachusetts State Permit Conditions included in the 2016 RGP allow MassDEP to add additional State certification requirements to the RGP if the State determines that such additional requirements are necessary to meet State WQSs.

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[4] EPA is the NPDES issuing authority in Massachusetts. Until such time as the NPDES program is delegated to the State, Section 40.0042(2) provides an exemption from any **state-issued** discharge permit to surface water. See http://www.mass.gov/dep/cleanup/index.htm for additional information on the MassDEP waste site cleanup program.

MassDEP will provide an operator any such additional requirements in writing. EPA has requested that the MassDEP certify this general permit under §401 of the CWA.

c. New Hampshire Department of Environmental Services (NHDES), RSA 485-A: 13, I-a

Discharges to a Class A receiving water are not eligible under the 2016 RGP. Discharges to an outstanding resource water (ORW) are not eligible under the 2016 RGP unless they meet the criteria of Env-Wq 1708.05(b) (or as revised) The New Hampshire State Permit Conditions included in the 2016 RGP allow NHDES to add additional requirements to the authorization to discharge for a site, if the State determines that such additional requirements are necessary to meet State WQSs. NHDES will provide an operator any such additional requirements in writing. EPA has also requested that the NHDES certify this general permit under §401 of the CWA.

C. Subject Discharges

Under the 2016 RGP, operators conducting remediation, dewatering, and certain remediation- or dewatering-related activities in Massachusetts and New Hampshire may request authorization to discharge groundwater and certain surface waters into waters of the United States within the respective States. The specific discharges eligible for coverage under the 2016 RGP are largely the same as the 2010 RGP. EPA has grouped eligible discharges by activity type categories and contamination type subcategories for the purposes of eligibility and coverage. Table 2, below, summarizes the categories and subcategories eligible for coverage under the 2016 RGP. EPA has proposed eight activity categories and eight contamination type subcategories in the 2016 RGP. An applicant must select the activity category based on the type of activity which will occur on a site and the subcategory based on the types of contaminants present, designated in *Activity Category Roman Numeral-Contamination Type Letter* format (e.g., Category I-F for petroleum-related site remediation where the COCs present are fuels parameters). This format allows an applicant to select multiple categories when multiple activities will occur at a site and multiple subcategories when multiple contamination types are present at a site.

Table 2: Discharges Eligible for Coverage under the 2016 RGP

Activity Category	Contamination Type
I. Petroleum-Related Site Remediation II. Non-Petroleum-Related Site Remediation	A. Inorganics B. Non-Halogenated Volatile Organic Compounds C. Halogenated Volatile Organic Compounds D. Non-Halogenated Semi-Volatile Organic Compounds E. Halogenated Semi-Volatile Organic Compounds F. Fuels Parameters

Activity Category	Contamination Type	
III. Contaminated/Formerly Contaminated Site Dewatering IV. Pipeline and Tank Dewatering V. Aquifer Pump Testing VI. Well Development/Rehabilitation VII. Collection Structure Dewatering/Remediation VIII. Dredge-Related Dewatering	G. Sites with Known Contamination	A. Inorganics B. Non-Halogenated Volatile Organic Compounds C. Halogenated Volatile Organic Compounds D. Non-Halogenated Semi-Volatile Organic Compounds E. Halogenated Semi-Volatile Organic Compounds F. Fuels Parameters
	H. Sites with Unknown Contamination	

EPA has proposed separate activity categories for Categories IV through VIII, revised titles for Categories III through VIII, and eight contamination type subcategories to replace the activity subcategories included in the 2010 RGP. EPA has also proposed removal of three 2010 RGP subcategories: 1) I-C Petroleum Sites with Additional Contamination; 2) II-B Non-Petroleum Sites with Additional Contamination; and 3) III-A General Urban Fill Sites. EPA has proposed these revisions to activity categories and contamination type subcategories to remove redundancies, ensure that the broad eligibility for coverage under this general permit is not inadvertently restricted or unclear, and better facilitate site-specific application of the effluent limitations and monitor-only requirements given the types of COCs present at a site.

All applicants are required to select all activity categories and contamination type subcategories that apply to their site in the NOI submitted to EPA, specific to the activities to occur and the COC(s) present. Because revisions to the 2016 RGP effluent limitations table result in a single effluent limitations table arranged by groups of COCs, rather than by activity, the selection of the category that applies to the activity being conducted, followed by selection of the COCs present at a site is expected to be relatively straightforward. Further, EPA has specified that the effluent limitation for any COC included in this general permit applies to any site, if a given COC is present at a site. This approach is generally consistent with the 2010 RGP, which required operators that fall into a particular activity category and subcategory to monitor for only the parameters listed for that subcategory. Section III.F, below, explains the applicability of effluent limitations and monitor-only requirements for each activity category.

If any COC is present at a site that is not included in this general permit, the applicant must disclose the COC and concentrations present in the NOI submitted to EPA, or in a subsequent NOC. The applicant must specifically request EPA and the appropriate State consider inclusion of the additional contaminants in the authorization to discharge. If EPA and/or the appropriate State authorizes the discharge of additional contaminants, additional effluent limitations and/or requirements may apply. EPA and/or the appropriate State will provide any additional requirements to the operator in writing. If EPA and/or the State determine the discharge of additional contaminants exclude the discharge from coverage under the 2016 RGP, EPA and/or

the State will provide notice to the applicant in writing. Also, see Section I.F, below, regarding instances where the Director may require an individual NPDES permit.

1. Activity Categories

a. Category I – Petroleum-Related Site Remediation

The 2016 RGP continues to cover discharges from sites where remediation of COCs related to petroleum sources of contamination are undertaken. Petroleum sources of contamination include, but are not limited to releases of: gasoline, fuel oils, including kerosene, diesel fuel, jet fuel, #2 heating oil, heavier residual fuel oils, and other oils, including lube oils, machine oils, hydraulic fluids, and mineral oils. The types of sites eligible for coverage under this activity category may be a result of remediation activities related to underground storage tank (UST) removal or replacement, groundwater pump and treat systems, or other activities where petroleum-related sources are a known source of COCs, including clean-up of oil releases from residential non-business remediation sites. In addition, this activity category includes discharges from sites where lead or other fuel additives or oxygenates are present. This activity category combines the 2010 RGP category I-A – Gasoline-Only Sites and category I-B – Fuel Oils/Other Oils Sites. An applicant with a discharge eligible under this activity category must indicate all contamination type subcategories that contain the COCs present at their site in the NOI submitted to EPA for that site. As a result, releases of waste oils are now included under this activity category.

b. Category II – Non-Petroleum-Related Site Remediation

The 2016 RGP continues to cover discharges from sites where remediation of COCs related to non-petroleum sources of contamination are undertaken. Non-petroleum sources of contamination include, but are not limited to releases of solvents, degreasers, cleaners, or paint removers, releases from industrial operations, and improper waste management, disposal or transport. The types of sites eligible for coverage under this activity category may be a result of remediation activities related to groundwater pump and treat systems, or other activities where non-petroleum-related sources are a known source of COCs, including sites where metals are present. This activity category includes sites that are otherwise eligible for coverage under this general permit where concentrations of naturally occurring metals that require an NPDES permit to discharge are present. This activity category combines the 2010 RGP category II-A – VOC-Only Sites and category II-C – Primarily Heavy Metals Sites. An applicant with a discharge eligible under this activity category must indicate all contamination type subcategories that contain the COCs present at their site in the NOI submitted to EPA for that site.

c. Category III: Contaminated/Formerly Contaminated Site Dewatering

The 2016 RGP continues to cover discharges resulting from dewatering activities at contaminated or formerly contaminated sites. This activity category includes sites seeking to discharge groundwater and certain surface waters that are otherwise excluded from coverage under other EPA permits (e.g., EPA Region 1's Dewatering General Permit (DGP), EPA's

Construction General Permit (CGP), EPA's Multi-Sector General Permit (MSGP), or an EPA Municipal Separate Storm Sewer System (MS4) permit). However, this category no longer specifies dewatering of contaminated or formerly contaminated sites be a result of "construction". That is, this activity category would apply to a contaminated or formerly contaminated site where dewatering activities are undertaken even if construction activities are not taking place. While this change is relatively minor, EPA believes the broadening of the category and the distinction of the two contamination type subcategories described in Section I.C.2, below, is necessary to capture the full variety of dewatering activities conducted at contaminated or formerly contaminated sites. Regardless, discharges resulting from dewatering activities at contaminated or formerly contaminated construction sites remain eligible under this activity category. An applicant with a discharge eligible under this activity category must indicate all contamination type subcategories that contain the COCs present at their site in the NOI submitted to EPA for that site.

d. Category IV: Pipeline and Tank Dewatering

The 2016 RGP continues to cover discharges resulting from the dewatering of pipelines, tanks, and similar structures and appurtenances. This activity category continues to include hydrostatic testing activities. The types of sites eligible for coverage under this activity category may be a result construction of new structures or repair or maintenance of existing structures including pipelines, large storage tanks, and other incidental structures. Such infrastructure is typically associated with hydrostatic testing of pipelines and tanks at natural gas and petroleum operations, including oil terminals and power plants. Sites eligible for coverage under this activity category may also be conducting dewatering of pipelines, tanks, and similar structures and appurtenances that store or convey potable water, groundwater, and certain surface waters. EPA has designated a stand-alone activity category for this activity to better facilitate the application of site-specific effluent limitations and requirements.

Dewatering discharges eligible for coverage under this activity category generally contain COCs such as TSS and metals. Discharges resulting from the dewatering of pipelines, tanks and similar structures and appurtenances may contain waters from a variety of sources including: rivers or streams, lakes or ponds, wells, potable water and, for estuarine and coastal facilities, marine waters. As a result, additional COCs such as residual chlorine and nutrients may be present, depending on the source of the water(s) contained within the pipeline(s) and/or tank(s). Dewatering discharges from pipelines, tanks and similar structures and appurtenances that previously contained petroleum may also contain petroleum hydrocarbons. When an operator conducting hydrostatic testing discharges into the same water body as the fill water source, COCs are those added to the fill water during the test. When an operator conducting hydrostatic testing discharges into a different water body than the fill water source, COCs are both those added during the test, and those contained in the fill water prior to the test. An applicant with a discharge eligible under this activity category must indicate all contamination type subcategories that contain the COCs present at their site in the NOI submitted to EPA for that site.

EPA notes that the 2016 RGP continues the prohibition of discharges of sludge and tank bottom water generated during the dewatering of pipelines, tanks and similar structures and appurtenances. The 2016 RGP also prohibits discharges of chemicals and chemical additives,

unless EPA approves such discharges in writing. An applicant must request to discharge such materials in the NOI, or a subsequent NOC, submitted to EPA for a site. Chemicals and chemical additives include, but are not limited to algaecides/biocides, antifoams, coagulants, corrosion/scale inhibitors, disinfectants, flocculants, neutralizing agents, oxidants, oxygen scavengers, pH conditioners, and bio remedial agents including microbes. This prohibition was included in the 2010 RGP, but EPA clarified this prohibition to include specific examples of what materials the prohibition pertains to. See Part 2.5 of the 2016 RGP and Section III.D of this fact sheet for more information.

e. Category V: Aquifer Pump Testing

The 2016 RGP continues to cover discharges resulting from short or long-term aquifer pump testing of a distinct contaminated or formerly contaminated aquifer(s). This activity category includes sites that are otherwise eligible for coverage under this general permit where concentrations of naturally occurring COCs that require an NPDES permit to discharge are present. In addition, this activity category includes sites where COCs are identified as a result of the testing. EPA has designated a stand-alone activity category for this activity to better facilitate the application of site-specific effluent limitations and requirements. An applicant with a discharge eligible under this activity category must indicate all contamination type subcategories that contain the COCs present at their site in the NOI submitted to EPA for that site.

f. Category VI: Well Development and Rehabilitation

The 2016 RGP continues to cover discharges from the development or rehabilitation of wells at contaminated or formerly contaminated sites. Such wells may have a variety of purposes, including, but not limited to: groundwater monitoring, groundwater extraction, and water supply. This activity category includes wells being evaluated for possible return to service after site remediation and return to service following maintenance, repair or replacement. In addition, this activity category includes sites seeking to engage in development and rehabilitation activities that are otherwise eligible for coverage under this general permit where concentrations of naturally occurring COCs that require an NPDES permit to discharge are present. In addition, this activity category includes sites where COCs are identified as a result of activities. EPA has designated a stand-alone activity category for this activity to better facilitate the application of site-specific effluent limitations and requirements. An applicant with a discharge eligible under this activity category must indicate all contamination type subcategories that contain the COCs present at their site in the NOI submitted to EPA for that site.

g. Category VII: Collection Structure Dewatering/Remediation

The 2016 RGP continues to cover discharges from structures utilized for collecting miscellaneous sources of water from contaminated or formerly contaminated sites or sources (e.g., sumps and dikes). These discharges are generally a result of the infiltration of contaminated groundwater or storm water into a collection structure. This activity category includes sites that would otherwise require an NPDES permit to discharge are seeking to engage in dewatering, remediation or dewatering- and remediation-related activities, including dewatering associated with maintenance activities, where concentrations of COCs are present. In addition, this activity

category includes sites where COCs are identified as a result of activities. EPA has designated a stand-alone activity category for this activity to better facilitate the application of site-specific effluent limitations and requirements. An applicant with a discharge eligible under this activity category must indicate all contamination type subcategories that contain the COCs present at their site in the NOI submitted to EPA for that site. This activity category includes sites seeking to discharge groundwater and certain surface waters to municipal or non-municipal collections systems, or from residential collection structures that are otherwise excluded from coverage under other EPA permits (e.g., EPA's DGP, EPA's CGP, EPA's MSGP, or an EPA MS4 permit).

h. Category VIII: Dredge-Related Dewatering

The 2016 RGP continues to cover discharges resulting from certain short-term dredging-related activities, including, but not limited to: short-term pilot study or similar activity associated with dredging, and dredge material dewatering, including drain back waters. This activity category includes the dewatering of structures that accumulate contaminated solids through sedimentation or similar physical treatment processes, including when such structures are being decommissioned. Authorization to discharge under the 2016 RGP is only possible for dredge-related activities where the United States Army Corps of Engineers does not intend to issue a formal permit under 33 USC §1344 (§404 of the CWA) for the activities. This general permit does not authorize dredging or disposal of dredge material. This general permit does not constitute authorization under §404 of any dredging or filling operations. EPA has designated a stand-alone activity category for this activity to better facilitate the application of site-specific effluent limitations and requirements. An applicant with a discharge eligible under this activity category must indicate all contamination type subcategories that contain the COCs present at their site in the NOI submitted to EPA for that site.

2. Contamination Type Subcategories

In developing the 2005, 2010 and/or 2016 RGPs, EPA evaluated the characteristics of contaminated or formerly contaminated sites and the types of remediation and/or dewatering activities conducted at such sites. EPA then evaluated the COCs present or likely present in remediation and/or dewatering discharges. Information used in this evaluation includes, but is not limited to: 1) existing information regarding remediation sites, including those located in Massachusetts and New Hampshire;[5] 2) available information regarding the toxicology, physical characteristics, chemical characteristics, and fate and transport of potential COCs;[6] 3) available toxicity data pertaining to potential COCs;[7] 4) available WQC and supporting documentation

[5] See RGP Nos: MAG910000 and NHG910000; Massachusetts Waste Site/ Reportable Release Lookup at http://public.dep.state.ma.us/SearchableSites2/Search.aspx; and New Hampshire OneStop Data and Information at http://des.nh.gov/onestop/.

[6] See entries for potential COCs from Agency for Toxic Substances and Disease Registry Toxicological Profiles and ToxFAQs at http://www.atsdr.cdc.gov/az/a.html.

[7] See available information for potential COCs in EPA's Ecotoxicology Database (ECOTOX) at http://www.epa.gov/ecotox/; and assessments for potential COCs in EPA's Integrated Risk Information System at http://www.epa.gov/iris.

applicable to potential COCs;[8] and/or 5) available pollution control technologies capable of effectively treating potential COCs.[9] For the purposes of the 2016 RGP, EPA has grouped COCs as Items a through f, based primarily on the COC groupings and definitions used in the *Remediation Technologies Screening Matrix and Reference Guide*.[10] The COC groupings are as follows:

a. Inorganics
b. Non-Halogenated Volatile Organic Compounds (VOCs)
c. Halogenated VOCs
d. Non-Halogenated Semi-Volatile Organic Compounds (SVOCs)
e. Halogenated SVOCs
f. Fuels Parameters

EPA has used these COC groupings in the 2016 RGP to better facilitate the application of effluent limitations to the self-identified contamination type subcategories eligible for coverage under this general permit. EPA has also used these groupings in this fact sheet for consistency. EPA's use of these groupings in this fact sheet provide structure for EPA's discussion of contamination type subcategories, selection of indicator parameters, and the factual basis for the effluent limitations or monitor-only requirements for those indicator parameters. The following sections discuss the contamination type subcategories proposed in the 2016 RGP. Indicator parameters are discussed in Section III.A, below. The basis for effluent limitations for those indicator parameters are discussed in Section III.B, below.

An applicant is required to indicate all COCs present at a site in the NOI submitted to EPA for that site. The 2016 RGP specifies which contamination type subcategories apply to a site, based on the activity category/categories selected for a site and the COCs present at a site. The applicability of effluent limitations and monitor-only requirements for contamination type subcategories are discussed in Section III.F, below.

a. Inorganics

Inorganic COCs are substances that generally do not have a chemical structure based on carbon or its derivatives. Examples of inorganic COCs present at contaminated and formerly contaminated include the following:

- Solids (e.g., total suspended solids)

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[8] See entries for potential COCs from EPA's National Recommended Water Quality Criteria documents at https://www.epa.gov/wqc; *Quality Criteria for Water.* PB-263 943: July, 1976 (EPA's "Red Book"); *Quality Criteria for Water 1986*. EPA 440/5-86-001: May 1, 1986 (EPA's "Gold Book").

[9] See Federal Remediation Technology Roundtable *Technology Screening Matrix* from *Remediation Technologies Screening Matrix and Reference Guide, Version 4.0 (2007)* at http://www.frtr.gov/scrntools.htm; and EPA's Office of Superfund Remediation and Technology Innovation (OSRTI) *Contaminated Site Clean-Up Information* at http://www.clu-in.org.

[10] The Federal Remediation Technology Roundtable *Remediation Technologies Screening Matrix and Reference Guide, Version 4.0 (2007)* is currently available at http://www.frtr.gov/matrix2/; definitions of the COC groupings may be found in the glossary and sections 2.3.1, 2.4.1, 2.5.1, 2.6.1, 2.7.1, 2.8.1.

- Nutrients (e.g., ammonia)
- Minerals or elements (e.g., chlorine), including metals (e.g., arsenic, cadmium, chromium, copper, iron, lead, nickel, and zinc)

Examples of contaminated or formerly contaminated sites where these COCs may be present include the following:

- Artillery and small arms impact areas
- Aggregate processing or disposal areas
- Contaminated soils/sediment sites
- Electroplating/metal finishing sites
- Landfills
- Leaking collection and sanitary system lines
- Mixed waste disposal areas
- Sand and salt storage areas
- Surface impoundments

Generally, this contamination type subcategory applies to a site under any activity category, regardless of whether inorganics are known COCs at a site.

b. Non-Halogenated Volatile Organic Compounds (VOCs)

VOCs are organic compounds that participate in atmospheric photochemical reactions except those designated by EPA as having negligible photochemical reactivity. A non-halogenated compound is one that does not have a halogen (e.g., fluorine, chlorine, bromine, or iodine) attached to its chemical structure. Examples of non-halogenated VOCs present at contaminated and formerly contaminated include the following:

- Benzene
- Toluene
- Ethylbenzene
- Xylenes
- Acetone
- Phenols

Examples of contaminated or formerly contaminated sites where these COCs may be present include the following:

- Chemical manufacturing sites or disposal areas
- Contaminated wells/aquifer sites
- Vehicle/aircraft maintenance areas
- Landfills
- Leaking storage tanks
- Mixed waste disposal areas

Generally, this contamination type subcategory applies to a site under any activity category when non-halogenated VOCs are known COCs at a site. However, this contamination type subcategory applies to a site under any activity category that selects contamination type subcategory H – Sites with Unknown Contamination to determine if non-halogenated VOCs are present.

c. Halogenated Volatile Organic Compounds (VOCs)

VOCs are organic compounds that participate in atmospheric photochemical reactions except those designated by EPA as having negligible photochemical reactivity. A halogenated compound is one that has a halogen (e.g., fluorine, chlorine, bromine, or iodine) attached to its chemical structure. Examples of halogenated VOCs present at contaminated and formerly contaminated include the following:

- Dichlorobenzenes
- Dichloroethanes
- Trichloroethanes
- Tetrachloroethylene (PCE)
- Trichloroethylene (TCE)
- cis-1,2 Dichloroethylene (DCE)
- Vinyl Chloride
- Ethylene Dibromide

Examples of contaminated or formerly contaminated sites where these COCs may be present include the following:

- Chemical manufacturing sites or disposal areas
- Contaminated wells/aquifer sites
- Dry cleaning/metal finishing sites
- Landfills
- Oxidation ponds/lagoons
- Paint stripping and spray booth areas
- Solvent degreasing areas
- Mixed waste disposal areas

Generally, this contamination type subcategory applies to a site under any activity category when halogenated VOCs are known COCs at a site. However, this contamination type subcategory applies to a site under any activity category that selects contamination type subcategory H – Sites with Unknown Contamination to determine if halogenated VOCs are present.

d. Non-Halogenated Semi-Volatile Organic Compounds (SVOCs)

SVOCs are organic compounds that volatilize slowly at standard temperature and pressure (i.e., 20 degrees Celsius and 1 atmosphere). A non-halogenated compound is one that does not have a halogen (e.g., fluorine, chlorine, bromine, or iodine) attached to its chemical structure. Examples

of non-halogenated VOC COCs present at contaminated and formerly contaminated include the following:

- Phthalates
- Polycyclic aromatic hydrocarbons (e.g., benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, naphthalene)

Examples of contaminated or formerly contaminated sites where these COCs may be present include the following:

- Burn pits
- Chemical manufacturing sites and disposal areas
- Coal/petroleum product storage and burn areas
- Contaminated soils/sediment sites
- Firefighting training/burn areas
- Former manufactured gas sites
- Landfills
- Leaking storage tanks
- Mixed waste disposal areas
- Vehicle/aircraft maintenance areas

Generally, this contamination type subcategory applies to a site under any activity category when non-halogenated SVOCs are known COCs at a site. However, this contamination type subcategory applies to a site under any activity category that selects contamination type subcategory H – Sites with Unknown Contamination to determine if non-halogenated SVOCs are present.

e. Halogenated Semi-Volatile Organic Compounds (SVOCs)

SVOCs are organic compounds that volatilize slowly at standard temperature and pressure (i.e., 20 degrees Celsius and 1 atmosphere). A halogenated compound is one that has a halogen (e.g., fluorine, chlorine, bromine, or iodine) attached to its chemical structure. Examples of halogenated SVOCs present at contaminated and formerly contaminated include the following:

- Polychlorinated biphenyls

Examples of contaminated or formerly contaminated sites where these COCs may be present include the following:

- Chemical manufacturing sites and disposal areas
- Contaminated soils/sediment sites
- Landfills and burial pits
- Mixed waste disposal areas
- Surface impoundments

- Wood preserving sites

Generally, this contamination type subcategory applies to a site under any activity category when halogenated SVOCs are known COCs at a site. However, this contamination type subcategory applies to a site under any activity category that selects contamination type subcategory H – Sites with Unknown Contamination to determine if halogenated SVOCs are present.

f. Fuels Parameters

Fuels parameters are generally non-halogenated and may be both VOCs and SVOCs. A non-halogenated compound is one that does not have a halogen (e.g., fluorine, chlorine, bromine, or iodine) attached to its chemical structure. VOCs are organic compounds that participate in atmospheric photochemical reactions except those designated by EPA as having negligible photochemical reactivity. SVOCs are organic compounds that volatilize slowly at standard temperature and pressure (i.e., 20 degrees Celsius and 1 atmosphere). Examples of fuels parameters present at contaminated and formerly contaminated include the following:

- Petroleum Hydrocarbons (e.g., TPH)
- Additives and oxygenates (e.g., ethanol, MtBE, tAME, tBA

Additional COCs included in the 2016 RGP can be present in fuels or at sites where releases of fuels have occurred (e.g., BTEX, PAHs). However, for the purposes of this general permit, COCs are only placed in one contamination type category. Therefore, COCs that can be present in fuels/fuel releases but also present at other types of sites are included in other contamination type categories. Examples of contaminated or formerly contaminated sites where fuels parameters may be present include the following:

- Aircraft areas
- Chemical manufacturing sites and disposal areas
- Contaminated soils/sediment sites
- Contaminated wells/aquifer sites
- Fuel storage/transfer areas
- Landfills and burial pits
- Leaking storage tanks
- Vehicle/aircraft maintenance areas

Generally, this contamination type subcategory applies to a site under any activity category when fuels parameters are known COCs at a site. However, this contamination type subcategory applies to a site under any activity category that selects contamination type subcategory H – Sites with Unknown Contamination to determine if fuels parameters are present.

g. Sites with Known Contamination

For the purposes of this general permit, “known”, when used in a contamination type subcategory or in reference to COCs, refers to any COC that has been quantified in an

environmental sample collected at a site, and such data meet minimum data validation requirements.[11] An applicant that selects this contamination type subcategory must also select the contamination type subcategories A through F, above, that apply, based on the known COCs at a site. As a result, the effluent limitations for the known COCs, rather than the effluent limitations for all COCs included in this general permit generally apply. EPA expects this change to reduce the regulatory burden for a proportion of dewatering and dewatering- and remediation-related activities sites covered by this general permit. Historically, dewatering of contaminated or formerly contaminated sites is the largest category of coverage under the RGP.

Examples of contaminated or formerly contaminated sites with known contamination include the following:

- A remediation site with a remedial action outcome;
- A remediation site with an activity use limitation;
- A site where assessment was completed and target clean-up levels for soil or groundwater were achieved;
- A site where assessment was completed and risk-based analysis permitted closure; and
- A site where naturally occurring contaminants have been quantified

This contamination type subcategory is intended to apply to sites where dewatering or dewatering- and remediation-related activities (i.e., activity Category III through Category VIII) are undertaken in an area of known contamination, and where Category I or Category II do not apply (i.e., site remediation is not expected). This contamination type subcategory generally does not apply to activity category I or II, because remediation activities typically involve site characterization. Regardless of activity category, an applicant must disclose all COCs quantified at a site with known contamination in the NOI submitted to EPA for that site.

h. Sites With Unknown Contamination

For the purposes of this general permit, "unknown", when used in a subcategory below in reference to COCs, refers to any site where a COC may be present, but that COC has not been quantified in an environmental sample collected at that site, or has been quantified at that site but such data do not meet minimum data validation requirements.[12] Examples of instances where environmental data does not meet data validation requirements include: 1) samples are not analyzed using approved test methods; 2) sample analyses do not meet sufficiently sensitive test method requirements; or 3) samples no longer represent site conditions. An applicant that selects this contamination type subcategory must also select the contamination type subcategories A through F, above. As a result, the effluent limitations and monitoring requirements for all contamination type subcategories included in this general permit apply.

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[11] For sites located in Massachusetts, applicants may refer to Massachusetts Policy #WSC-07-350, *MCP Representativeness Evaluations and Data Usability Assessments* for guidance on data usability assessments. For sites located in New Hampshire, applicants may refer to EPA Region 1 guidance for data validation.

[12] For sites located in Massachusetts, applicants may refer to Massachusetts Policy #WSC-07-350, *MCP Representativeness Evaluations and Data Usability Assessments* for guidance on data usability assessments. For sites located in New Hampshire, applicants may refer to EPA Region 1 guidance for data validation.

Examples of contaminated or formerly contaminated sites with unknown contamination include the following:

- An operator has analytical data for environmental samples that quantify COC(s), but these data do not meet minimum data validation requirements
- A site where the contamination is suspected but a site assessment has not been completed
- A site where contaminants are identified as a result of the activity being conducted (e.g., dewatering effluent with perceptible odor, color, or sheen
- A site is listed on an EPA or state inventory of known releases, as is done with "Brownfields" sites and proposed National Priorities List (NPL) sites
- A site with a use history that included industrialization, power generation, incineration, or similar activity
- A site where contaminants are not attributed to a specific source of contamination
- With contamination generally specified as "urban fill"

This contamination type subcategory is intended to apply to sites where dewatering or dewatering- and remediation-related activities (i.e., activity Category III through Category VIII) are undertaken in an area of unknown contamination, and where Category I or Category II do not apply (i.e., site remediation is not expected). This contamination type subcategory generally does not apply to activity category I or II, because remediation activities typically involve site characterization. Generally, this subcategory is applicable only if the COCs present cannot be determined, such as when a site does not have accessible monitoring locations for representative groundwater sampling or effluent sampling is not feasible prior to authorization to discharge. Applicants may elect to conduct monitoring for all COCs included in this general permit prior to submitting the NOI for such a site to EPA. The results of such monitoring may be sufficient for an applicant to instead select the contamination type subcategory for sites with known contamination, followed by selection of the contamination type subcategories that contain the COCs such monitoring quantifies. Operators may also elect to submit a NOC following initiation of discharge, once COCs present at a site have been quantified.

3. Activity Categories Removed from the 2016 RGP

a. 2010 RGP Subcategory I-C – Petroleum Sites with Additional Contamination

EPA has proposed the removal of the 2010 RGP subcategory I-C – Petroleum Sites with Additional Contamination. This subcategory generally applied to discharges from mixed waste sites. Typically, both petroleum and non-petroleum related COCs are present at these mixed waste sites. While EPA expects these types of sites to continue to apply for coverage under the 2016 RGP, the 2016 RGP requires an applicant to select all activity categories and contamination type subcategories that apply to their site in the NOI submitted to EPA, specific to the COCs present. Therefore, EPA removed this stand-alone subcategory from the 2016 RGP because it is redundant.

b. 2010 RGP Category II-B – Non-Petroleum Sites with Additional Contamination

Similarly, EPA has proposed the removal of the 2010 RGP subcategory II-B – Non-Petroleum Sites with Additional Contamination. This subcategory generally applies to discharges from mixed waste sites. Typically, both non-petroleum related COCs are present at these mixed waste sites, such as a site where chlorinated VOCs are present in combination with metals. While EPA expects these types of sites to continue to apply for coverage under the 2016 RGP, the 2016 RGP requires an applicant to select all activity categories and contamination type subcategories that apply to their site in the NOI submitted to EPA, specific to the COCs present. Therefore, EPA removed this stand-alone subcategory from the 2016 RGP because it is redundant.

D. Limitations on Coverage

The following discharges are ineligible for coverage under this general permit:

Discharges to Outstanding Resource Waters in Massachusetts and New Hampshire:

- as defined in Massachusetts by 314 CMR 4.06, including Public Water Supplies (314 CMR 4.06(1)(d)1) which have been designated by the State as Class A waters, unless an authorization is granted by the Massachusetts Department of Environmental Protection (MassDEP) under 314 CMR 4.04(5); or
- as defined in New Hampshire under Env-Wq 1708.05(a) (or as revised), unless allowed by the New Hampshire Department of Environmental Services (NHDES) under Env-Wq 1708.05(b).[14]

Discharges to Class A waters in New Hampshire, in accordance with RSA 485A:8, I and Env-Wq 1708.06.[14] To determine if the proposed receiving water is a Class A waterbody, contact NHDES at the address listed in Part 4.6 of the 2016 RGP.

Discharges that are likely to adversely affect any species listed as endangered or threatened under the Endangered Species Act (ESA) or result in the adverse modification or destruction of habitat that is designated as critical under ESA. EPA has proposed separate, special eligibility determinations pertaining to ESA to be consistent with other general and/or individual permits in Region 1. See Appendix I of the 2016 RGP for ESA requirements and Section I.E.1, below, for additional information.

Discharges whose direct or indirect impacts do not prevent or minimize adverse effects on any designated Essential Fish Habitat (EFH). See Appendix II of the 2016 RGP and Section I.E.2, below, for additional information.

Discharges of pollutants identified as the cause of an impairment to receiving water segments identified on the Commonwealth of Massachusetts or the State of New Hampshire approved 303(d) list, unless the pollutant concentration is at or below a concentration that meets water quality standards. Where a waterbody segment is not in attainment due to a pollutant that is not expected in a discharge(s), that discharge(s) remains eligible for coverage under this general permit. Similarly, where a waterbody segment is not in

attainment due to a pollutant that is present in a discharge(s), that discharge(s) remains eligible for coverage under this general permit if the discharge(s) meets the effluent limitations and requirements included in the 2016 RGP for that pollutant. For information regarding receiving water impairments, refer to Massachusetts' integrated list of waters (CWA 303(d) and 305(b)) for sites located in Massachusetts[13] and New Hampshire's integrated list of waters (CWA 303(d) and 305(b)) for sites located in New Hampshire.[14]

Discharges to Ocean Sanctuaries in Massachusetts, as defined at 302 CMR 5.00.

Discharges to territorial seas, as defined by §502 of the Clean Water Act.

Discharges to a river designated as a Wild and Scenic River, except in accordance with 16 U.S.C. 1271 *et seq*. This exclusion pertains to discharges to a Wild and Scenic River that would have a direct, adverse effect on the values for which a national Wild and Scenic River was established, in accordance with 40 CFR § 122.49. As of June 1, 2015, the designated Wild and Scenic Rivers are the Wildcat Brook and Lamprey River in New Hampshire and the Westfield, Sudbury, Assabet, Concord and Taunton Rivers in Massachusetts. See http://www.rivers.gov/ for additional information.

Discharges which adversely affect properties listed or eligible for listing in the National Registry of Historic Places under the National Historic Preservation Act of 1966 (NHPA), 16 USC §470 *et seq*. This exclusion aligns with the special eligibility determinations pertaining to the NHPA. See Appendix III of the 2016 RGP for NHPA requirements and Section I.E.3, below, for additional information.

Remediation or dewatering discharges resulting from on-site response action conducted pursuant to §§104, 106, 120, 121 or 122 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

Discharges of uncontaminated effluent authorized under other EPA permits. EPA has proposed a revised exclusion pertaining to uncontaminated discharges authorized under other EPA permits, such as EPA Region 1's Dewatering General Permit (DGP), EPA's Construction General Permit (CGP), EPA's Multi-Sector General Permit (MSGP), or an EPA Municipal Separate Storm Sewer System (MS4). Such EPA permits (i.e., DGP, CGP, MS4 and MSGP) authorize the discharge of certain uncontaminated waters and the RGP would not be applicable in such cases. In addition, discharge authorization under the aforementioned EPA permits may be possible for a site with contaminated influent, if, following treatment, the effluent meets the specifications of an allowable discharge under the applicable EPA permit. EPA has proposed this revision to be consistent with such EPA permits in Region 1 that authorize uncontaminated discharges.

Discharges to a Publicly Owned Treatment Works (POTW) which is permitted under §402 of the CWA, including discharges to a sanitary sewer under an authorized NPDES

[13] Available at: http://www.mass.gov/eea/agencies/massdep/water/watersheds/total-maximum-daily-loads-tmdls.html.
[14] Available at: http://des.nh.gov/organization/divisions/water/wmb/swqa/index.htm.

pretreatment program. EPA has proposed a new exclusion pertaining to discharges to a sanitary sewer under an authorized NPDES pretreatment program to be consistent with other general and/or individual permits in Region 1 and/or other EPA regions.

Discharges of treated groundwater into the subsurface under an Underground Injection Control (UIC) Program permit under authority of the Safe Drinking Water Act (SDWA).

Discharge of dredge-related waters where the U.S. Army Corps of Engineers (USACE) intends to authorize the discharge under a CWA §404 permit.[15]

New Sources, as defined in 40 CFR §122.2 due to the site-specific nature of the environmental review required by the National Environmental Policy Act of 1969 (NEPA), 33 USC 4321 et seq. for those facilities. "New Sources" must comply with New Source Performance Standards (NSPS) and are subject to the NEPA process in 40 CFR §6.600. Consequently, EPA has determined that it would be more appropriate to address "New Sources" through the individual permit process.

Discharge(s) covered by an individual NPDES permit unless:

- The discharge(s) are separate from the currently permitted discharges; or
- The discharge(s) covered by an individual NPDES permit is eligible for this permit.

Discharges for which the Director makes a determination that an individual permit is required. See Section I.F, below, for more information.

EPA has also removed several of the exclusions that were included in the 2010 RGP. These include:

- The exclusion pertaining to *contaminated* discharges to municipal or non-municipal collection systems that are otherwise eligible for coverage under the 2016 RGP;
- The exclusion pertaining to discharges that contain naturally-occurring contaminants (e.g., metals) that are otherwise eligible for coverage under the 2016 RGP, if NPDES coverage is required; and
- The exclusion for short-term discharges from sumps or other similar water collection structures (i.e., discharges lasting less than seven days at residential properties) that are otherwise eligible for coverage under activity category VII of this general permit, if NPDES coverage is required.

E. Consideration of Other Federal Programs

[15] Dredge-related discharges may be covered under the 2016 RGP provided the USACE does not intend to issue a formal permit under 33 USC §1344 for the activities. If authorized to discharge under the 2016 RGP, this general permit does not authorize dredging or disposal of dredge material. This general permit also does not constitute authorization under §404 of any additional dredging or filling operations. See 33 CFR §330.5 and §§401 and 404 of the CWA.

When EPA undertakes an action, such as the reissuance of an NPDES general permit, that action must be consistent with other federal laws and regulations. Regulations at 40 CFR §122.49 contain a listing of Federal laws that may apply to the issuance of NPDES permits. This section discusses four federal Acts that apply to the reissuance of this general permit: the Endangered Species Act (ESA), the National Historic Preservation Act (NHPA), the Magnuson-Stevens Fishery Conservation and Management Act (FCMA), which addresses Essential Fish Habitat (EFH), and the Coastal Zone Management Act (CZMA). The following sections summarize the requirements of these Acts and EPA's obligations with regard to them. The 2016 RGP contains certain special eligibility determinations for ESA and NHPA, also discussed in the following sections.

1. Endangered Species

The ESA of 1973 requires federal agencies such as EPA to ensure, in consultation with the U.S. Fish and Wildlife Service (FWS) and the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) (referred to collectively as "the Services") that any actions authorized, funded, or carried out by the EPA are not likely to jeopardize the continued existence of any Federally-listed endangered or threatened species or adversely modify or destroy critical habitat of such species. Such actions include EPA-issued NPDES permits authorizing discharges to waters of the United States. See 16 U.S.C. 1536(a)(2), 50 CFR §402 and 40 CFR §122.49(c).

The following are federally protected ESA species in Massachusetts and New Hampshire:

Massachusetts (15)

Dwarf wedgemussel (*Alasmidonta heterodon*)
Northeastern bulrush (*Scirpus ancistrochaetus*)
Sandplain gerardia (*Agalinis acuta*)
Piping Plover (*Charadrius melodus*)
Red Knot *(Calidris canutus rufa)*
Roseate Tern (*Sterna dougallii dougallii*)
Plymouth redbelly turtle (*Pseudemys rubriventis bangsi*)
Bog Turtle (*Clemmys muhlenbergii*)
Small whorled Pogonia (*Isotria medeoloides*)
American burying beetle (*Nicrophorus americanus*)
Northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*)
Puritan tiger beetle (*Cicindela puritana)*
Northern long-eared Bat *(Myotis septentrionalis)*
Atlantic Sturgeon (*Acipenser oxyrinchus*)*
Shortnose Sturgeon (*Acipenser brevirostrum*)*

New Hampshire (12)

Dwarf wedgemussel (*Alasmidonta heterodon*)
Northeastern bulrush (*Scirpus ancistrochaetus*)
Piping Plover (*Charadrius melodus*)
Red Knot *(Calidris canutus rufa)*
Roseate Tern (*Sterna dougallii dougallii*)
Small whorled Pogonia (*Isotria medeoloides*)
Karner Blue butterfly *(Lycaeides Melissa samuelis)*
Canada Lynx *(Lynx canadensis)*
Jesup's milk-vetch (*Astragalus robbinsii* var. *jesupii*)
Northern long-eared Bat *(Myotis septentrionalis)*
Atlantic Sturgeon (*Acipenser oxyrinchus*)*
Shortnose Sturgeon (*Acipenser brevirostrum*)*

* These species are listed under the jurisdiction of NMFS, while all others are listed under the jurisdiction of USFWS

In addition, the following are federally protected marine species that are present in the near coastal waters of Massachusetts and New Hampshire. These species are listed under the jurisdiction of NMFS:

Marine Reptiles (5)

Loggerhead Sea Turtle *(Caretta caretta)*
Kemp's Ridley Sea Turtle *(Lepidochelys kempii)*
Leatherback Sea Turtle *(Dermochelys coriacea)*
Green Sea Turtle *(Chelonia mydas)*
Hawksbill Sea Turtle *(Eretmochelys imbricata)***

Marine Mammals (3)

Humpback Whale *(Megaptera novaeangliae)*
North Atlantic Right Whale *(Eubalaena glacialis)*
Fin Whale *(Balaenoptera physalus)*

** Species rare in near shore Massachusetts and New Hampshire coastal waters

a. Section 7 Consultations

Section 7 of the ESA provides for formal and informal consultation with the Services. EPA routinely submits draft NPDES permits and fact sheets to the Services for informal consultation prior to issuance for NPDES permits issued in Massachusetts and New Hampshire, where EPA is the permit-issuing agency. EPA will initiate coordination with the Services through the draft 2016 RGP and fact sheet during the public comment period for this general permit. Based on EPA's working experience with the Services on numerous prior permits and identification of certain endangered species, general geographic areas of concern in the States and the potentially affected waters, including critical habitats, EPA has prepared the 2016 RGP to ensure adequate protection of listed threatened or endangered species or the critical habitat of such species protected under the ESA.

Section I.C of this fact sheet describes the discharges authorized under this general permit. The 2016 RGP specifically excludes coverage to facilities whose discharge(s) are likely to jeopardize the continued existence of listed threatened or endangered species or the critical habitat of such species. The proposed effluent limitations are sufficiently stringent to ensure that WQSs for the protection of both aquatic life and human health are met. The effluent limitations established in the 2016 RGP ensure protection of aquatic life and maintenance of the receiving water as an aquatic habitat. Further, the 2016 RGP contains conditions that require all operators to implement best management practices and additional conditions for toxicity testing and/or a priority pollutant scan if warranted. In addition, EPA may require individual permits be issued if actual environmental conditions (including the preservation of endangered species) are not adequately addressed by this general permit. The requirements in the 2016 RGP are consistent with information previously provided by the Services to EPA during the development of other recently issued general permits. Therefore, EPA Region 1 finds that adoption of the 2016 RGP is not likely to adversely affect any threatened or endangered species or its critical habitat.

Any applicant seeking coverage under the 2016 RGP may need to consult with the Services. EPA may designate applicants as non-Federal representatives (NFRs) for this general permit for the purpose of carrying out formal or informal consultation with the Services to determine whether a Federal action is likely to have an adverse impact on listed species or critical habitat. By the terms of the 2016 RGP, EPA *has* automatically designated applicants as NFRs for the

purpose of conducting formal or informal consultations with the FWS. See 50 CFR §402.08 and §402.13. However, EPA will coordinate with NMFS regarding the species identified under its jurisdiction to determine that the terms of the 2016 RGP adequately support a finding that the discharge is not likely to adversely affect listed species in the action area. Further, service coordination will determine if the provisions of the 2016 RGP will prevent the take of listed species and prevent adverse effects on critical habitat due to remediation, dewatering and dewatering-/remediation-related discharges.

Sites that are located in areas in which listed endangered or threatened species may be present are not automatically covered under this general permit. Appendix I of the 2016 RGP details how applicants determine the listed species or critical habitat located near their proposed discharge. Applicants whose discharges may affect listed species or critical habitat may need to contact the Services to determine whether or not additional consultation is needed. In order to be eligible for coverage under the 2016 RGP, an applicant must certify that they meet one of the three ESA Eligibility Criteria pertaining to listed species and critical habitat under the jurisdiction of the FWS:

- Criterion A: No endangered or threatened species or critical habitat are in proximity to the discharge(s) or related activities or come in contact with the "action area".
- Criterion B: Formal or informal consultation with FWS under section 7 of the ESA resulted in either a no jeopardy opinion (formal consultation) or a written concurrence by USFWS on a finding that the discharges and related activities are "not likely to adversely affect" listed species or critical habitat (informal consultation).[16]
- Criterion C: Using the best scientific and commercial data available, the effect of the discharges and related activities on listed species and critical habitat have been evaluated. Based on those evaluations, a determination is made by EPA, or by the applicant and affirmed by EPA, that the discharges and related activities will have "no affect" on any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the FWS.

An applicant must select the applicable ESA eligibility criterion in the NOI submitted to EPA. All applicants must respond to all questions pertaining to ESA included in the suggested NOI format (see Appendix IV of the 2016 RGP). If any applicant initiates contact with the Services, that applicant must include a copy of any communication from the Services, as directed, with the NOI submitted to EPA. Applicants who cannot certify compliance with the ESA requirements must contact EPA to determine if eligibility for an individual NPDES permit is possible or to discuss other possible options for the proposed discharge.

For sites that meet ESA Eligibility Criterion B in Appendix I (i.e., they cannot meet Criteria A or C); or for sites that cannot meet any of the USFWS ESA Eligibility Criteria in Appendix I, coverage under the 2016 RGP is available **only if the applicant contacts FWS** under Section 7 of the ESA. The applicant for a site that meets ESA Eligibility Criterion B must obtain either a

[16] See USFWS Section 7 consultation handbook, available at http://www.fws.gov/endangered/esa-library/pdf/esa_section7_handbook.pdf for definitions and guidance.

no jeopardy opinion or written concurrence that the proposed discharge(s) is not likely to affect listed species from FWS. The applicant must provide any communication with FWS resulting in a no jeopardy opinion or written concurrence on a finding that the applicant's discharge(s) is not likely to adversely affect listed species.

Services Contact Information:

United States Fish and Wildlife Service
New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5087
Phone: (603) 223-2541

National Marine Fisheries Service
Greater Atlantic Region Fisheries Office
Protected Resources Division
55 Great Republic Drive
Gloucester, MA 01930-2298
Phone: (978) 281-9300 ext. 6505

EPA has made the determination that the marine reptile and marine mammal protected species identified in this section under the jurisdiction of NMFS meet ESA Eligibility Criterion A. The support for this determination is as follows. The action area resulting from any discharge covered under this general permit is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action". 50 CFR § 402.02. The action area also includes the underwater areas where the effects of the discharge *(*i.e., COCs) may be experienced. For this action, discharges eligible for coverage under this general permit are expected to occur with low frequency (intermittent), small magnitude (small volume limited to no more than 1.0 MGD), and short duration (temporary or short-term). Also, for the subset of remediation or dewatering outfalls that will discharge to marine waters, no extended discharge structure is expected to be constructed or installed that would result in the extension of the action area past the immediate shoreline. Therefore, any potential effects of the discharges on coastal or estuarine waters are expected to be proportionately small, subject to a large dilution factor, and associated with the shallow, immediate shore area within approximately 200 feet of the discharge. Based on this assessment and the expected occurrence of loggerhead sea turtles, Kemp's ridley sea turtles, leatherback sea turtles, green sea turtles, hawksbill sea turtles, humpback whales, North Atlantic right whales and fin whales, it is unlikely that any of these marine species would be present in the action area of these types of regulated discharges. Based on the analysis presented here, a consultation is not required for these marine species at this time.

For sites that meet ESA Criterion C, EPA has determined that seven endangered species and their critical habitat are not likely to be adversely affected by the discharges authorized under this general permit because they are terrestrial animals or plants that are not likely to have significant interaction with the authorized waterbody discharges. These species are: Canada lynx, sandplain gerardia, small whorled pogonia, Karner blue butterfly, American burying beetle, red knot, and northern long-eared bat. However, any determination made by an applicant under Criterion C must take into consideration any activities that are ancillary to the authorized discharge that could impact these seven terrestrial endangered species, if they are present at a site. If site activities (e.g., surface disturbance, tree clearing) will adversely affect any of these seven endangered species or their critical habitat, a site does not meet ESA requirements under the 2016 RGP under Criterion C.

For existing discharges, EPA will initiate consultation with NMFS regarding the two anadromous species under its jurisdiction (Atlantic sturgeon and shortnose sturgeon) during the public comment period of the draft 2016 RGP to ensure that listed species are not affected by the discharges expected to be covered under the 2016 RGP. For new discharges, EPA will consult (formally or informally) with NMFS if necessary to ensure that the listed species under their jurisdiction are not adversely affected by the proposed discharge.

2. Essential Fish Habitat

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (FCMA) (16 USC §1801 *et seq.* (1998)), EPA is required to consult with NOAA's NMFS if EPA's actions or proposed actions that it funds, permits or undertakes, "may adversely impact any essential fish habitat." 16 USC §1855(b). The amendments broadly define EFH as "waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." 16 USC §1802(10). Adverse impact means any impact which reduces the quality and/or quantity of EFH 50 CFR §600.910(a). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), and site-specific or habitat-wide impacts, including individual, cumulative or synergistic consequences of actions.

An EFH is only designated for fish species for which federal Fisheries Management Plans exist. 16 USC §1855(b)(1)(A). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999. In a letter dated October 10, 2000 to EPA, NMFS agreed that for projects authorized through the NPDES permit process, EPA may use its existing procedures regarding consultation/environmental review to satisfy the requirements of the FCMA. According to the agreement between NMFS and EPA, EFH notification for purposes of consultation can be accomplished in the EFH Section of the fact sheet for the Draft Permit or *Federal Register* notice.

To satisfy the requirements of an EFH assessment, this section includes the following:

- A description of the proposed action;
- Resources that may be affected by the proposed action;
- An analysis of the effects;
- The Agency's identification of potential impacts and proposed mitigation; and
- EPA's Finding.

Proposed Action

EPA is reissuing the NPDES general permit for discharges from remediation, dewatering and dewatering-/remediation-related activities conducted at contaminated or formerly contaminated sites. This general permit provides coverage to facilities located in Massachusetts and New Hampshire whose discharge consists of treated remediation and/or dewatering of groundwater and/or certain surface waters, including discharges from pipeline and tank dewatering, aquifer pump testing, well development and rehabilitation, dewatering of collection structures (e.g., sumps and dikes, and dredging-related dewatering. This general permit regulates point source

discharges related to the discharge of groundwater and certain surface waters from four general types of remediation, dewatering and dewatering-/remediation-related activities:

- Site remediation activities conducted at a site with petroleum-related contamination;
- Site remediation activities conducted at a site with non-petroleum-related contamination;
- Contaminated or formerly contaminated site dewatering; and
- Contaminated or formerly contaminated site or source dewatering- or remediation-related activities.

Section I.C of this fact sheet, above, includes a description of the discharges eligible for coverage under the 2016 RGP. The 2016 RGP will provide NPDES coverage to eligible discharges to waters in the Commonwealth of Massachusetts and the State of New Hampshire.

For sites located in the two states eligible for coverage under this general permit, the proposed 2016 RGP will allow an effluent flow up to the design flow of the treatment system in use at a site, *not to exceed* 1.0 million gallons per day (MGD).

Since September 9, 2005, the effective date of the 2005 RGP, EPA has granted coverage to approximately 750 remediation projects under the RGP (approximately 75 per year, with the majority of sites located in Massachusetts). EPA expects to authorize eligible discharges in the future as remediation and/or dewatering activities begin. Geographic locations of future discharges are not yet known. Activities covered under this general permit are generally expected to occur with low frequency (intermittent), small magnitude (small volume limited to no more than 1.0 MGD), and short duration (temporary or short-term); therefore, any potential effects of the discharges to receiving waters are expected to be proportionately small when discharged to the receiving water.

Resources

Section I.D of this fact sheet lists the specific discharges excluded from coverage, including discharges to ocean sanctuaries, territorial seas, wild and scenic rivers, and designated areas under the FCMA, unless additional requirements specified in the 2016 RGP are fulfilled. The general permit is not available to any new or increased discharge into territorial seas (as defined by §502 of the CWA), however, it does not specifically exclude discharges into other tidal waters. Therefore, EPA's EFH assessment considers all federally managed species with designated EFH in the coastal and inland waters of Massachusetts and New Hampshire. EPA's EFH assessment pertains to the list of species as accessed from the following website: http://www.nero.noaa.gov/hcd/webintro.html.

Analysis of Effects

EPA has identified the main source of impact to aquatic species associated with the discharge of remediation and/or dewatering effluent as effluent toxicity.

Discharges eligible under this general permit can potentially contain low concentrations of a variety of constituents of concern (COCs) such as sediment, volatile and semi-volatile organic

compounds, and metals. As a result, the 2016 RGP contains effluent limitations and requirements designed to protect human health and the environment, including EFH-listed species and essential habitat. Further, EPA included effluent limitations in the 2016 RGP necessary to ensure discharges covered under this general permit will meet State WQSs. The 2016 RGP contains stringent effluent limitations, which will typically require an operator to apply a high degree of treatment for the COCs present and likely present at a site. EPA derived the effluent limitations and other permit requirements in the 2016 RGP to protect the most sensitive species in the potential receiving waters and to attain or maintain the designated uses of the potential receiving waters. For the majority of limited COCs, effluent limitations are equal to or more stringent than applicable WQC, with no allowable dilution, to protect the wide range of designated uses of potential receiving waters.

The 2016 RGP prohibits the addition of toxic pollutants or materials to a discharge, prohibits the discharge of pollutants in amounts that would be toxic to aquatic life, and prohibits any discharge that violates State or Federal WQSs. Non-toxic materials disclosed in an applicant's NOI, typically used in treatment processes for pH neutralization and/or dechlorination, are not prohibited. However, EPA and/or the States may impose additional limitations for such materials, or may require additional monitoring. In addition, the 2016 RGP contains provisions that require applicants conducting activities with a greater potential for effluent toxicity to perform toxicity testing as a part of application. Further, EPA and/or the appropriate State may require any applicant to perform routine toxicity testing and/or a priority pollutant scan if EPA or the appropriate State believes it is warranted. In certain situations specific to EFH, EPA and/or the appropriate State may also require that a site obtain NPDES coverage under an individual permit, including an instance where actual or imminent harm to aquatic organisms is identified, or a discharge has the potential to adversely impact any federally managed species for which EFH has been designated.

As described in Part 1 of the 2016 RGP and Section I.C of this fact sheet, EPA is proposing to cover, as the 2010 RGP did, a variety of potential discharges which could occur anywhere in Massachusetts or New Hampshire, except into receiving waters listed in Part 1.3 of the 2016 RGP and Section I.D of this fact sheet. The limitations on coverage includes the prohibition of discharges to territorial seas, wild and scenic rivers in Massachusetts and New Hampshire, and, ocean sanctuaries in Massachusetts. In EPA's experience with remediation and dewatering discharges in Massachusetts and New Hampshire, the majority of discharges resulting from remediation and dewatering of contaminated or formerly contaminated sites, occur in close proximity to the source of contamination. Typically, treatment systems either consist of mobile units brought to a site for short-term operation, or are constructed on-site for long-term operation. While the discharges covered under this general permit to date are specific, known locations, the majority of these authorized discharges have since terminated. EPA expects to authorize eligible discharges in the future as remediation and/or dewatering activities begin. Geographic locations of future discharges are not yet known.

The majority of discharges covered under this general permit to date are related to the treatment of groundwater and certain surface waters contaminated through human activity. On occasion, a discharge may contain low levels of naturally occurring contaminants. The 2016 RGP authorizes the discharge of limited concentrations of COCs from common chemical groups, including

petroleum hydrocarbons and related additives, volatile and semi-volatile organic compounds, and metals. See Section III of this fact sheet and Part 2 of the 2016 RGP for a complete listing of pollutants limited in this general permit. Given the variety of potential pollutants and broad geographic coverage of the 2016 RGP, all federally managed species with designated EFH in the coastal and inland waters of Massachusetts and New Hampshire could be affected by the 2016 RGP.

EPA's Identification of Potential Impacts to EFH Species and Proposed Mitigation

In EPA's opinion, the requirements proposed in the general permit from discharges eligible under this general permit will be sufficiently protective of EFH species for several detailed, specific reasons.

First, the proposed limits will be sufficiently protective because the discharges must meet the stringent requirements specified in the 2016 RGP. The 2016 RGP contains chemical-specific effluent limitations and other limitations and requirements. These include the prohibition of discharges of toxic substances in toxic amounts, influent and effluent monitoring and reporting, and may require whole effluent toxicity testing and/or a priority pollutant scan to ensure discharges meet State WQSs for a wide variety of COCs. Because this general permit is designed for a variety of potential situations, the effluent limitations in the 2016 RGP, excepting a small number of COCs (e.g., total recoverable metals), have been established conservatively at WQC for the protection of human health, with no allowable dilution. These effluent limitations are as stringent as or more stringent than WQC for the protection of aquatic life.

Second, although the 2016 RGP does not require the use of specific treatment technologies, treatment technologies must be employed at these sites if necessary to meet effluent limitations. See Part 2.5 of the 2016 RGP for treatment technology requirements and Section I.B of this fact sheet for more information. The types of treatment technology employed routinely produce high quality effluent, typically at concentrations below laboratory minimum levels of detection (i.e., "non-detect). Further, the 2016 RGP requires operators to implement BMPs, including the basic requirements listed in Part 2.5 of the 2016 RGP, to minimize the impacts of the activities and discharges on the environment.

Third, the majority of discharges to be covered under this general permit are generated through batch operations. A batch operation occurs with low frequency (intermittent), consists of a small magnitude (low volumes not to exceed 1.0 MGD), and continues for a short duration (temporary and short-term). The design flow of the discharges covered by this general permit typically range from a few gallons per minute (GPM) to approximately 50 GPM. Approximately half of the remediation and/or dewatering activities covered by the 2005 and 2010 RGP have lasted less than one year in duration, many lasting only a few days or weeks. The discharges themselves are not continuous. EPA expects that these characteristics will minimize impacts on EFH.

Fourth, the 2016 RGP allows States to add additional requirements for CWA §401 certification. The 2016 RGP also allows EPA to require toxicity testing if necessary to ensure that a discharge is not having a toxic effect on sensitive species. EPA can revoke coverage under this general permit at any time if any adverse impacts to federally managed or protected species or their

habitats occur, either because of non-compliance or from unanticipated effects from a discharge. Similarly, EPA may require an individual permit where expected impacts have or could be unacceptably increased.

In conclusion, discharges eligible for coverage under the 2016 RGP will adequately protect all aquatic life, including those with designated EFH in the receiving waters for the following reasons:

- This general permit action does not constitute a new source of pollutants; it is the reissuance of an existing NPDES general permit;
- The 2016 RGP prohibits the addition of materials or chemicals in amounts that would be toxic to aquatic life;
- The effluent limitations proposed in the 2016 RGP ensure protection of aquatic life and maintenance of the receiving waters as aquatic habitat;
- Discharges eligible for coverage under this general permit are primarily a result of site remediation (i.e., treatment to regulatory clean up levels) or dewatering of formerly contaminated sites (i.e., former remediation sites that achieved regulatory clean up levels);
- Discharges eligible for coverage under this general permit are generally expected to occur with low frequency (intermittent), small magnitude (small volume limited to no more than 1.0 MGD), and short duration (temporary or short-term); therefore, any potential effects of the discharges on receiving waters are expected to be proportionately small and subject to a large dilution factor when discharged to the receiving water;
- The proposed effluent limitations in the 2016 RGP are sufficiently stringent to ensure that State and Federal WQSs will be met;
- For the majority of limited COCs, effluent limitations are applied at or below WQC, with no allowable dilution; and
- If any COC is present at a site at a level that does not meet the effluent limitation for that COC, the operator at that site is required to utilize pollution control technologies that will, at a minimum, reduce the level of that COC to the effluent limitation.

EPA's Finding

EPA has made the determination that the effluent limitations, monitoring requirements, and special conditions contained in the 2016 RGP Draft Permit adequately protects all aquatic life, including those with designated EFH in the receiving water, and that further mitigation is not warranted. Should adverse impacts to EFH be detected as a result of this permit action, or if new information is received that changes the basis for EPA's conclusions, NMFS will be contacted and an EFH consultation will be re-initiated.

As the federal agency charged with authorizing a discharge covered by this general permit, EPA has made the proposed 2016 RGP and this fact sheet available to NMFS for their review under §305(b)(2) of the FCMA at http://www.epa.gov/region1/npdes/rgp.html, along with a letter under separate cover.

3. Historic Preservation

Section 106 of the NHPA requires federal agencies to take into account the effects of federal "undertakings" on historic properties listed in, or eligible for listing in the National Register of Historic Places. The term federal "undertaking" as defined in the NHPA regulations includes a project, activity, or program of a federal agency, including those carried out by or on behalf of a federal agency, those carried out with federal financial assistance, and those requiring a federal permit, license, or approval. 36 CFR §800.16(y). Historic properties as defined in the NHPA regulations include prehistoric or historic districts, sites, buildings, structures, or objects listed in, or are eligible for listing in, the National Register of Historic Places. This term includes artifacts, records, and remains related to and located within such properties. 36 CFR §800.16(1).

EPA's reissuance of this general permit is a federal undertaking within the meaning of the NHPA regulations. Therefore, EPA has included eligibility requirements that pertain to the NHPA and apply to all applicants seeking coverage under the 2016 RGP. Specifically, applicants must certify that potential effects of their discharges and discharge-related activities on properties listed in or eligible for listing in the National Register of Historic Places have been appropriately considered and addressed. Although individual NOIs for authorization under the 2016 RGP do not constitute separate federal undertakings, the screening criteria and certifications provide an appropriate site-specific means of addressing historic property issues in connection with EPA's reissuance of this general permit.

Appendix III of the 2016 RGP includes the eligibility criteria regarding historic preservation. An applicant must meet one or more of the following three criteria (A-C) to be eligible for authorization under the 2016 RGP:

- Criterion A: No historic properties are present. The discharges and discharge-related activities (e.g., BMPs) do not have the potential to affect historic properties.
- Criterion B: Historic properties are present. Discharges and discharge related activities do not have the potential to affect historic properties.
- Criterion C: Historic properties are present. The discharges and discharge-related activities have the potential to affect or will have an adverse effect on historic properties. The applicant has obtained and is in compliance with a written agreement with the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (TPHO), or other tribal representative that outlines measures the applicant will carry out to mitigate or prevent any adverse effects on historic properties.

To determine whether historic properties are present at a site, an applicant must review all reasonably ascertainable information and, if necessary, conduct a historic survey. Where historic properties are present, an applicant must include documentation of the determination with the NOI for submitted to EPA so EPA can confirm that discharges and discharge-related activities do not have the potential to cause effects or will have an adverse effect on historic properties. Where the applicant believes or EPA determines that discharges or discharge-related activities have the potential to cause effects or will have an adverse effect on historic properties, an applicant must complete consultation with the SHPO and/or TPHO before EPA can issue authorization to discharge under the 2016 RGP. The NOI must include any terms and conditions

that the applicant must follow to mitigate or prevent adverse effects due to the activities regulated by this general permit resulting from evaluation and interaction with a SHPO and/or TPHO. These terms and conditions will be included in an applicant's authorization to discharge. Authorization to discharge under this general permit is available only if the applicant certifies and documents permit eligibility using one of the eligibility criteria listed above by following the steps in Appendix III of the 2016 RGP.

Applicants are reminded that they must comply with applicable State, Tribal, and local laws concerning protection of historic properties and include documentation supporting the determination of permit eligibility in the BMPP for their sites. For electronic listings of National and State Registers of Historic Places, see the National Park Service (http://www.nps.gov/nr), the Massachusetts Historical Commission (www.state.ma.us/sec/mhc) and the New Hampshire Historical Commission (www.nh.gov/nhdhr/).

4. Coastal Zone Management Act

The Coastal Zone Management (CZM) Act (CZMA), 16 USC §1451 et seq., and its implementing regulations (15 CFR Part 930) require that any federally licensed activity affecting a State's coastal zone be consistent with the enforceable policies of approved State management programs. In the case of general permits, EPA has the responsibility for making the consistency certification and submitting it to the States for concurrence. EPA must certify that the activities authorized by this general permit comply with the enforceable policies of the States' approved programs and that the activities authorized by this general permit will be conducted in a manner consistent with the programs.

The Massachusetts CZM program has established enforceable polices that address natural, cultural, social, and economic resources. Mass CZM has eight categories of enforceable policies: 1) water quality; 2) habitat; 3) protected area; 4) coastal hazard; 5) port and harbor infrastructure; 6) public access; 7) energy; and 8) ocean resources. A complete description of the enforceable policies is available at http://www.mass.gov/czm. EPA believes that the conditions in the 2016 RGP are consistent with the enforceable policies because sites are required to develop and implement control measures, including BMPs, which eliminate or minimize the discharge of pollutants to the receiving water and meet additional water quality requirements. The 2016 RGP contains numeric (Part 2.1) and non-numeric (Part 2.2) effluent limitations, State-specific requirements to address water quality (Part 2.3 for discharges in Massachusetts) and requirements to implement control measures (Part 2.5). EPA has requested State concurrence with this determination for this general permit from the Executive Office of Environmental Affairs, Massachusetts CZM.

The New Hampshire CZM program also has enforceable policies, listed below. EPA has addressed the policies identified as applicable by New Hampshire CZM to EPA's action (i.e., reissuance of this general permit). EPA noted any policy not applicable to the reissuance of this general permit with "NA". EPA has requested State concurrence with this determination for this general permit from the Federal Consistency Officer, New Hampshire Coastal Program.

Protection of Coastal Resources:

- Protect and preserve and, where appropriate, restore the water and related land resources of the coastal and estuarine environments. The resources of primary concern are coastal and estuarine waters, tidal and freshwater, wetlands, beaches, sand dunes, and rocky shores.

The 2016 RGP is consistent to the maximum extent practicable with this enforceable policy by prohibiting any discharge that EPA determines will cause, have the reasonable potential to cause, or contribute to an excursion above WQSs such that discharges will not interfere with the attainment and maintenance of water quality. The 2016 RGP primarily authorizes discharges related to remediation (i.e., clean-up) and dewatering activities conducted at contaminated or formerly contaminated sites. Discharges authorized under the 2016 RGP must meet chemical-specific effluent limitations at or below WQC necessary for the protection of aquatic life. Additionally, discharges authorized under the 2016 RGP must comply with additional non-numeric limitations and conditions, including those necessary to protect aquatic habitat. Part 2.1 and 2.2 of the 2016 RGP includes the effluent limitations applicable to all discharges. Part 2.4 of the 2016 RGP includes additional non-numeric limitations and conditions applicable to discharges located in the State of New Hampshire.

- Manage, conserve and where appropriate, undertake measures to maintain, restore, and enhance the fish and wildlife resources of the state.

The 2016 RGP is consistent to the maximum extent practicable with this enforceable policy by prohibiting any discharge that EPA determines will cause, have the reasonable potential to cause, or contribute to an excursion above WQSs such that discharges will not interfere with the attainment and maintenance of water quality. Discharges authorized under the 2016 RGP must meet chemical-specific effluent limitations at or below WQC necessary for the protection of aquatic life. Additionally, discharges authorized under the 2016 RGP must comply with certain non-numeric limitations and conditions, including those necessary to protect fish and wildlife resources that could be impacted by the remediation and dewatering activities eligible for coverage under the 2016 RGP. All sites are subject to requirements for the use of BMPs. These requirements, when properly implemented, will maintain fish and wildlife resources by preventing the discharge of pollutants to waters of the United States. EPA does not expect the entrainment and impingement of aquatic organisms to occur in association with this general permit, as sites covered under this general permit do not utilize cooling water intake or similar structures. Part 2.1 and 2.2 of the 2016 RGP includes the effluent limitations applicable to all discharges and Part 2.4 of the 2016 RGP includes the effluent limitations applicable to discharges located in the state of New Hampshire. Part 2.5 of the 2016 RGP includes the requirements pertaining to BMPs.

- Regulate the mining of sand and gravel resources in offshore and onshore locations so as to ensure protection of submerged lands, and marine and estuarine life. Ensure adherence to minimum standards for restoring natural resources impacted from onshore sand and gravel operations. **– NA**

- Undertake oil spill prevention measures, safe oil handling procedures and when necessary, expedite the cleanup of oil spillage that will contaminate public waters. Institute legal action to collect damages from liable parties in accordance with state law.

The 2016 RGP is consistent to the maximum extent practicable with this enforceable policy by requiring all sites to use control measures, including BMPs, which address preventative maintenance, and operating procedures and practices to control site runoff, spillage or leaks, waste disposal, and drainage from raw material storage areas. These requirements, when properly implemented, will prevent the release of oil and other hazardous materials by preventing the discharge of pollutants to waters of the United States.

- Encourage investigations of the distribution, habitat needs, and limiting factors or rare and endangered animal species and undertake conservation programs to ensure their continued perpetuation.

The 2016 RGP is consistent to the maximum extent practicable with this enforceable policy by allowing coverage under this general permit only if the remediation/dewatering discharges and discharge-related activities are not likely to adversely affect any species federally listed as endangered or threatened under the ESA or result in the adverse modification or destruction of habitat federally designated as critical under the ESA. Applicants must determine eligibility prior to submission of a NOI for coverage and must maintain eligibility from authorization to discharge through termination of discharges or expiration of general permit coverage. The 2016 RGP contains eligibility criteria with regard to protection of rare and endangered species and their critical habitat (see Section I.D and E of this fact sheet and Appendix I and II of the 2016 RGP).

- Identify, designate, and preserve unique and rare plant and animal species and geologic formations which constitute the natural heritage of the state. Encourage measures, including acquisition strategies, to ensure their protection.

See response to the preceding enforceable policy.

Recreation and Public Access:

- Provide a wide range of outdoor recreational opportunities including public access in the seacoast through the maintenance and improvement of the existing public facilities and the acquisition and development of new recreational areas and public access. **– NA**

Managing Coastal Development:

- Preserve the rural character and scenic beauty of the Great Bay estuary by limiting public investment in infrastructure within the coastal zone in order to limit development to a mixture of low and moderate density. **– NA**

- Reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to preserve the natural and beneficial value of floodplains, through the

implementation of the National Flood Insurance Program and applicable state laws and regulations, and local building codes and zoning ordinances. – **NA**

- Maintain the air resources in the coastal area by ensuring that the ambient air pollution level, established by the New Hampshire State Implementation Plan pursuant to the Clean Air Act, as amended, is not exceeded. **– NA**

- Protect and preserve the chemical, physical, and biological integrity of coastal water resources, both surface and groundwater.

The 2016 RGP is consistent to the maximum extent practicable with this enforceable policy by prohibiting any discharge that EPA determines will cause, have the reasonable potential to cause, or contribute to an excursion above WQSs such that discharges will not interfere with the attainment and maintenance of water quality (i.e., the chemical, physical, and biological integrity of water resources). Discharges authorized under the 2016 RGP must meet chemical-specific effluent limitations established to protect the coastal and estuarine environment and meet WQSs for the designated uses of coastal water resources. The 2016 RGP includes effluent limitations equal to or more stringent than chemical-specific WQC. The 2016 RGP also prohibits discharge of any toxic pollutant in toxic amounts. Additionally, discharges authorized under the 2016 RGP must comply with non-numeric limitations and conditions that will protect the chemical, physical, and biological integrity of the receiving waters. Discharges covered under this general permit are limited to a maximum effluent flow of 1.0 MGD. The sites historically covered under this general permit generally discharge small volumes of treated effluent (i.e., effluent flow typically ranges from a few gpm to 50 gpm). Therefore, EPA does not expect discharges of groundwater and certain surface waters from sites covered under this general permit to adversely affect coastal groundwater or surface water resources. Part 2.1 and 2.2 of the 2016 RGP includes the effluent limitations applicable to all discharges. Part 2.4 of the 2016 RGP includes the effluent limitations applicable to discharges located in the State of New Hampshire. Part 2.5 of the 2016 RGP includes the requirements pertaining to BMPs.

- Ensure that the siting of any proposed energy facility in the coast will consider the national interest and will not unduly interfere with the orderly development of the region and will not have an unreasonable adverse impact on aesthetics, historic sites, coastal and estuarine waters, air and water quality, the natural environment and the public health and safety. **– NA**

Coastal Dependent Uses:

- Allow only water dependent uses and structures on state properties in Portsmouth, Little Harbor, Rye Harbor, and Hampton, Seabrook Harbor, at state port and fish pier facilities and state beaches (except those uses or structures which directly support the public recreation purpose). For new development, allow only water dependent uses and structures over waters and wetlands of the state. Allow repair of existing overwater structures within guidelines. Encourage the siting of water dependent uses adjacent to public waters. **– NA**

- Preserve and protect coastal and tidal waters and fish and wildlife resources from adverse effects of dredging and dredge disposal, while ensuring the availability of navigable waters to coastal-dependent uses. Encourage beach re-nourishment and wildlife habitat restoration as a means of dredge disposal whenever compatible.

Short term dredge-related discharges may be covered under the 2016 RGP provided the United States Army Corps of Engineers does not intend to issue a formal permit under 33 USC §1344 (§404 of the CWA) for the activities. If authorized to discharge under the 2016 RGP, this general permit does not authorize dredging or disposal of dredge material. This general permit also does not constitute authorization under §404 of any additional stream dredging or filling operations. EPA issued no authorizations to discharge of this type under the 2010 RGP.

Preservation of Historic and Cultural Resources:

- Support the preservation, management, and interpretation of historic and culturally significant structures, sites and districts along the Atlantic coast and in the Great Bay area.

The 2016 RGP is consistent to the maximum extent practicable with this enforceable policy by requiring that prior to submitting a NOI, an applicant certifies eligibility with regard to protection of historic properties listed in or eligible for listing in the National Registry of Historic Places. See Appendix III of the 2016 RGP for NHPA requirements and Section I.E.3 of this fact sheet, above, for more information.

Marine and Estuarine Research and Education:

- Promote and support marine and estuarine research and education that will directly benefit coastal resource management. **– NA**

F. Requiring Coverage under an Individual Permit or Other General Permit

The 2016 RGP provides that EPA may require an individual permit or recommend coverage under a separate general permit in accordance with 40 CFR §122.28(b)(3). These regulations also provide that any interested party may petition EPA to take such an action. The issuance of the individual permit or other general permit would be in accordance with 40 CFR Part 124 and would provide for public comment and appeal of any final permit decision.

The Director may require any person authorized by this permit to apply for and obtain an individual NPDES permit. Circumstances under which the Director may require an individual permit are described in 40 CFR §122.28(b)(3)(i)(A-G), and provided below.

A determination under 40 CFR §122.28(b)(3), including:

- A change has occurred in the availability of the demonstrated technology of practices for the control or abatement of pollutants applicable to the point source(s);

- Effluent limitation guidelines are promulgated for the point source(s) covered by this permit;
- A Water Quality Management Plan or Total Maximum Daily Load containing requirements applicable to such point source(s) is approved and inconsistent with this permit;
- Circumstances have changed since the time of the request to be covered so that the discharger is no longer appropriately controlled under the general permit, or either a temporary or permanent reduction or elimination of the authorized discharge is necessary; or
- The discharge(s) is a significant contributor of pollutants.

The discharger is not in compliance with the conditions of this general permit.

The discharge(s) is in violation of State Water Quality Standards for the receiving water.

Actual or imminent harm to aquatic organisms, including ESA or human health is identified.

The discharge adversely impacts any federally-managed species for which EFH has been designated.

In the opinion of the Director, is more appropriately controlled under an individual or alternate general permit.

The point source(s) covered by this permit no longer:

- Involves the same or substantially similar types of operations;
- Discharges the same types of wastes;
- Requires the same effluent limitations or operating conditions; or
- Requires the same or similar monitoring.

If the Director requires an individual permit, EPA will notify the applicant or operator in writing that an individual permit is required, and will provide a brief explanation of the reasons for this decision. When EPA issues an individual NPDES permit to an operator otherwise subject to this general permit, the applicability of this general permit to that operator is automatically terminated on the effective date of the individual permit.

G. EPA Determination of Coverage

Any applicant may request coverage under this general permit, but the final authority rests with EPA. EPA will continue to post NOIs on EPA Region 1's general permit website for at least 7 days prior to making its determination.[17] Coverage under the RGP will not be effective until EPA has reviewed the NOI and any existing file information, made a determination that coverage

[17] Currently accessed at: http://www.epa.gov/region1/npdes/rgp.html.

under the 2016 RGP is appropriate, and notified the operator in writing of its determination. A site authorized to discharge under the final 2016 RGP will receive an authorization to discharge, provided in writing by EPA. The effective date of coverage will be the date indicated in the authorization to discharge provided by EPA.

Failure to submit a NOI to EPA and/or failure to receive from EPA written notification of permit coverage means that an operator is not authorized to discharge under this general permit. When EPA denies permit coverage for a site, an operator is not authorized to discharge under this general permit from that site to waters of the United States.

II. Permit Basis: Statutory and Regulatory Authority

A. Statutory Requirements

The CWA prohibits the discharge of pollutants to waters of the United States without a NPDES permit unless such a discharge is otherwise authorized by the CWA. See §301(a), 33 USC §1311(a). This NPDES general permit is issued to implement technology and water quality-based effluent limitations and other requirements, including monitoring and reporting, pursuant to the CWA. See §402, 33, USC §1342. The CWA and applicable State and Federal regulations provide the basis for the effluent limitations and other conditions in this NPDES general permit. See 33 USC §1251 *et seq.;* 40 CFR §§122 and 125; 314 CMR 3.00 and 4.00 *et seq.*; and Env-Wq 1700 *et seq.*

In general, the CWA requires that the effluent limitation for a particular pollutant parameter be the more stringent of either technology-based effluent limitations or water quality-based effluent limitations. The regulations governing the EPA NPDES permit program are generally found at 40 CFR Parts 122, 124, 125, and 136. The standard conditions of the 2016 RGP are based on 40 CFR §122.41 and consist primarily of management requirements common to all permits. The effluent monitoring requirements have been established to yield data representative of the discharge under authority of §308(a) of the CWA in accordance with 40 CFR §122.41(j), §122.44(i) and §122.48.

B. Technology-Based Requirements

Subpart A of 40 CFR §125 establishes criteria and standards for the imposition of technology based treatment requirements in permits under §301(b) of the CWA, including the application of EPA-promulgated effluent limitations guidelines and standards (ELGs) and case-by-case determinations of effluent limitations under §402(a)(1) of the CWA.

Technology-based effluent limitations (TBELs) represent the minimum level of control that must be imposed under §§301(b) and 402 of the CWA to meet best practicable control technology currently available (BPT) for conventional pollutants and some metals, best conventional control technology (BCT) for conventional pollutants, and best available technology economically achievable (BAT) for toxic and non-conventional pollutants. 40 CFR §125 Subpart A. ELGs promulgated for non-POTWs must be complied with as expeditiously as practicable but in no

case later than three years after the date such limitations are established, and in no case later than March 31, 1989. 40 CFR §125.3(a)(2). A NPDES permit cannot authorize compliance schedules and deadlines not in accordance with the statutory provisions of the CWA.

EPA has not promulgated ELGs for those discharges authorized by this general permit. Therefore, as provided in §402(a)(1) of the Act, EPA has established TBELs in this general permit utilizing Best Professional Judgment (BPJ) to meet the above stated criteria for BAT/BCT described in §304(b) of the Act.

As provided in §402(a)(1) of the CWA, the 2016 RGP includes TBELs for the COCs as described in Section III.B and C of this fact sheet, below.

C. Water Quality-Based Requirements

Water quality-based effluent limitations (WQBELs) are required in NPDES permits when EPA and the States determine that effluent limitations more stringent than TBELs are necessary to attain or maintain State or Federal WQSs. CWA §301(b)(1)(C). WQSs consist of three parts: 1) beneficial designated uses for a water body or a segment of a water body; 2) numeric and/or narrative water quality criteria (WQC) sufficient to protect the assigned designated use(s) of the water body; and 3) anti-degradation requirements to ensure that once a use is attained it will not be degraded. EPA regulations pertaining to effluent limitations based upon WQSs and State requirements are contained in 40 CFR §122.44(d).

In retaining or proposing WQBELs in the 2016 RGP, EPA considered applicable WQC for aquatic life, human health and organoleptic effect, when available, including those limitations based on State WQSs. This includes EPA's *National Recommended Water Quality Criteria* (*NRWQC*) to the extent adopted by each State into their WQSs. EPA also considered additional information if necessary, including specific water quality standards in Massachusetts and New Hampshire. Section II.C.1, below, includes additional information regarding EPA's consideration of State-specific standards. Section III.B, below, includes information regarding the selection of applicable criteria. For the majority of the COCs limited in the 2016 RGP, the TBELs are equivalent to or more stringent than the WQBELs necessary to attain or maintain WQSs. However, where the WQBEL for a given COC is more stringent than the TBEL for that COC, the WQBEL is included in the 2016 RGP. For some limited COCs, EPA included both a TBEL and a WQBEL in the 2016 RGP. The WQBEL applies to a site in this instance if, after allowable dilution, the WQBEL is more stringent than the TBEL. Therefore, the effluent limitations established in the 2016 RGP will ensure that the WQSs of the receiving waters will be attained and/or maintained. Section III.B and/or C, below explains the basis for WQBELs included in the 2016 RGP. Section III.F includes additional information regarding allowable dilution.

1. Consideration of Specific Standards in Massachusetts and New Hampshire

Massachusetts and New Hampshire water quality standards (WQSs) are not identical. Both Massachusetts and New Hampshire specify numerical standards for certain COCs in their

regulations. The Massachusetts Surface WQSs and implementation policy refer to published *NRWQC* and other sources for the majority of COCs included in the 2016 RGP. [18] The New Hampshire Surface Water Quality Regulations (WQRs) include numerical standards for freshwater and marine waters for most of the COCs included in the 2016 RGP, including many COCs for which EPA has not yet established *NRWQC* (e.g., total polycyclic aromatic hydrocarbons, total phthalates, total dichlorobenzene).

Massachusetts Surface WQSs and New Hampshire Surface WQRs also contain narrative standards for some COCs included in the 2016 RGP, rather than numeric WQC. For COCs with no current State numeric WQC or *NRWQC*, EPA considered the best available information in establishing effluent limitations for this general permit that meet narrative WQSs. Such information includes, but is not limited to: 1) EPA "Lowest Observed Effects Levels" (LOELs); 2) Maximum Contaminant Levels (MCLs) and/or threshold advisory values issued through EPA and/or State drinking water standards (DWSs); and/or 3) State groundwater quality standards (GQSs).

In sum, the additional State-specific standards considered in this general permit, include, but are not limited to:

- 314 CMR 4.00, Massachusetts Surface Water Quality Standards;
- 310 CMR 40.0970 – 40.0979, Massachusetts MCP Method 1 Standards;
- 310 CMR 22.00, Massachusetts Drinking Water Standards and Guidelines;
- New Hampshire Chapter Env-Or 603.03, Ambient Groundwater Quality Standards;
- New Hampshire Chapter Env-Wq 1700, Surface Water Quality Regulations; and
- New Hampshire Chapter Env-Dw 700, Drinking Water Quality Standards.

EPA notes that the State of New Hampshire is currently in the process of revising certain State WQSs found at Env-Wq 1700 (Surface Water Quality Regulations), including some criteria used to derive effluent limitations in the 2016 RGP. A public hearing was held on June 21, 2016 and the comment period expires on July 22, 2016. If or when the revisions to these standards are finalized and approved by EPA, EPA anticipates that the applicable revised water quality standards found in Env-Wq 1700 will be incorporated into the RGP for sites in New Hampshire. EPA has noted where revised standards are expected to apply (e.g., antimony, diethylhexyl phthalate). EPA invites comments regarding this issue.

D. Anti-Backsliding

A NPDES permit may not be renewed, reissued or modified with less stringent limitations or conditions than those contained in a previous NPDES permit unless in compliance with the anti-backsliding requirements of the CWA. CWA §402(o) and §303(d)(4) and 40 CFR §122.44(l)(1 and 2). Effluent limitations based on BPJ (i.e., TBELs), water quality (i.e., WQBELs), and CWA §401 certification requirements must also meet the anti-backsliding provisions found at §402(o)

[18] *Massachusetts Water Quality Standards Implementation Policy for the Control of Toxic Pollutants in Surface Waters*. February 23, 1990. Also, EPA's *National Recommended Water Quality Criteria:* 2002 EPA-822-R-02-047 (November 2002) as referenced in 314 CMR 4.05(5)(e)

and §303(d)(4) of the CWA. There are a limited number of defined exceptions to this prohibition under CWA §402(o)(2). Certain less stringent effluent limitations may also be independently allowed, if the relaxation is consistent with the provisions of CWA §303(d)(4).

All effluent limitations included in the 2016 RGP: 1) are at least as stringent as limitations included in the 2010 RGP; or 2) meet the applicable anti-backsliding statutory and regulatory provisions for a less stringent effluent limitation. Therefore, the 2016 RGP complies with the anti-backsliding requirements of the CWA. Where the effluent limitation for a COC included in the 2016 RGP is less stringent than the effluent limitation for that COC as included in the 2010 RGP, the necessary justification under §402(o)(2) and/or §303(d)(4) of the CWA is noted in the basis for the effluent limitation for that COC. See Section III of this fact sheet.

E. Anti-Degradation

Federal regulations found at 40 CFR §131.12 require that all existing uses in the receiving waters, along with the level of water quality necessary to protect those existing uses, are attained and maintained. The conditions of the 2016 RGP reflect the goal of the CWA and EPA to attain and maintain WQSs. The environmental regulations pertaining to State anti-degradation policies, which protect the States' surface waters from degradation of water quality, are found in the following provisions: Massachusetts Water Quality Standards 314 CMR §4.04 Anti-degradation Provisions; and New Hampshire RSA 485-A:8, VI Part Env-Wq.

The 2016 RGP does not authorize discharges to into Class A or SA waters in Massachusetts unless the Commonwealth of Massachusetts conducts an anti-degradation review on a case-by-case basis for the proposed discharges and determines that such discharges meet State anti-degradation provisions. The State of New Hampshire does not authorize discharges to Class A waters under this general permit. On a case-by-case basis, the Commonwealth of Massachusetts and the State of New Hampshire may conduct anti-degradation reviews for notices of intent to discharge into Class B or SB waters, in accordance with appropriate State anti-degradation implementation, should either State determine that an anti-degradation review is necessary. EPA will not authorize discharges under the RGP without concurrence from the appropriate State, should the State determine that an anti-degradation review is necessary.

III. Explanation of the Permit Effluent Limitations and Requirements

The 2016 RGP will authorize discharges to waters of the United States within Massachusetts and New Hampshire subject to limitations and requirements imposed pursuant to CWA §§301, 304, 306, 401 and 403, 33 USC §§1311, 1314, 1316, 1341 and 1343. The following sections describe the effluent limitations and requirements included in the 2016 RGP.

A. Indicator Parameters

As noted in Section I.C, above, during the development of the 2005, 2010 and/or 2016 RGPs, EPA identified common groups of COCs present or likely present at contaminated or formerly contaminated sites. Further, EPA determined that it would be both impractical and unnecessary

to attempt to evaluate and limit every possible individual COC among the common groups of COCs present or likely present at contaminated or formerly contaminated sites/sources. As a result, EPA determined that limiting "indicator parameters" in accordance with 40 CFR §122.44(d)(1)(I(C)(3) would be more protective, more efficient, and would meet applicable Federal and State numeric and narrative criteria for COCs.

For the reissuance of this general permit, EPA maintains that:

- A comprehensive set of indicator parameters can be selected to control the COCs present or likely present at contaminated or formerly contaminated sites/sources;
- Numeric and/or narrative technology-based and/or water quality-based standards exist and can be used to derive permit effluent limitations for the selected indicator parameters;
- BPT, BCT, and/or BAT currently exist and are in wide use to meet or exceed the effluent limitations for conventional, non-conventional and toxic indicator parameters established in this general permit; and
- These effluent limitations and requirements are reasonable and sufficiently stringent to carry out the provisions of the CWA and ensure compliance with applicable WQSs as required by CWA §401(a)(2) and 40 CFR §122.4(d).

EPA selected indicator parameters for COCs that are: 1) more common (i.e., most likely to be present at the types of sites to be covered under this general permit); 2) more toxic (e.g., priority pollutants in Appendix A to 40 CFR §423); 3) exhibit limiting physical and/or chemical characteristics with respect to susceptibility to treatment by pollution control technologies; and/or 4) exhibit physical and/or chemical characteristics strongly representative of other COCs, which ensures that other COCs with similar characteristics would also be removed by pollution control technologies. Therefore, effluent limitations established to control indicator parameters, also control the COCs the indicator parameters represent. The 2016 RGP includes 60 indicator parameters. EPA has grouped the majority of indicator parameters as Items a through f in the 2016 RGP, as shown below. However, effluent flow is a stand-alone indicator parameter included in the 2016 RGP.

a. Inorganics
b. Non-Halogenated Volatile Organic Compounds (VOCs)
c. Halogenated VOCs
d. Non-Halogenated Semi-Volatile Organic Compounds (SVOCs)
e. Halogenated SVOCs
f. Fuels Parameters

The majority of indicator parameters included in the 2016 RGP are unchanged from the indicator parameters included in the 2005 and/or 2010 RGP. However, EPA has added, revised or removed indicator parameters included in this general permit if necessary and appropriate. The following sections describe the indicator parameters included in the 2016 RGP. The basis for the effluent limitations or monitor-only requirements for the selected indicator parameters, including any proposed for removal, are described in Section III.B, below.

1. Inorganics

As noted in Section I.C.2, above, inorganic COCs are substances that generally do not have a chemical structure based on carbon or its derivatives. The inorganics indicator parameters included in the 2016 RGP are described in this section, below.

Ammonia is a new indicator parameter proposed in the 2016 RGP.

Ammonia is highly toxic and can affect the dissolved oxygen level in a waterbody. Ammonia can also lead to the development of eutrophic conditions in a waterbody.[19] The chemical form of ammonia in water consists of two species, the more abundant of which is the ammonium ion (NH_4^+), the less abundant of which is the non-dissociated or unionized ammonia (NH_3) molecule. The concentration of total ammonia, often expressed as ammonia nitrogen, is the sum of NH_4^+ and NH_3 concentrations. The ratio of these species in a given aqueous solution is dependent upon both pH and temperature. Generally, as values of pH and temperature increase, the concentration of NH_3 increases and the concentration of NH_4^+ decreases. The toxicity of total ammonia increases as pH increases.[20]

EPA does not currently have information regarding nutrients in discharges covered under this general permit. However, monitoring data available for sites with remediation and/or dewatering discharges covered under individual permits in Region 1 indicate that ammonia may be present in such discharges.[21] As a toxic pollutant and to determine the frequency with which remediation/dewatering discharges may contain toxic compounds of nitrogen, the 2016 RGP includes ammonia as an indicator parameter. EPA selected ammonia as an indicator parameter because of its toxicity and the availability of numeric WQC.

Chloride is an indicator parameter retained from the 2010 RGP.

Chlorides are used heavily near roadways and are present near salt storage areas. As a result, the presence of chloride in groundwater in Massachusetts and New Hampshire is widespread. Other sources of chloride may include deicing salt, stormwater runoff, and agricultural runoff. While the chlorides of potassium, calcium and magnesium are generally more toxic to aquatic life than sodium, sodium is likely the most common chloride present.[22]

Total Residual Chlorine (TRC) is an indicator parameter retained from the 2010 RGP.

TRC consists of the sum of free chlorine and combined chlorine. Chlorine and chlorine compounds are toxic to aquatic life. Chlorine can also react with naturally occurring metals and organic compounds to form toxic compounds such as trihalomethane, or inorganic materials to

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[19] *Aquatic Life Ambient Water Quality Criteria for Ammonia – Freshwater*. EPA 822-R-13-001: April 2013.
[20] *Aquatic Life Ambient Water Quality Criteria for Ammonia – Freshwater*. EPA 822-R-13-001: April 2013.
[21] See, for example, Discharge Monitoring Reports for MA0000825, MA0001929, MA0003280, MA0003298, MA0003425 and MA0004006.
[22] See *Ambient Water Quality Criteria for Chloride – 1988*. EPA 440/5-88-001, February, 1988.

form chloride salts (i.e., chlorine demand).[23] TRC may be present in discharges if operators use chlorine compounds to control bacterial growth in the treatment systems or in pipelines and tanks encounter, when disinfection of effluent co-mingled with incidental domestic sewage is necessary, or if discharges contain potable water that has been chlorinated as required in 40 CFR §141.72.

Total Suspended Solids (TSS) is an indicator parameter retained from the 2010 RGP.

TSS is a conventional pollutant that may include inorganic (e.g., silt, sand, clay, and insoluble hydrated metal oxides) and organic matter (e.g., flocculated colloids and compounds that contribute to color). TSS can cause interference with proper operation and maintenance of the pollution control technologies used by operators to meet effluent limitations and requirements in this general permit. Suspended solids also provide a medium for the transport of other pollutants (e.g., hydrocarbons, metals) via adsorption. The control of TSS in the discharges covered by this general permit will help minimize the discharge of pollutants which are adsorbed to particulate matter. In addition, control of TSS will ensure proper operation of treatment units widely used to meet effluent limitations in this general permit (e.g., carbon adsorption treatment systems can be clogged by TSS).

Metals:

The following metals are indicator parameters retained from the 2010 RGP: antimony, arsenic, cadmium, chromium III, chromium VI, copper, iron, lead, mercury, nickel, selenium, silver, and zinc. With the exception of iron, these metals are priority pollutants in Appendix A to 40 CFR §423.

The metals present at contaminated or formerly contaminated sites vary widely depending on the types of contamination at a site, the activities occurring at a site, and the surficial and bedrock geology present. Petroleum-related sources can contain *de minimis* quantities of antimony, arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, and zinc, depending upon the type of fuel. Residual metals may also be present at sites with a use history of coal storage, transport or combustion, as antimony, arsenic, cadmium, chromium, lead, mercury, nickel and selenium are constituents of coal, depending upon the source.[24] Potable water used for remediation or dewatering activities may also contain residual metals, depending upon the source water and the treatment processes used (e.g., iron used for coagulation, silver used for disinfection). Water supply piping may also leach metals such as copper or lead into the source. Metals such as copper and nickel can also leach from treatment system piping that contains the metal or alloy (e.g., plumbing pipes, sheet metal, and stainless steel). Operators may also use compounds containing metals, such as copper and iron in treatment systems (e.g., algaecide, and coagulation, respectively). Metals are also common trace impurities in treatment chemicals.

[23] EPA 749-F-94-010, December, 1994; and *Toxicological Profile for Chlorine*. Agency for Toxic Substances and Disease Registry: November, 2010.
[24] See Table 3-4 and 3-5 in EPA 745-B-00-004, 2000: pages 3-11 through 3-28.

Many metals are directly toxic to humans, including lead, mercury, arsenic and cadmium. Some metals, while required by the human body in small amounts, including copper, zinc, and chromium, can be toxic at high doses. Metals such as copper, lead, and zinc can be toxic to aquatic life, and can bioaccumulate in living organisms, which can lead to biomagnification within a food chain. Chemical interactions with groundwater, surface water or site contaminants, including naturally occurring deposits in surrounding surficial or bedrock geology, can mobilize metals such as arsenic and iron, especially under reducing conditions. Metals cations are most mobile under acidic conditions, while anions tend to adsorb to oxide minerals at low pH. At high pH, metals anions are most mobile, while cations precipitate or adsorb to mineral surfaces. The fate and transport of metals in aquatic systems is highly dependent upon partitioning between soluble and solid phases. Adsorption, precipitation, co-precipitation, and complexation are processes that affect partitioning and adsorption. For example, hydrous metal oxides of iron, aluminum and manganese can remove cations and anions from solution by ion exchange, specific adsorption and surface precipitation. These processes can be highly site-specific, varying by pH, oxygen-reduction potential, the concentration of complexing ions, and the species and concentration of the metal(s) present.[25]

Antimony forms complex ions with organic and inorganic acids, adsorbing strongly to particles that contain iron, manganese, or aluminum. Antimony often occurs with other metals at sites, particularly lead and zinc. Antimony does not breakdown, but may transform or attach to solids.[26]

Arsenic occurs in the form of elemental arsenic, or inorganic or organic arsenic compounds. Inorganic arsenic occurs primarily in two oxidation states, arsenic III and arsenic V. Arsenic V is more common under oxidizing conditions, while Arsenic III is most common under reducing conditions. Arsenic does not breakdown, but may transform or adsorb to particulate matter and sediment. Arsenic in soil tend to form insoluble complexes with iron, aluminum, and magnesium oxides, and is relatively immobile. Under reducing conditions, arsenic can occur in water-soluble, mobile forms that can leach into groundwater or runoff into surface waters.[27]

Cadmium generally occurs as the hydrated ion or as ionic complexes with other inorganic or organic substances. Cadmium and its compounds are mobile in soil, but its mobility depends on factors such as pH and the organic matter content of the soil. Cadmium can bind strongly to organic matter, becoming immobile. Insoluble forms of cadmium can absorb to solids. Soluble forms of cadmium migrate in water.[28]

Chromium III is the most commonly occurring form of chromium in the environment and is largely naturally occurring. Chromium III has very low solubility and low reactivity, resulting in low mobility. Chromium III is insoluble in water and is immobile in soil when present as insoluble carbonate and oxide. The mobility of chromium III in soil can increase through

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[25] Evanko, C.R., et.al. *Remediation of Metals-Contaminated Soils and Groundwater*. Technology Evaluation Report TE-97-01. EPA Technology Innovation and Field Services Division Contaminated Site Clean-Up Information.
[26] *Toxicological Profile for Antimony and Compounds*. Agency for Toxic Substances and Disease Registry: September, 1992.
[27] *Toxicological Profile for Arsenic*. Agency for Toxic Substances and Disease Registry: August, 2007.
[28] *Toxicological Profile for Cadmium*. Agency for Toxic Substances and Disease Registry: September, 2012.

complexation with organic matter at low pH. These acid-soluble chromium III complexes in soil may leach into groundwater. Chromium III can also be present as suspended solids adsorbed onto clays, organic matter, or iron oxides.

Chromium VI is generally produced by industrial processes and is highly toxic. Common compounds of chromium VI are relatively soluble and mobile. Chromium VI can occur in the soluble state or as suspended solids adsorbed onto clays, organic matter, or iron oxides. Soluble and unabsorbed chromium VI may leach into groundwater. The leachability of chromium VI in the soil increases as the pH of the soil increases. Chromium VI is reduced to chromium III by organic matter or other reducing agents in water, and can be reduced through treatment.[29]

Copper readily adsorbs to organic matter, clay, soil, or sand and does not easily breakdown. In aerobic sediments, copper can bind to iron oxides. In anaerobic sediments, copper can be reduced to form insoluble salts. Water-soluble copper compounds migrate to groundwater. In water, copper predominantly occurs in the copper II oxidation state, most of which is likely complexed or tightly bound to organic matter. In freshwater, most dissolved copper II occurs as carbonate complexes. Copper II forms compounds or complexes with both inorganic and organic ligands, including ammonia and chloride. Copper also forms stable complexes with organic ligands such as humic acids (e.g., compounds of nitrogen, sulfur or oxygen and hydrogen).[30]

Iron-bearing minerals in rocks and soils (e.g., clays) can contribute elevated levels of iron to groundwaters in New England.[31] Iron most commonly occurs as the ferrous (Fe^{2+}) and ferric (Fe^{3}) iron ions. These ions readily combine with oxygen- and sulfur-containing compounds to form oxides, hydroxides, carbonates, and sulfides. Fe^{2+} (iron salts) are relatively unstable and precipitate as insoluble Fe^{3+} (iron hydroxide). Fe^{3+} settles out of the water column as a rust-colored silt. Fe^{2+} can persist in waters absent dissolved oxygen, such as anaerobic groundwaters.[32] Iron can promote undesirable bacterial growth within treatment systems, generally resulting in the deposition of a slimy coating on piping (i.e., fouling).[33]

Lead most commonly occurs in the oxidation state Pb^{2+}. Lead does not breakdown, but may transform to other lead compounds. When lead is exposed to air and water, films of lead sulfate, lead oxides, and lead carbonates form, creating a protective barrier that slows or halts corrosion. Lead also strongly adsorbs to soil. As a result, lead is most commonly found in the upper layers of soil and sediment. The solubility of lead compounds in water is a function of pH, hardness, salinity, and the presence of humic material. Solubility is highest in soft, acidic water. Because of widespread historic use and the persistence of lead in the environment, high concentrations of lead can be present at sites.[34]

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[29] *Toxicological Profile for Chromium.* Agency for Toxic Substances and Disease Registry: September, 2012.
[30] *Toxicological Profile for Copper*. Agency for Toxic Substances and Disease Registry: September, 2004.
[31] DeSimone, L.A., et. al. *Quality of Water from Domestic Wells in Principal Aquifers of the United States, 1991–2004*. U.S. Geological Survey Scientific Investigations Report 2008–5227: 2009.
[32] *Quality Criteria for Water 1986*. EPA 440/5-86-001: May 1, 1986. (EPA's "Gold Book")
[33] *Health criteria and other supporting information.* World Health Organization; Guidelines for Drinking-Water Quality Second ed. Vol. 2: 1996.
[34] *Toxicological Profile for Lead*. Agency for Toxic Substances and Disease Registry: August, 2007.

Mercury can occur in several forms, including elemental mercury, inorganic mercury, and organic mercury. Inorganic mercury compounds form with elements such as chlorine, sulfur, or oxygen (i.e., mercury salts). Organic mercury compounds form with carbon. The most common organic mercury compound is methylmercury, produced mainly by microorganisms in water and soil that convert inorganic mercury compounds.[35]

Nickel typically combines with sulfur to form sulfides under anaerobic conditions. In soil, nickel typically combines with oxygen to form oxides. Nickel strongly adsorbs to solids containing iron or manganese to form amorphous oxides. Nickel also adsorbs onto suspended particles, particulate matter and dissolved organic matter. Nickel compounds containing chlorine, sulfur, and oxygen are relatively water-soluble. Under acidic conditions, nickel is mobile in soil and will leach to groundwater.[36]

Selenium generally occurs in combination with sulfide or with silver, copper, lead, and nickel minerals. The occurrence of selenium is influenced by its oxidation state. The forms of selenium generally found in surface water and the water contained in soils are the salts of selenic and selenious acids. Soluble and mobile forms of selenium (e.g., selenite and selenate) are dominant under aerobic and alkaline conditions. Insoluble forms of selenium remain in soil or settle to the bottom as solids.[37]

Silver can occur as the monovalent ion (e.g., sulfide, bicarbonate, or sulfate salts), or as part of more complex ions with chlorides and sulfates. Silver occurs primarily as sulfides, in association with metals such as iron and lead. Silver also combines with chloride and nitrate. Silver adsorbs onto particulate matter, the dominant process controlling partitioning in water and movement in soil. Silver may leach from soil into groundwater, especially under acidic conditions.[38]

Zinc occurs mainly as a free ion (i.e., Zn^{2+}) and can occur in both suspended and dissolved forms. Suspended zinc can dissolve and can readily adsorb onto suspended solids. Dissolved zinc generally increases as pH decreases and may occur as the free ion or as dissolved complexes and compounds. Under aerobic conditions and at high pH, zinc readily adsorbs onto hydrous iron and manganese oxides, clay minerals, and organic material. Zinc compounds commonly found at contaminated or formerly contaminated sites include zinc chloride, zinc oxide, zinc sulfate, and zinc sulfide.[39]

Cyanide is an indicator parameter retained from the 2010 RGP.

Cyanide is strongly associated with metals at contaminated or formerly contaminated sites because it readily forms complexes with transition metals, particularly iron. Cyanide occurs in water in many forms, including hydrogen cyanide (HCN), the cyanide ion (CN^-), simple cyanides, metallocyanide complexes, and as organic compounds. The relative concentrations of

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[35] *Toxicological Profile for Mercury*. Agency for Toxic Substances and Disease Registry: March, 1999.
[36] *Toxicological Profile for Nickel*. Agency for Toxic Substances and Disease Registry: August, 2005.
[37] *Toxicological Profile for Selenium.* Agency for Toxic Substances and Disease Registry: September, 2003.
[38] *Toxicological Profile for Silver*. Agency for Toxic Substances and Disease Registry: December, 1990.
[39] *Toxicological Profile for Zinc*. Agency for Toxic Substances and Disease Registry: August, 2005.

these forms depend mainly on pH and temperature. Both HCN and CN^- are toxic to aquatic life. The cyanide ion readily converts to hydrogen cyanide at pH values less than 7.0. As a result, when present, cyanide occurs more commonly as the more toxic hydrogen cyanide. Certain bacteria, fungi, and algae can also produce cyanide, and cyanide is found naturally in several species of plants.[40]

2. Non-Halogenated Volatile Organic Compounds (VOCs)

As noted in Section I.C.2, above, VOCs are organic compounds that participate in atmospheric photochemical reactions except those designated by EPA as having negligible photochemical reactivity. A non-halogenated compound is one that does not have a halogen (e.g., fluorine, chlorine, bromine, or iodine) attached to its chemical structure. In general, non-halogenated VOCs rapidly volatilize to the atmosphere when released to surface water and soil surfaces and can percolate into the subsurface soil, where they can be highly mobile. Non-halogenated VOCs may leach into groundwater, or may migrate from surface water through the soil to groundwater. The non-halogenated VOC indicator parameters included in the 2016 RGP are described in this section, below.

Total BTEX is an indicator parameter retained from the 2010 RGP.

Total BTEX is the sum of the four alkyl benzenes: benzene, toluene, ethylbenzene, and total xylenes (i.e., the sum of the ortho, para, and meta isomers of xylene). Under aerobic conditions, when mixtures of BTEX are present, toluene usually degrades first, followed by xylene, and lastly benzene and ethylbenzene, if they are degraded at all.[41] BTEX compounds are present at relatively high concentrations in light distillates (e.g., approximately 2% ethylbenzene, 5% benzene, and 11-12% toluene and xylenes). However, the composition of petroleum products that contain BTEX is highly variable, and for some petroleum products, any one of the four BTEX compounds could be the dominant COC. BTEX concentrations decrease in the heavier grades of petroleum distillate products such as fuel oils.[42] Benzene, toluene and ethylbenzene are listed as priority pollutants in Appendix A to 40 CFR Part 423.

Benzene is an indicator parameter retained from the 2010 RGP.

Benzene readily leaches to and is persistent in groundwater, and can enter surface water via runoff. Benzene can adsorb to solids, which tends to occur in soils or aquifers with greater organic matter content. Benzene can be degraded in both soil and water, mostly through aerobic biodegradation. Benzene can be resistant to aerobic biodegradation in the presence of nutrients or when present as a mixture with other aromatic hydrocarbons. Benzene biodegradation under anaerobic conditions does not readily occur.[43] Benzene is frequently found at petroleum-related remediation sites because benzene is present at relatively high concentrations in light distillates

[40] *Toxicological Profile for Cyanide*. Agency for Toxic Substances and Disease Registry: July, 2006.
[41] *Toxicological Profile for Benzene*. Agency for Toxic Substances and Disease Registry: August 2007.
[42] "Composition of Petroleum Mixtures," Total Petroleum Hydrocarbon Criteria Working Group Series, T.L. Potter and K.E. Simmons, Vol. 2, p. 52 (May 1998).
[43] *Toxicological Profile for Benzene*. August 2007; Agency for Toxic Substances and Disease Registry.

(e.g., approximately 20,000 parts per million (ppm) in gasoline and approximately 300 ppm in diesel fuel).[44] Benzene is listed as a priority pollutant in Appendix A to 40 CFR Part 423.

1,4-dioxane is an indicator parameter retained from the 2010 RGP.

1,4-Dioxane is a synthetic cyclic ether generally found at sites in association with releases of chlorinated solvents, especially1,1,1-TCA.[45] 1,4-dioxane is highly miscible in water, mixing with water so readily that it can be found in groundwater plumes far in advance of any solvents with which it was originally released. It also migrates rapidly in soil and can readily leach into groundwater. [46] 1,4-dioxane does not adsorb significantly to suspended sediments and is relatively resistant to biodegradation. Volatilization occurs relatively rapidly from dry soils, but relatively slowly from surface water.[47]

Acetone is an indicator parameter retained from the 2010 RGP.

Acetone is miscible in water and soluble in benzene and ethanol. Acetone is highly volatile and can readily leach to groundwater. Acetone does not readily adsorb to soil and sediment. Volatilization of acetone from water is significant, but occurs relatively slowly. Acetone produces detectable odors in air and water, with an odor threshold in water of 20 mg/L.[48]

Total Phenol is an indicator parameter retained from the 2010 RGP.

Phenol is a widely used chemical intermediate. Residual phenol can also occur as a byproduct of the combustion of wood, petroleum products, and coal gas, and the degradation of organic matter and organic wastes, especially benzene. Phenol degrades rapidly in air and will generally biodegrade rapidly in soil at lower concentrations in the presence of microorganisms capable of degrading phenol. When biodegradation is sufficiently slow, phenol in soil will leach to groundwater.[49] Phenol is listed as a priority pollutant in Appendix A to 40 CFR Part 423.

3. Halogenated Volatile Organic Compounds (VOCs)

As noted in Section I.C.2, above, VOCs are organic compounds that participate in atmospheric photochemical reactions except those designated by EPA as having negligible photochemical reactivity. A halogenated compound is one that has a halogen (e.g., fluorine, chlorine, bromine, or iodine) attached to its chemical structure. In general, halogenated VOCs rapidly volatilize to the atmosphere when released to surface water and soil surfaces or leach to groundwater.

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[44] *Composition of Petroleum Mixtures*, Total Petroleum Hydrocarbon Criteria Working Group Series, T.L. Potter and K.E. Simmons, Vol. 2, p. 52, May 1998.
[45] *Technical Fact Sheet – 1,4-Dioxane.* U.S. EPA, Federal Facilities Restoration and Reuse Office. EPA 505-F-14-011: January, 2014.
[46] *1,4-Dioxane Fact Sheet: Support Document*. EPA Office of Pollution Prevention and Toxics (OPPT) Chemical Fact Sheet. EPA 749-F-95-010a: February, 1995.
[47] *Toxicological Profile for 1,4-Dioxane*. April, 2012; Agency for Toxic Substances and Disease Registry.
[48] Toxicological Review of Acetone. U.S. Environmental Protection Agency: EPA/635/R-03/004, May, 2003; and *Toxicological Profile for Acetone*. Agency for Toxic Substances and Disease Registry: May, 1994.
[49] *Toxicological Profile for Phenol*. Agency for Toxic Substances and Disease Registry: September, 2008.

halogenated VOCs may also volatilize from the groundwater of unconfined aquifers to the soil. Halogenated VOCs generally adsorb moderately to the soil organic phase. The more halogenated the compound (i.e., the more halogens attached to its chemical structure), the more resistant it is to degradation. The nature of the halogen bond and the halogen itself can significantly affect performance of a pollution control technology or require more extensive treatment than for non-halogenated compounds.[50] The halogenated VOC indicator parameters included in the 2016 RGP are described in this section, below.

Carbon Tetrachloride is an indicator parameter retained from the 2010 RGP.

Carbon tetrachloride is moderately mobile in most soils, depending on the organic carbon content, and may adsorb to the soil organic matter. Carbon tetrachloride has moderate water solubility and degrades slowly. In the presence of free or available sulfide and ferrous ions, carbon tetrachloride can undergo reductive dechlorination.[51] Carbon tetrachloride is listed as a priority pollutant in Appendix A to 40 CFR Part 423.

Total dichlorobenzene is an indicator parameter retained from the 2010 RGP.

Total dichlorobenzene is the sum of three isomers: 1,2-dichlorobenzene, 1,3-dichlorobenzene, and 1,4-dichlorobenzene. Dichlorobenzenes (DCBs) are not known to occur naturally. Biodegradation of DCBs may occur in water under aerobic, but not anaerobic, conditions.[52] All three dichlorobenzene isomers are listed as priority pollutants in Appendix A to 40 CFR Part 423.

1,2 Dichlorobenzene (1,2-DCB) is an indicator parameter retained from the 2010 RGP.

1,2-DCB is one of the three DCBs isomers described with respect to total DCBs, above.

1,3 Dichlorobenzene (1,3-DCB) is an indicator parameter retained from the 2010 RGP.

1,3-DCB is one of the three DCBs isomers described with respect to total DCBs, above.

1,4 Dichlorobenzene (1,4-DCB) is an indicator parameter retained from the 2010 RGP.

1,4-DCB is one of the three DCBs isomers described with respect to total DCBs, above.

1,1 Dichloroethane (1,1-DCA) is an indicator parameter retained from the 2010 RGP.

1,1-DCA in surface water will generally volatilize before undergoing any significant chemical or biological degradation. In the absence of oxygen and in the presence of anaerobic, methane-

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[50] *Remediation Technologies Screening Matrix and Reference Guide, Version 4.0, Section 2.4.1: Properties and Behavior of Halogenated VOCs* (2007).
[51] *Toxicological Profile for Carbon Tetrachloride*. Agency for Toxic Substances and Disease Registry: August, 2005.
[52] *Toxicological Profile for Dichlorobenzenes*. Agency for Toxic Substances and Disease Registry: August, 2006.

producing bacteria in groundwater, 1,1-DCA is produced by biodegradation of 1,1,1-TCA. Further degradation to chloroethane can also occur.[53] 1,1-DCA is listed as a priority pollutant in Appendix A to 40 CFR Part 423.

1,2 Dichloroethane (1,2-DCA) is an indicator parameter retained from the 2010 RGP.

1,2-DCA is not known to occur naturally.. However, 1,2-DCA may be present from the anaerobic biodegradation of other chlorinated alkanes such as 1,1,2,2-tetrachloroethane. Biodegradation occurs slowly in water and soil. 1,2-DCA generally does not adsorb to suspended solids and sediment in the water column.[54] 1,2-DCA is listed as a priority pollutant in Appendix A to 40 CFR Part 423.

1,1 Dichloroethylene (1,1-DCE) is an indicator parameter retained from the 2010 RGP.

1,1-DCE has high water solubility and will migrate relatively freely through groundwater. Similarly, 1,1-DCE will migrate through soil without significant retardation by adsorption to organic carbon. A fraction of 1,1-DCE released to surface soils may percolate into the subsurface and partition between soil and groundwater. 1,1-DCE reduces to vinyl chloride under methanogenic conditions and through reductive chlorination by microorganisms.[55] 1,1-DCE is listed as a priority pollutant in Appendix A to 40 CFR Part 423.

Methylene Chloride is an indicator parameter retained from the 2010 RGP.

Methylene chloride does not strongly adsorb to soils or sediments. As a result, methylene chloride is generally highly mobile in soils. Both aerobic and anaerobic biodegradation of methylene chloride can occur in water. The biodegradation of methylene chloride may increase in the presence of elevated levels of organic carbon.[56] Methylene chloride is listed as a priority pollutant in Appendix A to 40 CFR Part 423.

1,1,1 Trichloroethane (1,1,1-TCA) is an indicator parameter retained from the 2010 RGP.

1,1,1-TCA is highly mobile in soil and can readily leach into groundwater. In surface waters, 1,1,1-TCA does not readily adsorb to sediment or suspended organic material. Slow biodegradation of 1,1,1-TCA can occur under both anaerobic and aerobic conditions. Under anaerobic conditions, 1,1,1-TCA degrades to 1,1-dichloroethane through reductive dechlorination by methane-producing bacteria and by sulfate-reducing organisms, which can further degrade to chloroethane.[57] 1,1,1-TCA is listed as a priority pollutant in Appendix A to 40 CFR Part 423.

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[53] *Toxicological Profile for 1,1,-Dichlorethane*. Agency for Toxic Substances and Disease Registry: August, 2006.
[54] *Toxicological Profile for 1,2,-Dichlorethane*. Agency for Toxic Substances and Disease Registry: September, 2001.
[55] *Toxicological Profile for 1,2,-Dichlorethene*. Agency for Toxic Substances and Disease Registry: May, 1994.
[56] *Toxicological Profile for Methylene Chloride*. Agency for Toxic Substances and Disease Registry: September, 2000.
[57] *Toxicological Profile for 1,1,1-Trichloroethane*. Agency for Toxic Substances and Disease Registry: July, 2006.

1,1,2 Trichloroethane (1,1,2-TCA) is an indicator parameter retained from the 2010 RGP.

1,1,2-TCA is also highly mobile in soil and can readily leach into groundwater. In surface waters, 1,1,2-TCA does not readily adsorb to sediment or suspended organic material. While aerobic biodegradation does not generally occur, 1,1,2-TCA can be formed during the anaerobic biodegradation of 1,1,2,2-tetrachloroethane and 1,1,2-TCA can further degrade to form vinyl chloride.[58] 1,1,2-TCA is listed as a priority pollutant in Appendix A to 40 CFR Part 423.

Tetrachloroethylene (PCE) is an indicator parameter retained from the 2010 RGP.

PCE is moderately mobile in soil, which is enhanced in the presence of humic acids. PCE can also occur in the air space between soil particles. PCE can biodegrade to DCE, trichloroethylene, vinyl chloride and ethene through reductive dechlorination, but is generally slow to break down in water and soil. PCE has low water solubility, but is miscible with alcohol, ether, benzene, and most fixed and volatile oils. PCE also has a density higher than water, which causes PCE that is not immediately volatilized to submerge below groundwater.[59] PCE is listed as a priority pollutant in Appendix A to 40 CFR Part 423.

Trichloroethylene (TCE) is an indicator parameter retained from the 2010 RGP.

TCE can leach rapidly into groundwater. TCE may adsorb onto organic and inorganic solids (e.g., fats, waxes, and resins). TCE also has a density higher than water, which causes TCE that is not immediately volatilized will submerge below groundwater. Anaerobic degradation of TCE in groundwater can produce DCE, vinyl chloride and ethylene.[60] TCE is listed as a priority pollutant in Appendix A to 40 CFR Part 423.

cis-1,2 Dichloroethylene (DCE) is an indicator parameter retained from the 2010 RGP.

cis-1,2-DCE often occurs as a mixture with the trans- isomer of DCE. Cis-1,2-DCE can be formed when other solvents such as PCE, TCE, and vinyl chloride degrade. Multiple anaerobic degradation processes can occur in soil and groundwater.[61] The trans isomer of is listed as a priority pollutant in Appendix A to 40 CFR Part 423.

Vinyl Chloride is an indicator parameter retained from the 2010 RGP.

Vinyl chloride has high water solubility and can enter groundwater before evaporation can occur. Vinyl chloride can also occur in groundwater from of anaerobic reductive dehalogenation of

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[58] *Toxicological Profile for 1,1,2-Trichloroethane*. Agency for Toxic Substances and Disease Registry: December, 1989.
[59] *Draft Toxicological Profile for Tetrachloroethylene*: October 2014; Agency for Toxic Substances and Disease Registry.
[60] *Draft Toxicological Profile for Trichloroethylene*. Agency for Toxic Substances and Disease Registry: October, 2014.
[61] *Toxicological Profile for cis-1,2-dichloroethene*. Agency for Toxic Substances and Disease Registry: August, 1996.

PCE, TCE, and 1,1,1-TCA, which generally occurs relatively slowly. The persistence of vinyl chloride in water can be affected by turbidity and the presence of salts, which form complexes with vinyl chloride that increase its water solubility. Vinyl chloride is also highly mobile in soils.[62] Vinyl chloride is listed as a priority pollutant in Appendix A to 40 CFR Part 423.

Ethylene Dibromide (EDB) is an indicator parameter retained from the 2010 RGP.

EDB is an aliphatic hydrocarbon. EDB is highly mobile in soils and can undergo biodegradation in aerobic surface soils but is limited under anaerobic conditions. EDB has high water solubility and can persist in groundwater. A fraction of EDB is relatively immobile and resistant to mobilization, chemical transformation and biodegradation when bound to soil micropores. EDB can leach slowly from micropore sites, especially if disturbed or crushed, contaminating groundwater over longer periods.[63]

4. Non-Halogenated Semi-Volatile Organic Compounds (SVOCs)

As noted in Section I.C.2, above, SVOCs are organic compounds that volatilize slowly at standard temperature and pressure (i.e., 20 degrees Celsius and 1 atmosphere). A non-halogenated compound is one that does not have a halogen (e.g., fluorine, chlorine, bromine, or iodine) attached to its chemical structure. The non-halogenated SVOC indicator parameters included in the 2016 RGP are described in this section, below.

Total Phthalates is an indicator parameter retained from the 2010 RGP.

Phthalates are a group of compounds that contain a phenyl ring with two attached acetate groups. They are often referred to as plasticizers. Because phthalates are not a part of the polymers that make up plastics, they can be released from these materials fairly easily. The use of plastics and materials containing plasticizers is widespread. Total phthalates is the sum of: diethylhexyl phthalate (DEHP), benzyl butyl phthalate, di-n-butyl phthalate, diethyl phthalate, dimethyl phthalate and di-n-octyl phthalate. These six phthalates are listed as a priority pollutants in Appendix A to 40 CFR Part 423.

Diethylhexyl Phthalate (DEHP) is an indicator parameter retained from the 2010 RGP.

DEHP is one of the six phthalates described with respect to total phthalates, above.

Polycyclic Aromatic Hydrocarbons (PAHs):

PAHs are a group of organic compounds that form through the incomplete combustion of organic materials. PAHs are also present in fossil fuels, petroleum derivatives and residuals (e.g., asphalt, coal, crude oil, heavy distillates, and tars). PAHs consist of two or more aromatic rings. In general, physical and chemical characteristics of PAHs vary with the number of aromatic

[62] *Toxicological Profile for Vinyl Chloride*. Agency for Toxic Substances and Disease Registry: July, 2006.
[63] *Toxicological Profile for 1,2-dibromoethane*. Agency for Toxic Substances and Disease Registry: July, 1992.

rings comprising their chemical structure (i.e., molecular weight). Two- and three-ring PAH compounds mainly occur in the vapor phase. PAHs that have five or more aromatic rings mainly occur in the particulate phase. Four-ring PAH compounds occur in both phases.[64] In surface water, PAHs can volatilize, oxidize, biodegrade and bind to suspended particles or sediments. PAHs in soil can volatilize, undergo abiotic degradation (e.g., oxidation), biodegrade or leach to groundwater. Several PAHs are known animal carcinogens, while others can enhance the response of the carcinogenic PAHs.[65] There are 16 PAH compounds listed as priority pollutants in Appendix A to 40 CFR §423. The PAH indicator parameters included in the 2016 RGP are described in this section, below.

Total Group I PAHs is an indicator parameter retained from the 2010 RGP.

Group I PAHs have higher molecular weights (i.e., contain four to seven aromatic rings). As a result, Group I PAHs are more resistant to oxidation, reduction, and vaporization, are less water-soluble and are generally persistent (i.e., less degradable). Group I PAHs are generally less toxic to aquatic organisms but are carcinogenic. Higher molecular weight PAHs more strongly bind to organic carbon in soil and sediment. Because of their low solubility and high affinity for organic carbon, Group I PAHs in surface water typically occur adsorbed to particles that either have settled to the bottom or are suspended in the water column. Total Group I PAHs is the sum of: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene and indeno(1,2,3-cd)pyrene. These seven Group I PAH compounds are listed as priority pollutants in Appendix A to 40 CFR §423.

Benzo(a)anthracene is an indicator parameter retained from the 2010 RGP.

Benzo(a)anthracene is one of the seven Group I PAHs described with respect to total Group I PAHs, above.

Benzo(a)pyrene is an indicator parameter retained from the 2010 RGP.

Benzo(a)pyrene is one of the seven Group I PAHs described with respect to total Group I PAHs, above.

Benzo(b)fluoranthene is an indicator parameter retained from the 2010 RGP.

Benzo(b)fluoranthene is one of the seven Group I PAHs described with respect to total Group I PAHs, above.

Benzo(k)fluoranthene is an indicator parameter retained from the 2010 RGP.

Benzo(k)fluoranthene is one of the seven Group I PAHs described with respect to total Group I PAHs, above.

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[64] *Remediation Technologies Screening Matrix and Reference Guide, Version 4.0, Section 2.5.1: Properties and Behavior of Non-Halogenated SVOCs* (2007).
[65] *Toxicological Profile for Polycyclic Aromatic Hydrocarbons*. Agency for Toxic Substances and Disease Registry: August, 1995.

Chrysene is an indicator parameter retained from the 2010 RGP.

Chrysene is one of the seven Group I PAHs described with respect to total Group I PAHs, above.

Dibenzo(a,h)anthracene is an indicator parameter retained from the 2010 RGP.

Dibenzo(a,h)anthracene is one of the seven Group I PAHs described with respect to total Group I PAHs, above.

Indeno(1,2,3-cd)pyrene is an indicator parameter retained from the 2010 RGP.

Indeno(1,2,3-cd)pyrene is one of the seven Group I PAHs described with respect to total Group I PAHs, above.

Total Group II PAHs is an indicator parameter retained from the 2010 RGP.

Group II PAHs have lower molecular weights (i.e., contain two or three aromatic rings). As a result, Group II PAHs are more water-soluble and transform more quickly than higher molecular weight PAHs, mainly through volatilization and biodegradation. Group II PAHs are not generally considered carcinogenic. However, Group II PAHs can enhance or inhibit the response of the carcinogenic Group I PAHs and have significant acute toxicity to aquatic organisms. Naphthalene has the lowest molecular weight of all PAHs. Total Group I PAHs is the sum of: acenaphthene, acenaphthylene, anthracene, benzo(g,h,i)perylene, fluoranthene, fluorene, phenanthrene and pyrene. These nine Group II PAH compounds are listed as priority pollutants in Appendix A to 40 CFR §423.

Naphthalene is an indicator parameter retained from the 2010 RGP.

Naphthalene is one of the nine Group II PAHs described with respect to total Group II PAHs, above.

5. Halogenated Semi-Volatile Organic Compounds (SVOCs)

As noted in Section I.C.2, above, SVOCs are organic compounds that volatilize slowly at standard temperature and pressure (i.e., 20 degrees Celsius and 1 atmosphere). A halogenated compound is one that has a halogen (e.g., fluorine, chlorine, bromine, or iodine) attached to its chemical structure. The halogenated SVOC indicator parameters included in the 2016 RGP are described in this section, below.

Total PCBs is an indicator parameter retained from the 2010 RGP.

PCBs encompass a class of compounds with a dual ring chemical structure that is formed by the addition of chlorine (C_{12}) to biphenyl ($C_{12}H_{10}$). PCBs include up to 209 variations, or congeners, with different physical and chemical characteristics, bioavailability and toxicity. PCBs were commonly used as mixtures called aroclors, typically found in oils associated with electrical transformers or gas pipelines. PCBs alone are not usually very mobile in subsurface soils or

water. PCBs are only slightly soluble in water, bind strongly to soil and sediments, and are resistant to degradation. As a result, PCBs tend to persist in the environment[66] and can be transported by soil erosion.[67] Total PCBs is the sum of the full list for Chemical Abstracts Service (CAS) Registry number 1336-36-3A. There are 16 PAH compounds listed as priority pollutants in Appendix A to 40 CFR §423.

Pentachlorophenol (PCP) is an indicator parameter retained from the 2010 RGP.

PCP has a chlorinated ring structure that tends to increase its stability. However, its polar hydroxyl group can facilitate biodegradation. Metal salts of PCP are very soluble in water. The phenolic form is less soluble. PCP can also volatilize from soils. PCP is denser than water, but the commonly used form is a solution of PCP and petroleum solvents in a mixture less dense than water. Therefore, PCP tends to occur on the surface of groundwater at contaminated sites. PCP is listed as a priority pollutant in Appendix A to 40 CFR §423.

6. Fuels Parameters

As noted in Section I.C.2, above, fuels parameters are generally non-halogenated and may be both VOCs and SVOCs. A non-halogenated compound is one that does not have a halogen (e.g., fluorine, chlorine, bromine, or iodine) attached to its chemical structure. VOCs are organic compounds that participate in atmospheric photochemical reactions except those designated by EPA as having negligible photochemical reactivity. SVOCs are organic compounds that volatilize slowly at standard temperature and pressure (i.e., 20 degrees Celsius and 1 atmosphere). Fuels are complex mixtures of many hydrocarbon compounds, additives and impurities. The exact composition of fuels varies depending upon: 1) the source of the crude oil; and 2) the refining practices used to produce the fuel. Gasoline and fuel oils are the most commonly encountered sources of fuels parameters at sites covered under this general permit. These petroleum products can contain a variable number of VOCs, SVOCs, additives and oxygenates and/or metals.[68] While the majority of VOCs, SVOCs and metals are included under other contaminant type subcategories, several indicator parameters are specific to fuels contamination. The fuels indicator parameters included in the 2016 RGP are described in this section, below.

Total Petroleum Hydrocarbons (TPH) is an indicator parameter retained from the 2010 RGP.

TPH generally refers to gasoline range, diesel range and/or oil range hydrocarbon compounds. Measurement of all individual hydrocarbon compounds in a petroleum product released to the environment is generally not practical, cost-effective or necessary to attain and maintain WQSs. Fuels and other petroleum products are complex mixtures of hydrocarbon compounds. When released to the environment, these compounds migrate by one or both of two general pathways:

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[66] *Toxicological Profile for Polychlorinated Biphenyls (PCBs)*. Agency for Toxic Substances and Disease Registry: November, 2000.
[67] *Remediation Technologies Screening Matrix and Reference Guide, Version 4.0, Section 2.6.1: Properties and Behavior of Halogenated SVOCs* (2007).
[68] *Toxicological Profile for Total Petroleum Hydrocarbons (TPH).* September, 1999; Agency for Toxic Substances and Disease Registry.

1) as bulk product that migrates under the forces of gravity and capillary action; and 2) as individual compounds which separate from the bulk product by entering the aqueous phase in water or the vapor phase in air. In addition, the longer a petroleum product is exposed to environmental processes, the greater the change in chemical character (i.e., weathering). After extensive weathering, sampling is generally better informed by a more focused set of hydrocarbon compounds that includes ranges (e.g., TPH) and typical individual compounds (e.g., target analytes like BTEX and/or PAHs).[69]

Ethanol (EtOH) is a new indicator parameter proposed in the 2016 RGP.

EtOH is a fuel oxygenate blended with gasoline to replace more toxic oxygenates, and has been used increasingly in the northeast since approximately 2006. EtOH is miscible with water, as well as many organic solvents. When released into surface water, it will volatilize or biodegrade rapidly and is not expected to adsorb to sediment. However, large releases of ethanol may deplete dissolved oxygen concentrations resulting in levels unable to support aquatic life. EtOH in groundwater will degrade more slowly, especially if microbial activity and oxygen levels in soil have been impacted by releases of petroleum hydrocarbons. EtOH can slow degradation of BTEX in groundwater.[70]

Methyl *tert*-Butyl Ether (MtBE) is an indicator parameter retained from the 2010 RGP.

MtBE is a synthetic compound used as a replacement for lead-containing compounds in fuels. MtBE was typically added in concentrations less than 1% by volume in regular gasoline, and 2% to 9% by volume in premium gasoline, but increased to 11% to 15% by volume following the 1990 Clean Air Act oxygen content requirements. MtBE has a small molecular size and a high solubility in water. As a result, MtBE can move rapidly through the unsaturated zone to groundwater. In groundwater, MtBE can more rapidly than many other constituents of gasoline and near or even faster than that of groundwater itself.[71] MtBE is also persistent in the environment, and can exhibit high resistance to biological degradation. Where biodegradation does occur, toxic degradation products such as acetone, tBA and *tert*-Butyl formate can be generated.[72] As of January 1, 2007, MtBE was banned from gasoline sold in New Hampshire.[73]

***tert*-Amyl Methyl Ether (tAME)** is an indicator parameter retained from the 2010 RGP.

tAME is an ether and fuel oxygenate. Oxygenates tend to leach to groundwater because they do not strongly adsorb to soil and are fairly water soluble. As of January 1, 2007, tAME was banned

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[69] *Toxicological Profile for Total Petroleum Hydrocarbons (TPH).* September, 1999; Agency for Toxic Substances and Disease Registry.
[70] Large Volume Ethanol Spills – Environmental Impacts and Response Options. MassDEP: July, 2011.
[71] *MtBE in Drinking Water.* NHDES Environmental Fact Sheet WD-DWGB-3-19: 2014.
[72] *Technologies for Treating MTBE and Other Fuel Oxygenates*. EPA 542-R-04-009: 2004, 106 pp. EPA Technology Innovation and Field Services Division Contaminated Site Clean-Up Information.
[73] *Methyl t-Butyl Ether (MtBE): Health Information Summary*. NHDES Environmental Fact Sheet ARD-EHP-2: 2015.

from gasoline sold in New Hampshire at a level that exceeds 0.5 percent, equivalent to 5,000 parts per million (ppm).[74]

***tert*-Butyl Alcohol (tBA)** is an indicator parameter retained from the 2010 RGP.

tBA contains a hydroxyl chemical functional group. tBA will rapidly volatilize when released to surface water and soil surfaces or leach to groundwater. tBA is also highly mobile in Soil. is miscible with alcohol, ether, and other organic solvents; and is soluble in water. Besides its use as a fuel additive, tBA is a chemical additive, solvent and intermediate. tBA is also a major breakdown product of EtBE and MtBE in the environment. Some tBA may occur naturally as a product of fermentation.[75] As of January 1, 2007, tBA was banned from gasoline sold in New Hampshire at a level that exceeds 0.5 percent, equivalent to 5,000 parts per million (ppm).[76]

7. Effluent Flow

Effluent Flow is a new indicator parameter proposed in the 2016 RGP.

Generally, effluent flow is one factor EPA considers in deriving effluent limitations that comply with the CWA in a NPDES permit. Often, EPA uses effluent flow to calculate the effluent limitations themselves. EPA practice includes use of design flow as a reasonable and important worst-case condition in EPA's calculation of certain TBELs, and WQBEL determinations that ensure compliance with WQSs under §301(b)(1)(C) of the CWA. In order to ensure that the assumptions underlying EPA's analyses and derivation of permit effluent limitations remain sound for the duration of this general permit, the 2016 RGP incorporates flow as an indicator parameter. Further, the addition of effluent flow as an indicator parameter in the 2016 RGP will ensure that any treatment system used at a site to meet the effluent limitations and requirements of this general permit will be operated and maintained as designed.

8. Parameters Not Included in 2016 RGP

During the development of the 2005, 2010 and/or 2016 RGPs, EPA considered a number of additional COCs for potential inclusion in this general permit which were not selected as indicator parameters for a number of reasons, including, but not limited to: 1) parameter is not relevant to the discharge types covered by this general permit; 2) parameter is rarely identified in discharges from contaminated or formerly contaminated sites in Region 1; 3) parameter is better controlled through an individual permit; 4) parameter is potentially present at contaminated or formerly contaminated sites, but is removed in association with removal of one or more indicator parameters; 5) parameter is not a practical or appropriate indicator parameter; or 6) other unique factors. If any discharge otherwise eligible for coverage under this general permit contains any COC, including the parameters discussed below, that is not included in the 2016 RGP, the

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[74] *Gasoline Oxygenate Additives: Health Information Summary*. NHDES Environmental Fact Sheet ARD-EHP-32: 2009.
[75] *IRIS Toxicological Review of tert-Butyl Alcohol (tert-Butanol)(Public Comment Draft).* EPA/635/R-16/079a: April 2016.
[76] *Gasoline Oxygenate Additives: Health Information Summary*. NHDES Environmental Fact Sheet ARD-EHP-32: 2009.

COC(s) and the concentration(s) present must be disclosed in the NOI submitted to EPA. Such discharges may be considered on a case-by-case basis for eligibility. However, alternate NPDES permit coverage (e.g., individual NPDES permit) may be necessary.

The additional parameters are primarily those listed as priority pollutants in Appendix A to 40 CFR Part 423, for which EPA establishes *National Recommended Water Quality Criteria*. EPA also considered chemicals listed on the Priority List of Hazardous Substances for the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) §104(i), as amended by the Superfund Amendments and Reauthorization Act (SARA). This is a prioritized list of COCs, ranking chemicals commonly found at sites listed on the National Priorities list (NPL); there are currently 275 substances on this list. The priority of concern is determined by considering the frequency of occurrence at NPL sites, the potential hazard to human health, and the potential for human exposure.[77]

The additional parameters evaluated, but excluded, generally include the following:[78]

- Pesticides
- Radionuclides/Isotopes
- Dioxins/Furans
- Chloroform
- Bacteria
- Other metals
- Oil and Grease
- Formaldehyde
- Asbestos
- Perfluorooctanoic Acid (PFOA)/Perfluorooctane Sulfonate (PFOS)

If a discharge may contain any of the COCs listed above, or any COC not included in the 2016 RGP, an applicant must disclose the COC and the maximum concentration present at a site in the NOI submitted to EPA for that site.

B. Effluent Limitations and Monitor-Only Requirements

The following sections explain the basis for the effluent limitations and monitor-only requirements included in the 2016 RGP. The 2016 RGP includes both TBELs and WQBELs. Where an effluent limitation remains unchanged from the 2010 RGP, the original basis for the limitation, as derived during development of the 2005 or 2010 RGP, remains publicly available for reference on EPA Region 1's website for this general permit.[79] Effluent limitations remain unchanged unless: 1) EPA identified an error in the derivation of the effluent limitation; 2) the information upon which the effluent limitation was based has changed, including, but not limited to revisions to WQSs and/or WQC; 3) an indicator parameter is a new addition to this general

[77] See 2015 Priority List of Hazardous Substances can be accessed at: http://www.atsdr.cdc.gov/spl/.
[78] For additional parameter-specific information, see Agency for Toxic Substances and Disease Registry Toxic Substances Portal available at: http://www.atsdr.cdc.gov/substances/index.asp.
[79] Currently accessed at: http://www.epa.gov/region1/npdes/rgp.html

permit; or 4) a more stringent WQBEL is necessary to meet WQSs or CWA Section 401 certification requirements. Supplemental information in support of the original basis for the effluent limitation for each indicator parameter, if relevant and available, is included in Section II.B.1, below. The basis for a proposed change to an effluent limitation for an indicator parameter is included in Section III.B.2. The basis for an indicator parameter that was included in the 2010 RGP but is proposed for removal in the 2016 RGP is included in Section III.B.3, below.

Technology-based treatment requirements under §301(b) of the CWA represent the minimum level of control that must be imposed in a §402 permit. 40 CFR 125.3(a). Accordingly, TBELs are applied at end-of-pipe rather than calculated using a dilution factor. 40 CFR 125.3(a). Although EPA-promulgated ELGs are not directly applicable to the discharges covered by this general permit, technology-based treatment requirements found in ELGs for similar activities, waste streams, and/or treatment may inform case-by-case BPJ determinations. In establishing TBELs in the 2005, 2010 and/or 2016 RGP, EPA reviewed available information, including, but not limited to:

- Existing NPDES general permits, fact sheets and/or data from sites with remediation and/or related discharges in Region 1, other EPA regions, and delegated States;
- Existing individual NPDES permits, factsheets and/or data submitted by facilities with remediation and/or related discharges;
- ELGs from Part 423 – Steam Electric Power Generating Point Source Category (40 CFR §423);
- ELGs from Part 433 – Metal Finishing Point Source Category (40 CFR §433);
- ELGs from Part 434 – Coal Mining Point Source Category (40 CFR §434);
- ELGs from Part 436 – Mineral Mining and Processing Point Source Category (40 CFR §436);
- ELG's from Part 437 – The Centralized Waste Treatment Point Source Category:
  Subpart A – Metals Treatment and Recovery (40 CFR §437.11)
  Subpart B – Oils Treatment and Recovery (40 CFR §437.21)
  Subpart C – Organics Treatment and Recovery (40 CFR §437.31); and
  Subpart D – Multiple Wastestreams (40 CFR §437.42)
- ELGs from Part 440 – Ore Mining and Dressing Point Source Category (40 CFR §440);
- ELG's from Part 445 – Landfills Point Source Category (40 CFR §445);
- ELG Development/Technical Support Documents;
- Remediation Technologies Screening Matrix and Reference Guide, Version 4.0 (2007). Federal Remediation Technologies Roundtable;[80]
- *Contaminated Site Clean-Up Information*. EPA's Office of Superfund Remediation and Technology Innovation (OSRTI);[81]
- EPA's *NPDES Permit Writer's Manual*. EPA-833-K-10-001, September 2010;
- EPA's IRIS toxicological review documents, U.S. National Library of Medicine Toxicology Data Network (TOXNET) databases and/or Agency for Toxic Substances and Disease Registry toxicological profiles for individual parameters;

[80] Accessed at: https://frtr.gov/
[81] Accessed at: http://www.clu-in.org

- Massachusetts, Chapter 21E, the Massachusetts Contingency Plan (310 CMR 40.0000);
- New Hampshire Ambient Groundwater Quality Standards (Env-Or 600); and
- Model NPDES Permit Discharges Resulting from the Cleanup of Gasoline Released From Underground Storage Tanks (June 1989).

The COCs present in discharges authorized under this general permit are generally economically managed with minimal additional costs, process changes, or non-water quality environmental impact, using widely available and highly effective technologies that require standard operation and maintenance and engineering. The majority of discharges covered under the 2005 and 2010 RGP have achieved TBELs using off-the-shelf, economically viable, and proven treatment systems including: 1) adsorption/absorption; 2) advanced oxidation processes; 3) air stripping; 4) granulated activated carbon/liquid phase carbon adsorption; 5) ion exchange; 6) precipitation/coagulation/flocculation; and 7) separation/filtration. EPA does not prescribe specific technologies to meet the effluent limitations and requirements in this general permit. Accordingly, the TBELs in the 2016 RGP represent a minimum level of treatment based on currently available treatment technologies while allowing a discharger to use available pollution control technology to meet the effluent limitations.

For the majority of indicator parameters included in the 2016 RGP, the TBELs are sufficiently stringent to meet State WQSs. §301(b)(1)(C) of the CWA. The regulation at 40 CFR §122.44(d)(1) requires that permits include limitations on all pollutants or parameters which "are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality." Because this general permit is intended to apply to a variety of sites with similar discharges, in determining whether the discharge of any indicator parameter causes or has the reasonable potential to cause or contribute to an excursion above WQSs, EPA could not follow the standard statistical methodology described in EPA's TSD for analysis using site-specific effluent data. In the absence of effluent data, EPA's TSD[82] provides methodology for making such a determination using a variety of factors and information in accordance with 40 CFR §122.44(d)(1)(ii). To provide for a conservative measure of water quality protection, and to create a general permit that is useable for receiving waters across the States, EPA selects the most conservative factors which could apply to a site in order to be protective of all sites.

When available, State aquatic life and/or human health WQC are the primary basis for WQBELs in the 2016 RGP, including those based on EPA's *NRWQC*. Where the effluent limitation for an indicator parameter included in the 2016 RGP is a WQBEL based on WQC for the protection of aquatic life, EPA considered both acute and chronic WQC. Aquatic life WQC typically contain expressions of allowable magnitude (i.e. acute for short-term effects and chronic for long-term effects). Aquatic life WQC also typically indicate a duration over which exposure to a COC is to be averaged (e.g., one hour for acute exposure and four hours for chronic exposure) and specify the allowable frequency for exceeding a criterion (e.g., once every three years).[83] Since the magnitude, duration and frequency of discharges covered under this general permit could

[82] See EPA's *Technical Support Document for Water Quality-based Toxics Control:* EPA/505/2-90-001, 1991: pages 50-51.
[83] See EPA's *Technical Support Document for Water Quality-based Toxics Control:* EPA/505/2-90-001, 1991: Section 2.3

coincide with one or more of these recurrence intervals, EPA considered both acute and chronic aquatic life WQC.

EPA also considered available WQC for specific designated uses including human health WQC, State narrative WQC, and supplemental information, such as DWSs and GQSs. Since discharges covered under this general permit could be authorized to receiving waters with designated uses for primary and secondary contact and fish consumption, where the effluent limitation for a COC included in the 2016 RGP is a WQBEL based on WQC for the protection of human health, EPA considered the WQC based on the consumption of organisms ("organism-only"). WQBELs based on human health WQC for the consumption of organisms- will ensure discharges meet WQSs established under Section 303 of the CWA. Where the effluent limitation for a COC included in the 2016 RGP is a WQBEL based on supplemental information (i.e., State DWSs and GQSs), EPA based WQBELs on the most applicable standard.

WQBELs included in the 2016 RGP are single effluent limitations based on an assumption of no available dilution. An applicant may request a dilution factor from the appropriate State for indicator parameters with WQBELs. If approved by the appropriate State, an applicant may then calculate WQBELs using the approved dilution factor. When an applicant calculates WQBELs using an approved dilution factor, the more stringent of the calculated WQBEL and the TBEL for an indicator parameter applies. An applicant must provide the proposed dilution factor, certification of State approval, and all WQBEL calculations in the NOI submitted to EPA. Appendix V of the 2016 RGP includes the calculation methodology for WQBELs for sites in Massachusetts and Appendix VI of the 2016 RGP includes the calculation methodology for WQBELs for sites in New Hampshire. The instructions in Appendix V and VI of the 2016 RGP are based on the procedure described in EPA's *Technical Support Document for Water Quality-based Toxics Control*, (TSD).[84] See Section III.F, below, for additional information regarding calculation of a dilution factor and Section III.G, below, for additional information regarding calculation of effluent limitations.

1. Chemical Effluent Limitations and Monitor-Only Requirements Unchanged from the 2010 RGP

The majority of effluent limitations and monitor-only requirements proposed in the 2016 RGP are unchanged from the effluent limitations included in the 2005 and/or 2010 RGP. The effluent limitations and/or monitor-only requirements proposed in the 2016 RGP which are unchanged from the 2010 RGP are listed in Table 3, below. Effluent limitations unchanged from the 2010 RGP meet the anti-backsliding requirements of the CWA §§402(o) and 303(d)(4) and 40 CFR §122.44(l)(1 and 2). Relevant supplemental information in support of the original basis for the effluent limitation for each indicator parameter, if included, is provided in this section.

[84] EPA's *Technical Support Document for Water Quality-based Toxics Control*, EPA-505-2-90-001, March 1991.

Table 3: Summary of Effluent Limitations and Monitor-Only Requirements Unchanged from the 2010 RGP

Parameter	Effluent Limitation	
	TBEL	**WQBEL**
a. Inorganics		
Chloride	Report µg/L	
Total Residual Chlorine	See Table 4	FW= 11 µg/L SW= 7.5 µg/L
Total Suspended Solids (TSS)	30 mg/L See Table 4 for Category IV	
Antimony	See Table 4	See Table 4
Arsenic	See Table 4	FW= 10 µg/L SW= 36 µg/L
Cadmium	See Table 4	FW= 0.25 µg/L SW= 8.8 µg/L in MA SW= 9.3 µg/L in NH
Chromium III (trivalent)	See Table 4	FW= 74 µg/L SW= 100 µg/L
Chromium VI (hexavalent)	See Table 4	FW= 11 µg/L SW= 50 µg/L
Copper	See Table 4	FW= 9 µg/L SW= 3.1 µg/L
Iron	5,000 µg/L	See Table 4
Lead	See Table 4	FW= 2.5 µg/L SW= 8.1 µg/L
Mercury	See Table 4	FW= 0.77 µg/L SW= 0.94 µg/L
Nickel	See Table 4	FW= 52 µg/L SW= 8.2 µg/L
Selenium	50 µg/L	FW= 5.0 µg/L SW= 71 µg/L
Silver	See Table 4	FW= 3.2 µg/L SW= 1.9 µg/L
Zinc	See Table 4	FW= 120 µg/L SW= 81 µg/L
Cyanide	See Table 4	FW = 5.2 µg/L SW = 1.0 µg/L
b. Non-Halogenated Volatile Organic Compounds		
Total BTEX	100 µg/L	
Benzene	5.0 µg/L See Table 4 for Category IV	
Phenol	See Table 4	300 µg/L
c. Halogenated Volatile Organic Compounds		
Carbon Tetrachloride	4.4 µg/L	See Table 4 for MA
1,2 Dichlorobenzene (o-DCB)	600 µg/L	

Parameter	Effluent Limitation	
	TBEL	**WQBEL**
1,3 Dichlorobenzene (m-DCB)	320 µg/L	
1,4 Dichlorobenzene (p-DCB)	5.0 µg/L	
Total dichlorobenzene	763 µg/L in NH	
1,1 Dichloroethane (1,1 DCA)	70 µg/L	
1,2 Dichloroethane (1,2 DCA)	5.0 µg/L	
1,1 Dichloroethylene (1,1 DCE)	3.2 µg/L	
Methylene Chloride	4.6 µg/L	
Tetrachloroethylene (PCE)	5.0 µg/L	See Table 4 for MA
1,1,1 Trichloroethane (1,1,1 TCA)	200 µg/L	
1,1,2 Trichloroethane (1,1,2 TCA)	5.0 µg/L	
Trichloroethylene (TCE)	5.0 µg/L	
cis-1,2 Dichloroethylene (cis-1,2 DCE)	70 µg/L	
Vinyl Chloride	2.0 µg/L	
Ethylene Dibromide (EDB)	0.05 µg/L	
d. Non-Halogenated Semi-Volatile Organic Compounds		
Total Phthalates	See Table 4	3.0 µg/L for freshwater in NH See Table 4 for saltwater in NH
Benzo(a) Anthracene	See Table 4 for total Group I PAHs	0.0038 µg/L
Benzo(a) Pyrene	See Table 4 for total Group I PAHs	0.0038 µg/L
Benzo(b)Fluoranthene	See Table 4 for total Group I PAHs	0.0038 µg/L
Benzo(k)Fluoranthene	See Table 4 for total Group I PAHs	0.0038 µg/L
Chrysene	See Table 4 for total Group I PAHs	0.0038 µg/L
Dibenzo(a,h)anthracene	See Table 4 for total Group I PAHs	0.0038 µg/L
Indeno(1,2,3-cd) Pyrene	See Table 4 for total Group I PAHs	0.0038 µg/L
Total Group II Polycyclic Aromatic Hydrocarbons	100 µg/L	
Naphthalene	20 µg/L	
e. Halogenated Semi-Volatile Organic Compounds		
Total Polychlorinated Biphenyls (PCBs)	0.000064 µg/L	
Pentachlorophenol (PCP)	1.0 µg/L	
f. Fuels Parameters		
Total Petroleum Hydrocarbons (TPH)	5.0 mg/L	
MtBE	70 µg/L	See Table 4

a. Inorganics

Total Suspended Solids (TSS)
The 2016 RGP retains the 2010 RGP TSS TBEL, 30 mg/L for sites in Massachusetts and New Hampshire other than those conducting hydrostatic testing (2010 RGP Activity Category IV-A).

EPA has proposed a revised effluent limitation for this indicator parameter for discharges from the pipeline and tank dewatering (2016 RGP Activity Category IV), described in Section III.B.2, below.

Chloride
The 2016 RGP retains the 2010 RGP chloride requirement of monitor-only for sites in Massachusetts and New Hampshire.

Consistent with the 2010 RGP, when a waterbody is listed for impairment for chloride, the States may continue to include an effluent limitation if necessary to meet the requirements of CWA §401 certification. New Hampshire adopted EPA's chronic aquatic life *NRWQC*, 230 mg/L, into its water quality standards as numeric criterion. In Massachusetts, 310 CMR 4.05(e) includes this numeric limitation by reference to EPA's 2002 *NRWQC*.[85] Pursuant to 40 CFR §122.44(d)(1)(i), this limitation is necessary because where a waterbody is impaired, any addition of chloride is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above State WQSs.

Total Residual Chlorine (TRC)
The 2016 RGP retains the 2010 RGP TRC WQBELs, 11 µg/L for discharges to freshwater and 7.5 µg/L for discharges to saltwater for sites in Massachusetts and New Hampshire.

Metals:

EPA notes that while the 2016 RGP retains the 2010 WQBELs for the metals indicator parameters noted in this section, below, these effluent limitations are expressed as end-of-pipe limitations set equal to the applicable WQC. Additional calculations are required for any metal that is hardness-dependent in freshwater,[86] shown in Table 3, above at a hardness of 100 mg/L of calcium carbonate ($CaCO_3$).[87] In addition, as described in Section III.B, above, an applicant may request a dilution factor from the appropriate State for the purposes of calculating WQBELs. Additional calculations are also required for any metal that is not expressed as total recoverable metal in the water column.[88] Additional calculations may also be required to ensure a margin of safety for ambient concentrations of metals. Appendix V of the 2016 RGP includes the

[85] EPA 822R-02-047, November 2002.
[86] Sites in Massachusetts must use actual discharge and receiving water hardness; Sites in New Hampshire must use actual discharge and receiving water hardness or as otherwise required by New Hampshire WQSs in New Hampshire (*see* Env-Wq 1703.22(f).
[87] EPA's *NRWQC* assume a hardness of 100 µg/L $CaCO_3$.
[88] Sites in Massachusetts must refer to conversion factors from EPA's *The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion*. EPA 823-B-96-007: June, 1996. Sites in New Hampshire must use the factors for individual metals in Env-Wq 1703.23 and 1703.24, or as revised.

calculation methodology for WQBELs for sites in Massachusetts and Appendix VI of the 2016 RGP includes the calculation methodology for WQBELs for sites in New Hampshire. Also see Section III.E, below.

Arsenic
The 2016 RGP retains the 2010 RGP total recoverable arsenic WQBELs, 10 µg/L for freshwater and 36 µg/L for saltwater, for sites in Massachusetts and New Hampshire. These WQBELs are expressed in terms of the recoverable metal in the water column.

Cadmium
The 2016 RGP retains the 2010 RGP total recoverable cadmium WQBELs, 0.25 µg/L for freshwater for sites in Massachusetts and New Hampshire, 8.8 µg/L for saltwater for sites in Massachusetts, and 9.3 µg/L for saltwater for sites in New Hampshire. These WQBELs are expressed in terms of the dissolved metal in the water column. This metal is hardness-dependent in freshwater.

Chromium III
The 2016 RGP retains the 2010 RGP total recoverable chromium III WQBELs, 74 µg/L for freshwater and 100 µg/L for saltwater, for sites in Massachusetts and New Hampshire. These WQBELs are expressed in terms of the dissolved metal in the water column. This metal is hardness-dependent in freshwater.

Chromium VI
The 2016 RGP retains the 2010 RGP total recoverable chromium VI WQBELs, 11 µg/L for freshwater and 50 µg/L for saltwater, for sites in Massachusetts and New Hampshire. These WQBELs are expressed in terms of the dissolved metal in the water column.

Copper
The 2016 RGP retains the 2010 RGP total recoverable copper WQBELs, 9 µg/L for freshwater and 3.1 µg/L for saltwater, for sites in Massachusetts and New Hampshire. These WQBELs are expressed in terms of the dissolved metal in the water column. This metal is hardness-dependent in freshwater.

Iron
The 2016 RGP retains the 2010 RGP total recoverable iron TBEL, 5,000 µg/L for sites in Massachusetts and New Hampshire.

Lead
The 2016 RGP retains the 2010 RGP total recoverable lead WQBELs, 2.5 µg/L for freshwater and 8.1 µg/L for saltwater, for sites in Massachusetts and New Hampshire. These WQBELs are expressed in terms of the dissolved metal in the water column. This metal is hardness-dependent in freshwater.

Mercury
The 2016 RGP retains the 2010 RGP total recoverable mercury WQBELs, 0.77 µg/L for freshwater and 0.94 µg/L for saltwater, for sites in Massachusetts and New Hampshire. These WQBELs are expressed in terms of the dissolved metal in the water column.

Nickel
The 2016 RGP retains the 2010 RGP total recoverable nickel WQBELs, 52 µg/L for freshwater and 8.2 µg/L for saltwater, for sites in Massachusetts and New Hampshire. These WQBELs are expressed in terms of the dissolved metal in the water column. This metal is hardness-dependent in freshwater.

Selenium
The 2016 RGP retains the 2010 RGP total recoverable silver WQBELs, 5.0 µg/L for freshwater and 71 µg/L for saltwater, for sites in Massachusetts and New Hampshire. These WQBELs are expressed in terms of the total recoverable metal in the water column.

Silver
The 2016 RGP retains the 2010 RGP total recoverable silver WQBELs, 3.2 µg/L for freshwater and 1.9 µg/L for saltwater, for sites in Massachusetts and New Hampshire. These WQBELs are expressed in terms of the dissolved metal in the water column. This metal is hardness-dependent in freshwater.

Zinc
The 2016 RGP retains the 2010 RGP total recoverable zinc WQBELs, 120 µg/L for freshwater and 81 µg/L for saltwater, for sites in Massachusetts and New Hampshire. These WQBELs are expressed in terms of the dissolved metal in the water column. This metal is hardness-dependent in freshwater.

Cyanide
The 2016 RGP retains the 2010 RGP total cyanide WQBELs, 5.2 µg/L for freshwater and 1.0 µg/L for saltwater, for sites in Massachusetts and New Hampshire. These WQBELs are expressed as free cyanide. However, there is currently no EPA approved test method for free cyanide. Therefore, total cyanide must be reported.

b. Non-Halogenated VOCs

Total BTEX
The 2016 RGP retains the 2010 RGP total BTEX TBEL, 100 µg/L, for sites in Massachusetts and New Hampshire.

Benzene
The 2016 RGP retains the 2010 RGP benzene TBEL, 5.0 mg/L, for sites in Massachusetts and New Hampshire other than those conducting hydrostatic testing (2010 RGP Activity Category IV-A).

Phenol
The 2016 RGP retains the 2010 RGP total phenol WQBEL, 300 µg/L, for sites in Massachusetts and New Hampshire.

c. Halogenated VOCs

Carbon Tetrachloride
The 2016 RGP retains the 2010 RGP carbon tetrachloride TBEL, 4.4 µg/L for sites in Massachusetts and New Hampshire.

Total dichlorobenzene
The 2016 RGP retains the 2010 RGP total dichlorobenzene WQBEL, 763 µg/L for sites in New Hampshire. Total dichlorobenzene in the sum of 1,2-dichlorobenzene, 1,3-dichlorobenzene, and 1,4-dichlorobenzene. Total dichlorobenzene is not a limited indicator parameter in Massachusetts.

1,2 Dichlorobenzene (1,2-DCB)
The 2016 RGP retains the 2010 RGP 1,2-DCB TBEL of 600 µg/L for sites in Massachusetts and New Hampshire.

1,3 Dichlorobenzene (1,3-DCB)
The 2016 RGP retains the 2010 RGP 1,3-DCB TBEL of 320 µg/L for sites in Massachusetts and New Hampshire.

1,4 Dichlorobenzene (1,4-DCB)
The 2016 RGP retains the 2010 RGP 1,4-DCB TBEL of 5.0 µg/L for sites in Massachusetts and New Hampshire.

1,1 Dichloroethane (1,1-DCA)
The 2016 RGP retains the 2010 RGP 1,1-DCA TBEL of 70 µg/L for sites in Massachusetts and New Hampshire.

1,2 Dichloroethane (1,2-DCA)
The 2016 RGP retains the 2010 RGP 1,2-DCA TBEL of 5.0 µg/L for sites in Massachusetts and New Hampshire.

1,1 Dichloroethylene (1,1-DCE)
The 2016 RGP retains the 2010 RGP 1,1-DCE TBEL of 3.2 µg/L for sites in Massachusetts and New Hampshire.

Methylene Chloride
The 2016 RGP retains the 2010 RGP methylene chloride TBEL of 4.6 µg/L for sites in Massachusetts and New Hampshire.

1,1,1 Trichloroethane (1,1,1-TCA)
The 2016 RGP retains the 2010 RGP 1,1,1-TCA TBEL, 200 µg/L, for sites in Massachusetts and New Hampshire.

1,1,2 Trichloroethane (1,1,2-TCA)
The 2016 RGP retains the 2010 RGP 1,1,2-TCA TBEL, 5.0 µg/L, for sites in Massachusetts and New Hampshire.

Tetrachloroethylene (PCE)
The 2016 RGP retains the 2010 RGP PCE TBEL, 5.0 µg/L, for sites in Massachusetts and New Hampshire.

Trichloroethylene (TCE)
The 2016 RGP retains the 2010 RGP TCE TBEL, 5.0 µg/L, for sites in Massachusetts and New Hampshire.

cis-1,2 Dichloroethylene (cis-1,2-DCE)
The 2016 RGP retains the 2010 RGP cis-1,2-DCE TBEL, 70 µg/L, for sites in Massachusetts and New Hampshire.

Vinyl Chloride
The 2016 RGP retains the 2010 RGP vinyl chloride TBEL, 2.0 µg/L, for sites in Massachusetts and New Hampshire.

Ethylene Dibromide (EDB)
The 2016 RGP retains the 2010 RGP 1,4-DCB TBEL, 0.05 µg/L, for sites in Massachusetts and New Hampshire. This TBEL is applicable only to sites in Massachusetts and New Hampshire where EDB is present.

d. Non-Halogenated SVOCs

Total Phthalates
The 2016 RGP retains the 2010 RGP total phthalates WQBEL, 3.0 µg/L for freshwater for sites in New Hampshire. Total phthalates is the sum of: diethylhexyl phthalate (DEHP); benzyl butyl phthalate; di-n-butyl phthalate; diethyl phthalate; dimethyl phthalate; di-n-octyl phthalate.

Group I PAHs
The 2016 RGP retains the 2010 RGP WQBELs for the individual Group I PAH compounds: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene, described in this section, below.

Benzo(a)anthracene
The 2016 RGP retains the 2010 RGP benzo(a)anthracene WQBEL, 0.0038 µg/L, for sites in Massachusetts and New Hampshire. Because this effluent limitation is below the ML for analysis of PAHs,[89] the 2016 RGP retains the 2010 RGP compliance level for this indicator parameter, 0.1 µg/L.

[89] Using 40 CFR Part 136 test methods with selected ion monitoring (SIM).

Benzo(a)pyrene
The 2016 RGP retains the 2010 RGP benzo(a)pyrene WQBEL, 0.0038 µg/L, for sites in Massachusetts and New Hampshire. Because this effluent limitation is below the ML for analysis of PAHs, the 2016 RGP retains the 2010 RGP compliance level for this indicator parameter, 0.1 µg/L.

Benzo(b)fluoranthene
The 2016 RGP retains the 2010 RGP benzo(b)fluoranthene WQBEL, 0.0038 µg/L, for sites in Massachusetts and New Hampshire. Because this effluent limitation is below the ML for analysis of PAHs, the 2016 RGP retains the 2010 RGP compliance level for this indicator parameter, 0.1 µg/L.

Benzo(k)fluoranthene
The 2016 RGP retains the 2010 RGP benzo(k)fluoranthene WQBEL, 0.0038 µg/L, for sites in Massachusetts and New Hampshire. Because this effluent limitation is below the ML for analysis of PAHs, the 2016 RGP retains the 2010 RGP compliance level for this indicator parameter, 0.1 µg/L.

Chrysene
The 2016 RGP retains the 2010 RGP chrysene WQBEL, 0.0038 µg/L, for sites in Massachusetts and New Hampshire. Because this effluent limitation is below the ML for analysis of PAHs, the 2016 RGP retains the 2010 RGP compliance level for this indicator parameter, 0.1 µg/L.

Dibenzo(a,h)anthracene
The 2016 RGP retains the 2010 RGP dibenzo(a,h)anthracene WQBEL, 0.0038 µg/L, for sites in Massachusetts and New Hampshire. Because this effluent limitation is below the ML for analysis of PAHs, the 2016 RGP retains the 2010 RGP compliance level for this indicator parameter, 0.1 µg/L.

Indeno(1,2,3-cd)pyrene
The 2016 RGP retains the 2010 RGP indeno(1,2,3-cd)pyrene WQBEL, 0.0038 µg/L, for sites in Massachusetts and New Hampshire. Because this effluent limitation is below the ML for analysis of PAHs, the 2016 RGP retains the 2010 RGP compliance level for this indicator parameter, 0.1 µg/L.

Total Group II PAHs
The 2016 RGP retains the 2010 RGP total Group II PAHs TBEL, 100 µg/L, for sites in Massachusetts and New Hampshire. Total Group II PAHs is the sum of: acenaphthene, acenaphthylene, anthracene, benzo(g,h,i)perylene, fluoranthene, fluorene, phenanthrene, and pyrene.

Naphthalene
The 2016 RGP retains the 2010 RGP naphthalene TBEL, 20 µg/L, for sites in Massachusetts and New Hampshire.

e. Halogenated SVOCs

Total PCBs
The 2016 RGP retains the 2010 RGP total PCBs WQBEL, 0.000064 µg/L, for sites in Massachusetts and New Hampshire. Total PCBs is the sum of: Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Aroclor 1248, Aroclor 1254 and Aroclor 1260. Because this effluent limitation is below the ML for analysis of PCBs, [90] the 2016 RGP retains the 2010 RGP compliance level for this indicator parameter, 0.5 µg/L. This effluent limitation is applicable only to sites in Massachusetts and New Hampshire where PCBs are present.

Total Phenol
The 2016 RGP retains the 2010 RGP total phenol TBEL, 300 µg/L, for sites in Massachusetts and New Hampshire.

Pentachlorophenol (PCP)
The 2016 RGP retains the 2010 RGP PCP TBEL, 1.0 µg/L, for sites in Massachusetts and New Hampshire.

f. Fuels Parameters

Total Petroleum Hydrocarbons (TPH)
The 2016 RGP retains the 2010 RGP TPH TBEL, 5.0 mg/L, for sites in Massachusetts and New Hampshire.

Methyl *tert*-Butyl Ether (MtBE)
The 2016 RGP retains the 2010 RGP MtBE TBEL, 70 mg/L, for sites in Massachusetts and New Hampshire.

2. New and Revised Chemical Effluent Limitations and Monitor-Only Requirements

The effluent limitations and/or monitor-only requirements proposed in the 2016 RGP which are new or revised from the 2010 RGP are listed in Table 4, below.

Table 4: Summary of Proposed Effluent Limitations and Monitor-Only Requirements

Parameter	**Effluent Limitation**	
	TBEL	**WQBEL**
a. Inorganics		
Ammonia (N)	Report mg/L	
TRC	0.2 mg/L	See Table 3
TSS	30 mg/L for Activity Category IV	
Antimony	206 µg/L	640 µg/L in MA

[90] Using EPA Method 608.

Parameter	Effluent Limitation	
	TBEL	**WQBEL**
		4.3 mg/L in NH[91]
Arsenic	104 µg/L	See Table 3
Cadmium	10.2 µg/L	See Table 3
Chromium III (trivalent)	323 µg/L	See Table 3
Chromium VI (hexavalent)	323 µg/L	See Table 3
Copper	242 µg/L	See Table 3
Iron	See Table 3	FW = 1,000 µg/L
Lead	160 µg/L	See Table 3
Mercury	0.739 µg/L	See Table 3
Nickel	1,450 µg/L	See Table 3
Selenium	235.8 µg/L	See Table 3
Silver	35.1 µg/L	See Table 3
Zinc	420 µg/L	See Table 3
Cyanide	178 mg/L	See Table 3
b. Non-Halogenated Volatile Organic Compounds		
Benzene	5.0 µg/L for Activity Category IV	---
1,4 Dioxane	200 µg/L	---
Acetone	7.97 mg/L	---
Phenol	1,080 µg/L	See Table 3
c. Halogenated Volatile Organic Compounds		
Carbon Tetrachloride	See Table 3	1.6 in MA
Tetrachloroethylene	See Table 3	3.3 µg/L in MA
d. Non-Halogenated Semi-Volatile Organic Compounds		
Total Phthalates	190 µg/L	SW = 3.4 µg/L in NH
Diethylhexyl Phthalate	101 µg/L	2.2 µg/L in MA 5.9 µg/L in NH[92]
Total Group I Polycyclic Aromatic Hydrocarbons	1.0 µg/L	See Table 3 for individual Group I PAHs
f. Fuels Parameters		
Ethanol (EtOH)	Report µg/L	
Methyl *tert*-Butyl Ether (MtBE)	See Table 3	20 µg/L
tert-Butyl Alcohol (tBA)	120 µg/L in MA	

[91] EPA anticipates that the applicable revised water quality standard found in Env-Wq 1700 shall be incorporated into the final permit for this parameter for sites in New Hampshire. Based on the proposed revision to the human health WQC for this parameter, 640 µg/L, EPA expects to change the WQBEL from 4.3 mg/L to 640 µg/L once final.

[92] EPA anticipates that the applicable revised water quality standard found in Env-Wq 1700 shall be incorporated into the final permit for this parameter for sites in New Hampshire. Based on the proposed revision to the human health WQC for this parameter, 2.2 µg/L, EPA expects to change the WQBEL from 5.9 µg/L to 2.2 µg/L once final.

Parameter	Effluent Limitation	
	TBEL	**WQBEL**
tert-Butyl Alcohol (tBA)	40 µg/L in NH	---
tert-Amyl Methyl Ether (tAME)	90 µg/L in MA 140 µg/L in NH	---

a. Inorganics

Ammonia
The proposed requirement for this indicator parameter in the 2016 RGP is monitor-only for sites in Massachusetts and New Hampshire.

The 2005 and 2010 RGP did not require monitoring for ammonia. Further, EPA does not have information regarding the concentrations of this pollutants in the effluent from the types of discharges covered by this general permit. The 2016 RGP imposes monitoring requirements for ammonia to ensure ammonia is not present in remediation and/or dewatering activity discharges at levels that would cause or have reasonable potential to cause or contribute to an excursion above applicable WQC.

Sources of ammonia in remediation and dewatering discharges at contaminated or formerly contaminated sites may be the result of contamination or use of materials that contain nitrogen. Ammonia can also occur at sites as a result of environmental processes, including the fixation of atmospheric nitrogen and hydrogen by microbes (e.g., diazotrophic bacteria) and the decomposition of manure, dead plants and animals by bacteria (e.g., via ammonification).

TRC
The proposed TBEL for this indicator parameter in the 2016 RGP is 0.2 mg/L for sites in Massachusetts and New Hampshire. For most sites covered under this general permit, EPA expects the WQBEL will be more stringent than the proposed TBEL. However, this TBEL will apply to any discharge for which a WQBEL calculated using a dilution factor is greater than 0.2 mg/L. The proposed TBEL is applicable only to sites in Massachusetts and New Hampshire where TRC is present.

EPA selected this TBEL using BPJ as authorized by §402(a)(1) of the CWA. EPA selected the monthly average effluent limitation, 0.2 mg/L, consistent with ELGs at 40 CFR §423.12 for the Steam Electric Power Point Source Category and the technical factors supporting these limitations. The application of chlorine for controlling biological growth in the use of once-through cooling water and the discharge of low volume wastes was common at steam electric facilities at the time the technology guidelines were promulgated. For smaller facilities (i.e. <25 MGD), the BAT for TRC includes a monthly average limitation of 0.2 mg/L and a daily maximum limitation of 0.5 mg/L for the process wastewater composed of once-through cooling water (see 40 CFR §423.13(c)(1)). EPA has determined that discharges containing TRC at sites to be covered under the 2016 RGP are consistent with the discharges for which the monthly average BAT can be achieved using existing technology.

TRC is most likely present in remediation/dewatering discharges as a result of application of chlorine or chlorine compounds to control biological growth, or as a residual pollutant from the use of potable water. Addition of chlorine or chlorine compounds can generally be tightly controlled through BMPs. In addition, widely used means of chemical and/or physical dechlorination can be used to remove TRC. Dechlorination is the most common treatment process to remove residual chlorine from effluent, [93] typically achieved through addition of reducing chemicals, passage through filter media, and/or aeration. [94] Sulfur dioxide, sodium bisulfate, sodium metabisulfate, and sodium sulfide are commonly used chemicals. Activated carbon is a commonly used filter media.[95]

In addition, the 2016 RGP specifies a compliance level of 50 µg/L for TRC.[96] A compliance level is specified because the freshwater and saltwater effluent limitations for TRC are below the minimum level (ML) for analysis of TRC using Method 4500-Cl D, amperometric titration, 200 µg/L and Method 4500-Cl G, N, N-diethyl-p-phenylenediamine (DPD) colorometric, 50 µg/L. Appendix VII of the 2016 RGP also includes Method 4500-Cl-E, low-level amperometric titration, which can achieve a detection limit (DL) of approximately 10 µg/L.[97]

TSS

The proposed TBEL for this indicator parameter in the 2016 RGP for sites in Massachusetts and New Hampshire conducting pipeline and tank dewatering (2016 RGP Activity Category IV) is 30 mg/L.

This TBEL is being proposed using BPJ as authorized by §402(a)(1) of the CWA. EPA selected the monthly average TSS limitation based on the application of EPA-promulgated BPT/BCT limitations contained in numerous industrial point source categories and the information in the supporting documentation for those ELGs. EPA also considered TSS limitations included in NPDES permits for similar pipeline and/or tank dewatering discharges covered under individual permits in Region 1.[98] These TSS limitations assume treatment using one or more of the treatment technologies evaluated in the technical factors supporting the development of these limitations. Treatment technologies for TSS are well understood, and widely used at remediation and/or dewatering sites. Properly designed treatment systems such as those utilizing sedimentation and/or filtration can readily remove TSS to concentrations at or below the proposed TBEL.[99] Examples of effluent limitations for TSS based on levels attainable by TSS treatment technologies include:

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[93] *Drinking Water Treatment Plant Residuals Management Technical Report: Summary of Residuals Generation, Treatment, and Disposal at Large Community Water Systems*. EPA 820-R-11-003: December 2011.
[94] See *Development Document for Effluent Limitations Guidelines and Standards and New Source Performance Standards for the Steam Electric Power Generating Point Source Category*. EPA-440/1-74-029-a, October, 1974 and *Supplement for Pretreatment to the Development Document for the Steam Electric Power Generating Point Source Category*. EPA 440/1-77/084, April 1977.
[95] EPA 832-F-99-062, September 1999.
[96] This approach is consistent with EPA's TSD, page 111, which recommends, "the compliance level be defined in the permit as the minimum level (ML). See EPA-505-2-90-001, March 1991.
[97] See Standard Methods for the Examination of Water and Wastewater for the full text of these test methods.
[98] See, for example, MA0000825, MA0001929, MA0003280, MA0003298, MA0003425, MA0004006 and MA0040398.
[99] For example, the DL for EPA Method 160.2 is 4 mg/L.

- Secondary treatment technology standards at 40 CFR §133 for POTWs, 30 mg/L monthly average, and 45 mg/L weekly average;
- Promulgated ELGs at §433.13 for Metal Finishing Point Source Category, Subpart A, 31 mg/L monthly average and 60 mg/L daily maximum, based on BPT;
- Promulgated ELGs at §436.42 for Mineral Mining and Processing, Subpart D, 25 mg/L monthly average and 45 mg/L daily maximum, based on BPT;
- Promulgated ELGs at §437.11 for Centralized Waste Treatment, Subpart A, 31 mg/L monthly average and 60 mg/L daily maximum, based on BPT/BCT;
- Promulgated ELGs at §437.21 and §437.42 for Centralized Waste Treatment, Subpart B and D, respectively, 30.6 mg/L monthly average and 74.1 mg/L daily maximum, based on BPT/BCT;
- Promulgated ELGs at 40 CFR §423.12 for Steam Electric Power Generating, 30 mg/L monthly average and 100 mg/L daily maximum, based on BPT;
- EPA Region 1 individual permits for facilities conducting hydrostatic testing of pipelines and tanks at bulk petroleum storage facilities, 30 mg/L monthly average and 100 mg/L daily maximum based on levels achievable using sedimentation, based on BPJ;[100] and
- EPA Region 1's Potable Water Treatment Facility General Permit (PWTFGP), 30 mg/L monthly average and 50 mg/L daily maximum based on levels achievable using sedimentation, based on BPJ.

In consideration of this range of TBELs, and the technical factors supporting these limitations, EPA has determined that discharges resulting from hydrostatic testing at sites to be covered under the 2016 RGP are consistent with the discharges for which the technology limitations listed above can be achieved using existing technology. EPA selected the monthly average effluent limitation, 30 mg/L, consistent with ELGs at 40 CFR §423.12 for the Steam Electric Power Point Source Category. The level of treatment that could be technologically achieved for TSS using separation (e.g., oil/water separator) at steam electric facilities that store petroleum products in tanks when the ELGs were first promulgated is similar to the maintenance (i.e., hydrostatic testing) expected at sites with pipelines and tanks used for petroleum products.[101]

TSS in discharges from contaminated or formerly contaminated sites is generally present in the source water, but the addition of treatment chemicals can add to the measured value (e.g., metals present in coagulants). Source water consisting of groundwater is generally expected to be lower in TSS than surface waters, particularly surface waters generated during activities where soils and organic materials are being disturbed and comingle with groundwater and/or stormwater. Additional pollutants may also occur in association with TSS when adsorbed to the suspended solids.

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[100] BPT/BCT/BAT information from 40 CFR §419 for the Petroleum Refining Point Source Category, including EPA's *Technical Support Document for the 2004 Effluent Guidelines Program Plan*. EPA-821-R-04-014: August 2004, Section 7.12, P 72-127; and §423.12 for the Steam Electric Power Point Source Category.

[101] See *Development Document for Effluent Limitations Guidelines and Standards and Pretreatment Standards for the Steam Electric Point Source Category*. EPA-440-1-82-029, November, 1982.

Metals:

Antimony
The proposed TBEL for this indicator parameter in the 2016 RGP is 206 µg/L. The proposed WQBEL for this indicator parameter in the 2016 RGP is 640 µg/L for sites in Massachusetts and 4.3 mg/L (4,300 µg/L) for sites in New Hampshire.

EPA identified an error in the 2010 RGP TBEL for total recoverable antimony, 141 µg/L. Appendix IV of the 2010 RGP noted that this TBEL was based on the maximum daily BPT limitation for the Centralized Waste Treatment Point Source Category, Subpart D – Multiple Wastestreams (40 CFR §437.42). However, the maximum daily BPT limitation in Subpart D is 249 µg/L, not 141 µg/L. Further, Subpart D specifies a monthly average BPT limitation of 206 µg/L.[102] EPA believes that the BPT limitations for the Centralized Waste Treatment Point Source Category remain appropriate for discharges eligible for coverage under the 2016 RGP. First, discharges consist of contaminated remediation or dewatering effluent from contaminated or formerly contaminated sites similar to centralized waste treatment wastewaters, including contaminated stormwater.[103] Second, discharges from contaminated or formerly contaminated sites may consist of multiple wastestreams, including metal-bearing wastes potentially mixed with oily and/or organic wastes.[104] Third, the pollution control technologies used at centralized waste treatment facilities to meet the BPT limitations include technologies sites eligible under this general permit are required to use when necessary to meet effluent limitations, including: BMPs, equalization, neutralization, flocculation, emulsion breaking, separation, chemical precipitation, carbon adsorption, filtration, ion exchange, reverse osmosis, and biological treatment.[105] Therefore, EPA is proposing a revised TBEL of 206 µg/L for total recoverable antimony in the 2016 RGP based on the maximum monthly average BPT limitation for the Centralized Waste Treatment Point Source Category, Subpart D – Multiple Wastestreams in 40 CFR §437.42. EPA selected this TBEL using BPJ as authorized by §402(a)(1) of the CWA.

EPA has also proposed revised WQBELs for total recoverable antimony in the 2016 RGP. For sites in Massachusetts, the proposed WQBEL of 640 µg/L was selected in accordance with 40 CFR §122.44(d)(1)(vi). For sites in New Hampshire, the proposed WQBEL of 4.3 mg/L was selected in accordance with 40 CFR §122.44(d)(1)(vi). In proposing these WQBELs, EPA considered applicable WQC for aquatic life, human health, and organoleptic effects, including EPA's *NRWQC*. The proposed WQBEL of 640 µg/L for total recoverable antimony for sites in Massachusetts is equivalent to EPA's human health *NRWQC* for the consumption of organisms-only. The proposed WQBEL of 4.3 mg/L for total recoverable antimony for sites in New Hampshire is equivalent to the human health WQC for the consumption of organisms-only in New Hampshire.[106]

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[102] 65 FR 81300, Dec. 22, 2000, as amended at 68 FR 71023, 71024, Dec. 22, 2003.
[103] See 40 CFR §437.2(d) and (e).
[104] See 40 CFR §437.42(c)(1) and 40 CFR §437.2(m).
[105] *Development Document for Effluent Limitations Guidelines and Standards for the Centralized Waste Treatment Industry – Final*. EPA 821-R-00-020; August, 2000.
[106] For the antimony WQBEL in New Hampshire, EPA anticipates that the applicable revised WQC found in Env-Wq 1700 will be incorporated into the RGP for sites in New Hampshire, once final. Based on the proposed revision for this value, 640 µg/L, EPA expects to change the WQBEL from 4.3 mg/L to 640 µg/L.

The proposed TBEL is less stringent than the existing TBEL for total recoverable antimony. However, EPA believes the proposed TBEL meets anti-backsliding requirements under the exception described in 40 CFR §122.44(l)(2)(i)(B)(2) and §402(o)(2) of the CWA. Specifically, EPA is correcting a technical mistake in its previous reading of the Centralized Waste Treatment Point Source Category, Subpart D – Multiple Wastestreams. The proposed WQBELs are also less stringent than the existing WQBEL for total recoverable antimony. However, EPA believes the proposed WQBEL meets anti-backsliding requirements under the exception described in 40 CFR §122.44(l)(2)(i)(B)(1) and §402(o)(2) of the CWA. Specifically, EPA considered new information not available at the time of permit issuance which was provided by sites authorized to discharge under the 2005 and 2010 RGPs. This information resulted in changes to the limitations on coverage proposed in the 2016 RGP in that discharges to a receiving water designated for use as a public water supply are not authorized by this general permit. This new information and resultant change satisfy the anti-backsliding exception.

Arsenic
The proposed TBEL for this indicator parameter in the 2016 RGP is 104 µg/L.

The 2010 RGP Appendix IV included a TBEL of 540 µg/L for total recoverable arsenic based on the monthly average BPT limitation for the Landfills Point Source Category, Subpart A – RCRA Subtitle C Hazardous Waste Landfill (40 CFR §445.11). See Appendix IV of the 2010 RGP. While the BPT limitation of 540 µg/L for arsenic for the Landfills Point Source Category does provide a technology limitation for arsenic achievable using existing technology, the types of sites covered under this general permit are largely dissimilar to active hazardous waste landfills. A small number of sites could potentially include former landfills. However, given the variety of sites expected to be covered under this general permit, and the availability of promulgated ELGs with greater similarity, and which provide more stringent technology limitations, EPA is proposing a revised TBEL of 104 µg/L for arsenic in the 2016 RGP, based on the monthly average BPT limitation for the Centralized Waste Treatment Point Source Category, Subpart D – Multiple Wastestreams in 40 CFR §437.42. EPA selected this TBEL using BPJ as authorized by §402(a)(1) of the CWA.

Cadmium
The proposed TBEL for this indicator parameter in the 2016 RGP is 10.2 µg/L.

The 2010 RGP included a TBEL of 260 µg/L for total recoverable cadmium. Appendix IV of the 2010 RGP noted that this effluent limitation was based on the monthly average BAT for the Metal Finishing Point Source Category, Subpart A – Metal Finishing Subcategory (40 CFR §433.14). While this ELG does provide a technology limitation for cadmium achievable using existing technology, the types of sites covered under this general permit and the characteristics of discharges from contaminated or formerly contaminated sites that contain metals are largely dissimilar to active metal finishing facilities. A small number of sites could potentially include wastes from former metal finishing activities. However, EPA has determined that the BPT limitations for centralized waste treatment facilities providing treatment for wastewater composed of metal-bearing wastes potentially mixed with oily and/or organic wastes are more appropriate for discharges eligible for coverage under the 2016 RGP.

Therefore, for similar reasons as described for antimony, above, EPA is proposing a revised TBEL of 10.2 µg/L for total recoverable cadmium in the 2016 RGP, based on the maximum monthly average BPT limitation for the Centralized Waste Treatment Point Source Category, Subpart D – Multiple Wastestreams in 40 CFR §437.42. EPA selected this TBEL using BPJ as authorized by §402(a)(1) of the CWA.

Chromium III
The proposed TBEL for this indicator parameter in the 2016 RGP is 323 µg/L.

The 2010 RGP included a TBEL of 1,710 µg/L for total recoverable trivalent and hexavalent chromium. Appendix IV of the 2010 RGP noted that this effluent limitation was based on the monthly average BAT for the Metal Finishing Point Source Category, Subpart A – Metal Finishing Subcategory (40 CFR §433.14) and assumes hexavalent chromium is reduced to trivalent chromium in treatment. For similar reasons as described for cadmium, above, EPA is proposing a revised TBEL of 323 µg/L for total recoverable chromium in the 2016 RGP, based on the maximum monthly average BPT limitation for the Centralized Waste Treatment Point Source Category, Subpart D – Multiple Wastestreams in 40 CFR §437.42. EPA selected this TBEL using BPJ as authorized by §402(a)(1) of the CWA. While this technology limitation applies to total chromium, EPA continues to assume that hexavalent chromium is reduced to trivalent chromium in treatment. Therefore, the proposed TBEL applies to both chromium III and chromium VI.

Chromium VI
The proposed TBEL for this indicator parameter in the 2016 RGP is 323 µg/L.

See the basis for Chromium III, in this section, above.

Copper
The proposed TBEL for this indicator parameter in the 2016 RGP is 242 µg/L.

The 2010 RGP included a TBEL of 2,070 µg/L for total recoverable copper. Appendix IV of the 2010 RGP noted that this effluent limitation was based on the monthly average BAT for the Metal Finishing Point Source Category, Subpart A – Metal Finishing Subcategory (40 CFR §433.14). For similar reasons as described for cadmium, above, EPA is proposing a revised TBEL of 242 µg/L for total recoverable copper in the 2016 RGP, based on the maximum monthly average BPT limitation for the Centralized Waste Treatment Point Source Category, Subpart D – Multiple Wastestreams in 40 CFR §437.42. EPA selected this TBEL using BPJ as authorized by §402(a)(1) of the CWA.

Iron
The proposed WQBEL for this indicator parameter in the 2016 RGP is 1,000 µg/L for freshwater only for sites in Massachusetts and New Hampshire.

The transfer of high iron content groundwater to the surface water and impacts on the treatment efficiency of the treatment system being used to meet the effluent limitations under this general permit may result in discharges which cause, or have a reasonable potential to cause, or

contribute to excursion above WQSs for color, turbidity, solids, taste and odor, as well as interfering with attainment of chemical-specific WQC. As a result, the 2005 RGP proposed an effluent limitation for total recoverable iron for freshwater for sites in Massachusetts and New Hampshire based on EPA's chronic aquatic life *NRWQC*, 1,000 µg/L. No additional WQBEL was derived for saltwater discharges, based on EPA's support document for the development of the recommended criterion, largely because dissolved iron readily precipitates in alkaline saltwaters.[107] However, EPA inadvertently listed this effluent limitation for saltwater in Appendix III of the 2010 RGP. Since, this WQBEL does not apply to saltwater discharges, EPA is proposing a correction in the 2016 RGP that specifies the WQBEL for total recoverable iron is applicable to discharges to freshwater only. The proposed TBEL meets anti-backsliding requirements under the exception described in 40 CFR §122.44(l)(2)(i)(B)(2) and §402(o)(2) of the CWA. Specifically, EPA is correcting a technical mistake.

Lead
The proposed TBEL for this indicator parameter in the 2016 RGP is 160 µg/L.

The 2010 RGP included a TBEL of 430 µg/L for total recoverable lead. Appendix IV of the 2010 RGP noted that this effluent limitation was based on the monthly average BAT for the Metal Finishing Point Source Category, Subpart A – Metal Finishing Subcategory (40 CFR §433.14). For similar reasons as described for cadmium, above, EPA is proposing a revised TBEL of 160 µg/L for total recoverable lead in the 2016 RGP, based on the maximum monthly average BPT limitation for the Centralized Waste Treatment Point Source Category, Subpart D – Multiple Wastestreams in 40 CFR §437.42. EPA selected this TBEL using BPJ as authorized by §402(a)(1) of the CWA.

Mercury
The proposed TBEL for this indicator parameter in the 2016 RGP is 0.739 µg/L.

EPA identified an error in the 2010 RGP TBEL for total recoverable mercury, 2.3 µg/L. Appendix IV of the 2010 RGP noted that the mercury TBEL of 2.3 µg/L was based on the maximum daily BPT limitation for the Centralized Waste Treatment Point Source Category, Subpart D – Multiple Wastestreams (40 CFR §437.42). However, the maximum daily BPT limitation in Subpart D is 2.34 µg/L. Further, Subpart D specifies a monthly average BPT limitation of 0.739 µg/L.[108] For similar reasons as described for antimony, above, EPA is proposing a revised TBEL of 0.739 µg/L for total recoverable mercury in the 2016 RGP, based on the maximum monthly average BPT limitation for the Centralized Waste Treatment Point Source Category, Subpart D – Multiple Wastestreams in 40 CFR §437.42. EPA selected this TBEL using BPJ as authorized by §402(a)(1) of the CWA.

Nickel
The proposed TBEL for this indicator parameter in the 2016 RGP is 1,450 µg/L.

[107] *Quality Criteria for Water*. EPA PB-263 943: July, 1976. (EPA's "Red Book")
[108] 65 FR 81300, Dec. 22, 2000, as amended at 68 FR 71023, 71024, Dec. 22, 2003.

The 2010 RGP included a TBEL of 2,380 µg/L for total recoverable nickel. Appendix IV of the 2010 RGP noted that this effluent limitation was based on the monthly average BAT for the Metal Finishing Point Source Category, Subpart A – Metal Finishing Subcategory (40 CFR §433.14). For similar reasons as described for cadmium, above, EPA is proposing a revised TBEL of 1,450 µg/L for total recoverable nickel in the 2016 RGP, based on the maximum monthly average BPT limitation for the Centralized Waste Treatment Point Source Category, Subpart D – Multiple Wastestreams in 40 CFR §437.42. EPA selected this TBEL using BPJ as authorized by §402(a)(1) of the CWA.

Silver
The proposed TBEL for this indicator parameter in the 2016 RGP is 35.1 µg/L.

The 2010 RGP included a TBEL of 240 µg/L for total recoverable silver. Appendix IV of the 2010 RGP noted that this effluent limitation was based on the monthly average BAT for the Metal Finishing Point Source Category, Subpart A – Metal Finishing Subcategory (40 CFR §433.14). For similar reasons as described for cadmium, above, EPA is proposing a revised TBEL of 35.1 µg/L for total recoverable silver in the 2016 RGP, based on the maximum monthly average BPT limitation for the Centralized Waste Treatment Point Source Category, Subpart D – Multiple Wastestreams in 40 CFR §437.42. EPA selected this TBEL using BPJ as authorized by §402(a)(1) of the CWA.

Zinc
The proposed TBEL for this indicator parameter in the 2016 RGP is 641 µg/L.

The 2010 RGP included a TBEL of 1,480 µg/L for total recoverable zinc. Appendix IV of the 2010 RGP noted that this effluent limitation was based on the monthly average BAT for the Metal Finishing Point Source Category, Subpart A – Metal Finishing Subcategory (40 CFR §433.14). For similar reasons as described for cadmium, above, EPA is proposing a revised TBEL of 641 µg/L for total recoverable zinc in the 2016 RGP, based on the maximum monthly average BPT limitation for the Centralized Waste Treatment Point Source Category, Subpart D – Multiple Wastestreams in 40 CFR §437.42. EPA selected this TBEL using BPJ as authorized by §402(a)(1) of the CWA.

Cyanide
The proposed TBEL for this indicator parameter in the 2016 RGP is 178 µg/L. The proposed TBEL is applicable only to sites in Massachusetts and New Hampshire where cyanide is present. This TBEL is expressed as total recoverable cyanide (CN).

Cyanide is an inorganic pollutant often limited in conjunction with metals, such as in promulgated ELGs for the Centralized Waste Treatment Point Source Category, Subpart A – Metals Treatment and Recovery in 40 CFR §437.11 for metal-bearing wastewater and Subpart D – Multiple Wastestreams in 40 CFR §437.42 for mixed wastestreams that include cyanide. For similar reasons as described for antimony, above, EPA believes that the BPT limitations for the Centralized Waste Treatment Point Source Category are appropriate for discharges eligible for coverage under the 2016 RGP. Therefore, EPA is proposing a TBEL of 178 µg/L for total cyanide in the 2016 RGP, based on the maximum monthly average BPT limitation for the

Centralized Waste Treatment Point Source Category, Subpart A – Metals Treatment and Recovery in 40 CFR §437.11 and Subpart D – Multiple Wastestreams in 40 CFR §437.42. EPA selected this TBEL using BPJ as authorized by §402(a)(1) of the CWA.

The 2016 RGP Appendix VII contains a revised ML for analysis of total cyanide using EPA Method 335.4 of 5 µg/L. Because the saltwater WQBEL for cyanide may be below the ML for analysis of cyanide using Method 335.4, 5 µg/L, the 2016 RGP includes a cyanide compliance level of 5 µg/L.

b. Non-Halogenated VOCs

Benzene
The proposed TBEL for this indicator parameter in the 2016 RGP for sites in Massachusetts and New Hampshire conducting pipeline and tank dewatering (2016 RGP Activity Category IV) is 5.0 µg/L.

EPA selected this TBEL using BPJ as authorized by §402(a)(1) of the CWA. This monthly average limitation is based on available information regarding characteristics of discharges from the pipeline and tank dewatering and the effluent concentrations feasible using available treatment technologies.

In selecting the proposed TBEL for this indicator parameter for Activity Category IV, EPA considered the treatment limitations and achievable MLs for this compound. VOCs included in this general permit have generally been limited near or below laboratory MLs for analysis. The ML for analysis for benzene using EPA methods include 0.5 µg/L for Methods 602 and 8260, and 2 µg/L for Methods 524.2, 624 and 1624. However, once released into the environment, the physical and chemical properties of benzene (i.e., partition coefficients, Henry's Law constant) make the compound not only highly mobile, but difficult to treat.[109] Current conventional water treatment practices (e.g., coagulation, sedimentation, and filtration) are relatively ineffective at removing benzene from water. However, treatment consisting of air stripping, liquid phase carbon adsorption, dual phase extraction, bioslurping, air sparging,[110] free product recovery and air stripping[111] have been shown to be effective for reducing benzene concentrations below the proposed TBEL.[112] Therefore, EPA has determined that discharges containing benzene at sites to be covered under the 2016 RGP can achieve the proposed TBEL using existing technology.

1,4 Dioxane
The proposed TBEL for this indicator parameter in the 2016 RGP is 200 µg/L. The 2016 RGP also specifies an ML for analysis of 1,4-dioxane of 50 µg/L or less. The proposed TBEL is applicable only to sites in Massachusetts and New Hampshire where 1,4-dioxane and/or 1,1,1-TCA is present.

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[109] *Toxicological Profile for Benzene*. Agency for Toxic Substances and Disease Registry: August, 2007.
[110] *Remediation Technologies Screening Matrix and Reference Guide, Version 4.0, Section 2.7.3*.
[111] See *Model NPDES Permit for Discharges Resulting From The Cleanup of Gasoline Released From Underground Storage Tanks,* June 1989.
[112] *Treatment Technologies for 1,4-Dioxane: Fundamentals and Field Applications*. EPA Office of Solid Waste and Emergency Response. EPA-542-R-06-009: December 2006.

EPA selected this TBEL using BPJ as authorized by §402(a)(1) of the CWA. Aquatic life or human health WQC have not been published by EPA for this compound. Further, neither Massachusetts WQSs nor New Hampshire WQRs contain numeric WQC for this compound. ELGs for similar point source categories do not contain technology limitations for this compound. However, Federal and State advisories and/or guidelines are available. Therefore, this monthly average effluent limitation is based on available information regarding the effluent concentrations feasible using available treatment technologies and is consistent with EPA's lifetime health advisory for this compound.[113]

For similar reasons as described for benzene, above, in selecting the proposed TBEL for this indicator parameter, EPA considered the treatment limitations and achievable MLs for this compound. The ML for analysis for 1,4-dioxane using EPA methods include 0.1 µg/ for Method 522, a range of approximately 2 to 30 µg/L for Method 8260 with selected ion monitoring, and 50 µg/L for Method 1624. 1,4-dioxane is persistent in the environment and, similar to benzene, is highly mobile and difficult to treat. Current conventional water treatment practices (e.g., coagulation, sedimentation, and filtration) are relatively ineffective at removing 1,4-dioxane from water. However, advanced oxidation processes including a combination of hydrogen peroxide and ferrous iron, ozone and hydrogen peroxide, and UV and hydrogen peroxide have been shown to be effective for reducing 1,4-dioxane concentrations below the proposed TBEL.[114] Mineralization using Fenton's reagent has been shown to be effective in the presence of high iron oxides and turbidity.[115] Adsorption using activated carbon may be effective at reducing 1,4-dioxane concentrations depending on influent concentrations, but its effectiveness is more limited.[116] Therefore, EPA has determined that discharges containing 1,4-dioxane at sites to be covered under the 2016 RGP can achieve the proposed TBEL using existing technology.

Acetone

The 2005 and 2010 RGP included acetone as a monitor-only parameter. Based on information provided by sites covered under the 2005 and 2010 RGPs, acetone is frequently present in discharges from contaminated or formerly contaminated sites. Acetone is most common at sites with non-halogenated or halogenated VOC contamination, but has been noted to occur at elevated concentrations when other VOCs have not been detected or are present at very low levels. The proposed TBEL for this indicator parameter in the 2016 RGP is 7.97 mg/L for sites in Massachusetts and New Hampshire.

EPA selected the proposed limitation based on the maximum monthly average BPT limitation for the Centralized Waste Treatment Point Source Category, Subpart C – Organics Treatment and Recovery in 40 CFR §437.31 for the treatment of organic wastes, including contaminated groundwater remediation from non-petroleum sources and wastes from tanks that contained

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[113] *2012 Edition of Drinking Water Standards and Health Advisories*. U.S. EPA, 2012: p 4.
[114] *Treatment Technologies for 1,4-Dioxane: Fundamentals and Field Applications*. EPA Office of Solid Waste and Emergency Response. EPA-542-R-06-009: December 2006.
[115] Kiker, J.H., J.B. Connolly, W.A. Murray, S.C. Pearson, S.E. Reed, and R.J. Tess. Ex-Situ Wellhead Treatment of 1,4-Dioxane Using Fenton's Reagent in 2010 *Proceedings of the Annual International Conference on Soils, Sediments, Water and Energy*: p 210-226.
[116] *1,4-Dioxane and Drinking Water*. NHDES Environmental Fact Sheet WD-DWGB-3-24: 2011.

organic, non-petroleum sources,[117] and Subpart D – Multiple Wastestreams in 40 CFR §437.42 for mixed wastestreams, including organic wastes mixed with metal-bearing and/or oily wastes.[118] In developing these ELGs, EPA selected acetone as one of two aliphatic ketone parameters, due to its frequent and elevated concentrations in organic wastes. The treatment technologies discussed in the development document for these ELGs include BMPs, equalization, neutralization, flocculation, emulsion breaking, separation, chemical precipitation, carbon adsorption, filtration, and biological treatment.[119] For these and similar reasons as described for antimony, above, EPA believes that the BPT limitations for the Centralized Waste Treatment Point Source Category are appropriate for discharges eligible for coverage under the 2016 RGP. Therefore, EPA is proposing a TBEL of 7.97 mg/L for acetone in the 2016 RGP, based on the maximum monthly average BPT limitation for the Centralized Waste Treatment Point Source Category, Subpart C – Organics Treatment and Recovery in 40 CFR §437.31 and Subpart D – Multiple Wastestreams in 40 CFR §437.42. EPA has proposed this TBEL based on BPJ as authorized by §402(a)(1) of the CWA.

Phenol
The proposed TBEL for this indicator parameter in the 2016 RGP is 1,080 µg/L for sites in Massachusetts and New Hampshire.

For similar reasons as described for acetone, above, EPA selected the proposed limitation based on the maximum monthly average BPT limitation for the Centralized Waste Treatment Point Source Category, Subpart C – Organics Treatment and Recovery in 40 CFR §437.31 for the treatment of organic wastes, and Subpart D – Multiple Wastestreams in 40 CFR §437.42 for mixed wastestreams. In developing these ELGs, EPA selected acetone as the second of two aliphatic ketone parameters, due to its frequent and elevated concentrations in organic wastes. The treatment technologies discussed in the development document for these ELGs include BMPs, equalization, neutralization, flocculation, emulsion breaking, separation, chemical precipitation, carbon adsorption, filtration, and biological treatment. For these and similar reasons as described for antimony, above, EPA believes that the BPT limitations for the Centralized Waste Treatment Point Source Category are appropriate for discharges eligible for coverage under the 2016 RGP. Therefore, EPA is proposing a TBEL of 1,080 µg/L for phenol in the 2016 RGP, based on the maximum monthly average BPT limitation for the Centralized Waste Treatment Point Source Category, Subpart C – Organics Treatment and Recovery in 40 CFR §437.31 and Subpart D – Multiple Wastestreams in 40 CFR §437.42. EPA selected this TBEL using BPJ as authorized by §402(a)(1) of the CWA.

c. Halogenated VOCs

Carbon Tetrachloride
The proposed WQBEL for this indicator parameter in the 2016 RGP is 1.6 µg/L for sites in Massachusetts.

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[117] See 40 CFR §437.2(r).
[118] 65 FR 81300, Dec. 22, 2000, as amended at 68 FR 71023, 71024, Dec. 22, 2003.
[119] *Development Document for Effluent Limitations Guidelines and Standards for the Centralized Waste Treatment Industry – Final*. EPA 821-R-00-020; August, 2000.

EPA proposed a WQBEL for this indicator parameter in the 2016 RGP for sites in Massachusetts to comply with Section 101(a)(3) of the CWA, and to meet narrative WQSs in Massachusetts, which prevent the discharge of toxics in toxic amounts.[120] EPA considered the toxicity and mobility of carbon tetrachloride in the environment. Further, carbon tetrachloride is listed as a priority pollutant in Appendix A to 40 CFR §423. Therefore, in deriving the proposed WQBEL, EPA considered applicable WQC for aquatic life, human health and organoleptic effect, when available, including EPA's *NRWQC*. EPA also considered additional information for specific WQSs in Massachusetts. The proposed WQBEL is the most stringent of applicable WQC, equivalent to the human health *NRWQC* for the consumption of organisms-only for carbon tetrachloride in Massachusetts, selected in accordance with 40 CFR §122.44(d)(1)(vi).. Because the applicable WQC for this indicator parameter is more stringent than the existing TBEL, EPA Method 524.2 and 601, which achieve an ML for analysis of 0.5 µg/L, will be necessary to demonstrate compliance with the WQBEL for sites in Massachusetts.

This WQBEL does not apply to sites in New Hampshire because the TBEL for this indicator parameter coincides with, or is more restrictive than, the applicable WQC in New Hampshire.

Tetrachloroethylene (PCE)
The proposed WQBEL for this indicator parameter in the 2016 RGP is 3.3 µg/L for sites in Massachusetts.

For similar reasons as described for carbon tetrachloride, above, EPA proposed a WQBEL for this indicator parameter in the 2016 RGP for sites in Massachusetts to comply with Section 101(a)(3) of the CWA, and to meet narrative WQSs in Massachusetts, which prevent the discharge of toxics in toxic amounts. EPA considered the toxicity, mobility and persistence of PCE in the environment. Further, PCE is listed as a priority pollutant in Appendix A to 40 CFR §423. Therefore, in deriving the proposed WQBEL, EPA considered applicable WQC for aquatic life, human health and organoleptic effect, when available, including EPA's *NRWQC*. EPA also considered additional information for specific WQSs in Massachusetts. The proposed WQBEL is the most stringent of applicable WQC, equivalent to the human health *NRWQC* for the consumption of organisms-only for PCE in Massachusetts, selected in accordance with 40 CFR §122.44(d)(1)(vi).. Because the applicable WQC for this indicator parameter is more stringent than the existing TBEL, EPA Method 524.2 and 601, which achieve an ML for analysis of 0.5 µg/L, will be necessary to demonstrate compliance with the WQBEL for sites in Massachusetts.

This WQBEL does not apply to sites in New Hampshire because the TBEL for this indicator parameter coincides with, or is more restrictive than, the applicable WQC in New Hampshire.

d. Non-Halogenated SVOCs

Total Phthalates

[120] Massachusetts narrative standard at 314 CMR 4.05(5)(e) and MassDEP's *Implementation Policy for the Control of Toxic Pollutants in Surface Waters*: February 23, 1990.

The proposed TBEL for this indicator parameter in the 2016 RGP is 190 µg/L for sites in Massachusetts and New Hampshire. The proposed WQBEL for this indicator parameter in the 2016 RGP is 3.4 µg/L for saltwater for sites in New Hampshire.

EPA selected the proposed limitation based on the sum of the maximum monthly average BPT limitations for phthalate parameters for the Centralized Waste Treatment Point Source Category, Subpart B – Oils Treatment and Recovery in 40 CFR §437.21 for the treatment of oily wastes, including contaminated groundwater remediation from petroleum sources, underground storage tank remediation waste and tank cleanout from petroleum sources, and Subpart D – Multiple Wastestreams in 40 CFR §437.42 for mixed wastestreams, including metals, oils or organics.[121] The BPT at 40 CFR §437.21 and §437.42 includes maximum monthly average limitations for the phthalates DEHP and benzyl butyl phthalate, of 101 µg/L and 88.87 µg/L, respectively.[122] In developing these ELGs, EPA selected these two phthalate esters due to frequent and elevated concentrations in metal, oil or organic wastes. Di-n-butyl phthalate, diethyl phthalate, dimethyl phthalate and di-n-octyl phthalate were either never or infrequently detected in wastestreams for this point source category. The treatment technologies discussed in the development document for these ELGs include BMPs, equalization, neutralization, flocculation, emulsion breaking, separation, chemical precipitation, carbon adsorption, filtration, and biological treatment.[123] For these and similar reasons as described for the antimony TBEL, above, EPA believes that the BPT limitations for the Centralized Waste Treatment Point Source Category are appropriate for discharges eligible for coverage under the 2016 RGP. Therefore, EPA is proposing a TBEL of 190 µg/L for total phthalates in the 2016 RGP, based on the approximate sum of the maximum monthly average BPT limitations for phthalate parameters for the Centralized Waste Treatment Point Source Category, Subpart B – Oils Treatment and Recovery in 40 CFR §437.21 and Subpart D – Multiple Wastestreams in 40 CFR §437.42. EPA selected this TBEL using BPJ as authorized by §402(a)(1) of the CWA.

EPA has also proposed a revised WQBEL of 3.4 µg/L for total phthalates for saltwater in the 2016 RGP in accordance with 40 CFR §122.44(d)(1)(vi). In proposing this WQBEL, EPA considered applicable WQC for aquatic life, human health, and organoleptic effects. The proposed WQBEL of 3.4 µg/L for saltwater for sites in New Hampshire is the most stringent of applicable WQC, equivalent to the New Hampshire WQRs aquatic life WQC for DEHP.

Diethylhexyl Phthalate (DEHP)
The proposed TBEL for this indicator parameter in the 2016 RGP is 101 µg/L for sites in Massachusetts and New Hampshire. The proposed WQBEL for this indicator parameter in the 2016 RGP is 2.2 µg/L for sites in Massachusetts and 5.9 µg/L for sites in New Hampshire. The proposed effluent limitations are applicable only to sites in Massachusetts and New Hampshire where DEHP is present.

For similar reasons as described for total phthalates, above, EPA selected the proposed limitation based on the maximum monthly average BPT limitation for the Centralized Waste Treatment

[121] See 40 CFR §437.2(m) and (p).
[122] 65 FR 81300, Dec. 22, 2000, as amended at 68 FR 71023, 71024, Dec. 22, 2003.
[123] *Development Document for Effluent Limitations Guidelines and Standards for the Centralized Waste Treatment Industry – Final*. EPA 821-R-00-020; August, 2000.

Point Source Category, Subpart B – Oils Treatment and Recovery in 40 CFR §437.21 for the treatment of oily wastes, and Subpart D – Multiple Wastestreams in 40 CFR §437.42 for mixed wastestreams. In developing these ELGs, EPA selected DEHP as one of two phthalate esters, due to its frequent and elevated concentrations in oily wastes. The treatment technologies discussed in the development document for these ELGs include BMPs, equalization, neutralization, flocculation, emulsion breaking, separation, chemical precipitation, carbon adsorption, filtration, and biological treatment. For these and similar reasons as described for antimony, above, EPA believes that the BPT limitations for the Centralized Waste Treatment Point Source Category are appropriate for discharges eligible for coverage under the 2016 RGP. Therefore, EPA is proposing a TBEL of 101 µg/L for DEHP in the 2016 RGP, based on the maximum monthly average BPT limitation for the Centralized Waste Treatment Point Source Category, Subpart B – Oils Treatment and Recovery in 40 CFR §437.21 and Subpart D – Multiple Wastestreams in 40 CFR §437.42. EPA selected this TBEL using BPJ as authorized by §402(a)(1) of the CWA.

For similar reasons as described for carbon tetrachloride, above, EPA proposed a WQBEL for this indicator parameter in the 2016 RGP for sites in Massachusetts and New Hampshire to comply with Section 101(a)(3) of the CWA, and to meet narrative WQSs in both States, which prevent the discharge of toxics in toxic amounts.[124] EPA considered the toxicity, and the wide use and distribution of DEHP in the environment. Further, DEHP is listed as a priority pollutant in Appendix A to 40 CFR §423. The proposed WQBEL for sites in Massachusetts is the most stringent of applicable WQC, equivalent to the human health *NRWQC* for the consumption of organisms-only for DEHP, selected in accordance with 40 CFR §122.44(d)(1)(vi). The proposed WQBEL for sites in New Hampshire is the most stringent of applicable WQC, equivalent to the New Hampshire WQRs human health WQC the consumption of organisms-only for DEHP.[125]

Total Group I Polycyclic Aromatic Hydrocarbons (PAHs)
The proposed TBEL for this indicator parameter in the 2016 RGP is 1.0 µg/L for sites in Massachusetts and New Hampshire. Total Group I PAHs is the sum of: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene.

The 2005 RGP established a TBEL for total Group I PAHs of 10.0 µg/L. The 2005 RGP also specified effluent limitations below the laboratory detection limits (DLs) with a corresponding compliance level equivalent to the ML for analysis by EPA Method 610 using high pressure liquid chromatography (HPLC) for each individual Group I PAH compound. The sum of the MLs included in the 2005 RGP Appendix VI for analysis of the Group I PAH compounds using HPLC is 9.4 µg/L. EPA expected that pollution control technologies used by sites to meet the compliance levels would remove the Group I PAH compounds to levels below compliance levels. Consequently, the total Group I PAH effluent limitation is the approximate sum of MLs specified for the individual Group I PAHs, equivalent to the occurrence of each individual PAH

[124] Massachusetts narrative standard at 314 CMR 4.05(5)(e) and MassDEP's *Implementation Policy for the Control of Toxic Pollutants in Surface Waters*: February 23, 1990; New Hampshire narrative standard at Env-Wq 1703.21(a).
[125] For the DEHP WQBEL in New Hampshire, EPA anticipates that the applicable revised WQC found in Env-Wq 1700 will be incorporated into the RGP for sites in New Hampshire, once final. Based on the proposed revision for this value, 2.2 µg/L, EPA expects to change the WQBEL from 5.9 µg/L to 2.2 µg/L.

compound at approximately MLs, adjusted upward to account for variation in analytical MLs actually achieved.

The 2010 RGP updated the compliance levels for each individual Group I PAH compound to 0.1 µg/L, equivalent to the ML that is achievable for analysis by multiple 40 CFR Part 136 test methods using selected ion monitoring (SIM) (e.g., Method 625). SIM is a test method modification included under allowable changes in 40 CFR Part 136.6(b)(xv).[126] While the basis for the TBEL for total Group I PAHs has not changed and the 2016 RGP Appendix VII retains the 2010 compliance levels for the individual Group I PAH compounds, the TBEL for total Group I PAHs was not updated during development of the 2010 RGP. The 2016 RGP requires that analysis of Group I PAH compounds achieve a ML of 0.1 µg/L or less. Therefore, the sum of Group I PAH compound MLs in compliance with this requirement is 0.7 µg/L. The proposed TBEL reflects the sum of the compliance levels for individual PAH compounds, adjusted upward to 1.0 µg/L to account for variation in analytical MLs expected to be achieved. If a discharge meets both the compliance level for each individual Group I PAH compound, 0.1 µg/L, and uses a 40 CFR Part 136 test method as required, with selected ion monitoring, that discharge will also meet the proposed total Group I PAH TBEL. EPA continues to expect that the pollution control technologies used by sites covered under this general permit will remove these compounds to levels below compliance levels.

e. Halogenated SVOCs

See Section III.B.1, above, for the effluent limitations and/or monitor-only requirements for the indicator parameters included under this COC grouping.

f. Fuels Parameters

Ethanol
The proposed requirement for this indicator parameter in the 2016 RGP is monitor-only for sites in Massachusetts and New Hampshire. The proposed monitor-only requirement is applicable only to sites in Massachusetts and New Hampshire where ethanol is present.

The 2005 and 2010 RGP did not require monitoring for ethanol. Available information indicates EtOH has relatively short residence time in the environment and low toxicity, with lethal effects to aquatic life occurring at concentrations between approximately 11,000 mg/L to 34,000 mg/L. Also, available benchmark monitoring levels for EtOH are 13 mg/L for depletion of in stream dissolved oxygen in a large river (most conservative), and 564 mg/L and 63 mg/L for acute and chronic effect concentrations, respectively.[127] These represent the concentrations at which EtOH would be expected to deplete dissolved oxygen levels below those necessary to sustain aquatic life or cause acute and chronic effects, conditions would violate Massachusetts WQSs and New

[126] As of 77 FR 29759, May 18, 2012. Federal Register Vol. 77, No. 97.
[127] Developed by the New England Interstate Water Pollution Control Commission (NEIWPCC). NEIWPCC utilized guidance included in EPA's *Final Water Quality Guidance for the Great Lakes System* (1995), referred to as Tier II procedures, to calculate conservative water quality benchmark concentrations for EtOH in the absence of sufficient data to derive WQC.

Hampshire WQRs. Further, NHDES used standard risk assessment procedures to derive a comparison value of 0.4 mg/l of ethanol in drinking water as an exposure likely to be without adverse health effects.[128]

However, given the limited information available regarding the levels of EtOH present in discharges from sites eligible for coverage under this general permit and a lack of practical technologies to remove EtOH from groundwater, the 2016 RGP imposes monitoring requirements for ethanol. The 2016 RGP also specifies that the ML for analysis of EtOH achieve 0.4 mg/L. EPA will use this information to derive effluent limitations for EtOH in the future, if necessary to ensure EtOH is not discharged at levels that cause or have the reasonable potential to cause or contribute to an excursion above WQC, including State narrative criteria.

MtBE

The proposed WQBEL for this indicator parameter in the 2016 RGP is 40 µg/L for sites in Massachusetts and New Hampshire. The proposed WQBEL is applicable only to sites in Massachusetts and New Hampshire where MtBE is present.

The 2010 RGP included a TBEL of 70 µg/L for sites in Massachusetts and New Hampshire. EPA proposed a WQBEL for this indicator parameter in the 2016 RGP for sites in Massachusetts and New Hampshire to comply with Section 101(a)(3) of the CWA, and to meet narrative WQSs in both States, which prevent discharges that impart odor that would impair any designated use in the receiving waters.[129] Applicable WQC for aquatic life, human health and organoleptic effect are not available for this compound. Therefore, in deriving the proposed WQBEL, EPA considered additional information for specific WQSs in Massachusetts and New Hampshire, including narrative WQC and State implementation policy. EPA also considered the persistence of this compound in the environment.[130] The proposed WQBEL is equivalent to the final drinking water advisory for MtBE issued by EPA in 1998, selected in accordance with 40 CFR §122.44(d)(1)(vi).. EPA's advisory established a concentration of 20 µg/l based on the odor threshold for MtBE.[131]

EPA believes this WQBEL is sufficiently stringent to meet the State narrative WQSs for organoleptic effects. In addition, the 2016 RGP prohibits discharges that impart taste and odor, among other properties, to ensure that narrative WQC contained in Massachusetts and New Hampshire WQSs are met. However, States may, as a condition of §401 certification, include a more stringent effluent limitation for MtBE, if it is determined that such a limitation is necessary to meet State WQSs.

***tert*-Butyl Alcohol (tBA)**

[128] New England Interstate Water Pollution Control Commission, *Health, Environmental, and Economic Impacts of Adding Ethanol to Gasoline in the Northeast States, Volume 3, Water Resources and Associated Health Impacts*. July 2001, 129 pp.

[129] Massachusetts narrative standards at 314 CMR 4.05(3)(b)8 and 314 CMR 4.05(4)(b)8; New Hampshire narrative standards at Env-Wq 1703.03(c)(1)c and Env-Wq 1703.12.

[130] *Chapter 13: MTBE* in *Regulatory Determinations Support Document for Selected Contaminants from the Second Drinking Water Contaminant Candidate List (CCL 2*). EPA Report 815-R-08-012: June 2008.

[131] Drinking Water Advisory Table in *2012 Edition of Drinking Water Standards and Health Advisories*. U.S. EPA, 2012: p 12.

The proposed TBEL for this indicator parameter in the 2016 RGP is 120 µg/L for sites in Massachusetts and 40 µg/L for sites in New Hampshire.

EPA selected this TBEL using BPJ as authorized by §402(a)(1) of the CWA. Aquatic life or human health WQC have not been published by EPA for this compound. Further, neither Massachusetts WQSs nor New Hampshire WQRs contain numeric WQC for this compound. ELGs for similar point source categories do not contain technology limitations for this compound. However, Federal and State advisories and/or guidelines are available. These include a State drinking water guideline for tBA of 120 µg/L in Massachusetts and a State drinking water standard for tBA of 40 µg/L in New Hampshire, derived using available toxicological data with a 10-fold reduction. Therefore, the proposed TBEL is based on available information regarding the effluent concentrations feasible using available treatment technologies and is consistent with State guidelines and/or standards for this compound.

tBA, similar to MtBE, is highly mobile and difficult to treat. Current conventional water treatment practices (e.g., coagulation, sedimentation, and filtration) are relatively ineffective at removing tBA from water. However, bioremediation (e.g., direct metabolism, cometabolism or bioaugmentation) can be effective for treatment of tBA.[132] Further, ether- and alcohol-based oxygenates are susceptible to chemical oxidation, and tBA is susceptible to soil vapor extraction and synthetic resin and combined adsorption technologies. Removal of tBA through groundwater extraction followed by ex-situ treatment (i.e., pump-and-treat) has been shown to be effective for reducing tBA concentrations below the proposed TBEL.[133] Therefore, EPA has determined that discharges containing tBA at sites to be covered under the 2016 RGP can achieve the proposed TBEL using existing technology.

***tert*-Amyl Methyl Ether (tAME)**
The proposed TBEL for this indicator parameter in the 2016 RGP is 90 µg/L for sites in Massachusetts and 140 µg/L for sites in New Hampshire.

For similar reasons as described for tBA, above, EPA selected this TBEL using BPJ as authorized by §402(a)(1) of the CWA. The State drinking water guideline for tAME in Massachusetts is 90 µg/L and the State drinking water standard for tAME in New Hampshire is 140 µg/L. Similarly, the proposed TBEL is based on available information regarding the effluent concentrations feasible using available treatment technologies and is consistent with State guidelines and/or standards for this compound. Treatment technologies for tAME are similar to those which effectively treat tBA. However, ether-based oxygenates may also be susceptible to removal using granular activated carbon.[134] Therefore, EPA has determined that discharges containing tAME at sites to be covered under the 2016 RGP can achieve the proposed TBEL using existing technology.

3. Monitor-Only Requirements Removed from the 2016 RGP

[132] *Overview of Groundwater Remediation Technologies for MTBE and TBA*. Interstate Technology Regulatory Council: 2005.
[133] *Technologies for Treating MTBE and Other Fuel Oxygenates*. EPA 542-R-04-009: 2004, 106 pp.
[134] Also EPA 542-R-04-009, as above.

The effluent limitations and monitor-only requirements proposed for removal are as follows:

- Monitor-only requirement for three BTEX target analytes (i.e., toluene, ethylbenzene and total xylenes); and
- Monitor-only requirement for eight Group II PAHs (i.e., acenaphthene, acenaphthylene, anthracene, benzo(g,h,i)perylene, fluoranthene, fluorene, phenanthrene, and pyrene).

EPA is proposing removal of the monitor-only requirement for toluene, ethylbenzene and total xylenes in the 2016 RGP. The inclusion of these target analytes as indicator parameters is redundant because the indicator parameter total BTEX already includes these target analytes. Similarly, imposing a monitor-only requirement for these target analytes is redundant because the analysis required for total BTEX already includes these target analytes. Finally, total BTEX are subject to an effluent limitation, which imposes an effluent limitation on these target analytes in sum, and consequently, individually.

EPA is proposing removal of the monitor-only requirement for acenaphthene, acenaphthylene, anthracene, benzo(g,h,i)perylene, fluoranthene, fluorene, phenanthrene, and pyrene in the 2016 RGP. The inclusion of these compounds as indicator parameters is redundant because the indicator parameter for total Group II PAHs already includes these compounds. Similarly, imposing a monitor-only requirement for these compounds is redundant because the analysis required for total Group II PAHs already includes these compounds. Finally, total Group II PAHs are subject to an effluent limitation, which imposes an effluent limitation on these compounds in sum, and consequently, individually.

If an applicant determines that a compound(s) is a significant contaminant in its effluent, an individual NPDES permit may be required. The presence of any of the above-listed contaminants or additional contaminants not limited by this general permit must be reported in an applicant's NOI. The presence of additional contaminants does not necessarily exclude such a site from coverage. If control measures prevent discharges of the additional parameters, or effluent limitations may be imposed such that the discharge meets the requirements of this general permit, coverage may still be possible.

4. Effluent Flow

The 2005 and 2010 RGPs did not establish any one numeric limitation for effluent flow for remediation, dewatering, and/or remediation- or dewatering-related discharges. However, the 2010 RGP included a BMP that limited effluent flow to the design flow of the treatment system in use at an individual site for sites in Massachusetts and New Hampshire. The effluent flow limitation was then determined on a case-by-case basis, set equal to the design flow provided by an applicant in the NOI submitted to EPA for a site. The 2016 RGP retains this design flow BMP for sites in Massachusetts and New Hampshire (Parts 2.1.2 and 2.5.2). In addition, Part 2.2 of the 2016 RGP and, as provided in 40 CFR §122.41(e), operators are required to properly operate and maintain all facilities and systems of treatment and control. Operating a site's treatment system(s) as designed includes operating within the treatment system design flow. Additional information regarding this BMP requirement is described in Section III.H.2, below.

As described in Section III.A.8, above, effluent flow is one factor EPA considers in deriving effluent limitations that comply with the CWA in a NPDES permit. EPA may ensure the effluent flow assumptions used to derive TBELs or WQBELs through imposition of permit conditions for effluent flow. Thus, an effluent flow limitation is a component of the effluent limitations for other indicator parameters because the effluent limitations for certain indicator parameters are premised on a maximum level of effluent flow. Because this is a general permit, discharges occur within a range of potential design flows. The majority of discharges covered under the 2005 and 2010 RGPs had design flows that ranged from approximately 5 GPM to 50 GPM (approximately 0.0072 MGD to 0.072 MGD). A smaller number of discharges had design flows up to approximately 500 gallons per minute (0.72 MGD). Therefore, the 2016 RGP will authorize discharges up to the design flow of the treatment system in use at a site, *not to exceed* 1.0 MGD. In other words, when the design flow of a site's treatment system is less than 1.0 MGD, the maximum effluent flow for the site will be limited to the design flow of the treatment system as reported in an applicant's NOI. When the design flow of a site's treatment system is greater than 1.0 MGD, the maximum effluent flow for the site will be limited to 1.0 MGD. On a case-by-case basis, larger volume discharges may be eligible under this general permit if EPA and the appropriate State approve the discharge. Effluent flow cannot exceed the flow of or alter the structural characteristics of the receiving water. Flow control measures (e.g., sediment filters, splash blocks) must be used if necessary to dissipate energy and control erosion or scouring during discharge.

The limitation on effluent flow is within EPA's authority to condition a permit in order to carry out the objectives of the CWA. See CWA §§402(a)(2) and 301(b)(1)(C); 40 CFR §§122.4(a) and (d); 122.43 and 122.44(d). A condition on the discharge designed to protect EPA's TBEL and WQBEL analyses is encompassed by the references to "condition" and "limitations" in 402 and 301 and implementing regulations, as they are designed to assure compliance with applicable water quality regulations, including anti-degradation. Regulating the quantity of pollutants in the discharge through a restriction on the quantity of effluent is consistent with the overall structure and purposes of the CWA. In addition, the effluent flow limitation is necessary to ensure that other pollutants remain at levels that do not exceed WQSs. The frequency required is generally consistent with requirements in other EPA Region 1 general permits. Thus, the proposed effluent flow limitation and requirements are necessary to ensure proper operation, which in turn is a requirement applicable to all NPDES permits (see 40 CFR §122.41).

5. Water Quality Requirements

Provisions in the Massachusetts and New Hampshire State surface WQSs developed under §303(c) of the CWA and 40 CFR §131, and approved by EPA, provide minimum criteria to ensure designated uses are attained and maintained for uses and classes of waters determined by the States. These water quality criteria are found in 314 CMR 4.00, Massachusetts Surface Water Quality Standards and Chapter 1700, New Hampshire Surface Water Quality Regulations. EPA has included certain non-numeric criteria which are directly applicable to the types of discharges covered by the 2016 RGP as additional requirements in the 2016 RGP. EPA Region 1 routinely includes non-numeric water quality requirements in NPDES permits and many are required at State and Federal remediation projects in Massachusetts and New Hampshire. The majority of these requirements have been retained, without changes, from the 2010 RGP. In combination

with numeric (i.e., chemical-specific effluent limitations) and non-numeric (i.e., BMPs) limitations and requirements included in this general permit, EPA believes these requirements are necessary to ensure discharges covered under this general permit attain and maintain WQSs.

The 2016 RGP includes narrative prohibitions that address State WQSs pertaining to the following parameters and/or conditions:

- Solids and Sheen: while the 2016 RGP contains numeric effluent limitations for TSS, there are narrative rather numeric limitations specific to floating or settleable solids, or effluents that generate debris, scum or sheen in the 2016 RGP.
- Color, Odor, Taste and Turbidity: while the 2016 RGP contains numeric effluent limitations for TSS and a limited number of parameters which impart an organoleptic effect, there are also narrative limitations specific to color, odor, taste or turbidity in the 2016 RGP.
- Oil & Grease and Petrochemicals: while the 2016 RGP contains numeric effluent limitations for the hydrocarbon fraction of oil & grease (TPH) and indicator parameters for certain groups of petroleum-related COCs, there are also narrative limitations specific to non-petroleum fats and greases and all groups of petroleum-related COCs in the 2016 RGP.

Further, the CWA establishes "that the discharge of toxic pollutants in toxic amounts be prohibited" (33 USC §1251(a)(3)). State water quality standards contain narrative requirements for toxics control at 314 CMR 4.05(5)(e) for Massachusetts and Env-Wq 1703.21(a) for New Hampshire. In addition to the general prohibition of the discharge of toxics in toxic amounts, EPA has included several non-numeric requirements to ensure that discharges covered by this general permit do not violate State WQSs for toxics.

EPA believes that narrative requirements are consistent with State WQSs and are sufficient to ensure that discharges covered by this general permit do not violate State WQSs for toxics. However, the States may impose additional requirements as a condition of State certification if necessary to meet State WQSs.

C. State-Specific Effluent Limitations and Conditions

In addition to the Effluent Limitations and Monitoring Requirements included in Part 2.1 and 2.2 of the 2016 RGP, certain effluent limitations and conditions apply to discharges in each State. Provisions in the Massachusetts and New Hampshire State surface WQSs developed under §303(c) of the CWA and 40 CFR §131, and approved by EPA, provide minimum criteria to ensure designated uses are attained and maintained for uses and classes of waters determined by the States. These water quality criteria are found in 314 CMR 4.00, Massachusetts Surface Water Quality Standards and Chapter 1700, New Hampshire Surface Water Quality Regulations. Each State also requires certain State permit conditions be in NPDES permits.

1. pH

The hydrogen-ion (H^-) concentration in an aqueous solution is represented by the pH using a logarithmic scale of 0 to 14 standard units (SU). Solutions with pH 7.0 SU are neutral, while those with pH less than 7.0 SU are acidic and those with pH greater than 7.0 SU are basic. Of note, although basic solutions are alkaline, basicity and alkalinity are not exactly the same. Basicity refers to the ratio of hydrogen and hydroxyl (OH^-) ions in solution, and is directly related to pH. Alkalinity is related to the acid-neutralizing capacity of a solution. In aquatic ecosystems, biological processes (e.g., decomposition) that increase the amount of dissolved carbon dioxide or dissolved organic carbon decrease pH but have no effect on acid-neutralizing capacity.[135] Operators occasionally adjust pH to optimize influent treatment that may involve the use of chemical additives for raising or lowering the pH of the water. Effluent with pH values markedly different from the receiving water pH can have a detrimental effect on the environment. Sudden pH changes can kill aquatic life.

The ELGs for process water from the industrial point source categories reviewed for applicability to COCs included in this general permit contain pH limitations as follows:

- 40 CFR §433.13: 6.0 SU – 9.0 SU (Metal Finishing)
- 40 CFR §434.32: 6.0 SU – 9.0 SU (Coal Mining)
- 40 CFR §436.42: 6.0 SU – 9.0 SU (Mineral Mining and Processing)
- 40 CFR §437.11: 6.0 SU – 9.0 SU (Centralized Waste Treatment - Metals)
- 40 CFR §437.21: 6.0 SU – 9.0 SU (Centralized Waste Treatment - Oils)
- 40 CFR §437.31: 6.0 SU – 9.0 SU (Centralized Waste Treatment - Organics)
- 40 CFR §437.42: 6.0 SU – 9.0 SU (Centralized Waste Treatment - Multiple Wastestreams)
- 40 CFR §440.12: 6.0 SU – 9.0 SU (Ore Mining and Dressing)
- 40 CFR §445.11: 6.0 SU – 9.0 SU (Landfills)

Given this consistent limitation in promulgated ELGs, EPA has proposed a pH range of 6.0 SU to 9.0 SU as a TBEL for pH in Massachusetts and New Hampshire, selected on a case-by-case basis using BPJ. However, both Massachusetts and New Hampshire have more stringent WQC for pH in the States' respective WQSs. The effluent limitations for pH as listed in Table 5, below, are WQBELs retained in the 2016 RGP.

Table 5: Summary of pH Effluent Limitations

pH Limitations for Sites in Massachusetts			
Receiving Water Class	**Effluent Limitation**	**Measurement Frequency**	**Sample Type**
Class A and B	6.5 to 8.3 SU	1/month	grab
Class SA and SB	6.5 to 8.5 SU	1/month	grab

[135] Summarized from U.S. Environmental Protection Agency, Entry: Causal Analysis/Diagnosis Decision Information System, Volume 2: Sources, Stressors and Responses, pH. Available at http://www.epa.gov/caddis/index.html.

pH Limitations for Sites in New Hampshire			
Receiving Water Class	**Effluent Limitation**	**Measurement Frequency**	**Sample Type**
Class B	6.5 to 8.0 SU	1/month	grab

The pH limitations in Massachusetts are based on: 1) For Class A and B waters, the Massachusetts WQSs, 314 CMR 4.05(3)(a)3 and (b)3, respectively; and 2) For Class SA and SB waters, the Massachusetts WQSs, 314 CMR 4.05(4)(a)3 and (b)3, respectively. The Massachusetts WQSs also require that there shall be no change from natural background conditions that would impair any use assigned to these classes. The pH limitations in New Hampshire are based on RSA 485-A:8.

The 2016 RGP includes a provision for each State, allowing application of the TBELs in place of the WQBELs. This provision has been retained from the 2005 and 2010 RGP in Massachusetts but is a new provision in New Hampshire Section VI.A.1, below, explains the requirements for such requests.

2. Temperature

CWA §502(6) defines heat as a "pollutant." 33 USC § 1362(6). In most cases, the activities covered by this general permit are not expected to discharge heated effluent or raise the temperature of the receiving water. As a result, effluent limitations for temperature have not been included in the chemical-specific effluent limitations applicable to all activity categories. However, a small number of remediation technologies may be utilized that heat either the influent or treatment system components prior to discharge. Therefore, to meet State WQSs and comply with the anti-backsliding requirements of the CWA (see §§402(o) and 303(d)(4) of the CWA), the 2016 RGP retains a daily maximum temperature limitation, contained under State requirements. The applicable temperature limitation depends on whether the receiving water is located in Massachusetts or New Hampshire, is a freshwater warm or cold water fishery, or saltwater. The effluent limitations for temperature as listed in Table 6, below, are WQBELs.

Table 6: Summary of Temperature Effluent Limitations

Temperature Limitations for Sites in Massachusetts					
Receiving Water Class		**Effluent Limitation**	**ΔT Limitation**	**Measurement Frequency**	**Sample Type**
Class A	Warm Water Fishery	83°F	≤ 1.5°F	1/month	grab
	Cold Water Fishery	68°F (mean)	≤ 1.5°F	1/month	grab
Class B	Warm Water Fishery	83°F	≤ 5°F	1/month	grab
	Cold Water Fishery	68°F (mean)	≤ 3°F	1/month	grab
	Lakes and Ponds	83°F Warm Water Fishery 68°F Cold Water Fishery	≤ 3°F	1/month	grab
Class SA	---	85°F 80°F (mean)	≤ 1.5°F	1/month	grab
Class SB	July to September	85°F	≤ 1.5°F	1/month	grab

		80°F (mean)			
	October to June	85°F 80°F (mean)	≤ 4°F	1/month	grab
Temperature Limitations for Sites in New Hampshire					
Receiving Water Class		**Daily Maximum Effluent Limitation[1]**	**Measurement Frequency**		**Sample Type[2]**
Class B	Warm Water Fishery	83°F	1/month		grab
	Cold Water Fishery	68°F	1/month		grab

These limitations are based on State WQSs and are consistent with temperature requirements included in EPA's general permit for non-contact cooling water in Region 1 (79 FR 59489, Page 59489 – 59490, October 2, 2014). A temperature limitation will be selected on a case-by-case basis for sites which indicate the presence of heat as a pollutant in their NOI, or discharges EPA and/or the State determine are likely to contain residual heat. If a temperature limitation is included in a site's authorization to discharge, the operator will be notified in writing by EPA and/or the State.

D. Special Conditions

EPA is authorized under §402(a)(1) to include special conditions in NPDES permits when necessary to achieve effluent limitations and standards or to carry out the purposes of the CWA. In addition, 40 CFR §122.44(k) authorizes non-numeric limitations intended to control or abate the discharge of pollutants when: "(1)[a]uthorized under §304(e) of the CWA for the control of toxic pollutants and hazardous substances from ancillary industrial activities; (2) [a]uthorized under §402(p) of the CWA for the control of stormwater discharges; (3) [n]umeric effluent limitations are infeasible; or (4) [t]he practices are reasonable to achieve effluent limitations and standards or to carry out the purpose of the CWA." Special conditions in this general permit, including non-numeric limitations (i.e., BMPs), are generally intended to reduce the overall quantity of pollutants being discharged to waters of the United States, to reduce the potential for discharges of pollutants, and/or to collect information that may be used in determining future general permit requirements.

Specific special conditions are included in the 2016 RGP to:

- Address situations where data are absent or limited, making the development of TBELs or WQBELs difficult or impossible;
- Incorporate preventive requirements, such as requirements to install process controls, treatment components, good housekeeping practices, and the like;
- Address foreseeable changes to discharges, such as planned changes to treatment systems, treatment additives, or influent that could affect discharge characteristics;
- Provide the monitoring data needed to evaluate appropriate changes in effluent limitations; and/or
- Increase or decrease monitoring requirements, depending on monitoring results or additional processes.

1. Best Management Practices (BMP) Plan (BMPP)

Pursuant to §402(a)(1) of the CWA, development and implementation of a BMPP may be included as a special condition in NPDES permits. The BMPP requirement has been incorporated into this general permit in accordance with elements of pollution prevention as set forth in the Pollution Prevention Act of 1990 (42 USC §13101) and EPA BMP guidance, as detailed in EPA's *Guidance Manual for Developing Best Management Practices (BMPs)*.[136] The minimum suggested components of a general BMPP include:

General provisions

- Name, location of site
- Statement of BMP policy and objective
- Review by operator

Specific provisions

- BMP committee
- Risk identification and assessment
- Reporting of BMP incidents
- Materials compatibility
- Good housekeeping
- Preventative maintenance
- Inspections and records
- Security
- Employee training

The 2016 RGP requires all operators authorized to discharge under the 2016 RGP to develop, implement, and maintain a BMPP. An applicant seeking authorization to discharge under the 2016 RGP must certify in the NOI submitted to EPA for their site that the BMPP has been developed and will be implemented on-site prior to initiation of discharge. Consistent with the 2010 RGP, the 2016 RGP requires that the certification be completed and signed according to the requirements of 40 CFR §122.22, by the operator(s) of a given site. Operators authorized to discharge under the 2016 RGP must select, design, install, implement and maintain control measures, including BMPs. Consistent with the 2010 RGP, in accordance with good engineering practices, the BMPP shall provide a plan for compliance with the terms of this general permit and must include methods to:

- Minimize the potential for violations of the terms of this general permit, taking corrective actions, when necessary;
- Minimize the number and quantity of pollutants and/or the toxicity generated, discharged, or potentially discharged at the site;
- Minimize discharges of pollutants from materials storage areas, on-site transfers of hazardous and/or toxic materials, process and material handling areas, loading and

[136] 833-B-93-004; October, 1993.

unloading operations, and accidental leaks or spills, including implementation of material compatibility and good housekeeping practices; and
- Use pollution control technologies, when necessary to meet the effluent limitations in this general permit and properly operate and maintain all treatment systems, including implementation of preventative maintenance.

The BMPP for this general permit must be a written document. The BMPP may either be a stand-alone document or the BMPP requirements for this general permit may be incorporated into any other BMPP, Stormwater Pollution Prevention (SWPP), or Spill Control and Countermeasures (SPCC) plan required under other permits or programs. At a minimum, operators shall identify potential sources of pollution and describe what measures the operator will take to reduce the pollutants associated with the following:

- Effluent treatment
- Storage and handling areas
- Site runoff
- On-site transfer
- Loading or unloading operations
- Spillage or leaks
- Sludge and waste disposal
- Drainage from material storage and handling areas

The BMPP must also document the selection, design, installation, and implementation of any control measures, including BMPs used to meet the effluent limitations and requirements included in the 2016 RGP. The BMPP must be updated whenever there is a material or substantial change in the discharge(s), treatment system, and/or site conditions which could result in an increase in the discharge of pollutants to the receiving water(s). Operators must keep an up-to-date BMPP on-site to be made available upon inspection and/or at the location of the principal operator identified in the NOI submitted to EPA for the site to be made available upon request by the State, EPA, and/or the municipality in which the discharge occurs. No re-certification is required to be submitted to EPA or the States in the 2016 RGP.

Development and implementation of the BMPP is an enforceable condition of this general permit. Failure to develop and implement the BMPP is a violation of this general permit.

2. BMPs

Pursuant to §304(a) of the CWA and 40 CFR §125.103(b), BMPs may be expressly incorporated into a permit on a case-by-case basis where it is determined they are necessary to carry out the provision of the CWA under §402(a)(1) and (2). 40 CFR §122.44(k)(4) further provides that permits must contain BMPs, when applicable, to control or abate the discharge of pollutants when any of the following are true:

- They are authorized under CWA 304(e)
- They are authorized under CWA 402(p) (stormwater discharges)

- Numeric effluent limitations are infeasible
- The practices are necessary to achieve effluent limitations and standards to carry out the purpose and intent of the CWA[137]

The purpose of the BMP requirements included in the 2016 RGP is to prevent, eliminate or minimize the discharge of biological, chemical and physical pollutants to waters of the United States. These requirements are intended to facilitate a systematic approach for operators to properly operate and maintain all sites and systems of treatment and control, and related appurtenances, which are installed or used to achieve compliance with the conditions of this general permit. Operators authorized to discharge under the 2016 RGP must select, design, install, implement and maintain control measures, including BMPs.. In general, BMPs are actions or procedures to prevent or reduce the discharge of pollution to waters of the United States. 40 CFR §122.2 includes the following in the definition of BMPs:

- Schedule of activities
- Prohibition of practices
- Maintenance procedures
- Treatment requirements
- Operating procedures and practices to control: 1) Site runoff; 2) Spillage or leaks; 3) Waste disposal; and 4) Drainage from raw material storage area
- Other site-, process- or pollutant-specific BMPs, when appropriate

EPA does not generally prescribe specific control measures for sites. Operators must select the control measures most appropriate for their sites when necessary to meet the BMP requirements. BMPs have been retained in the 2016 RGP because sites directly discharge, utilize materials and/or generate residual wastes that contain pollutants listed as toxic under §307(a)(1) of the CWA or pollutants listed as hazardous under §311 of the CWA. In addition, sites engage in routine operations that could result in significant amounts of these pollutants reaching waters of the United States. Therefore, these BMPs are "reasonably necessary to carry out the purposes of the CWA."

The BMP requirements proposed in the 2016 RGP provide additional measures to control or abate the discharge of toxic pollutants in accordance with 40 CFR §122.44(k). These requirements are derived from the 2005 and 2010 RGP and/or existing individual NPDES permits issued to sites with dewatering/remediation and related discharges, and/or described in EPA's development documents for ELGs for industrial point source categories in 40 CFR §§423, 433, 434, 436, 437, 440, and/or 445.

a. Existing BMPs

The following BMPs, included in the 2010 RGP, are retained in the 2016 RGP:

[137] EPA-833-K-10-001; September, 2010: Section 9.1.2

Effluent Flow BMP
Flow control measures must prevent discharge(s) that exceed the design flow of the discharge (i.e., the maximum flow through the component with the lowest limiting capacity). The method(s) for measuring effluent flow must be documented. This BMP requirement aligns with the general BMP definitions pertaining to prohibition of practices and treatment requirements. This BMP combines two effluent flow BMPs included separately in the 2010 RGP. The 2010 RGP effluent flow BMPs consist of:

- Prohibition of Discharge Exceeding Design Flow
- Monitoring Total Flow Through Treatment System

Preventative Maintenance BMP
Preventative maintenance must be implemented to ensure all control measures, including all treatment system components and related appurtenances used to achieve the limitations in this general permit remain in effective operating condition and do not result in leaks, spills, and other releases of pollutants. This BMP must include documented procedures and protocols, a maintenance schedule for all treatment system components and related appurtenances used to meet the limitations of this general permit, and records of the completion of regular maintenance activities. This BMP requirement aligns with the general BMP definition pertaining to schedule of activities, and maintenance procedures. The 2010 RGP referred to this BMP as a Preventative Maintenance Plan (PMP).

Site Management BMP
Control measures must ensure proper management of solid and hazardous waste and prevent solids, sludges, or other pollutants removed in the course of treatment or control of water and wastewaters from entering waters of the United States. Run-on and run-off practices must be used to divert, infiltrate, reuse, contain, or otherwise reduce extraneous uncontaminated waters to minimize the extent to which such uncontaminated waters commingle with remediation or dewatering discharges. Drainage control practices must ensure that the discharge(s) covered by this permit do not adversely affect existing water quality by preventing any erosion, stream scouring, or sedimentation caused directly or indirectly by the discharge and/or which contributes additional pollutants. This BMP requirement aligns with the general BMP definition pertaining to operating procedures and practices to control site runoff, waste disposal and drainage from raw material storage areas. This BMP combines three BMPs included separately in the 2010 RGP. The 2010 RGP site management BMPs consist of:

- Management of Generated Wastes
- Management of Run-on and Runoff
- Erosion, Scouring and Sediment Control

b. New and Revised BMPs

The following new and revised BMPs have been included in the 2016 RGP:

Pollutant Minimization BMP
Pollutant minimization measures must be implemented to ensure the limitations and requirements in this general permit are achieved. This BMP must include identification and assessment of the type and quantity of pollutants, including their potential to impact receiving water quality; and selection, design, installation and proper operation and maintenance of pollution control technologies, when necessary to achieve the limitations and requirements in this general permit. The treatment technologies may include, but are not limited to any combination of the following: [138]

- Adsorption/Absorption
- Advanced Oxidation Processes
- Air Stripping
- Granulated Activated Carbon ("GAC")/Liquid Phase Carbon Adsorption
- Ion Exchange
- Precipitation/Coagulation/Flocculation
- Separation/Filtration

This BMP requirement aligns with the general BMP definition pertaining to other site-, process- or pollutant-specific BMPs. This BMP has been included to ensure the various treatment technologies commonly used to remove the pollutants limited in this general permit are authorized for use.

Administrative Controls BMP
Administrative controls must include documented procedures for routine inspections, corrective action, employee training and site security. This BMP requirement aligns with the general BMP definitions pertaining to schedule of activities, and other site-, process- or pollutant-specific BMPs. This BMP includes two BMPs included separately in the 2010 RGP. The 2010 RGP administrative controls BMPs consist of:

- Site security
- Employee training

Site security must be appropriate for the treatment and other systems related to the NPDES discharge(s) and must be either incorporated into the overall site security plan or as separate BMP. Employee training must be conducted at least annually for site personnel who have direct or indirect responsibility for ensuring compliance with this general permit.

This BMP also includes two new BMPs. The 2016 RGP administrative controls BMPs consist of:

- Routine inspections
- Corrective actions

[138] Descriptions of these treatment technologies can be found in the Federal Remediation Technology Roundtable *Remediation Technologies Screening Matrix and Reference Guide, Version 4.0 (2007)* available at http://www.frtr.gov/scrntools.htm.

Routine inspections must be conducted at least monthly by site personnel who have direct knowledge of the remediation activity at the site, the control measure(s) in use at the site, and the skills to assess the effectiveness of any control measure(s) in use at the site in order to meet the requirements of this general permit to: assess the influent, effluent, treatment system and site areas, including the outfall where practicable; identify any uncontrolled leaks, spills or discharges; and conduct visual inspection for indicators of pollution, including, but not limited to, objectionable aesthetic properties such as color, odor, clarity, floating solids, settled solids, suspended solids, foam, and oil sheen. Corrective action must be initiated within 72 hours of the time of discovery of a violation of a permit limitation or requirement and completed within a reasonable timeframe to: evaluate, and revise (i.e., repair, modify, or replace), if necessary, any control measure used at the site if the control measure is identified as missing, installed incorrectly, or ineffective in ensuring the discharge meets applicable WQSs and/or effluent limitations and requirements in this general permit. In all circumstances, the cause of the permit violation must be identified and documented, and the operator must immediately take all reasonable steps to minimize or prevent the discharge of pollutants until a permanent solution is achieved.

Quality Assurance/Quality Control (QA/QC) BMP
Operators must meet specific monitoring and reporting requirements in this general permit, which include requirements pertaining to monitoring locations, monitoring frequencies, test methods, minimum levels, and reporting and record-keeping (e.g., laboratory analytical reports and chain-of-custody procedures). The QA/QC BMP requires, at a minimum:

- A description of all permit limitations and requirements, as applicable, to ensure that samples collected meet all permit parameter, sample location, sample frequency, and sample type required in this general permit;
- A map and/or treatment system diagram indicating the location of each monitoring point to ensure consistent and verifiable sampling is conducted;
- Specifications for the number of samples, type of sample containers, type of preservation, holding times, type and number of quality assurance field samples (i.e., matrix spiked and duplicate samples and sample blanks), sample preparation requirements (e.g., sampling equipment calibration, clean sampling procedures), and sample storage and shipping methods, including EPA QA/QC and chain-of-custody procedures, to ensure consistent procedures are followed for collecting, handling, storing and shipping samples;
- Name(s), address(es), and telephone number(s) of the laboratories used by, or proposed to be used by, the operator;
- Specifications for analytical detection and quantitation limitations for each target compound, analytical methods, and laboratory data delivery and documentation requirements to ensure that laboratory analysis and data reporting meet all test method, minimum level, and reporting and record-keeping requirements in this general permit;
- A schedule for review of sample results, which must be reviewed by the operator no more than 72 hours from receipt of the results, to ensure that the monitoring data obtained are sufficient and to enable an operator to identify exceedances and/or anomalies, if they occur, in a timely manner; and

- A description of data validation and data reporting processes to ensure reporting of representative data within timeframes specified in this general permit.

The federal regulation at 40 CFR §122.41(e) requires proper operation and maintenance of all facilities and systems of treatment and control, including related appurtenances, which are installed or used by the operator to achieve compliance with the conditions of this general permit. Proper operation and maintenance includes "adequate laboratory controls and appropriate quality assurance procedures". These requirements apply to all sample collection and analysis activities required in this general permit in order to ensure that the monitoring data submitted to EPA and the State is complete, accurate, and representative of the environmental and/or effluent conditions at a site. This BMP requirement aligns with the general BMP definition pertaining to operating procedures and practices, and other site-, process- or pollutant-specific BMPs. This BMP must be incorporated directly into the BMPP for a site. Operators are encouraged to consult available EPA guidance for the development of acceptable QA/QC procedures.[139]

Materials Management BMP
Good housekeeping practices and/or control measures must be used at a site to maintain areas that are potential sources of pollutants, including, but not limited to, contaminated soil and groundwater, and treatment system chemicals, additives, materials or appurtenances. Material compatibility practices and/or control measures must be used at a site to ensure safe handling, use and storage of materials including, but not limited to, chemicals, additives and bioremedial agents, including microbes. For any chemical or additive that may be discharged as a result of site activities, operators must document, at a minimum:

- Product name, chemical formula, and manufacturer of the chemical/additive;
- Purpose or use of the chemical/additive;
- Material Safety Data Sheet (MSDS) and CAS Registry number for each chemical/additive;
- The frequency (hourly, daily, etc.), duration (hours, days), quantity (maximum and average), and method of application for the chemical/additive;
- Any material compatibility risks for storage and/or use including the good housekeeping practices and control measures used to minimize such risks; and
- If available, the vendor's reported aquatic toxicity (NOAEL and/or LC50 in percent for aquatic organism(s)).

Spill prevention practices and spill control measures, including other handling and collection methods, when necessary (e.g., containment devices), must reduce spills and leaks from the treatment system and the release of chemical and/or additives in use at a site. The following actions are required upon detection of a leak, spill, or other release containing a hazardous substance or oil, such as visual observation of a visible sheen, at a minimum:

- The discharge must stop immediately;

[139] Additional EPA guidance includes: *Requirements for Quality Assurance Project Plans*: EPA/QA/R-5); and *Guidance for Quality Assurance Project Plans*: EPA/QA/G-5.

- Notification must be provided to EPA as specified in Appendix IX, Standard Conditions, Part D.1.e. for Twenty-four hour reporting;
- The source of the leak, spill or other release must be identified and corrective actions must be taken, if necessary, prior to resuming discharge, unless instructed otherwise by EPA and/or the appropriate State; and
- When a leak, spill, or other release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302 occurs, the operator must document a description of the release, the circumstances leading to the release, the date of the release, a description of any corrective actions taken and the date such corrective actions are completed.

This BMP requirement aligns with the general BMP definition pertaining to other site-, process- or pollutant-specific BMPs since chemicals, chemical additive and/or remedial agents are expected to be commonly utilized by operators seeking coverage under this general permit for remediation and/or dewatering activities. The information required in this BMP is similar to what the 2010 RGP required as an attachment to an NOI submitted for a site. However, EPA believes it is also necessary and appropriate for operators to include this information in a site's BMPP as a BMP.

3. Additional Conditions for Discharges of Chemicals and Additives

The 2016 RGP allows the discharge of only those chemicals and additives specifically disclosed in the NOI submitted to EPA for a site, provided that such discharge does not violate Section 307 or 311 of the Clean Water Act or applicable Massachusetts WQSs or New Hampshire WQRs. These chemicals and additives may include, but are not limited to algaecides/biocides, antifoams, coagulants, corrosion/scale inhibitors/coatings, disinfectants, flocculants, neutralizing agents, oxidants, oxygen scavengers, pH conditioners, surfactants, and remedial agents, including microbes. Such chemicals and additives are commonly used to enhance treatment, for the control of undesirable conditions caused during treatment, or due to the chemical makeup of the water being treated. For example, such chemicals are used to control foaming, algae and bacteria growth, and are added to control iron or other metals or minerals in groundwater that can foul treatment systems, or cause discoloration or odor in the discharge. Even when a material is labeled by a manufacturer as being "non-toxic" or "biodegradable," specific compounds in the material discharged in certain quantities may be toxic.

Authorization to discharge under this general permit will also constitute approval to discharge the chemical(s) and/or additive(s) disclosed in an applicant's NOI. An operator must submit a NOC to EPA if the use of a chemical and/or additive(s) that was not disclosed to EPA in the NOI submitted for a site will result in the discharge of such chemical, and/or additive. The 2016 RGP specifies that the NOI or subsequent NOC must include the following information regarding chemicals and additives, at a minimum: the information for each chemical, additive or bioremedial agent required by the Materials Management BMP (see Section III.H.2, above), and an explanation which demonstrates that the addition of such chemicals, additives or bioremedial agents:

- Will not add any pollutants in concentrations which exceed permit effluent limitations;
- Will not add any pollutants that would justify or require a new permit condition; and
- Will not exceed any applicable water quality standard.

An operator may alternatively demonstrate through sampling and analysis using sufficiently sensitive test methods that each of the 126 priority pollutants in CWA Section 307(a) and 40 CFR Part 423.15(j)(1) are non-detect in discharges with the addition of chemicals and/or additives and provide these data to EPA in accordance with the instructions in Appendix VIII.

Discharges which contain a new chemical or additive are not authorized under this general permit unless authorization to discharge is provided by EPA to the operator in writing. Alternately, an applicant may request an individual permit to address the discharge of chemicals and additives.

4. Additional Conditions for Pipeline and Tank Dewatering

Dewatering discharges from pipelines and tanks covered by this general permit are typically a result of maintenance activities performed on pipelines and tanks. Additional treatment of pipeline or tank dewatering discharges may or may not be needed depending on the situation and potential COCs involved (e.g., depending upon whether dewatering is for a pipeline, tank, or similar structures and appurtenances which convey potable water or petroleum products). The necessity of additional treatment may also change depending on whether the dewatering is of an existing structure or new construction.[140]

Since pipeline and tank dewatering discharges are batch discharges of short duration and can occur with variable magnitude and frequency, which may be subject to activity-specific treatment processes, operators that discharge water from the dewatering of pipelines or tanks are subject to additional conditions. These additional conditions (i.e., BMPs) are intended to address the unique characteristics of these discharges and are as follows:

- Discharges of tank bottom water are prohibited because of the possible presence of highly concentrated COCs;
- Pipeline(s), tank(s) or similar structures and appurtenances must be pre-cleaned to remove scale, solids, and residues unless these structures are for water storage;
- If hydrostatic testing is conducted, such testing must follow the procedures detailed in the API 653 Standard and/or applicable State regulations to ensure pipelines or tanks are rigorously cleaned and that working conditions during installation, maintenance or repair work, are rigorously cleaned are safe;
- Water quality control measures must be implemented if potable water, groundwater or surface waters other than the receiving water will be discharged to ensure lower quality waters are not transferred to higher quality waters;
- Effluent flow shall not exceed the flow of receiving water, or alter the structural characteristics of the receiving water to ensure State WQSs are met;

[140] Tallon, J., Myerski, F., and Fillo, J. "Environmental Aspects of Hydrostatic Test Water Discharges: Operations, Characterization, Treatment and Disposal." Gas Research Institute; April, 1996.

- Dewatering structures (e.g., splash blocks, sediment filters) must be used if necessary to dissipate energy and control erosion or scouring to ensure State WQSs are met;
- Discharges of chemicals and/or additives used for tank or pipeline cleaning, repair or installation are prohibited unless in accordance with the additional conditions for discharges of chemicals and additives, described in Section III.D.3, above; and
- Discharges of any sludge generated in the cleaning or testing of the pipelines or tanks are prohibited.

These BMP requirements aligns with the general BMP definition pertaining to other site-, process- or pollutant-specific BMPs given the unique processes that occur before and during pipeline and tank dewatering. The 2016 RGP has retained the majority of these BMPs as they appeared in the 2010 RGP.

E. Expression of Effluent Limitations

EPA has determined that the majority of sites seeking coverage under this general permit are expected to have "non-continuous discharges" (i.e., batch operation) because of the intermittent, infrequent, low volume and/or short duration at which the discharges are expected occur. The discharges are also expected to contribute low pollutant loads because of the stringent technology-based and water quality-based effluent limitations in combination with a maximum effluent flow limitation. The federal regulation at 40 CFR §122.45(e) allows non-continuous discharges to be described and limited considering the following factors, as appropriate: 1) frequency of discharge; 2) total mass of the pollutant discharged per batch; 3) maximum rate of discharge of pollutants per batch; and, 4) expression of limitations using the appropriate measure (i.e., concentration, mass).

The numeric effluent limitations included in the 2016 RGP are expressed as concentration-based effluent limitations. In addition to the factors at 40 CFR §122.45(e), the federal regulation at 40 CFR §122.45(f) provides exceptions to the requirement that limitations, standards or prohibitions in NPDES permits be expressed in terms of mass. The numeric effluent limitations included in the 2016 RGP are not expressed in terms of mass because: 1) one or more parameters included in the 2016 RGP cannot be expressed in terms of mass (e.g., pH, temperature); 2) the technology standards, including ELGs, upon which the majority of TBELs are based, are concentration-based values that are not dependent upon a measure of production; 3) an appropriate measure of production is infeasible for the purposes of a general permit and for the types of discharges to be covered; and/or 4) the aquatic life, human health and organoleptic effect WQC upon which WQBELs are based are concentration-based, representing the maximum value above which impacts are expected to occur for the averaging period. The concentration-based effluent limitations will ensure a pollutant concentration does not increase during periods of low flow. While mass-based effluent limitations may be imposed to ensure that dilution is not used as a substitute for treatment, the 2016 RGP does not allow the use of dilution as a form of treatment, or as a means to comply with the permit effluent limitations.

In addition, unless specifically noted (e.g., pH), the numeric effluent limitations included in the 2016 RGP are expressed as average monthly limitations (AMLs). The federal regulation at 40 CFR §122.45(d) generally requires maximum daily and average monthly discharge limitations

for non-POTWs. However, the numeric effluent limitations included in the 2016 RGP are not expressed in terms of maximum daily limitations because: 1) the discharges to be covered under this general permit are not considered "continuous discharges" as defined in 40 CFR §122.2 and explained in this section, above; 2) the standards, including ELGs upon which the majority of TBELs are based, are maximum monthly average values; 3) the aquatic life WQC upon which a portion of WQBELs are based are chronic criteria; and/or 4) the human health WQC upon which a portion of WQBELs are based are expressed as AMLs in accordance with recommendations in EPA's TSD.[141] Further, unless specifically noted, the 2016 RGP does not include maximum daily limitations. Given the effluent variability possible across the types of discharges to be covered under this general permit, EPA would need to make significant assumptions in order to select a ratio for calculation following the recommendations in EPA's TSD.[142] Further, the routine monitoring requirements in the 2016 RGP require collection of grab samples at a monthly frequency, for which a maximum daily and average monthly sample result would be identical. Section V, below, provides an explanation of the monitoring requirements included in the 2016 RGP, including routine monitoring requirements.

F. Applicability of Effluent Limitations

The 2010 RGP required operators to monitor for the parameters specified for the self-identified activity subcategory that operator selected in the NOI submitted to EPA and the appropriate State for their site. Only the COCs both tested for and detected above the effluent limitations at a site were then subject to continued monitoring and effluent limitations under the 2010 RGP. EPA assigned the monitoring and effluent limitations upon review of each NOI received using the information provided in the NOI and included an effluent limitations table in EPA's authorization to discharge to each applicant. The 2016 RGP proposes revisions to the applicability of monitoring and effluent limitations.

The 2016 RGP requires operators with one or more individual COCs among a group of indicator parameters to monitor for the COCs specified for that group of indicator parameters. The applicability of effluent limitations is automatic, by groups of indicator parameters, when one or more indicator parameters among a group of indicator parameters is present. Certain parameters remain applicable to a discharge only in the instance where that parameter is present. In such cases, the 2016 RGP distinguishes between the indicator parameters which apply to category site regardless if present (i.e., "any present") and those that apply to category site only if present (i.e., "if present"). Table 7, below, provides a summary of the applicability of effluent limitations.

[141] See EPA's *Technical Support Document for Water Quality-based Toxics Control:* EPA/505/2-90-001, 1991: Section 5.4.4.
[142] See EPA's *Technical Support Document for Water Quality-based Toxics Control:* EPA/505/2-90-001, 1991: Table 5.3.

Table 7: Applicability of Effluent Limitations for Discharges Covered Under the 2016 RGP

Activity Category	Contamination Type	Applicable Effluent Limitations and Monitor-Only Requirements
I. Petroleum Related Site Remediation	A. Inorganics	All parameters listed
	B. Non-Halogenated Volatile Organic Compounds	Any present
	C. Halogenated Volatile Organic Compound	If present
	D. Non-Halogenated Semi-Volatile Organic Compound	Any present
	E. Halogenated Semi-Volatile Organic Compound	If present
	F. Fuels Parameters	Any present
II. Non-Petroleum-Related Site Remediation	A. Inorganics	All parameters listed
	B. Non-Halogenated Volatile Organic Compounds	Any present
	C. Halogenated Volatile Organic Compound	Any present
	D. Non-Halogenated Semi-Volatile Organic Compound	Any present
	E. Halogenated Semi-Volatile Organic Compound	If present
	F. Fuels Parameters	If present
III. Contaminated/Formerly Contaminated Site Dewatering	G. Sites with Known Contamination a. Inorganics	All parameters listed
III. Contaminated/Formerly Contaminated Site Dewatering IV. Pipeline and Tank Dewatering V. Aquifer Pump Testing VI. Well Development/Rehabilitation VII. Collection Structure Dewatering/Remediation VIII. Dredge-Related Dewatering	G. Sites with Known Contamination a. Inorganics b. Non-Halogenated Volatile Organic Compounds (VOCs) c. Halogenated VOCs d. Non-Halogenated Semi-Volatile Organic Compounds (SVOCs) e. Halogenated SVOCs f. Fuels Parameters	If present; and III-G, as listed above for a. Inorganics

Activity Category	**Contamination Type**	**Applicable Effluent Limitations and Monitor-Only Requirements**
III. Contaminated/Formerly Contaminated Site Dewatering IV. Pipeline and Tank Dewatering V. Aquifer Pump Testing VI. Well Development/Rehabilitation VII. Collection Structure Dewatering/Remediation VIII. Dredge-Related Dewatering	H. Sites with Unknown Contamination a. Inorganics b. Non-Halogenated Volatile Organic Compounds (VOCs) c. Halogenated VOCs d. Non-Halogenated Semi-Volatile Organic Compounds (SVOCs) e. Halogenated SVOCs f. Fuels Parameters	All parameters listed

EPA notes that the pollutant groups applicable to each activity category are largely unchanged from the 2010 RGP. Operators must continue to demonstrate compliance with all of the limited indicator parameters specified in the 2016 RGP whether an individual indicator parameter is automatically applicable to a site or not. While this is unchanged from the 2010 RGP, the application of effluent limitations by category is expected to result in greater consistency for sites covered under this general permit. An applicant will indicate the effluent limitations and monitor-only requirements applicable to their site in the NOI submitted to EPA for their site. EPA will check the operator's submission for accuracy and provide corrections, if appropriate, in the authorization to discharge.

Additional information regarding the applicability of monitoring requirements, including additional record-keeping and reporting requirements, is described in Section V, below. Sections V.B.2 and VI.A.1 of this fact sheet and Appendix IV of the 2016 RGP for information regarding requests for reduction in the monitoring frequency for applicable indicator parameters.

G. Critical Low Flow and Calculation of a Dilution Factor

Available dilution may be used to determine water quality based limitations in this general permit for metals parameters and a limited number of other parameters, when applicable (e.g., chloride, total residual chlorine). The available dilution at a specified critical low flow condition in the receiving water and the permitted maximum effluent flow (i.e., design flow) are used in computing the dilution factors. Procedures for calculation of a dilution factor are found in Appendix V of the 2016 RGP for sites in Massachusetts and Appendix VI of the 2016 RGP for sites in New Hampshire. Applicants in New Hampshire must obtain approval from NHDES for any requested 7Q10 and dilution factor prior to submitting an NOI and indicate this approval in the applicant's NOI. Applicants in Massachusetts must contact MassDEP to confirm any requested dilution factor prior to submitting an NOI and indicate this confirmation in the

applicant's NOI. EPA will confirm, and correct if necessary, the 7Q10 and/or dilution factor submitted in the applicant's NOI in EPA's authorization to discharge.

For sites in Massachusetts, the regulations pertaining to dilution factors and mixing zones are located at 314 CMR 4.03 and in the *Massachusetts Water Quality Standards Implementation Policy for Mixing Zones*. For discharges to freshwater streams and rivers, 314 CMR 4.03(3)(a) requires that effluent dilution be calculated based on the receiving water lowest observed mean river flow for seven consecutive days, recorded over a 10-year recurrence interval, or 7-day 10-year low flow (7Q10). The receiving water 7Q10 can generally be determined using the United States Geological Survey (USGS) low-flow frequency statistics for sites with a USGS gauging station in proximity to a site, or by using the USGS StreamStats for Massachusetts watershed delineation tool.[143] For discharges to marine waters, the critical hydrologic condition at which water quality must be met is established on a case-by case basis. Existing uses are to be protected and the selected hydrologic condition is not to interfere with the attainment of designated uses (314 CMR 4.03(3)(c)). In all cases, use of a dilution factor in Massachusetts must meet the criteria at 314 CMR 4.03(2).

For sites in New Hampshire, the regulations pertaining to dilution factors and mixing zones are located at Env-Wq 1705 and Env-Wq 1707. For discharges to freshwater, New Hampshire water quality standards establish the lowest flow condition in the rivers and streams to meet the water-quality criteria at Part Env-Wq 1705.02. Dilution factors are calculated by mixing zone modeling in accordance with the NHDES Mixing Zone Policy for freshwater receiving waters. In order to satisfy New Hampshire regulations, EPA uses the 7Q10 statistic for rivers and streams to calculate dilution factors. Because ten percent (10%) of the river's assimilative capacity is held for future needs in New Hampshire, in accordance with Env-Wq 1705.01, the dilution factor is multiplied by 0.90 prior to use in permit limitation calculations. For discharges to tidal waters in New Hampshire, the low flow condition shall be equivalent to the conditions that result in a dilution that is exceeded 99 percent of the time (see Env-Wq 1705.02). In all cases, use of a dilution factor in New Hampshire must meet the minimum criteria presented in Env-Wq 1707.02.

H. Calculation of Effluent Limitations

The 2005 and 2010 RGPs provided for the application of a State-approved dilution factor on a case-by-case basis in the calculation of certain WQBELs. EPA has retained this approach in the 2016 RGP. However, the 2016 RGP expands the provision for the calculation of WQBELs for discharges to receiving waters with any dilution factor for the calculation of any WQBEL. Because this general permit is designed for a variety of potential situations that can vary from site to site, WQBELs have been included as end-of-pipe limitations in the 2016 RGP based on an assumption of zero dilution. This value is generally the applicable WQC. In addition, metals limitations are generally included on the basis of dissolved metal in the water column and at an assumed hardness when a metal WQBEL is hardness-dependent. If a WQBEL is required, an applicant must calculate the WQBELs that apply to their discharges and include the WQBELs in the NOI submitted to EPA. Generally, a WQBEL is required if the discharges cause, or have a

[143] USGS StreamStats for Massachusetts Interactive Map: http://water.usgs.gov/osw/streamstats/massachusetts.html

reasonable potential to cause, or contribute to an excursion above WQSs (e.g., the concentrations of an indicator parameter in an applicant's discharge exceeds the WQBEL at zero dilution). 40 CFR 122.44(d)(1). Appendix V of the 2016 RGP includes the calculation methodology for effluent limitations for sites in Massachusetts and Appendix VI of the 2016 RGP includes the calculation methodology for effluent limitations for sites in New Hampshire. EPA anticipates providing additional resources to assist applicants in following the calculation methodologies for effluent limitations in Appendix V for sites in Massachusetts and Appendix VI for sites in New Hampshire. The calculated WQBELs only apply as specified in Appendix V for sites in Massachusetts and Appendix VI for sites in New Hampshire are met. For the majority of sites, the TBELs are expected to apply.

Following the calculation methodology provided in the 2016 RGP, a WQBEL is adjusted for: 1) effluent and receiving water flow (i.e., the ratio of which is used to derive a dilution factor); 2) actual effluent and receiving water hardness (i.e., if a parameter is hardness-dependent); and 3) existing concentrations of these parameters in the receiving water (if appropriate). These conditions affect the allowable instream concentrations of the limited parameters. EPA is required by 40 CFR §122.45(c) to express NPDES permit limitations as total recoverable metal. Therefore, the calculation to convert dissolved metal to total recoverable metal in the water column has been incorporated into the 2016 RGP to meet regulatory requirements. In addition, certain receiving waters may have reduced assimilative capacity for certain indicator parameters. Considering the potential significance of ambient concentrations of certain indicator parameters, and because certain indicator parameters may be included in Massachusetts' and/or New Hampshire's list of impaired waters (i.e., CWA Section 303(d)), the adjustment required for ambient concentrations will ensure WQBELs are sufficiently stringent to meet WQSs. EPA believes the consideration of ambient concentrations for the calculation of WQBELs necessary and appropriate in carrying out the applicable provisions of the CWA.

The proposed changes for the calculation of effluent limitations will ensure consistent and site-specific effluent limitation calculation for WQBELs. Further, requiring an applicant to calculate the applicable WQBELs, which must be included in the applicant's NOI, will ensure that if a more stringent WQBEL must be met for a given indicator parameter, the applicant has is aware in advance and can properly design for the level of control required to comply with this general permit. EPA will confirm, and correct if necessary, the calculated WQBELs submitted in the applicant's NOI in EPA's authorization to discharge. If an NOI indicates unusual circumstances where a WQBEL may not be sufficient to meet State WQSs, EPA and/or the States may impose additional limitations or issue a request for an individual permit.

IV. Notice of Intent (NOI) Requirements and Regulatory Provisions

A. Notice of Intent Requirements

To obtain coverage under the 2016 RGP, operators with one or more discharges eligible for coverage must submit a NOI to EPA and the appropriate State as required in Part 4 and Appendix IV of the 2016 RGP prior to the initiation of such discharge(s). All NOIs submitted after **December 21, 2020** must be submitted electronically. 40 CFR §122.28(b)(2)(ii) specifies minimum NOI requirements and also provides that NOIs may require the submittal of

information necessary for adequate program implementation. Unless EPA specifically notifies the discharger that an individual permit application must be submitted, submission of a complete and accurate NOI eliminates the need to apply for an individual permit for a regulated discharge eligible under this general permit. For the purposes of this general permit, the NOI consists of either the recommended NOI format in Appendix IV, Part 1 of the 2016 RGP or another format of official correspondence containing all of the information required in the NOI instructions in Appendix IV, Part 1 of the 2016 RGP. This information generally includes:

- Site information;
- Receiving water information;
- Source water information;
- Discharge information;
- Treatment system information;
- Treatment chemical/additive information;
- Determination of Endangered Species Act Eligibility;
- Documentation of National Historic Preservation Act Requirements;
- Supplemental Information; and
- Signature Requirements.

EPA has made slight adjustments to the suggested NOI format included in the 2016 RGP based on proposed changes to this general permit. The NOI submission requirements for applicants seeking coverage under the 2016 RGP are described below.

1. New Discharges:

Sites that are not discharging under the 2010 RGP seeking coverage under this general permit must submit an NOI to EPA and the appropriate State at least thirty (30) days prior to the initiation of such discharge. This is an increase from the 2010 RGP's fourteen (14) day processing time. EPA's posting period for NOIs remains seven (7) days. EPA will continue to process NOIs as expeditiously as practicable. However, EPA continues to strongly recommend that applicants fill out and submit the NOI as early in the project planning process as possible to allow EPA and the appropriate State adequate time to review NOIs for completeness, make a determination of coverage under this general permit (or the need for an individual permit), or seek additional information from the applicant. If an incomplete NOI is submitted, if additional information is required, or if an individual permit is required, remediation and/or dewatering activities may be significantly delayed. In most cases it is the "operator" who is responsible for applying. See 40 CFR §122.21(b). The effective date of coverage will be the date indicated in the authorization to discharge provided to the operator by EPA.

EPA recognizes that during the thirty (30) day NOI processing period, unplanned circumstances may arise that could require a discharge. In such cases, the applicant is encouraged to contact EPA after the seven day NOI posting period for the status of EPA's decision regarding coverage under this general permit. Further, EPA understands that some remediation activities are part of a response to an environmental emergency. In the case of emergencies (e.g., oil spill response), EPA's Office of Site Remediation and Restoration (OSRR) will consider requests for emergency

NPDES exclusions as provided by 40 CFR §122.3(d) and 40 CFR Part 300. In cases of emergency spills, applicants should contact the National Response Center (NRC) at 800-424-8802 or EPA's Emergency Planning and Response Branch at 617-918-1236.

Note that existing data substitution is allowed under limited circumstances for the purposes of preparing an NOI for new discharges. This change will ensure data used in EPA's determination of coverage meets EPA performance and acceptance criteria (e.g., precision, accuracy, representativeness, comparability, completeness, and sensitivity).[144] The limiting of instances of data substitution for new discharges will ensure EPA has the information necessary to make a determination of coverage and apply the appropriate effluent limitations to a discharge authorized under this general permit.

2. Existing Discharges

Existing discharges are those occurring in accordance with the 2010 RGP, which expired September 10, 2015. As with the previous reissuance of the RGP, operators with existing discharges must obtain coverage under the 2016 RGP (i.e., submit a NOI to EPA and the appropriate State) or terminate discharges (i.e., submit a NOT to EPA).

Discharges in accordance with the 2010 RGP which are still ongoing as of the effective date of the 2016 RGP have up to ninety (90) days following the effective date of the 2016 RGP to submit a NOI to EPA and the appropriate State (if required). Operators of existing discharges who expect to terminate discharges within ninety (90) days following the effective date of the 2016 RGP are not required to reapply for coverage under the 2016 RGP. This is expected to reduce the administrative requirements for operators nearing project completion.

Coverage under the 2016 RGP will not be effective until EPA has reviewed the applicant's NOI, made a determination that coverage under the RGP is appropriate, and notified the applicant in writing of this determination. Until such time, as noted above, general permit coverage remains administratively continued, provided the applicant received authorization to discharge under the 2010 RGP, has not submitted a NOT to EPA, and submitted a timely and complete reapplication for coverage under the 2016 RGP. Note that existing data substitution is allowed for the purposes of preparing a NOI for existing discharges, provided such data meet the requirements specified in Part 4.1.5 of the 2016 RGP.

The 2010 RGP required certifications at various intervals to maintain coverage. Certifications for continued authorization to discharge are no longer required under the 2016 RGP. The authorization to discharge lasts from the date of EPA's authorization to the expiration of the general permit (or when superseded, if administratively continued past expiration), or upon submission of a NOT, whichever occurs first. The 2016 RGP includes notification requirements if a change in the characteristics of the discharge(s) authorized for a site is identified. Generally, an operator must notify EPA using a NOC. See Section VI.A, below. The 2016 RGP also

[144] See EPA QA/G-5i. Also see EPA's Data Quality Objectives Process (EPA/260R-02-008) and EPA's Data Quality Assessment Process documents (e.g., EPA QA/G-8, EPA QA/G-9, etc.)

requires operators with discharges expected to occur for twelve (12) months or more to report influent and effluent monitoring data to EPA. See Section V.G, below.

3. Filing with the States and Others

A copy of the NOI submitted to EPA must also be submitted to the appropriate State as directed in the NOI instructions in Appendix IV, Part 1 of the 2016 RGP. The States may elect to develop a State-specific format or other information requirements. Applicants must comply with any other such State provisions as required. Applicants must also notify the municipality in which the proposed discharge will be located. Certain municipalities require an operator to obtain additional permit(s) prior to initiating discharge.

4. Notification Requirement for Sites Discharging to a Storm Sewer System

EPA's authorization to discharge under this general permit does not convey any rights or authorization to connect to a municipal or private storm sewer system appurtenance owned by another party. In most cases, the owner of such infrastructure and the owner/operator of the site seeking coverage under the 2016 RGP are the same. However, in the case of separate ownership and/or different operators, an applicant must indicate that they plan to utilize such infrastructure in the NOI submitted to EPA and the appropriate State. Also, an applicant must indicate that the owner of the municipal or non-municipal storm sewer system to which an applicant intends to discharge has been notified, and permission to discharge to this system will be obtained prior to initiating discharges. Applicants may be subject to additional requirements by a municipality or other owner in such instances. An applicant must include a description of any such requirements imposed by the owner of the municipal or non-municipal storm sewer system to which they are proposing to discharge and certify in the NOI submitted to EPA that these conditions will be complied with.

5. Notification for Sites with Additional Discharge Permit Coverage

Occasionally, an applicant requesting coverage under this general permit will be conducting remediation/dewatering activities at a site that is also covered under an additional discharge permit, including, but not limited to: EPA Region 1's DGP, EPA's CGP, EPA's MSGP, or an EPA MS4 permit. Where there is separate ownership and/or different operators of the area where remediation/dewatering activities to be covered under this general permit will occur and the area associated with the activities covered by the additional discharge permit(s),
the operator seeking authorization to discharge under this general permit must indicate in the NOI submitted to EPA that notification has been given to the owner/operator of the area associated with the activities covered by the additional discharge permit(s).

V. Monitoring, Record-Keeping and Reporting Requirements

The monitoring, record-keeping and reporting requirements in the 2016 RGP have been established to yield data representative of the discharges under the authority of §308(a) of the CWA, according to regulations set forth at 40 CFR §§122.41(j), 122.44(i) and 122.48.

A. Basis for Monitoring Requirements

EPA has the authority in accordance with various statutory and regulatory requirements established pursuant to the CWA, 33 USC §1251 et seq., the NPDES program (see §402 and the implementing regulations generally found at 40 CFR Parts 122, 124, 125, and 136) and applicable State regulations (generally including 314 CMR 3.00 and 314 CMR 4.00 in Massachusetts and Env-Wq 1700 in New Hampshire) to include effluent limitations and other requirements such as monitoring and reporting in NPDES permits.

Further, CWA §308(a), 33 USC §1318(a), authorizes EPA to require the owner or operator of any point source to provide information as may reasonably be required to: "... carry out the objectives of ... [the Clean Water Act], including but not limited to: (1) developing or assisting in the development of any effluent limitation, or other limitation, prohibition ... or standard of performance under [the Clean Water Act] ...; (2) determining whether any person is in violation of any such effluent limitation, or other limitation, prohibition or effluent standard, ... or standard of performance; (3) any requirement established under this section; or (4) carrying out section ... 1342 ... of [the Clean Water Act] ..." CWA §308(a)(3)(A) authorizes EPA to require reports, monitoring equipment or methods, expanded sampling, or any other information for such uses.

The monitoring program proposed in the 2016 RGP specifies sampling and analysis for the influent, effluent and/or receiving water. These requirements are necessary to evaluate the discharge of pollutants from sites authorized under this general permit and will provide information on the reliability and effectiveness of the installed pollution abatement equipment. Further, EPA has required sites to gather data to ensure the discharges do not impact the water quality of the receiving waters or pose a risk to human health or the environment. Therefore, the monitoring requirements in the permits are included for specific regulatory use in carrying out the CWA. EPA's decision to include activity-specific, site-specific and/or receiving water-specific parameters in the permit is reasonable and consistent with its responsibilities under the Act. EPA expects the frequency of sampling to reduce with time, assuming pollutants are not detected.

The operator is responsible for conducting the monitoring and for reporting results on the NOI and DMRs (or NOT), to EPA and the appropriate State. These requirements are described further, below.

B. Monitoring Requirements

The monitoring and reporting requirements to be imposed on the influent, effluent, and/or receiving water are included in Part 2 (Effluent Limitations and Monitoring Requirements), and Part 4 (Monitoring, Recordkeeping, and Reporting Requirements) of the 2016 RGP. In general, operators are required to monitor for the indicator parameters included in the 2016 RGP for the activity category/categories and contaminant type category/categories reported in the NOI submitted to EPA for their site. An operator should select the activity category that most closely aligns with the activities to be conducted at their site, and all contaminant type categories that include the COCs present or likely present at their site. The 2016 RGP also specifies monitoring

location(s), monitoring frequencies, test methods and minimum levels, as well as instances where existing data substitution is allowed, described below.

1. Monitoring Location(s)

The 2016 RGP includes specificity regarding the sampling locations for influent, effluent and receiving water. EPA determined that these sampling requirements are necessary to yield data representative of the discharges under authority of §308(a) in accordance with 40 CFR §122.41(j), §122.44(i), and §122.48. Specifically, these requirements increase consistency across sites authorized to discharge under the general permit, in turn increasing data comparability for the purpose of evaluating overall compliance with this general permit. Further, EPA determined that a dedicated sampling point for each discharge must be designated to ensure dilution is not used as a form of treatment, and because a site may be mixing treated effluent with stormwater runoff or other wastewater(s) prior to discharging to the receiving water(s). Finally, requiring the use of consistent, defined locations also ensures that an EPA and/or a State inspector would be able to duplicate influent, effluent or receiving water sample at any site upon inspection.

Operators are required to monitor for applicable parameters following all treatment but prior to mixing with any other waste stream. For the majority of sites, this is expected to be following the last component in the treatment system, before the treated effluent is conveyed to the receiving water and/or discharge-related appurtenances. Therefore, EPA believes this requirement is reasonable and appropriate.

Receiving water samples are generally collected immediately upstream of a discharge, beyond the discharge zone of influence, at a point where the effluent is expected to be completely mixed with the receiving water, if a dilution factor applies. In certain receiving waters such as lakes or estuaries, flow direction may be less straight forward, such that an upstream sample may be influence by reverse flow direction or re-entrainment. In these cases, a receiving water sample should be collected immediately beyond the discharge zone of influence, in any direction necessary to obtain a sample representative of the receiving water absent influence from the discharge.

2. Monitoring Frequencies

Effluent monitoring requirements in NPDES permits are established to determine compliance with permit limitations and conditions, and to evaluate the effectiveness of treatment and control measures and permit limitations. A number of factors are considered in establishing monitoring frequencies, including effluent variability; the type of treatment provided to the effluent; the type, significance and persistence of the pollutants; and the cost of monitoring. EPA considered the variability in frequency, magnitude and duration of discharges covered by this general permit, which may be intermittent, short-term, and/or batch discharges. EPA also considered monitoring frequencies for non-routine operational statuses, including treatment system startup, interruption, restart and shutdown.

The 2016 RGP requires operators to monitor influent, effluent and/or receiving water for the purposes of application. This consists of a minimum of one (1) sample for effluent for each

applicable limited parameter for application for coverage under the general permit and influent and receiving water sampling for certain activity categories. The 2016 RGP also requires influent and effluent monitoring for discharge initiation. This consists of a minimum of two (2) samples of both influent and effluent collected within the first week of discharge (i.e., system startup), and weekly sampling of both influent and effluent collected for the following three weeks of discharge. Finally, the 2016 RGP requires routine monitoring. This consists of a minimum of one (1) sample monthly for both influent and effluent for a minimum of five additional months. This monitoring frequency will yield 10 data points over six months for influent and effluent, which aligns with the recommendations in EPA's TSD for collection of a minimum data set of 8 to 12 samples for evaluation of COCs[145] and 10 or more samples for statistical analysis.[146] One receiving water sample is required for application for certain activity categories. Additional receiving water sampling is associated with either a WET requirement, if imposed, or a case-by-case determination that such sampling is necessary. EPA has eliminated the monitoring frequency included in the 2010 RGP for resampling treatment system startup following short interruptions.

EPA believes that the proposed minimum monitoring frequency will provide the information needed to assess treatment system performance, evaluate permit compliance, and determine if additional permit conditions are necessary to ensure compliance with water quality standards. However, the 2016 RGP continues to allow monitoring frequency reductions. The 2016 RGP allows reductions in the monitoring frequencies of certain indicator parameters through a NOC, provided sampling results meet minimum eligibility requirements. The NOC must include a certification that the minimum eligibility requirements have been met and that the sampling required thereafter will be performed in accordance with the requirements in the 2016 RGP. The NOC also must provide the supporting analytical data, written rationale regarding the representativeness of data, and a description of measures the operator has taken to ensure discharges of parameters for which a reduction in monitoring is requested will be maintained at or below levels measured in the monitoring data provided. Following six (6) months and a minimum of ten (10) influent and effluent samples that meet QA/QC and reduction eligibility requirements, a written request submitted by the operator for reduction using a NOC, and written approval from EPA, an operator is required to conduct:

- 1/year sampling for all applicable parameters for influent and effluent; and
- 1/month sampling for all applicable parameters for effluent-only, which are 1) detected above applicable MLs; and/or 2) limited below applicable MLs, regardless of whether the parameter(s) has been detected.

Additional monitoring frequency reductions and/or elimination for indicator parameters that retain monthly and/or annual sampling following the reduction specified above, may be considered on a case-by-case basis upon request from the operator following three years, ten (10) samples of influent, and forty (40) samples of effluent. This return interval aligns with the recommendations in EPA's TSD for a minimum of three years of data to calculate the long term

[145] See Section 3.3.8; EPA/505/2-90-001: March 1991.
[146] See Chapter 5 and Appendix E; EPA/505/2-90-001: March 1991.

average for a discharge for evaluation relative to attainment of water quality criteria.[147] A NOC must also be used to request such a reduction.

EPA believes it appropriate to allow monitoring frequency reductions, but believes it is also necessary to review such reductions on a parameter-by-parameter and case-by-case basis to ensure permit requirements are being met. Should EPA and/or the States determine that a monitoring frequency reduction is not allowed for a site, the operator will be informed in writing. Following an approved monitoring frequency reduction, any operator with reporting requirements will need to use an appropriate No Data Indicator (NODI) code for DMRs (e.g., "A" for "General Permit Exemption" or "9" for "Conditional Limit"). Operators are not required to monitor when the discharge does not occur during a reporting period, but must include any such instance in monitoring records and use an appropriate NODI code for DMRs (e.g., "C" for "no discharge").

3. Test Methods

The 2016 RGP includes requirements necessary to comply with the *National Pollutant Discharge Elimination System (NPDES): Use of Sufficiently Sensitive Test Methods for Permit Applications and Reporting* rule.[148] This rule requires that where EPA-approved methods exist, NPDES permittees must use sufficiently sensitive EPA-approved analytical methods when quantifying the presence of pollutants in a discharge. Only sufficiently sensitive EPA-approved methods may be used for analyses of pollutants or pollutant parameters under the permit. See 40 CFR §136. The NPDES regulations at 40 CFR §122.21(e)(3) (completeness), 40 CFR §122.44(i)(1)(iv) (monitoring requirements) and/or 40 CFR §136.1 indicate that an EPA-approved method is sufficiently sensitive where:

- The method minimum level (ML) is at or below the level of the applicable water quality criterion or permit limitation for the measured pollutant or pollutant parameter; or
- In the case of permit applications, the ML is above the applicable water quality criterion, but the amount of the pollutant or pollutant parameter in a site's discharge is high enough that the method detects and quantifies the level of the pollutant or parameter in the discharge; or
- The method has the lowest ML of the EPA-approved analytical methods.

Multiple analytical test methods exist for many pollutants regulated under the CWA, including pollutants limited under this general permit. EPA has generally approved multiple methods for CWA pollutants under 40 CFR §136 and 40 CFR chapter I, subchapters N and O. Therefore, approved test methods found in 40 CFR §136 are required unless alternate test methods are explicitly required or allowed in this general permit in accordance with 40 CFR §136. EPA has summarized test methods for the parameters included in the 2016 RGP in Appendix VII. However, because operators must analyze water samples using a sufficiently sensitive EPA-approved analytical method, Appendix VII notes the common test method(s) that may be used to

[147] See Section 2.3.4; EPA/505/2-90-001: March 1991.
[148] Federal Register, Vol. 79, No. 160, Tuesday, August 19, 2014; FR Doc. 2014–19557.

meet the requirements of this general permit, but is not exhaustive. Also see Section V.B.4, below. Operators may refer to 40 CFR §136 for specific information regarding EPA-approved test methods and allowable modifications.[149]

The 2016 RGP specifies certain analytical test methods may not be used for the purpose of application and reporting under this general permit for certain indicator parameters. Of note, several widely-used EPA-approved methods and allowable modifications currently exist for the quantification of TPH and/or petroleum-related target analytes. EPA Method 1664, revision B (which replaced Method 418.1) is an "extraction" procedure which may eliminate certain gasoline range (C_5 to C_9) volatile organic (GRO) compounds. As a result, many states, including Massachusetts, use alternative methodologies for analysis known as the Volatile Petroleum Hydrocarbon (VPH) method and/or the Extractable Petroleum Hydrocarbon (EPH) method. The VPH and EPH methods report results in terms of concentrations of ranges of aliphatic and aromatic hydrocarbons, typically in the C_5 to C_{36} range and are required by MassDEP for measuring petroleum hydrocarbons at sites regulated through the MCP. However, EPA does not currently have a means to evaluate carbon range data supplied under these methods. Further, these data cannot be used by EPA to evaluate compliance with the chemical-specific effluent limitations derived from chemical-specific WQC applicable to specific pollutants included in this general permit. Therefore, these methods not be used for analysis to meet the sampling and reporting requirements included in the 2016 RGP.

4. Minimum Levels and Detection Limits

Some EPA-approved analytical test methods have greater sensitivity than other EPA-approved methods for the same parameter. This situation often occurs because of advances made in instrumentation and in the analytical protocols themselves. The ML is the lowest level at which the laboratory analytical testing method provides a detectable concentration of the target analyte in a sample.[150] The term is defined by EPA at 40 CFR §136. The ML represents the lowest concentration at which the concentration of a parameter can be measured with a known level of confidence. MLs may be specified in several ways: 1) they may be published in a method; 2) they may be sample concentrations equivalent to the lowest acceptable calibration point used by a laboratory; or 3) they may be calculated by multiplying the method detection limit (MDL) in a method, or the MDL determined by a lab, [151] by a multiplying factor (e.g., 3.18). EPA also specifies Interim MLs (IMLs), based on the actual performance of the EPA New England Regional Laboratory (NERL). The 2016 RGP contains MLs based on EPA-approved methods in

[149] Additional information about analytical test methods can also be found on EPA's Office of Science and Technology's Clean Water Act Analytical Methods Website http://www.epa.gov/waterscience/methods/ and the National Environmental Methods Index (NEMI) http://www.nemi.gov/. NEMI is a searchable clearinghouse of methods supported by EPA's Office of Water.

[150] For the purposes of this general permit, EPA is utilizing the term "minimum level" (ML) to refer to analytical method sensitivity for which a measurement result of "non-detect" means that an analyte was not detected at a concentration greater than or equal to the ML. EPA is considering related terms to be synonymous, which include, but are not limited to: "quantitation limit," "reporting limit," and "level of quantitation".

[151] The MDL is determined using the procedure at 40 CFR Part 136, appendix B. It is defined as the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte.

40 CFR Part 136, and IMLs based on the performance of the NERL and/or regional EPA-certified laboratories, using methods approved under CWA §304(h) or methods previously approved for use by the permitting authority, including published methods.

The 2016 RGP does not require operators to achieve a specific detection limit (DL) for any indicator parameter. However, the DL for an indicator parameter must be equal to or less than the ML required for that parameter. In addition, when an a sample is analyzed for a parameter, but the parameter is not detected, the Permittee must report the non-detect using the data qualifier signifying less than the DL achieved for that parameter (i.e. <20 µg/L, if the DL reported by the analytical laboratory for the parameter is 20 µg/L). For the purposes of this general permit, the DL is the lowest concentration that can be reliably measured within specified limits of precision and accuracy for a specific laboratory analytical method during routine laboratory operating conditions (i.e., the level above which an actual value is reported for an analyte, and the level below which an analyte is reported as non-detect).

As described in Section V.B.3, above, the 2016 RGP requires operators to analyze all samples using an EPA-approved sufficiently sensitive test method that will detect the concentration of the parameter if it is present. However, multiple parameters included in the 2016 RGP have effluent limitations that are below the MLs, especially in instances where the effluent limitation is equal to a risk-based WQC. In these cases, an operator will be in compliance with the effluent limitation, and ML and sufficiently sensitive test method requirements for a parameter if the sample result is below the lowest ML specified for that parameter. Appendix VII of the 2016 RGP provides a summary of test methods and MLs for the indicator parameters included in the 2016 RGP.

5. Existing Data Substitution

For existing discharges, an applicant may use existing data for the NOI for a site under certain conditions. Existing data substitution is also allowed for the purposes of meeting the monitoring requirements included in the 2016 RGP once authorized to discharge under the 2016 RGP. However, the 2016 RGP no longer allows existing data substitution for new discharges. This change will ensure data used in EPA's determination of coverage meets EPA performance and acceptance criteria (e.g., precision, accuracy, representativeness, comparability, completeness, and sensitivity). Elimination of instances of data substitution for new discharges will ensure EPA has the information necessary to make a determination of coverage and apply the appropriate effluent limitations to a discharge authorized under this general permit.

In general, existing data may be substituted for the data required in the 2016 RGP if the sampling and analysis has been conducted following authorization to discharge under the RGP or similar NPDES permit *and* prior to the termination date of permit coverage. Further, sampling and analysis must meet the monitoring requirements specified in the 2016 RGP, including monitoring location, test method and minimum level requirements. Such sampling and analysis must have been conducted pursuant to: Massachusetts Regulations 310 CMR 40.0000, the Massachusetts Contingency Plan (Chapter 21E); New Hampshire's Title 50 RSA 485-A: Water Pollution and Waste Disposal or Title 50 RSA 485-C: Groundwater Protection Act; or the 2010 Remediation General Permit. For example, an operator collecting data in accordance with the

2010 RGP may substitute existing data for the data required in the 2016 RGP NOI, provided the monitoring requirements specified in the NOI are met. Similarly, once authorized under the 2016 RGP, if an operator is required to collect data under State regulations, that operator may substitute such data for the data required in the 2016 RGP, provided the requirements specified are met.

C. Application Monitoring Requirements

The monitoring requirements that must be reported in an applicant's NOI are included in Appendix IV of the 2016 RGP. Sampling requirements prior to the initiation of discharge (i.e., NOI sampling) have been simplified to reduce sampling to only the parameters applicable to the activity category/categories selected by the applicant. However, because the NOI requires an applicant to populate all limitations applicable to the activity categories selected, additional application monitoring requirements have been added to Part 4.2 of the 2016 RGP. These requirements, which vary by activity category, have been included to ensure EPA and the appropriate State have the necessary information to calculate effluent limitations for applicable parameters and to ensure the effluent limitations are sufficiently stringent to meet water quality standards. This additional sampling is required for application for coverage under this general permit, but is not otherwise required for routine monitoring, unless noted.

1. Monitoring Requirements for Activity Categories

Samples collected and analyzed for the purposes of application for coverage under this general permit for all Activity Categories must be representative of the proposed discharge(s) and must meet the monitoring requirements specified in the 2016 RGP. An applicant must collect a minimum of one (1) grab sample of untreated influent and one (1) grab sample of the treated effluent for any individual parameter in any contamination type category, if the given individual parameter is known or believed present in discharges from that site, as indicated in the NOI submitted to EPA for that site. Sampling for individual parameters also apply to Activity Categories as follows:

- Activity Category I:
  Contamination type a. Inorganics: all parameters;
  Contamination type b. non-halogenated VOCs: all parameters;
  Contamination type c. halogenated VOCs: none, unless known or believed present;
  Contamination type d. non-halogenated SVOCs: all parameters;
  Contamination type e. halogenated SVOCs none, unless known or believed present; and
  Contamination type f. fuels parameters: all parameters.
- Activity Category II:
  Contamination type a. Inorganics: all parameters;
  Contamination type b. non-halogenated VOCs: all parameters;
  Contamination type c. halogenated VOCs: none, unless known or believed present;
  Contamination type d. non-halogenated SVOCs: all parameters;
  Contamination type e. halogenated SVOCs none, unless known or believed present; and
  Contamination type f. fuels parameters: TPH only.

- Activity Category III-G, IV-G, V-G, VI-G, VII-G, VIII-G:
  Contamination type a. Inorganics: all parameters;
  Contamination type b through f: none, unless known or believed present.
- Activity Category III-H, IV-H, V-H, VI-H, VII-H, VIII-H:
  Contamination type a through f: all parameters.
- All categories are required to sample the influent and effluent for pH and temperature.
- All categories are required to sample the effluent for hardness, if the receiving water is a freshwater waterbody.
- Activity categories I and II are required to report acute whole effluent toxicity, LC_{50} (%) for the effluent. Where effluent and receiving water analyses required for an activity category are duplicative with effluent and receiving water analyses required for Whole Effluent Toxicity (WET) testing in accordance with Attachment A of the 2016 RGP, the 2016 RGP allows samples collected for WET testing to be used to satisfy the sampling requirement for effluent and/or receiving water for the duplicate parameters for application monitoring requirements. Requirements pertaining to WET testing for Category I and Category II are described in Section V.C.3, below.

The following exceptions apply to the requirements for application monitoring for all activity categories except III-H, IV-H, V-H, VI-H, VII-H, VIII-H:

- Monitoring for TRC only applies if a discharge may contain previously chlorinated water or discharges are treated with chemicals and/or additives containing chlorine;
- Monitoring for 1,4-dioxane only applies if a discharge may contain this parameter;
- Monitoring for EDB only applies if a discharge may contain this parameter; and
- Monitoring for PCBs only applies if a discharge may contain this parameter.

If sampling the effluent prior to receiving coverage under the 2016 RGP is not feasible, one or more additional influent samples may be substituted for the application effluent monitoring requirements. When sampling influent, the grab sample must ensure the highest concentrations of COCs that may be discharged are represented. If COCs or the concentrations of COCs vary widely across a site, sampling must consist of at least three grab samples that are representative of such variability. The individual grab samples must not be composited. Each grab sample must be analyzed to ensure the maximum and average concentrations required for each parameter in the NOI are properly reported.

2. Receiving Water Sampling

The additional effluent and receiving water sampling included in the 2016 RGP for the purposes of a NOI are as follows:

- Activity categories I, II and activity categories III through VIII, contamination type category G are required to sample the receiving water for ammonia, total recoverable antimony, total recoverable arsenic, total recoverable cadmium, total recoverable chromium III and IV, total recoverable copper, total recoverable iron, total recoverable lead, total recoverable mercury, total recoverable nickel, total recoverable selenium, total

recoverable silver, and total recoverable zinc, **if present in the effluent**. The receiving water concentrations of these parameters are necessary information that will be used to calculate effluent limitations which meet water quality standards under critical conditions. These categories must also sample the receiving water for pH, temperature, hardness, if the receiving water is a freshwater waterbody, and salinity, if the receiving water is a saltwater waterbody. These samples are required because the applicable water quality criteria for certain parameters, which are used to calculate effluent limitations, may be hardness-, salinity-, pH-, and/or temperature-dependent.

- Activity categories III through VIII, contamination type category H are required to sample the receiving water for any parameter listed for activity categories I, II and III through VIII, contamination type category G, in this section, above.

3. Whole Effluent Toxicity (WET) Testing

WET is defined as "the aggregate toxic effect of an effluent measured directly by an aquatic toxicity test." WET tests are laboratory experiments that measure the biological effect (e.g., survival, growth and reproduction) of effluents and/or receiving waters on aquatic organisms. In WET tests, groups of organisms of a particular species are held in test chambers and exposed to different concentrations of an aqueous test sample (e.g., reference toxicant, effluent, and/or receiving water). Observations are made at predetermined exposure periods. At the end of the test, the responses of test organisms are used to estimate the effects of the aqueous sample. WET tests are used to measure the toxicity of an effluent on the receiving water and are used to determine the concentration of the effluent that results in mortality within a group of test organisms, during a 24-, 48-, 72- or 96-hour exposure.

EPA and the States are authorized under §§402(a)(2) and 308(a) of the CWA to require toxicity testing. §308 specifically describes biological monitoring methods as techniques that may be used to carry out objectives of the Act. Massachusetts and New Hampshire have narrative criteria in their water quality regulations that prohibit toxic discharges in toxic amounts. Massachusetts law states that, "[a]ll surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife." (314 CMR 4.05(5)(e)). New Hampshire law states that, "[a]ll surface waters shall be free from toxic substances or chemical constituents in concentrations or combination that injure or are inimical to plants, animals, humans, or aquatic life;...". N.H. RSA 485-A:8, VI and the N.H. Code of Administrative Rules, Part Env-Wq 1730.21(a)(1).[152] Under such State narrative SWQSs, and §§301, 303 and 402 of the CWA, EPA and the States may establish toxicity-based limitations to implement the narrative "no toxics in toxic amounts".

EPA's TSD recommends using an "integrated strategy" to control toxic pollutants in effluent discharges that enter waters of the United States using both chemical-specific and whole effluent toxicity approaches. When used in combination, these approaches are designed to protect aquatic life and human health. Pollutant-specific approaches such as those in EPA's *National Recommended Water Quality Criteria* and State regulations address individual chemicals. Effluent limitations for individual pollutants have historically been the types of effluent

[152] Or as revised.

limitations included in the RGP, as this approach achieves protection of human health. The chemical-specific approach relies a complete understanding of the toxicology, treatability and fate and transport of known toxicants. The WET approach evaluates the toxicity of all constituents in a complex effluent, including pollutant interactions, thus rendering an aggregate toxicity assessment of an effluent. WET implicitly addresses the "additivity" (sum of), "antagonism" (less than the sum of) and "synergism" (greater than the sum of) effects of combinations of pollutants or discharges. WET provides assessment for the bioavailability of pollutants where chemical-specific approaches are limited. Previously unknown toxic pollutants present in an effluent can also be discovered and addressed, as can the presence of pollutants which have accumulated in the receiving water where WET testing is completed using the receiving water as the diluent.[153] The chemical-specific and WET approaches allow prediction of ecological impacts before they occur. Nevertheless, the 2010 RGP did not include application or routine requirements for WET. Under the 2010 RGP, requirements for WET could be incorporated on a case-by-case basis.

The federal NPDES regulations at 40 CFR §122.44(d)(1)(v) require WET limitations when a discharge causes or has a reasonable potential to cause or contribute to an excursion above the State's narrative criterion for toxicity. As WET testing has not been previously required for discharges covered by the RGP, EPA is unable to make a determination at this time as to whether effluent limitations for WET are necessary to meet water quality standards. The pollutants with chemical-specific effluent limitations in this general permit are generally expected at low concentrations following treatment. However, EPA considered the following factors in making its determination to include monitoring, without limitations for WET for certain categories of discharges.

- Multiple pollutants limited under the 2016 RGP have the potential for additive, antagonistic, and/or synergistic effects (e.g., PAHs);
- Multiple pollutants limited under the 2016 RGP have the potential for bioaccumulation in aquatic organisms, biomagnification among aquatic food chains, and cumulative impacts in waterbodies (e.g., heavy metals);
- Multiple effluent limitations have been imposed below the minimum levels of detection for discharges under the 2016 RGP;
- Discharges under the 2016 RGP have the potential to contain low levels of pollutants potentially toxic to phytoplankton, zooplankton and higher aquatic plant and animal species, including fish;
- Discharges under the 2016 RGP have the potential to contain pollutants of environmental significance, including toxicants with environmental persistence which adversely affect human health and the environment (e.g., PCBs);
- Discharges under the 2016 RGP have the potential to contain a large number of toxic pollutants, including pollutants which have not been previously measured; and
- Discharges under the 2016 RGP have the potential to contain complex mixtures of toxic pollutants, and multiple discharges could conceivably be authorized for a receiving water, where the resultant toxicity is of interest.

[153] See EPA guidance: EPA-833-K-10-001, September 2010 and EPA/505/2-90-001, March, 1991 (e.g., Section 5.1 and 1.6).

Given these considerations and to ensure that the effluent limitations and requirements are sufficiently stringent and meet State water quality standards, sites identified as category I (petroleum site remediation) and category II (non-petroleum site remediation), are required to complete one Acute WET[154] test as part of application NOI for coverage under the 2016 RGP, or within thirty (30) days following initiation of discharges, if sampling the effluent prior to authorization is not feasible. Acute-only WET testing was selected because the discharges covered under this general permit are primarily of short duration, low frequency and small magnitude. Category I and Category II were selected because discharges from remediation activities are more likely to occur over longer duration, with greater frequency, and contain more complex mixtures of toxic pollutants than discharges from dewatering (Category III) or miscellaneous related activities (Category IV through VIII).

Lethality is the measured endpoint for the acute WET test, for which the LC_{50} (the concentration of effluent at which 50 percent of the test organisms die) is determined. The 2016 RGP requires applicants under Activity categories I and II to report the LC_{50} result (%) in the NOI submitted for a site. The receiving water is used for WET tests in order to simulate effluent/receiving water interactions. An alternate dilution water may be allowed in limited circumstances specified in the 2016 RGP, in the event that the receiving water is found to be toxic or otherwise unreliable. WET testing requires effluent and receiving water sampling and additional chemical analysis. Sample results for any parameter required for WET testing may be used to meet the additional application monitoring requirements for those parameters. WET testing is not otherwise required for routine monitoring, unless indicated in EPA's written authorization to discharge.

D. Treatment System Monitoring Requirements

The 2010 RGP requires an operator to perform sampling and analysis for treatment system influent, when a discharge is initiated either for the first time, or upon the re-initiation of discharge following a treatment system interruption or extended system shutdown. The purpose of this sampling is to ensure that the pollution control technologies and other BMPs implemented control the pollutants in discharged. This sampling also provides EPA with information that informs the basis for the TBELs included in the general permit. The 2016 RGP retains these requirements, for specific use in evaluating the performance of treatment systems for the pollutants limited under the general permit. However, EPA has proposed reducing the frequency of sampling and analysis for certain treatment system interruptions and restarts as compared to the 2010 RGP.

1. Influent

The 2016 RGP continues the requirements for influent sampling included in the 2010 RGP. EPA has routinely required monitoring of both influent to the treatment system and effluent to the receiving water or drainage system under the RGP and at regulated remediation sites in

[154] Acute Whole Effluent Toxicity Testing must be completed in accordance with USEPA Region 1 Freshwater Acute Toxicity Test Procedure and Protocol (February, 2011) for discharges to freshwater and Marine Acute Toxicity Test Procedure and Protocol (July 2012) for discharges to saltwater and estuaries. See Attachment A of the 2016 RGP.

Massachusetts and New Hampshire. Although compliance with the effluent limitations in the permit is determined by the effluent sampling, sampling the influent to the treatment system provides critical information regarding the proper operation and maintenance of the treatment system, evaluation of pollutant removal efficiency, and other quality control factors.

Operators may apply for a reduction in the frequency of monitoring, including influent monitoring after a minimum of six (6) months and ten (10) consecutive influent sample results demonstrate compliance with the effluent limitations and requirements in the 2016 RGP by submitting a NOC to EPA. Until EPA provides written confirmation allowing the change, the operator must continue monitoring at the frequency required by the 2016 RGP. Requests for reductions in monitoring frequencies are described in this fact sheet in Section V.B.2 and VI.A.1. Instructions for requesting reductions can be found with the suggested NOC format in Appendix IV of the 2016 RGP.

2. Treatment System Startup

The 2016 RGP continues to require that when a discharge is initiated either for the first time, or upon the re-initiation of discharge following a treatment system interruption, an operator must sample and analyze for all parameters required for the discharge(s) as specified for an operator's self-identified category or categories in Part 2 for influent and effluent.

The purpose of monitoring requirements during treatment system startup is to ensure proper operation of the treatment components and achievement of effluent limitations. The current RGP further requires additional sampling and analysis during the first month of discharge. The 2010 RGP requirements consist of one sample each on the first and third days of discharge, with various allowances for non-business days. The 2016 RGP simply specifies that two samples must be collected within the first week of discharge following system startup, one of which should occur on the first day of operation, whenever practicable. One sample, rather than two is required during the first week following a system restart.

The requirement that samples be analyzed with a rush turnaround time has also been retained from the 2010 RGP, in order to minimize potential uncontrolled pollutant breakthrough. Rush samples must be reviewed by an operator upon receipt. If analyses indicate that the treatment system is working properly and achieving the applicable effluent limitations, sampling reverts to routine monitoring requirements thereafter. This is a reduction in the sampling frequency for this requirement in the 2010 RGP, which required twice weekly sampling for the first week following system restart, weekly sampling for three additional weeks, and monthly thereafter. Routine samples may continue to be analyzed with a standard turnaround time, with the requirement that no more than seven (7) days pass between the sampling event and when results are received and reviewed by the operator to ensure that the effluent limitations and requirements of this general permit are being met.

During system startup and restart, any indication of system malfunction or violation of effluent limitations requires an operator to immediately halt discharges until appropriate corrective actions can be implemented. Upon re-initiation of discharge, an additional laboratory sample must be taken with a rush (i.e., 3-day) turnaround time and results must be reviewed by the

operator within one day (i.e., 24 hours) of receipt of the results. If the problem persists, the operator must immediately halt discharges and notify EPA and the appropriate State contacts by telephone, e-mail or other means within one day (i.e., 24 hours) of the need to halt discharge for a second time. Once the problem(s) has been corrected, discharges may resume, unless otherwise directed by EPA and/or the State. Following a system restart and the initial required sample, routine sampling becomes effective. Routine sampling consists of weekly monitoring for at least three consecutive weeks of discharge, followed by monthly monitoring for the remainder of the permit term, unless otherwise modified by EPA and/or the State. EPA notes that monitoring requirements have been reduced for instances of treatment system restart. So long as the sample required following corrective action indicates that the discharge meets the effluent limitations and requirements of the general permit, routine monitoring is adequate, as twice weekly sampling is largely redundant of the sample collected and analyzed at restart.

During system startup and restart, an operator may also utilize field monitoring and visual observations as appropriate (e.g. portable organic vapor analysis, turbidity meter, visible sheen observations) to aid in evaluation. The 2016 RGP does not require that these means are utilized. However, in the event an operator utilizes such methods, the monitoring records must be maintained by the operator and provided upon request.

3. Treatment System Interruption

Interruption of treatment systems is occasionally necessary due to seasonal fluctuations of water table elevations in groundwater extraction systems, climate conditions, ongoing testing, system repair or modification, or other circumstances. EPA has extended the minimum period of time which constitutes a system interruption (defined in the 2010 RGP as 45 consecutive days up to, but not including, 120 consecutive days) and merged the requirements for extended system shutdowns (defined in the 2010 RGP as 120 or more consecutive days), which trigger a variety of re-sampling requirements. Any system shutdown which occurs for 90 or more consecutive days, except where otherwise specified, is considered a system interruption and sampling and analysis upon re-initiation of discharge is required. This time period was selected because it eliminates a certain amount of potential interruption without triggering additional sampling and analysis, but ensures that a prolonged system shutdown does not adversely affect treatment system components. For example, commonly used carbon adsorption systems may not perform as expected if carbon units are not changed out periodically. When the discharge has been interrupted, including an extended system shutdown, for 90 or more consecutive days, the operator is simply subject to the same sampling, analysis and review requirements as apply during treatment system startup. If any sample or other observation indicates that the effluent exceeds any permit limitation(s), the same shutdown, corrective action, and notification requirements also apply. Upon system restart, the monitoring requirements for the re-initiation of discharges apply.

Any system interruption which occurs for less than 90 consecutive days, sampling upon re-initiation of discharge is no longer required, so long as the discharge meets the effluent limitations in the general permit. An exception included in the 2016 RGP and described in Section V.D.2, above, is if the system interruption is a result of startup or routine sample results indicating that the treatment system is malfunctioning and the effluent limitations applicable to

the discharge are not being met. In this instance, an additional sample is required upon system restart.

4. Treatment System Shutdown

EPA has added specificity to the final sample an operator takes prior to permanent system shutdown, that is, immediately prior to terminating the discharge and prior to submission of an NOT. The 2016 RGP requires an operator to collect two (2) samples and analyze for **all** parameters required for the discharge(s) category/categories as specified in Part 2 during the final week (i.e., seven days) of discharge, or as close to the treatment system shutdown as practicable, for both the untreated influent and the treated effluent. This sampling requirement is intended to provide for data comparability with the treatment system startup. EPA intends to use this information to assess treatment system performance and evaluate compliance with this general permit.

For the majority of discharges, this is likely to result in the need to collect one additional sample than is otherwise required immediately prior to terminating discharges and submitting the required NOT. While the requirement includes the collection and analysis of two (2) samples, where an operator collects the information specified within the timeframe specified in conjunction with routine monitoring requirements, a duplicate sample is not required. In other words, when an operator collects a sample for influent and effluent during the final week of discharge and completes analysis for all parameters required for the discharge(s) category/categories as specified in Part 2, this sample satisfies the requirement for one (1) of the two (2) required samples. Where monitoring has been reduced or eliminated for one or more parameters during the permit term, an operator will be required to collect samples and complete analysis even for those parameters not required for routine monitoring.

E. Short-Term Discharge Monitoring Requirements

The monitoring and reporting requirements included in Part 2 (Effluent Limitations and Monitoring Requirements), and Part 4 (Monitoring, Recordkeeping, and Reporting Requirements) of the 2016 RGP are applicable to all discharges from sites engaged in remediation and related activities. However, several discharge scenarios, predominantly those covered under Category III and Category IV, often occur with less frequency and/or duration, and different magnitude than those of other categories. As a result, the 2016 RGP specifies modified effluent sampling and reporting for these specific discharge scenarios described below.

1. Pipeline and Tank Dewatering

EPA included separate monitoring requirements for discharges resulting from hydrostatic testing in the 2005 and 2010 RGP due to the unique nature of these activities. The monitoring requirements specific to hydrostatic testing discharges remain consistent with the 2010 RGP in Category IV of the 2016 RGP as follows:

For New and Existing Tanks: The operator must take a minimum of five (5) representative grab samples, including each of the following:

- For influent sampling, the operator must take one (1) sample of the source water during the fill process. An operator must submit a NOC to EPA to request elimination of this sampling requirement if sampling during the fill process is not feasible;
- For in-process sampling, the operator shall take a minimum of one (1) sample representative of the tank water following maintenance or testing, but before draining. If the tank contents are likely to undergo phase separation or stratification, more likely in bulk storage tanks exposed to a variety of COCs, multiple samples collected from multiple depths within the water column must be collected and composited. The operator shall analyze and evaluate the in-process sample prior to discharge. If the analysis demonstrates that the water quality does not meet the effluent limitations established in this general permit, the operator shall not discharge the effluent unless treatment reduces the pollutant level below the limitations established in this general permit; and
- For effluent sampling, the operator must take one (1) sample of the discharge water during the first 10% of discharge, one (1) sample of the discharge water at the approximate midpoint of discharge, and one (1) sample during the last 10% of discharge. If at any time the analysis demonstrates that the effluent water quality is not consistent with the effluent limitations and requirements established in this general permit, the operator shall cease discharging the effluent until the discharge achieves the effluent limitations and requirements.

For New and Existing Pipelines: The operator must take a minimum of five (5) representative grab samples, including each of the following:

- For influent sampling, the operator must take one (1) sample of the source water during the fill process. An operator must submit a NOC to EPA to request elimination of this sampling requirement if sampling during the fill process is not feasible;
- For in-process sampling, the operator shall take one (1) samples of the pipeline water following depressurization. The operator shall analyze and evaluate these in-process samples prior to discharge and if the analysis demonstrates that the effluent water quality is not consistent with the limitations established in this permit, the operator shall not discharge the effluent until treatment reduces the pollutant level below the limitations established in this permit; and
- For effluent sampling, the operator must take one (1) sample of the discharge water during the first 10% of discharge, one (1) sample of the discharge water at the approximate midpoint of discharge, and one (1) sample during the last 10% of discharge. If at any time the analysis demonstrates that the discharge water quality is not consistent with the effluent limitations established in this permit, the operator shall cease discharging the effluent until further treatment achieves the effluent limitations.

The 2016 RGP specifies that effluent samples must be analyzed in accordance with 40 CFR §136 or by other methods authorized by this general permit with a rush (i.e., three-day) turnaround time. This turnaround time reflects the expected short duration of testing and the need to ensure in-process samples will meet effluent limitations prior to the initiation of

discharge. All applicable effluent limitations included in Part 2 (Effluent Limitations and Monitoring Requirements), and all other applicable monitoring, record-keeping and reporting requirements included in Part 4 (Monitoring, Recordkeeping, and Reporting Requirements) of the 2016 RGP continue to apply. Note: Facilities with individual NPDES permit coverage for discharges of hydrostatic test water may request coverage for these discharges under this general permit, if desired.

These requirements are intended to provide adequate characterization of the influent, in-process, and effluent hydrostatic test water and are similar to requirements for similar facilities that discharge hydrostatic test water to Massachusetts receiving waters under individual permits issued by EPA to industrial facilities with similar discharges (e.g., bulk petroleum storage terminals) in Massachusetts and New Hampshire. The monitoring requirements are intended to identify whether any residual pollutant concentrations present in the hydrostatic test water meet the effluent limitations and requirements in the permit or if additional effluent limitations or control measures are necessary to meet State water quality standards.

2. Other Short-Term Discharges

Consistent with the 2010 RGP, the monitoring requirements imposed on discharges lasting less than one week (7 days), which are then terminated and are not planned to be restarted, are considered "short-term discharges" under the 2005 and 2010 RGP. Activity Categories III, V, VI, VII, and VIII may be considered other short-term discharges for the purposes of the 2016 RGP. **Discharges related to the pipeline and tank dewatering must sample as described in Section V.E.1, above.** For all other short term discharges, the 2016 RGP requires sampling and analysis of a minimum of two (2) representative samples for both influent and effluent. This requirement is consistent with the 2010 RGP. The first sample must be collected within 24 hours of discharge initiation and be analyzed with a rush turnaround time. A single sample is only permitted for a discharge lasting 24 hours or less. All applicable effluent limitations included in Part 2 (Effluent Limitations and Monitoring Requirements), and all other applicable monitoring, record-keeping and reporting requirements included in Part 4 (Monitoring, Recordkeeping, and Reporting Requirements) of the 2016 RGP continue to apply.

EPA recognizes that discharges meeting the definition of a short-term discharge could occur more than once at a site over the term of the general permit, such as when multiple tests are required. EPA believes such instances can still be monitored and reported as short-term discharges. Reporting requirements associated with submitting an NOT, as is the case for discharges lasting less than one year, apply, even if multiple individual discharge events are expected over more than one year. However, reporting requirements for discharges lasting more than one year, including requirements for the use of NetDMR, do not apply.

EPA also acknowledges that due to the time requirements for samples to be sent to a laboratory, analyzed, and the results returned, a discharge may have ceased or be nearly complete by the time the laboratory results are available to the operator for review. The operator is required to apply appropriate BMPs and utilize available field screening techniques in conjunction with accepted pollution control technology to assure compliance with the effluent limitations of the 2016 RGP regardless of limitations to the turnaround time for samples.

F. Record-Keeping Requirements

EPA is required by 40 CFR §122.41(j) to include in the permit the requirement to retain records. General record-keeping requirements are included in the draft RGP in Appendix IX, Standard Conditions. The 2016 RGP also identifies certain specific records (hard copy or electronic) that must be retained by an operator. These include:

- Data used to complete the Notice of Intent (NOI) for this NPDES General Permit;
- Sample collection information, including the date, exact location, and time of sampling or measurements, the names of the individual(s) who performed the sampling or measurements, and the sample chain of custody for each sample;
- The analytical laboratory report, including the results, the date(s) analyses were performed, the names of the laboratory and/or individual(s) who performed the analyses, and the analytical techniques or methods used for each analysis;
- Documentation for the development, implementation and maintenance of the BMPP, including certifications;
- Discharge monitoring data summarized in accordance with the instructions in Appendix VIII;
- All records of monitoring instrumentation, field monitoring, and visual observations (e.g. portable organic vapor monitoring, turbidity meter, visible sheen observations, etc.);
- All records of system operation and maintenance; and
- All records of site inspections and employee training.

The 2016 RGP also specifies which records must be maintained on-site (hard copy or electronic) or with the operator. These include:

- A complete copy of this general permit;
- A copy of EPA's authorization to discharge and any subsequent modifications, if applicable;
- Copies of any information submitted to EPA and the State, including DMRs;
- Copies of any correspondence received from EPA and the State regarding permit coverage; and
- A copy of the BMPP.

EPA believes this uniform requirement enables an EPA and/or State inspector to obtain and review the information relevant to this general permit upon request and/or site inspection, in a consistent and comparable manner.

G. Reporting Requirements

The 2010 RGP required an operator to maintain monitoring records and provide them to EPA and/or the State upon request or inspection. Reporting requirements in the 2010 RGP included a requirement to submit "certifications" at various intervals. In addition, the 2010 RGP required verbal and/or written notification to EPA and the appropriate State in the event of certain exceedances (e.g., "bypass" or "upset" under the Standard Conditions). The 2010 RGP also included a notification requirement in the event of an exceedance of an effluent limitation that

requires a discharge to cease or a treatment system to shut down. In consideration of the changes made to the monitoring program in the 2016 RGP, EPA does not believe reliance solely on requesting information from every site on a case-by-case basis and operators providing limited mandatory information will ensure that EPA and the States have the information necessary to ensure that the RGP contains the effluent limitations and requirements necessary to meet State water quality standards or that sites are in compliance with the general permit. Further, electronic reporting of monitoring data and related information better allows for EPA's timely assessment of information and for greater transparency regarding sites covered under this general permit.

Therefore, EPA has made the following changes to reporting requirements as compared to the 2010 RGP:

- **For any discharge lasting twelve (12) months or more**, in addition to the reporting requirements found in Appendix IX, Standard Conditions, the 2016 RGP requires that monitoring data and other related information be submitted electronically to EPA and the appropriate State: 1) monthly; and 2) beginning with the first calendar month that is one (1) year following the authorization to discharge. Depending upon the calendar date which marks twelve (12) months following the authorization to discharge, the first reporting period may be less than one (1) month. A No Data Indicator (NODI) Code will need to be used to report any months in a monitoring period in which no discharges occurred or the operator was not required to report (e.g., "C" for "no discharge"). For the first twelve (12) months following authorization to discharge, except for the reporting requirements found in Appendix IX, Standard Conditions and specific additional requirements for submission of a NOC, an operator is not required to submit monitoring data and related information to EPA or the appropriate State unless otherwise requested.
- **For any discharge lasting less than twelve (12) months** except for the reporting requirements found in Appendix IX, Standard Conditions and specific additional requirements for submission of an NOT upon termination of discharge, an operator is not required to submit monitoring data and related information to EPA or the appropriate State unless otherwise requested.
- EPA has eliminated the pollutant re-certification requirements included in the 2010 RGP since discharges which will continue for twelve (12) months or more are subject to routine monitoring requirements in the 2016 RGP.

The proposed reporting requirements are in accordance with regulations at 40 CFR §122.44(i)(2) and 40 CFR 122.29(d)(4).

The regulation at §122.41(l)(4)(i) requires that monitoring data be reported on DMRs. Therefore, when reporting is required, an operator must submit monitoring data using a DMR through NetDMR. All DMRs submitted after **December 21, 2016** must be submitted electronically using NetDMR. DMRs must be submitted no later than the 15th of the month in each calendar month. NetDMR is a national web-based tool for regulated CWA sites to submit DMRs electronically via a secure internet application to EPA through the Environmental Information Exchange Network. NetDMR allows users to discontinue mailing in hard copy forms under 40 CFR

§122.41 and §403.12. Further information about NetDMR[155] can be found on the EPA Region 1 NetDMR website.[156]

In most cases, other reports required under the 2016 RGP can be submitted to EPA as an electronic attachment through NetDMR. Certain exceptions are provided in the permit such as for providing written notifications required under the Standard Conditions and in relation to the submission of a NOI, NOC or NOT. With the use of NetDMR to report DMRs and reports, an operator is no longer be required to submit hard copies of DMRs or other reports to EPA and is no longer required to submit hard copies of DMRs to the States. If a monitoring frequency reduction is approved by EPA, any operator with reporting requirements will need to use an appropriate No Data Indicator Code (NODI) for DMRs (e.g., "A" for "General Permit Exemption" or "9" for "Conditional Limit"). A NODI code must also be used to report any monitoring period in which no discharges occurred (e.g., "C" for "no discharge").

The reporting requirements included in the 2016 RGP are within EPA's discretion under CWA §402(a) and §308(a). §402(a) provides that: "[t]he Administrator shall prescribe conditions for permits to assure compliance…including conditions on data and information collection, reporting, and such other requirements as he deems appropriate." §308(a) authorizes the Agency to require owners/operators to "make such reports" and "provide such other information as [the Administrator] may reasonably require." Monitoring and reporting requirements under the NPDES permitting program are designed to be "self-implementing" and "self-reporting". This means that the operator is accountable for all aspects of the work to ensure compliance, including the selecting of contractors, paying for the work that is performed, and ensuring that such work is conducted and properly reported to the appropriate permitting authority through DMRs. Permitting authorities in turn load monitoring data into the Integrated Compliance and Information System (ICIS), which is then uploaded into EPA's Enforcement and Compliance History Online (ECHO) website,[157] becoming public record. Interested persons can access compliance data submitted by the sites through ECHO. EPA Region 1 also maintains a dedicated website for information regarding the RGP.[158] The reporting requirements included in the 2016 RGP advance CWA goals by increasing EPA's ability to assure compliance and provides for increased public awareness through electronic reporting and posting, thereby improving compliance by providing operators with greater incentive to comply with their permits.

VI. Administrative Requirements

A. Changes in Coverage

1. Notice of Change (NOC) Information

Operators must submit a signed and certified NOC, with supporting rationale and documentation when one or more of the following changes are requested:

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[155] Currently accessed at: http://www.epa.gov/netdmr
[156] Currently accessed at: http://www.epa.gov/region1/npdes/netdmr/index.html
[157] Currently accessed at: http://www.epa-echo.gov/echo/
[158] Currently accessed at: http://www.epa.gov/region1/npdes/rgp.html

- Request for reduction in certain monitoring requirements

A request may be provided in a NOC for the reduction of certain monitoring requirements upon demonstration of compliance if the eligibility requirements for reduction are met. Written approval by EPA is required for this change to be effective. Prior to receiving written approval, the operator must continue to monitor the parameters required in this general permit at the frequency specified in this general permit.

This request requires supporting rationale and monitoring data as follows: 1) To be eligible for a reduction in monitoring required for treatment system startup, restart or shutdown due to technical infeasibility, the operator must provide justification for each analyte for which reduction is being requested that must include a proposed monitoring frequency; 2) To be eligible for a reduction in **influent** monitoring, the operator must provide monitoring data for a minimum of six (6) consecutive months of laboratory data and ten (10) samples for each analyte for which reduction is being requested; 3) To be eligible for a reduction in **effluent** monitoring, the operator must provide monitoring data for a minimum of six (6) consecutive months of laboratory data and ten (10) samples for each analyte for which reduction is being requested; 4) Monitoring data must be submitted in support of requests for reduction of monitoring frequency. Monitoring data submitted in support of this change request must be in compliance with the monitoring, reporting and QA/QC BMP requirements specified in the RGP and must be attached in accordance with the instructions in Appendix VIII; 5) Any analyte for which a reduction is requested must be in compliance with the effluent limitation for that analyte; and 6) The maximum reduction requested for the monitoring frequency for a parameter believed to be absent or in compliance with an effluent limitation is no less than once per year.

- Request for a change in the site-specific effluent flow limitation

A request may be provided in a NOC for a change in the site-specific effluent flow limitation if effluent flow increases, a change in flow conditions may decrease the daily maximum effluent flow by more than 25 percent, or an operator believes use of a flow meter is infeasible. Written approval by EPA is required for this change to be effective. Prior to receiving written approval, the operator must continue to limit flow as required in this general permit at the frequency specified in this general permit.

Written rationale provided in the NOC for this request must indicate: 1) The effluent flow will not exceed 1.0 MGD; 2) The design flow of the treatment system will not be exceeded; 3) WQBEL calculations for all other limited parameters that apply to the discharge that are based on flow; and 4) Certification that any revised effluent limitation or monitoring requirement will be complied with.

- Request for a change in pH range for sites in New Hampshire

A request may be provided in a NOC for a change in pH range for sites in New Hampshire due to naturally occurring conditions in the receiving water or where the naturally occurring source water is unaltered by the remediation/dewatering activities. An operator must request and receive approval from NHDES for a change in pH range prior to submitting a NOC to EPA for this

change request. Supporting documentation from the State must be provided with the NOC. Written approval by EPA is required for this change to be effective.

- Request for a change in authorized pollutants or pollutant parameters

A request may be provided in a NOC for a change in authorized pollutants or pollutant parameters when a parameter limited in this general permit that is not included in the site's authorization to discharge is identified. Written approval by EPA is required for this change to be effective. Additional effluent limitations and/or monitoring requirements may apply. **Changes in a pollutant or pollutant parameter not limited in this general permit require a new NOI or an individual NPDES permit.**

- Request to discharge chemical(s) and/or additive(s)

A request may be provided in a NOC for a change in chemical(s) and/or additive(s) when an operator intends to discharge a chemical or additive that was not disclosed in the NOI submitted for a site. Written approval by EPA is required for this change to be effective. Monitoring data submitted in support of this change request must be in compliance with the monitoring, reporting and QA/QC BMP requirements specified in the RGP and must be attached in accordance with the instructions in Appendix VIII.

Written rationale provided in the NOC for this change request must include: 1) All information required in Part 2.5.2.e(1) of the RGP; and 2) An explanation as required in Part 2.5.3 of the RGP; or 3) Monitoring data that demonstrates that each of the 126 priority pollutants are non-detect in discharges with the addition of the requested chemicals and/or additives. All data submitted in support of this change request must be in accordance with the instruction in Appendix VIII and must be in compliance with monitoring requirements and QA/QC BMP requirements included in the RGP.

- Request for a change in pH range for sites in Massachusetts

A request may no longer be provided in a NOC for a change in pH range for sites in Massachusetts. In establishing WQBELs in accordance with 314 CMR 3.00 (Massachusetts Surface Water Discharge Permit Program), MassDEP takes into consideration "natural background conditions and existing discharges." 314 CMR 4.03(1)(a). Also see 314 CMR 4.03(5). Operators for sites located in Massachusetts may elect to request a variance for the pH WQBELs included in this general permit. An operator may undertake a demonstration that the pH range may be widened due to naturally occurring conditions in the receiving water or the naturally occurring source water is unaltered by the site discharges. An operator must receive prior approval from the MassDEP for any such demonstration. If a variance is granted by MassDEP, the operator must submit a new NOI to EPA including the request for a site-specific pH range for their site. EPA notes that in no case can EPA authorize a discharge with a pH outside of the range 6.0 - 9.0 standard units (SU), the applicable TBEL for this general permit, based on promulgated ELGs for similar discharges.

Operators must also submit a completed NOC that is signed and certified to provide notification of one or more of the following:

- Notification of change to administrative information

Notification may be provided in a NOC for a change in certain administrative information. This includes, but is not limited to, expected date of initiation of discharge(s), a change in the address for an owner or operator, a change in contact information for an owner or operator, and a transfer of ownership, so long as the operator authorized to discharge under this general permit remains unchanged. A requested transfer of ownership is automatic unless EPA notifies the existing and proposed new owner(s) otherwise. Examples of when EPA is likely to provide such notification is when EPA intends to revoke and reissue coverage under this general permit or intends to issue an individual permit. For a transfer in ownership, the owners must submit: 1) Notice to EPA at least 30 days prior to the transfer date; and 2) A written agreement between the new and existing owners containing a specific date for transfer of permit responsibility, coverage, and liability between them.

For a change in operator, a new NOI is required, as authorization under a general permit is not transferrable. Operator changes require that the existing operator file a NOT when the owner intends to cease discharges, thus relieving that operator of any obligation under this general permit. The new operator would then need to submit a NOI to be covered under this general permit prior to commencing discharge. NOTs and NOIs must be completed using either the suggested format provided by EPA (found in Appendix IV of the general permit), or other format of correspondence that incorporates all of the information required in Appendix IV. NOTs and NOIs must be submitted to EPA and the appropriate State.

- Notification of a change in discharge location

Notification may be provided in a NOC for a change in discharge location so long as the receiving water identified in the NOI remains unchanged. Supporting documentation must indicate the new discharge location. A change in discharge location is automatic unless EPA notifies the operator otherwise. **For changes in receiving water, a new NOI is required**.

- Notification of a change in activity area

Notification may be provided in a NOC for a change in activity area so long as the receiving water identified in the NOI and the operator named in the authorization to discharge remain unchanged, and any change in treatment or discharge location are either included in the NOC, or are unchanged. Supporting documentation must indicate the new activity area. A change in discharge location is automatic unless EPA notifies the operator otherwise. **For changes in receiving water and/or operator, a new NOI is required**.

- Notification of a change to a treatment system or process

Notification may be provided in a NOC for a change to a treatment system or process that adds or removes any major component. Written rationale provided in the NOC for this notification

must indicate: 1) The addition or removal is necessary to meet an effluent limitation included in the RGP; and 2) The discharge continues to meet the effluent limitations in the RGP with the addition or removal.

- Notification of a temporary cessation of discharge

Notification may be provided in a NOC of a temporary cessation of discharge planned or encountered which will extend greater than 90 days. Written rationale provided in the NOC for this notification must indicate: 1) The reason(s) for the interruption or cessation of discharge; When the discharge ceased or will cease; 2) When the discharge will be re-initiated; and 3) An acknowledgment that the additional monitoring required for system re-start will be conducted and routine sampling will be resumed as required by the RGP.

2. Notice of Termination (NOT) Information

Operators must submit a signed and certified NOT when one or more of the following conditions have been met:

- All discharges covered by the RGP have been terminated;
- Coverage under an individual or alternative general NPDES permit has been obtained;
- There is a change in the authorized owner/operator; or
- Authorization to discharge has expired and coverage under a new general permit will not be requested prior to the end of the authorized 90-day re-application period, at which time all discharges will terminate.

NOTs must be completed using either the suggested format provided by EPA (found in Appendix IV of the general permit), or other format of official correspondence that incorporates all of the information required in Appendix IV. NOT formats and attachments must be submitted to EPA and the appropriate State agency at the addresses listed in Appendix IV. The NOT must include:

- The name of the site/project and street address (or a description of location using approximate geographic coordinates if no street address is available) for which the notification is submitted;
- The name, address and telephone number of the owner and/or operator of the site;
- The NPDES permit number assigned;
- The basis for submission of the NOT, including: 1) an indication that the discharge has been permanently terminated; 2) the reason for the termination (e.g., completion of construction project, remediation completion, termination of temporary discharge); and 3) the date of termination;
- The initiation date of the discharge, the frequency of discharge, and a summary of all monitoring results, in electronic format, or hard copy format, if electronic submittal is impracticable; and
- A certification statement signed and dated by an authorized representative according to 40 CFR§122.22 (see Appendix IV, NOT instructions).

The NOT must be completed and submitted **within 30 days** following the permanent cessation of the discharge(s) authorized by the RGP, **within 30 days** following the effective date of an alternative permit, **30 days prior** to a change in ownership, or **30 days prior** to the end of the 90-day re-application period.

B. Continuation of the Expired General Permit

If this permit is not reissued prior to the expiration date, it will be administratively continued in accordance with the Administrative Procedures Act and remain in force and in effect as to any particular operator. Any operator granted coverage prior to the permit's expiration date will automatically remain covered by the continued permit until the earliest of:

- Reissuance of this General Permit, at which time the operator must comply with the NOI conditions of the new permit;
- The operator terminating coverage by submitting a Notice of Termination;
- Issuance of an individual permit for the operator's discharges; or
- A formal decision by EPA not to reissue the general permit, at which time the operator must seek coverage under an alternative general permit or an individual permit.

However, should the permit expire prior to a replacement permit being issued, the existing permit will only cover those operators that submitted a complete and accurate NOI and met all the eligibility requirements prior to the expiration date of the permit. New projects requiring permit coverage after the expiration date of this permit are not eligible for coverage until a replacement permit is issued. Applicants may consult with the administrator of the RGP to determine potential NPDES coverage options.

VII. Standard Permit Conditions

Operators must meet the standard permit requirements of 40 CFR §122.41 and 122.42, as applicable to their discharge activities. These requirements are provided in Appendix IX, Standard Conditions of the 2016 RGP.

VIII. Other Legal Requirements

A. Section 401 Certifications

Section 401 of the CWA provides that no Federal license or permit (including NPDES permits) to conduct any activity that may result in any discharge into navigable waters shall be granted until the State in which the discharge originates either certifies that the discharge will comply with the applicable provisions of §§301, 302, 303, 306, and 307 of the CWA or it is deemed that the State has waived its right to such certification. Upon public notice of the draft 2016 RGP, EPA will request that the Commonwealth of Massachusetts and the State of New Hampshire conduct §401 reviews and issue §401 certifications. The §401 certifications should include the specific conditions necessary to assure compliance with applicable provisions of CWA §§208(e),

301, 302, 303, 306 and 307 and with appropriate requirements of State law. EPA expects that the draft permit will be certified by both the Commonwealth of Massachusetts and the State of New Hampshire.

For lands held by federally recognized tribes, EPA will provide the necessary certification. Currently, the only federally recognized tribes in Massachusetts or New Hampshire are the Mashpee Wampanoag Tribe, and the Wampanoag Tribe of Gay Head (Aquinnah) on the island of Martha's Vineyard (formerly the Wampanoag Tribal Council of Gay Head, Inc.).

B. Environmental Impact Statement Requirements

The 2016 RGP does not authorize discharges from any new sources as defined under 40 CFR §122.2. Therefore, the National Environmental Policy Act, 33 USC §4321 *et seq.*, does not apply to the issuance of this general permit. EPA notes that there is a distinction between "new discharge" and "new source". Discharges covered by this general permit are generally considered new or existing discharges, but not new sources.

C. Section 404 Dredge and Fill Operations

The 2016 RGP continues to cover certain discharges resulting from certain short-term dredging-related activities, including, but not limited to: short-term pilot study or similar activity associated with dredging, and dredge material dewatering, including drain back waters. Authorization to discharge under the 2016 RGP would only be possible for dredge-related activities where the United States Army Corps of Engineers does not intend to issue a formal permit under 33 USC §1344 (§404 of the CWA) for the activities. This general permit does not authorize dredging or disposal of dredge material. This general permit does not constitute authorization under §404 of any dredging or filling operations.

8/18/2016

Ken Moraff, Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency