BEFORE THE ENVIRONMENTAL APPEALS BOARD
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C.

In re: City of Lowell, Massachusetts **NPDES Permit No. MA0100633**	)	**Case no. ____**

PETITION FOR REVIEW

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INTRODUCTION

Pursuant to 40 C.F.R. §124.19(a) the City of Lowell, a municipal corporation of the State of Massachusetts ("Petitioner" or "City"), petitions for review of the conditions of NPDES Permit No. MA 0100633 (the "Permit"), which was issued to the City on September 25, 2019 by the U.S. Environmental Protection Agency, Region 1 ("EPA" or the "Region"). The Permit was received by U.S. Mail by the City on October 2, 2019.

The NPDES Permit in effect prior to the reissuance was issued by EPA on September 1, 2005, and the City timely applied for reissuance prior to the nominal expiration date of October 31, 2010. By EPA regulation the Permit remained in effect until the December 1, 2019 effective date of this reissuance.

The Permit at issue in this proceeding authorizes the City to continue to discharge treated wastewaters to surface waters of the United States. Those wastewaters include those from the City's Combined Sewer System ("CSS").

Petitioner contends that certain permit conditions are based on clearly erroneous findings of fact and conclusions of law. For many of the Permit conditions that Petitioner challenges, EPA's underlying error was to ignore the proper permitting of the City's Combined Sewer System; the Clean Water Act ("CWA") section 402(q) provisions, 33 U.S.C. § 1342(q), requiring that NPDES permits conform with EPA's Combined Sewer Overflow Control Policy ("CSO Control Policy"); and the City's CSO Long Term Control Plan ("LTCP") implementing the CSO Control Policy. These fundamental errors leave the City with a Permit that is legally deficient and inherently inconsistent with the LTCP (for example, the requirement that flow be maximized through the treatment plant on one hand while prohibiting the use of the City's high rate treatment system on the other), and imposes requirements with which it cannot possibly comply.

Most importantly these inconsistencies will seriously detract from the City's (and EPA's) efforts toward protecting water quality.

The Permit also ignores the City's pending submittal (December 2019) of its Integrated Plan in accordance with section 402(s) of the Clean Water Act.

Several of the issues the City presents are of national significance, and merit the Environmental Appeal Board's approval of our request herein for oral argument before the Board.

Specifically, Petitioner challenges the following Permit conditions.

1. Total Phosphorus Monthly Average Limit (Summer), Permit Part I.A.1
2. Effluent Flow Limit, Permit Part I.A.1
3. E. Coli Daily Maximum Limit, Permit Part I.A.1
4. Whole Effluent Toxicity Testing Frequency, Permit Part I.A.1
5. Metals Testing Frequency, Permit Part I.A.1
6. Failure to Address the CSO Long Term Control Plan in accordance with Section 402(q) of the Federal Water Pollution Control Act.
7. Imposition of a CSO Secondary Bypass Prohibition, Permit Part I.A.1 fn. 5, 13 &15, Part II.B.4
8. General Water Quality Standards Compliance Language, Permit Part I.A.2
9. General Water Quality Standards Compliance Language for CSOs, Permit Part I.F.2.b
10. Requirements to Sample on Specified Times and Days, Permit Part I.A.1 fn. 1

As detailed in the Conclusion, the City requests the opportunity for oral argument before the Board. The City bases this request on (1) the national implications and national importance of consistency between NPDES permits and EPA's CSO Control Policy, and the absence of that consistency in this Permit; (2) the Region's continued application of EPA nutrient guidance in

many permits and in uniform manner, as if its included numeric values were promulgated water quality criteria; and (3) inconsistencies nationally and within Region 1 in NPDES permit monitoring, general water quality standards compliance provisions and other permit provisions.

THRESHOLD AND PROCEDURAL REQUIREMENTS

The Petitioner satisfies the threshold requirements for filing a Petition for Review under 40 C.F.R. Part 124, to wit:

1. Petitioner has standing to petition for review of the Permit because it is the permittee and is thereby particularly affected by the conditions of the Permit, and it participated in the public comment period on the Permit. *See* 40 C.F.R. §124.19(a). The City's written comments will be included by the Region in the Administrative Record.

2. The issues raised by Lowell in its Petition were raised during the public comment period, and were therefore preserved for review. *See* Response to Comments (EPA Region 1).

FACTUAL AND STATUTORY BACKGROUND

The Permit addresses and authorizes the treated wastewater discharges from the Lowell Regional Wastewater Utility's Duck Island wastewater treatment plant ("Duck Island") and the City's wastewater collection system, as well as from the collection systems of the Towns of Chelmsford, Dracut, Tewksbury and Tyngsborough. The four Towns are co-permittees for purposes of operation and maintenance of their respective collections systems and the discharges from those systems into Lowell's collection system and/or treatment facility.

The City's collection system is a Combined Sewer System with nine (9) Combined Sewer Overflow ("CSO") outfalls, which are addressed and authorized by the Permit. As we note above, the CSS and CSO outfalls are also addressed by the City's Long Term Control Plan. It is

critical that the Permit provisions be consistent with the LTCP provisions and requirements. The LTCP provisions are currently effective and impose specific requirements on the City related to CSO controls and system improvements. Both the City and EPA anticipate future revisions to the LTCP as experience is gained and improvements to the CSS are made, and it is critical that the Permit not be inconsistent with and inhibit the implementation of either the current LTCP or future LTCP changes. The Permit must address the City's LTCP development and implementation.

ISSUES PRESENTED FOR REVIEW

The City of Lowell presents the following issues for review.

1. Total Phosphorus Monthly Average Limit (Summer). Permit Part I.A.1 imposes a summer (April to November) monthly average effluent limit of 1.08 milligrams per liter ("mg/l" or parts per million) on Total Phosphorus ("TP"). The TP limit is based on an EPA conclusion that instream TP concentrations and other environmental conditions result in excessive levels of chlorophyll a downstream in the receiving waters, which it refers to as cultural eutrophication.[1] The Region erroneously and improperly applied a purported EPA "Gold Book" guidance criterion of 0.1 mg/l for instream TP as an erroneous and illegal application of the Massachusetts narrative water quality standard.

2. Effluent Flow Limit. Part I.A.1 imposes a rolling annual average limit of 32 million gallons per day ("MGD") on the Duck Island effluent discharge volume. The Region was without legal basis and authority for imposing a flow limit. Further, the flow limit is fundamentally inconsistent with the CSO requirement to maximize flow through the plant (not

[1] Cultural Eutrophication. The human induced increase in nutrients resulting in acceleration of primary productivity, which causes nuisance conditions, such as algal blooms or dense and extensive macrophyte growth, in a waterbody. 314 CMR 4.02.

limit it) and is completely unnecessary to maintain water quality.

3. Escherichia Coli Daily Maximum Limit. Part I.A.1 imposes a daily maximum effluent limit of 409 Escherichia Coli ("E. coli") bacteria colonies per 100 milliliters ("cfu/100 ml"). In light of a monthly average geometric mean limit (also imposed), the daily maximum limit is redundant and unnecessary as well as inconsistent with EPA's own NPDES program regulations (which specify monthly and weekly limits). This daily maximum limit is also counterproductive because it can limit the CSO flow that can be treated at the plant.

4. Whole Effluent Toxicity Testing Frequency. Part I.A.1 imposes a testing and measurement frequency of once per quarter for Whole Effluent Toxicity ("WET"). There is no rational basis for this monitoring requirement.

5. Metals Testing Frequency. Part I.A.1 imposes, in conjunction with the requirements for WET, a testing and measurement frequency of once per quarter for ten (10) metals and other water quality parameters. There is no rational basis for this monitoring requirement.

6. Failure to Address the Long Term Control Plan. The Permit does not reference or incorporate the LTCP requirements and provisions. The failure to incorporate the LTCP leads to inconsistencies with the current provisions of the Permit, which the Petitioner is unable to resolve while maintaining compliance with both the Permit and the EPA-imposed LTCP. It is also inconsistent with CWA section 402 (q) to fail to incorporate the LTCP development and implementation into the permit.

7. CSO Secondary Bypass Prohibition. Part I.A.1 footnote 5, and Part II.B.4 prohibit the bypass of secondary treatment portions of the Plant unless consistent with the restrictive conditions of EPA's general bypass regulation. This restriction will prevent the City from using its high flow treatment system, which is used to maximize wet weather flows that are treated at

the facility. This restriction also creates an irreconcilable conflict within the permit (maximize CSO flow but don't use the high flow treatment system). The failure to allow CSO secondary treatment bypasses other than under EPA's restrictive generic bypass conditions is inconsistent with other portions of the Permit that mandate the maximization of flow through the treatment plant as well as the City's LTCP.

8. General Water Quality Standards Compliance Language. Part I.A.2 provides generically that the permitted discharge shall not cause a violation of water quality standards in the receiving waters. The condition is arbitrary and capricious because it is unnecessary in light of the limitations for specific pollutant parameters and for whole effluent toxicity (WET) imposed in the Permit. It also illegally deprives the City and the permittee of the Permit Shield protections provided under the CWA and EPA's NPDES program regulations, as well as a compliance schedule should an additional effluent limit be necessary that the facility cannot immediately meet.

9. General Water Quality Standards Compliance Language for CSOs. Part I.F.2.b provides generically that the permitted CSO discharges shall not cause a violation of water quality standards in the receiving waters. The condition is arbitrary and capricious because it is unnecessary in light of the limitations for specific pollutant parameters and for whole effluent toxicity imposed in the Permit. It also illegally deprives the City as the permittee of the Permit Shield protections provided under the CWA and EPA's NPDES program regulations. 33 U.S.C. §1342(k) (CWA section 402(k)). Finally, it is directly inconsistent with section 402(q) of the Clean Water Act, in that it requires immediate compliance with water quality standards, rather than providing a compliance schedule through the City's CSO LTCP.

10. Requirements to Sample on Specified Times and Days. Part I.A.1 footnote 1 requires

that the Petitioner's routine effluent sampling program be developed such that samples for the various Permit-limited parameters specify the same time of day and the same days of the week for the sampling to be conducted each month. The provision is arbitrary and capricious, and is counterproductive to a full and complete data set properly assessing Permit compliance and effects on instream water quality. It is also inconsistent with law and interferes with the City's operation of the facility.

ARGUMENT

1. Total Phosphorus Monthly Average Limit (Summer). Lowell is committed to doing its part to protect the Merrimack River and is in the midst of a significant treatment facility upgrade toward that end. The upgrade is expected to further improve Duck Island's phosphorous performance.

Nevertheless, the City objects to the 1.08 mg/l limit, which the Region characterizes as based on EPA 1986 "Gold Book" instream water quality criterion guidance for TP of 0.1 mg/l.[2] However, the fact of the matter is that the Gold Book does not present a water quality criterion for TP for the control of cultural eutrophication. "No national criterion is presented for phosphate phosphorus for the control of eutrophication." Gold Book at pp. 241-49. It mentions the 0.1 mg/l number for this purpose only in referring to a single 1973 study, not described or expounded upon. This minimal Gold Book reference is far from an EPA CWA section 304

[2] *See* https://www.epa.gov/wqc/quality-criteria-water-gold-book. *See also*, https://www.epa.gov/wqc/basic-information-water-quality-criteria; *("EPA develops criteria for determining when water has become unsafe for people and wildlife using the latest scientific knowledge. These criteria are recommendations. State and tribal governments may use these criteria or use them as guidance in developing their own"). See also, "Guidance document" means an agency statement of general applicability, intended to have future effect on the behavior of regulated parties, that sets forth a policy on a statutory, regulatory, or technical issue, or an interpretation of a statute or regulation…."" Executive Order, October 9, 2019 at Section 2(b).* https://www.whitehouse.gov/presidential-actions/executive-order-promoting-rule-law-improved-agency-guidance-documents/

water quality criterion, and the 0.1 mg/l number should have never been used for this purpose.

EPA's regulation is clear that where a state has not adopted a criterion for a specific pollutant that is determined to have reasonable potential for an excursion above a narrative criterion, the permit agency has several options. It may develop a numeric criterion based on a proposed state criterion or an explicit state policy or regulation interpreting its narrative criteria. 40 C.F.R. §122.44(d)(1)(vi)(A). It may establish effluent limits on a case-by-case basis using EPA section 304(a) criteria. *Id*. §122.44(d)(1)(vi)(B). It may establish effluent limitations on an indicator parameter. *Id*. §122.44(d)(1)(vi)(C). Here the Region has done none of these, and its procedure is not in conformance with its own regulation.

Notwithstanding this minimal underpinning of the Region's 0.1 mg/l TP number, the City does not understand why EPA, if it wishes to use the number as it has, has not adopted its purported "Gold Book" value through rulemaking in light of its use of the number in many NPDES permits as if it was an adopted state or federal water quality standard. It is both legally necessary and appropriate for EPA to provide the public with the safeguards of rulemaking to evaluate the appropriateness of the Gold Book-based limits, along with how those criteria will be implemented. Rulemaking is particularly warranted given that EPA is imposing the same Gold Book limit on all of the dischargers to the Merrimack River. It is clearly being applied as a binding norm and, therefore, meets the definition of a regulation. We also note that, in addition to the opportunity for stakeholders to evaluate the appropriateness of the Gold Book criteria in notice and comment rulemaking, such rulemaking brings additional safeguards such as compliance with various Executive Orders and financial impact analyses. In particular, we believe application of the Gold Book in Lowell's permit violates the President's most recent Executive Order on agency transparency.

Binding numeric or other water quality standards must be adopted by agency rulemaking. 33 U.S.C. §1313(c)(4) (CWA section 303(c)); ALM GL ch. 21 §27; 314 CMR 4.00. EPA's application of the Gold Book number without first promulgating it is contrary to law. Every other limit in the City's permit can be tied back to a promulgated water quality standard. Why are nutrients legally any different?

Putting aside EPA's failure to promulgate, the issue of how to set a water quality-based permit limit does not arise unless first EPA determines that there is reasonable potential for the instream exceedance a water quality standard. *40 C.F.R. § 122.44(d)(1)(ii)*. Here, EPA considers that it applied the Massachusetts narrative water quality standard by use of the Gold Book guidance number, and used instream dilution calculations to conclude that the City's treated wastewater discharge has the reasonable potential to exceed that number. EPA Response to Comments at 18. We note that EPA's 2010 Permit Writers' Manual, in section 6.4, provides guidance on assessing reasonable potential using water quality models. For conservative pollutants, EPA recommends the use of steady-state dilution models; however, for non-conservative parameters like Total Phosphorus or other nutrients, EPA instead recommends "modeling that accounts for biological activity or reaction chemistry." EPA Response to Comments at 7 (citing EPA's 2010 Permit Writers' Manual, section 6.4).[3] EPA's dilution-based approach for nutrients, as described in EPA's Fact Sheet, is inconsistent with EPA's own permitting guidance.

Often a more appropriate water quality model that considers reactivity is not available. However, Lowell commented that it is currently developing a Qual2K reactive model (a typical

[3] National Pollutant Discharge Elimination System (NPDES) Permit Writers' Manual, EPA-833-K-10-001 Sept. 2010.

EPA-approved approach) for the Lowell reach of the Merrimack River. Once calibrated, the model's output would be used to predict instream conditions for response variables associated with TP or other nutrients, such as dissolved oxygen and algal growth, thus supporting a more accurate evaluation of reasonable potential for the City's discharge to cause or contribute to any water quality impairment associated with nutrients, and proper water quality-based limits if they are necessary.

Accordingly, the City requested that EPA as an interim measure impose a TP loading limit for Lowell based on its 2.24 mg/L multi-year annual average concentration (from EPA's Fact Sheet at 16) and its 32 MGD facility design flow. It further asked that the Permit require Lowell to optimize its ongoing Plant treatment facilities upgrade, and then report to EPA on the facility's TP removal performance before a reasonable potential determination would be performed. A two-year timeframe was necessary in order for Lowell to complete its current TP reduction improvements and optimize system performance. The City further requested that the Permit include a reopener that would incorporate any new limit based on site specific data acquired from the Qual2K modeling then ongoing, and impose a compliance schedule for any more restrictive limit based on the water quality model, consistent with the schedule for the same in Lowell's approved CWA section 402(s) Integrated Plan. That Integrated Plan will be submitted to EPA by the end of 2019. City's comments at 12.

The City also commented that EPA should provide a revised TP allocation that reflects the anticipated instream reductions that will result from the upstream facilities' NPDES permit-required reductions to their TP loadings. City's comments at 2.

It was also clearly erroneous to base the TP limit on a 7Q10 river critical low flow value. The 7Q10 condition occurs one to three percent of the time, so it is illogical and arbitrary to

apply that very rare flow value as the basis for a seven month seasonal limit. While acknowledging that Massachusetts DEP's regulations specify the use of the 7Q10 for aquatic life criteria, the narrative criteria for nutrients on which EPA based its reasonable potential determination are related to "nuisance conditions", as opposed to acute impacts on fish and aquatic life. Therefore, within the existing state regulations, there is flexibility in determining appropriate hydrologic conditions for establishing the seasonal TP limits. The City also noted that the Permit Writers' Manual, in section 6.1, recommends that states adopt seasonal or annual averaging periods for nutrients, as opposed to the critical low flow conditions set out for toxic pollutants. Permit Writer's Manual at 6-6. For these reasons, we believe that the harmonic mean or annual average flow is the appropriate basis for characterizing stream flow in a reasonable potential analysis. EPA's use of the critical 7Q10 low flow was therefore arbitrary and capricious.

The Region responds in a number of ways. Response to Comments at 8 – 15. First, it refers to a number of prior EPA Region 1 cases in which the permittees challenged the imposition of water quality-based nutrient limits that were based on outdated EPA numeric criteria and less-than-robust analyses of permit limits needed to maintain or achieve the designated instream uses. These cases are all unique, and the City's appeal of the TP limit stands on its own. However, the Region's repeated use of unpromulgated EPA criteria/guidance for nutrients as if the criteria were promulgated state or federal water quality standards underscores its use of those criteria as a binding norm as to Region 1 municipal NPDES permits. This highlights EPA's legal error in failing to promulgate such criteria as binding standards. Although the Region parrots the idea that "EPA . . . accounts for site-specific facts and circumstances surrounding the discharge and receiving waters" in arriving at the permit result, Response to

Comments at 9, the result across many permits seems to be the same, and EPA may not indefinitely use the rubric of "site-specific facts and circumstances" while applying those criteria as a binding norm, without complying with applicable Executive Orders (including the President's October 9, 2019 Executive Order on Transparency) as well as subjecting them to the safeguards of rulemaking that both the CWA and the Administrative Procedures Act, 5 U.S.C. § 551, *et seq*., require.[4]

Just this month, the President issued an Executive Order on October 9, 2019, which provides in relevant part:[5]

> The agency may not treat noncompliance with a standard of conduct announced solely in a guidance document as itself a violation of applicable statutes or regulations.

Yet that is exactly what EPA has done in the permit. The Gold Book number is generalized guidance at best. It does not appear in either regulation or statute. By EPA's own terms, its section 304 criteria (this number is not one) are guidance to the states. They are not binding on states, or they would have been adopted by the states a long time ago through water quality standards rulemaking.

In terms of the "site-specific facts and circumstances" that the Region claims to have considered, its Response to Comments does not identify those. The Fact Sheet, although it extols the virtues of the water quality effects-based approach that supports the Gold Book number, and

[4] For example, the Congressional Review Act requires that "major" rules (e.g. those that have a $100 million effect on the economy) have a delayed effective date of at least 60 days, and that agencies submit their rules to both houses of Congress and the Government Accountability Office (GAO) before the rules can take effect. 5 U.S.C. § 8 Also, Executive Order 12866 requires that significant regulatory actions be reviewed by the Office of Information and Regulatory Affairs before they are published in the *Federal Register* or otherwise issued to the public. The Executive Order also requires agencies to provide an explanation of the need for the regulatory action and an assessment of potential costs and benefits. See https://www.reginfo.gov/public/jsp/Utilities/EO_12866.pdf.

[5] *See Executive Order on Promoting the Rule of Law Through Transparency and Fairness in Civil Administrative Enforcement and Adjudication at section 3.* https://www.whitehouse.gov/presidential-actions/executive-order-promoting-rule-law-transparency-fairness-civil-administrative-enforcement-adjudication/

although it goes through the detailed calculations that lead to the 1.08 mg/l limit, appears to include no facts or circumstances that are claimed to support the site-specific use of the TP number for this Permit. Response to Comments at 23 – 27.

As noted above, the City referred to the Qual2K water quality modeling then underway, and suggested an interim limits approach, and later, more site-specific and precise modeling-based TP limits. The Region rejected that in large part based on the delay inherent in waiting for the modeling, and the opportunity for these Permit provisions to be refined with every-five-year reissuance. *Id*. at 10. Given that the prior City permit has been in effect since 2005 (14 years), this argument of the Region should be given no weight. Instead, the recent Region 1 schedule for reissuances emphasizes the need to get the Permit limits right in the first instance.

In regard to getting the limits right, and in light of the Region's detailed calculation procedures, see Fact Sheet at 24 – 27, and the other dischargers to the Merrimack River affecting the instream concentrations, EPA should have (1) promulgated a criterion and (2) developed a Total Maximum Daily Load ("TMDL") to determine specifically the allowable TP loading from all of the relevant dischargers. The Gold Book in fact refers to use of a TMDL-like procedure for regulating discharges of TP. Gold Book at 247-49. A TMDL would have used Qual2K or other modeling to get the limits right and avoid the piecemeal over-regulation or under-regulation that may result for Lowell and the other permittees from the Region's current procedures. This interim limit, plus a River segment-specific approach, is what the City requested. *See* Response to Comments at 10 – 14.

The City also challenged the Region's use of the 7Q10 critical low instream flow in its permit limit calculations, on the basis that the cultural eutrophication that the Region identifies as the underlying water quality concern is dependent on longer term (<u>average</u>) instream TP

concentrations rather that the maximum concentrations that reflect use of the 7Q10 flow. EPA's response was twofold. First, it relies on the Gold Book "not to be exceeded at any time" reference for the TP number. *Id*. at 14. This ignores the widely-understood science to which the City referred, and it underscores the Region's arbitrary and non-site specific use of the Gold Book guidance numbers as if they were adopted standards. It is one thing (error in our view) for the Region to use the un-promulgated Gold Book number as a binding standard; but it is a further more glaring error for the Region to treat the secondary material that goes with the number (here the entirely inapplicable "not to be exceeded" concept) as a binding norm. Second, the Region speculated about adverse short-term impacts of TP concentrations. *Id*. at 14 – 15. Nothing in the Record supports that proposition, which is in any event beside the point of the cultural eutrophication issue, on which the Region relies for its purported reasonable potential determination as to TP concentrations in the River.

Accordingly, the Region presents no case-specific facts or circumstances justifying its application of the outdated Gold Book TP number; it stated no valid reason for not waiting for the City's Qual2K modeling, particularly in light of its demonstrated nine-year period for Permit reissuance; the calculations using the 7Q10 critical instream low flow were improper; and the provisions to which the City objects are thereby arbitrary and capricious. EPA's use of a number that it incorrectly characterizes as a CWA section 304 water quality criterion violates its own regulation at 40 C.F.R. § 122.44(d)(1)(vi) on applying narrative criteria. In addition its failure to (1) promulgate a TP criterion and (2) produce a TMDL for TP for this stretch of the River prior to imposing TP waste load allocations was an error of law, and the Region's actions were otherwise not in accordance with law.

2. Effluent Flow Limit. The City asserted in comment that the then-proposed

effluent flow limit must be removed from the Permit because it is completely unnecessary to protect public health or the environment. The concentration and mass limits for pollutant parameters are calculated in accordance with EPA's well-developed and long-standing procedures to protect health and the environment consistent with the magnitude and underlying exposure assumptions of the adopted water quality standards. *See* City's comments at 2.

There is no circumstance, and none is identified by EPA, where a flow limit is necessary. Because of this reality, most states (and their EPA Regional Offices) do not impose flow limits, and certainly not on CSO facilities. The City notes that EPA Headquarters and Region 3 do not impose a flow limit for the District of Columbia's Blue Plains treatment plant. Permit No. DC0021199 (July 26, 2018). Att. 5 (NPDES permit Part I). Thus, it is clear that an NPDES permit can legally and technically be issued without flow limits. We also understand that EPA does not include flow limits in NPDES permits for other communities in EPA Region 1 (including New Hampshire communities that discharge to the Merrimack River) as further proof that a valid permit can be issued without flow limits. Further, as EPA is aware, the State of West Virginia stopped imposing flow limits on its communities (primarily due to CSO community concerns similar to Lowell's) in the early 2000s with full EPA Region 3 approval. *See* Letter to WVDEP (EPA Region 3 Mar.27, 2019). Att. 6. The State of South Carolina stopped imposing flow limits in the early 2000s as well, after having such limits overturned on appeal. *Comm'rs of Public Works v. S.C. Dep't of Health & Envtl. Control*, 641 S.E.2d 763, 372 S.C. 351 (2007). EPA Region 4 has not objected to the removal of flow limits from any South Carolina municipal permit since that time.

Moreover, flow limits are counterproductive for CSO facilities because such limits conflict with the technology-based requirement of the Nine Minimum Controls required by the

CSO Control Policy to maximize flow (not comply with an unnecessary flow limit) through the treatment facility. Why would we ever impose a restriction on how much flow we can take through the facility, and for which we can provide at least partial treatment? Accordingly, the flow limit will require the City to reduce wet weather flows so that Duck Island does not exceed the flow limits. This is not a hypothetical concern – the City has exceeded the flow limit in two of the last five years. That led EPA to issue an Administrative Order that suspended the flow limit until it was addressed during permit renewal. City's comments at 3. Nevertheless, EPA has failed to address the flow limit, as promised in the Order.

The City also commented that the Region's stated concerns about inflow and infiltration are misplaced in terms of any attempt to justify inclusion of a flow limit. City's comments at 3. As a CSO community, the City's LTCP will address any cost-effective opportunities to remove excessive inflow and infiltration. A flow limit is far too removed from that planning and will, in effect, limit the City's ability to cost-effectively comply with the CSO Control Policy because such a limit restricts the City's use of its Duck Island capacity in order to manage peak wet weather flows. This will make the City's CSO control program unnecessarily more expensive and will result in greater untreated sewer overflows.

Further, the Region does not have legal authority to limit the flow that can be discharged from a POTW. NPDES permits impose effluent limitations. *See* Permit Part I.A heading ("Effluent Limitations"). The most fundamental precept of NPDES permitting is that permits limit "pollutants." 33 U.S.C. §§ 1311(a), 1312(a) (water quality-based effluent limitations), 1342 (a). Pollutants are chemical, biological and other polluting substances, not including flow or rate of flow. *Id*. §1362 (definitions). The City is unaware of any authority that would include flow within the parameters that may be limited in NPDES permits.

In one of the most significant CWA decisions in the last thirty years, the U.S. District Court for the Eastern District of Virginia issued an opinion holding that EPA lacks authority under the Clean Water Act to regulate flow in a TMDL. Fairfax County and the Virginia Department of Transportation had appealed a TMDL issued by EPA establishing flow limits for Accotink Creek in Northern Virginia. The flow limits were intended to reduce the amount of sediment in the Creek. Fairfax and VDOT successfully argued that the CWA clearly denies EPA the authority to regulate flow, even as a surrogate for a pollutant such as sediment.

In that case, United States District Court Judge Liam O'Grady conducted an analysis under *Chevron* Step 1, concluding that, under the plain language of the statute, EPA unambiguously does not have authority to establish TMDLs for non-pollutants, such as flow, as surrogates for pollutants. The court invalidated any interpretation of EPA's regulations that would allow the agency to regulate non-pollutants such as flow. The decision went on to find that, even with the deference that would be accorded to EPA in a *Chevron* Step 2 analysis, EPA's interpretation of the CWA to allow the regulation of flow would be an impermissible construction of the statute. *Virginia Department of Transportation et al. v. United States Environmental Protection Agency et al*., 2013 U.S. Dist. LEXIS 981 (case number 1:12-cv-00775). Although we are here addressing NPDES permitting, rather than a TMDL, the legal conclusions are equally and directly applicable.

While the City argued strongly that there should be no flow limit whatsoever because it provides no environmental protection (recall that the vast majority of POTW permits in the country do not include flow limits) – if EPA were to insist on a flow limit, it should at least have been set at a level that would not prevent the maximization of wet weather flows through Duck Island. For example, rather than using the long-term average flow of 32 MGD, the Permit could

have based a limit on a higher peak flow value or simply allowed the City to exclude from the calculation any flows greater than 32 MGD that occur in response to wet weather events.

Finally, the City noted that flow is not a pollutant under Massachusetts law. *See* 314 CMR 3.02 (definitions), 3.19 (standard permit conditions).

If the flow limits were to remain in the Permit, the City would have to modify its LTCP peak wet weather flow protocol to reduce flows, in order to ensure compliance with the flow limit. The ability to maximize wet weather flows and pollutant removals through the treatment facility is fundamental to the City's LTCP.

The Region responded in various ways. Response to Comments at 17 – 19. First, it stated that it has included flow limits in Massachusetts municipal permits since 1984. This does not address either the legality or the correctness of the flow limits. Moreover, it conveniently ignores that EPA has not imposed flow limits in most of its permits in other regions since 1984, and has not required the vast majority of states to do so either since 1984. It also ignores the removal of flow limits from hundreds of municipal permits since 1984, including on a statewide basis in West Virginia and South Carolina. EPA should explain why thousands of other POTW permits do not need to impose flow limits, yet it is necessary in Lowell's.

Second, the Region refers to the CWA section 301 reference to "such other requirements as [she] deems appropriate." None of this adequately acknowledges the limitations of the term "pollutants" noted above. Flow is simply not a pollutant. The Region goes on to characterize the flow limit as necessary as an appropriate operation and maintenance requirement, and to assure that instream water quality standards are not exceeded. Although its reasoning behind this argument is unclear, EPA ignores its own very conservative system for the protection of the receiving waters, *see* Permit Fact Sheet Apps. B & C. The Region once again does not address

the limitation of the term "pollutant." Instead, EPA completely ignores why it may believe a flow limit to be necessary for operation and maintenance of Lowell's facility but not, say, the District of Columbia's treatment plant.

Finally the Region claims that the public notice period "is not the proper venue in which to request an increase in permitted effluent flow, absent an anti-degradation review." This is nonsense. EPA has no authority to impose any flow limit. Moreover, no such increase is requested and the existing Permit limits, both concentration-based and mass-based, fully protect water quality. EPA's final assertion that antidegradation applies is silly, given that higher Plant flows result in treating CSO volumes that otherwise would discharge untreated.

Accordingly, the Region's points do not document a valid technical basis for flow limits, flow limits are wrong for a CSO permit, the I&I issues are addressed by the LTCP, and the provisions to which the City objects are thereby arbitrary and capricious. Finally, there is no legal basis in the CWA for flow limits, flow limits are inconsistent with LTCP requirements, and the flow limits are otherwise not in accordance with law.

3. Escherichia Coli Daily Maximum Limit. The City commented that the proposed daily maximum E. coli limit should be deleted because it is based on EPA's water quality criteria Statistical Threshold Value (STV), which is derived from the same statistical distribution as the geometric mean-based average value, both derived to protect the defined intestinal illness rate.[6] City's comments at 5. As such, protection of the average is also protection of the STV (particularly given the high monitoring frequency); and an STV limit is, in light of the monthly

[6] Recreational Water Quality Criteria (EPA 820-F-12-058) §1.2 p.6 & § 3.6.2 p. 39 (geomean is the 50th percentile, and STV is the 90th percentile "of the same water quality distribution").

average limit (which the City does not challenge), unnecessary for protection of the criteria and the designated use.

The City further noted that the daily maximum limit is inconsistent with EPA's permitting regulations which require monthly/weekly limits "unless impracticable". 40 C.F.R. §122.45(d). Because thousands of POTW permits nationwide (including some issued directly by U.S. EPA) are issued with monthly/weekly limits, EPA cannot (and does not even attempt to) make the required impracticability showing that its own regulations require.

Notwithstanding this, we urged EPA, if it chose to retain the daily limit, to provide some flexibility with that limit. Most POTWs in the country have for E. coli either monthly geometric mean-only limits or monthly and weekly average/geomean limits. Unless some flexibility is provided on this daily maximum E.coli limit, it could cause the City to restrict wet weather flows through Duck Island.

The City also commented that because the water quality standard for E.coli is applied at the end-of-pipe, we should have been given some compliance flexibility. The City enjoys an almost 18:1 dilution during 7Q10 flows, City's comments at 5, (which occur one to three percent of the time) and significantly higher dilution during all other periods. The City suggested that it be allowed to exceed the daily maximum permit limit one percent of the number of annual samples taken. This is the approach which West Virginia DEP has taken – particularly to accommodate CSO programs. See https://echo.epa.gov/. It is also the approach used in Missouri for a subset of permits that discharge to losing streams (streams with a direct hydraulic connection to groundwater). See, *id*. Those permits impose a daily maximum limit with the one percent excursion provision based upon the annual number of samples.

During wet weather, when CSO (and urban runoff) discharges are active, holding the treatment plant to a daily maximum bacterial limit does not make sense. Under the City's one percent proposal, if it sampled five times per week, that equates to 260 samples per year. During the comment period, we asked that EPA add the following footnote to the E.coli limit: "The permittee shall not exceed this daily maximum limit in more than one percent of the samples taken each year. For this permit cycle, the permit will sample 260 time per year so the daily maximum limit may not be exceeded in more than three samples in any calendar year."

There were many approaches that EPA could have taken to provide some appropriate flexibility while still meeting the instream bacteria standard (to the extent it is even attainable during wet weather events). Another approach could have been a higher bacteria limit when treatment plant flows exceed the 32 MGD design capacity. The design capacity is only exceeded during wet weather events. In such circumstances, a higher limit – for example 2040 counts (five times higher than dry weather yet only occurring when there is enormous instream dilutions) would still be fully protective of the designated use. By way of example, even in 7Q10 conditions, a treatment plant discharge of 2040 counts, diluted 18 times would equate to a concentration of approximately 200 counts at the edge of the mixing zone. This assumes a background concentration of 100 counts. During wet weather, the dilution factor would increase dramatically and the bacteria concentration at the edge of the mixing zone would drop essentially to the river background level. City's comments at 6.

The Region responded that it opted for a "protective approach" consistent with the state's application of its water quality standards. Response to Comments at 22. None of this addresses the level of protectiveness described above achieved through the application of the monthly average geometric mean criterion.

Significantly, and fatally for the Region, it did not even attempt to address its failure to demonstrate the impracticability of calculating a weekly limit, a demonstration its own regulation requires.

Accordingly, the Region's response does not substantially address the issue of the provisions to which the City objects; no meaningful basis is shown for the daily maximum limit; and the Region's "protective approach" argument would effectively justify any conceivable limit it devised irrespective of rationality. The daily maximum limit is arbitrary and capricious and not in accordance with law.

4. Whole Effluent Toxicity Testing Frequency. The City objected to having to continue to perform WET testing on a quarterly basis. It has been doing so since 2005. This quarterly testing is in addition to four two-species tests it must perform for permit renewal application. *See* 40 C.F.R. §122.21(j)(5). The Lowell effluent is extremely well characterized as being non-toxic, the City having passed all of these quarterly tests as well as the four two-species tests performed for the application for renewal. This comes as no surprise, given that the instream waste concentration is only around five percent. Comments at 6 (referencing Permit Fact Sheet at 15 (dilution factor 17.8). The effluent is beyond well-characterized as being non-toxic.

Moreover, as EPA's reasonable potential spreadsheet reveals, the Lowell effluent was nowhere close to having reasonable potential for the common municipal toxicants (*e.g*. copper, lead, ammonia). If WET testing reveals any potential for effluent toxicity (which the City's data do not), such toxicity is obviously caused by some pollutant(s). The definitive absence of reasonable potential for these pollutants, which are common toxicity issues in sewage treatment

facility effluents, supports the conclusion that there is no reasonable potential for WET in the Lowell effluent.

Thus, the City commented that the quarterly WET testing is simply a waste of time and public resources, and asked that it be removed from the Permit. That would have still left the City to perform the four two-species tests required for each future Permit renewal.

In response, the Region disputes the very favorable (non-toxic) nature of the City's prior WET data, citing "chronic toxicity at as low as 6.25 percent effluent" as compared with a 5.6 percent minimum target value. Response to Comments at 24 -25. In fact, out of 20 chronic WET tests that all passed the target value, only two were at the noted 5.6 percent point, two were at 50 percent, and the remaining 16 were at 100 percent (no indication of toxicity at all). Permit Fact Sheet App. A. These WET data raise no concern at all about effluent toxicity.

The Region also responded that the effluent data for certain metals was close to the adopted chronic water quality criteria (suggesting potential WET-measured toxicity), citing a single data point for lead at 0.45 micrograms per liter ("ug/l" or parts per billion). Response to Comments at 25. Although the source of the 0.45 ug/l data point is not apparent from the Region's Fact Sheet, the Fact Sheet does reveal that the Region concludes there is no reasonable potential for lead exceeding the adopted water quality criteria, meaning there is no concern about lead toxicity as a possible component of WET-measured toxicity. Permit Fact Sheet App. B.

Accordingly, Duck Island's effluent is extraordinarily well characterized over the previous 14 years as non-toxic; the Region's chemical-specific data argument does not support its WET testing; and the provisions to which the City objects are thereby arbitrary and capricious. The WET testing frequency is also inconsistent with EPA's own testing regulation, and it is otherwise not in accordance with law.

5. Metals Testing Frequency. As noted above, the City noted in comments that it is nowhere close to having reasonable potential for any of the metals for which the Permit requires quarterly testing. Accordingly, it objected to the continued quarterly sampling requirement for aluminum, cadmium, copper, nickel, lead and zinc. Instead, the City proposed that it continue to sample for these pollutants as part of the three priority pollutant scans that it is required to conduct each Permit term. *See* 40 C.F.R. § 122.21(j)(4).

As noted above under Issue 4, the Region responded as to metals testing frequency that the effluent data for certain metals was close to the adopted chronic water quality criteria, citing a single data point for lead at 0.45 micrograms per liter ("ug/l" or parts per billion). Response to Comments at 25. Although the source of the 0.45 ug/l data point is not apparent from the Region's Fact Sheet, the Fact Sheet does reveal that the Region concludes there is no reasonable potential for lead exceeding the adopted water quality criteria, meaning there is no concern about lead toxicity either compared to the criteria or as a possible component of WET-measured toxicity. Permit Fact Sheet App. B. Finally, as to this point, the City notes the four-day average chronic exposure basis of the state chronic water quality standards for the metals at issue here. *See* 314 CMR 4.05(5)(e) (cross-referencing EPA's national recommended water quality criteria for toxics). Because a single sample data point tells us nothing about a four-day average, it does not support the Region's argument. This minimal defense of requirements for sampling that go far beyond the standard of EPA's own regulation at 40 C.F.R. § 122.21(j)(4) does not justify the amount of sampling and analyses required here, with the excellent data produced over the years.

Duck Island's effluent is extraordinarily well characterized over the previous 14 years as to the applicable metals standards; the Region's chemical-specific data arguments do not support its metals testing requirements; and the provisions to which the City objects are thereby arbitrary

and capricious. The metals testing frequency is also inconsistent with EPA's own testing regulation, and it is otherwise not in accordance with law.

6. Failure to Address the Long Term Control Plan. Because the Permit had not been renewed since 2005, the City had a number of comments that it believed warranted a period of coordination among the City, Massachusetts DEP, and EPA leading to the development of a revised draft. Despite the lag time before Permit renewal, the City had made considerable progress to improve its wastewater treatment system over the years. City's comments, cover letter. For example, the City is now in the process of implementing a major treatment plant upgrade that will be completed in 2020. It is also developing an updated Combined Sewer Overflow LTCP as well as one of the first Integrated Plans under newly enacted CWA section 402(s), 33 U.S.C. § 1342(s). These are exciting and challenging projects and programs – especially for a small and relatively poor community.

The City believes that EPA must address the development and implementation of its LTCP in the permit. Both the CSO Policy (which specifies Phase 1 and 2 CSO permit provisions), as well as prior decisions of the Environmental Appeals Board regarding the inclusion of CSO provisions in the District of Columbia's NPDES permit,[7] support the clear need for such provisions.

The Region responded only briefly to the issue. Response to Comments at 39 – 40. Relying on the City's and EPA's ongoing process of LTCP development and revision, and the City's pending Integrated Plan under CWA section 402(s), it simply responds to the City's incorporated request to meet with EPA concerning LTCP deadlines, ignoring the City's substantive request for LTCP consistency in the Permit.

[7] *See In Re: Dist. Of Columbia Water and Sewer Auth., NPDES Appeal Nos. 05-01, et al*. (EAB Mar. 19, 2008).

Accordingly, EPA has failed to include required provisions in the permit addressing the City's development and implementation of its CSO LTCP. This was an error of law.

7. CSO Secondary Bypass Prohibition. The footnotes to which the City objects are the ones that prohibit bypasses of the secondary treatment system which do not qualify as allowable bypasses under EPA's bypass rule. The City has a standard secondary bypass approach which allows it to treat significant peak wet weather flows as part of its LTCP efforts to maximize flows at the treatment plant (Nine Minimum Controls - Part I.F.2.a.4 (requirement for "maximization of flow to the [Plant] for treatment")). Such bypasses are to maximize the treatment of wet weather flows and not for essential maintenance as contemplated by Part II.B.4. Accordingly, the City asked that the reference to Part II.B.4 be removed.

Hundreds of CSO communities across the country have permits that acknowledge secondary bypass systems and often impose requirements to ensure the optimization/maximization of such systems. The District of Columbia's is just one example. Inexplicably, the City's permit prohibits the use of its bypass system for peak flow treatment.

In order for the City to effectively minimize CSO events and the discharge of pollutants, the Permit must identify and authorize the City's high flow management facilities and incorporate by reference its High Flow Management Plan. This plan was submitted to EPA and DEP in 2011. It would have made sense to incorporate by reference the most recent High Flow Management Plan with a requirement to submit annual updates as appropriate. For example, once the ongoing Plant upgrade project is complete and the City has completed an optimization period, it will need to submit an updated High Flow Management Plan.

The Region responds by claiming that the City has not submitted a "no feasible alternatives showing" to justify bypassing under the CSO Control Policy. Response to

Comments at 28 – 29. It acknowledges the EPA-accepted CSO-related bypass provisions of the City's High Flow Management Plan, but it then claims that the HFMP does not by itself satisfy the CSO Control Policy requirements. This is appearance over substance, and again illustrates the lack of EPA coordination of the Permit and the City's CSO program. For almost every other system, EPA has (1) acknowledged the permittee's high flow facilities and (2) provided an interim authorization for their use in order to maximize treatment plant flow (which reduced untreated CSO volumes) with such treatment facility flows to meet all permit requirements. Whether the interim CSO high rate treatment facility will be a long-term part of the system (which is almost always the case) is addressed in the approved LTCP. We see no reason why that typical approach is not embodied in the City's permit.

EPA has set up an irreconcilable inconsistency in the Permit. On one hand, the City is to work hard and maximize wet weather Plant flows to minimize untreated CSO discharges. On the other hand, the City is to only use the peak flow facilities for essential maintenance. This means the City has to stop using the peak flow facilities for peak flow treatment, which is unthinkable to the City. EPA must provide at least an interim authorization for the use of the peak flow management facilities. The Permit provisions at issue are irrational and unsupportable, and therefore arbitrary and capricious. They are inconsistent with EPA's CSO Policy and otherwise not in accordance with law.

8. General Water Quality Standards Compliance Language. The Permit provision requiring that any discharge "not cause a violation of the water quality standards of the receiving water" is legally incorrect and fundamentally unfair. Legally, this provision deprives the City of its CWA Permit Shield, in that the City will never know what it can or can't discharge at any given time. *See* 33 U.S.C. §1342(k) & 40 C.F.R. §122.44 (specific effluent limitations and

standards). The provision deprives the City of its right to fair notice of what it must do to comply. More importantly, there is no opportunity for due process. In this context, due process is the City's (and all stakeholders') right to know what limits EPA believes to be warranted and with which it must comply, an opportunity to comment on the correctness of such limits and the right to appeal such specific numeric or other determinations. Moreover, the provision deprives the City of a compliance schedule to come into compliance with a new or more stringent requirement that it cannot immediately comply with.

There has been significant litigation over similar provisions in recent years. We note that the State of West Virginia recently removed similar language from its NPDES permits. EPA Region 3 treated that action as a change to WV's NPDES permit program, which triggered EPA review and approval. EPA approved the Change on March 27, 2019.[8] Significantly, EPA concluded that such language is not a requirement of the NPDES Permit program.

Further, the restrictions imposed in Permit Part I.A.3 through 7 are more than broad enough to protect the general standard. They are as readily and easily enforced by EPA as is the provision challenged here. For these reasons, the quoted language is improper. It impermissibly undermines the CWA Permit Shield, deprives dischargers of fair notice of what they can discharge, and deprives permittees of due process. It is inconsistent with other EPA Regions as

[8] The West Virginia Legislature adopted the following prohibition against the inclusion of general water quality standards compliance language in West Virginia permits.

> "While permits shall contain conditions that are designed to meet all applicable State and federal water quality standards and effluent limitations, water quality standards themselves shall not be incorporated wholesale either expressly or by reference as effluent standards or limitations in a permit issued pursuant to this article." EPA March 27, 2019 letter to West Virginia at 4 (Att. 6).

EPA approved this change to West Virginia permits by its letter. This makes clear that permits can be lawfully written without imposing unfair and inappropriate general WQS compliance language.

demonstrated by the 2019 EPA Region 3 formal finding that such a permit condition is not required under the CWA.

The Region responds with several arguments. Response to Comments at 32 – 35. First, it asserts that it has for years included this provision in Massachusetts permits, including the prior Lowell permits. West Virginia permit writers imposed such language for many years as well, until EPA told them they no longer needed to earlier this year. Moreover, EPA's non-response does not address the legality of the provision in the absence of a challenge by a permittee and a subsequent judicial decision.

Second, the Region refers to CWA section 301(b)(1)(c), 33 U.S.C. §1311(b)(1)(c), authorizing "any more stringent limitations, including those necessary to meet water quality standards." However, that provision authorizes the extensive "reasonable potential" and other program elements that EPA uses to develop permits and to determine what specific limitations are necessary for the maintenance of water quality. Although EPA would clearly like to have a universal backstop against any cases in which it may be unable to prove a permittee's violation of such specific permit requirements, the scope and results of the NPDES program argue that such a backstop is neither necessary nor authorized.

EPA questions the City's due process point. What the City is concerned about is the generic, undefined, and unknowable scope of the activities prohibited by the provision. Where a purported legal requirement is as vague as the provision at issue, and remains undefined after years of expression in permits, surely there is a procedural due-process concern here that should be simply addressed by the deletion of the provision.

Finally, in a circular argument, EPA asserts that "in order to avail itself of the protections of CWA section 402(k), a permittee must first be in compliance with all express terms of the

permit." EPA then would include within the scope of "all express terms" the challenged provision itself. This interpretation would read out of existence the CWA Permit Shield, a result that is clearly legally impermissible.

Accordingly, because there is no need or rational basis for the provision to which the City objects, it is arbitrary and capricious. For the reasons stated, the provision is inconsistent with CWA section 402(k), deprives the City of due process, and is otherwise not in accordance with law.

9. General Water Quality Standards Compliance Language for CSOs. The Permit imposed the same WQS compliance language for CSOs that the City objects to immediately above in relation to the POTW treatment facility discharge. This approach completely and utterly misunderstands CSO regulation.

Before the full implementation of an approved CSO LTCP, CSO discharges cannot be expected to meet water quality standards. Imposing a requirement that Lowell's CSO discharges meet standards at this stage of its program implementation is like asking a pig to fly. The City is entitled to a compliance schedule (determined through the approved CSO LTCP) to bring its CSO discharges into compliance with water quality standards.

Accordingly, because there is no need or rational basis for the provision to which the City objects, it is arbitrary and capricious. For the reasons stated, the provision is inconsistent with CWA section 402(k), deprives the City of due process, is inconsistent with CWA section 402(q), and is otherwise not in accordance with law.

10. Requirements to Sample on Specified Times and Days. The City objected to the footnote requiring that it sample on the same days of the month at the same times. This unnecessarily micromanages the operation of the Duck Island facility and the permittee's

compliance program. There is no legal or practical basis for such a requirement. EPA's regulation, 40 C.F.R. §122.48(b), and the Permit itself, Part I.A.1 fn. 1, already require representative sampling. Those are the applicable legal requirements.

The City similarly objected to the footnote requiring that WET testing be done during the same week in the months of January, April, July, and October. As noted above, the quarterly WET testing should be removed from the permit. In addition, there is no legal or technical basis to mandate a particular week within a particular month in the quarter. Thousands of other NPDES permits around the country simply specify "quarterly" sampling for parameters without mandating the month and certainly not the week. We note that EPA's permit renewal regulation specifies four WET tests for major dischargers as part of applications for renewal without specifying a particular month or week. 40 C.F.R. § 122.21(j)(5).

The Region responded that the specification of times and days facilitates its ability to track long-term trends in effluent quality and to "characterize the discharge without any bias related to the variability within a given day or week." Response to Comments at 26. No basis is provided by the Region as to why this is so, or why specific times and days accomplishes these goals. In fact, it is inconsistent and incorrect to conclude that required long term sampling on the same times and days would prevent bias as to variability. Instead, the results would by definition be biased (either for better or for worse) as to and favoring the required times and days.

The Region's comment that these provisions are standard for Massachusetts municipal permits, *id*., is irrelevant as to correctness, consistency with its own regulations, or legal basis.

Having to sample the same day of the same week of the same month is a significant administrative burden which EPA has no legal basis to impose. In particular, the City rejects the implication that such a program is necessary to ensure that Lowell will produce representative

data. What specifically about Lowell's sampling record justifies this micromanaging provision that is not also found in the District of Columbia's EPA-issued permit which does not include this micromanaging?

Further, because EPA admits that this requirement is imposed in all Massachusetts municipal permits, it must promulgate it first.

This requirement has no rational or useful basis and is, thereby, arbitrary and capricious. It is also inconsistent with the overarching legal requirement for representativeness of data and otherwise not in accordance with law.

CONCLUSION

Consistent with the above, Lowell asks that the Environmental Appeals Board decide as follows.

1. Issue-Specific Relief. The City asks that the Board find that the Region's Permit actions were arbitrary and capricious, and hold the Region's actions to be otherwise contrary to law as the City has outlined above; reverse the Region's Permit actions thereon; and remand the Permit to Region 1 for further actions consistent with the Board decision.

2. Stay of Permit Conditions. Consistent with 40 C.F.R. § 124.16, the City asks that the Board stay Permit provisions pending the Board's final decision hereunder as follows. The Permit limits to which the City objects in issues 1 and 3 should be stayed. The Permit flow limits (issue 2) are in the prior Permit, and are not to be stayed. The sampling and monitoring frequency of issues 4 and 5 require no stay, as the provisions are consistent with the 2005 Permit. As to issue 6, the failure to address the LTCP, the Board should order that all permit provisions contrary to or inconsistent with the LTCP are stayed. As to issues 7 through 9, no stay is requested. As to issue 10, the permit provisions objected to should be stayed.

3. Request for Oral Argument. The City requests the opportunity for oral argument before the Board. We base this request on (1) the national implications and national importance of consistency between NPDES permits and EPA's CSO Control Policy implemented through permittees' LTCPs and the other elements their CSO programs; (2) the Region's continued application of EPA nutrient guidance in many permits and in uniform manner, as if its included numeric values were promulgated water quality criteria; and (3) inconsistencies nationally and within Region 1 in NPDES permit monitoring, general water quality standards compliance provisions and other details - (a) without an expressed factual or legal basis for such distinctions, and (b) with facially obvious negative implications for instream water quality.

Respectfully submitted,

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Date: October 24, 2019

STATEMENT OF COMPLIANCE WITH WORD LIMITATION

I hereby certify that this Petition for Review, including all relevant portions, contains fewer than 14,000 words, pursuant to 40 C.F.R. §124.19(d).

Respectfully submitted,

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LIST OF ATTACHMENTS

2019 Permit – MA0100633 ..... Attachment 1

2005 Permit – MA0100633 ..... Attachment 2

City of Lowell Comments on 2019 Draft Permit MA0100633 ..... Attachment 3

EPA Region 1 Response to Comments ..... Attachment 4

District of Columbia's Blue Plains Permit No. DC0021199 (July 26, 2018) ..... Attachment 5

EPA Region 3 March 27, 2019 Letter to WVDEP ..... Attachment 6

CERTIFICATE OF SERVICE

I certify that on this 24th day of October 2019, a true and correct copy of the foregoing Petition for Review and all Attachments was sent to the following persons, in the manner specified:

By EAB eFiling System to:

Clerk of the Board
U.S. Environmental Protection Agency
Environmental Appeals Board
1201 Constitution Avenue, NW
WJC East Building, Room 3334
Washington, D.C. 20004

By U.S. Mail to:

Dennis Deziel, Administrator
U.S. Environmental Protection Agency
Region 1
5 Post Office Square
Mail Code: 01-4
Boston, MA 02109-3912

Town of Chelmsford
Department of Public Works
Sewer Division
9 Alpha Road
Chelmsford, MA 01824

Town of Dracut
Sewer Department
62 Arlington Road
Dracut, MA 01826

Town of Tewksbury
Department of Public Works
Water and Sewer Division
1009 Main Street
Tewksbury, MA 01876

Town of Tyngsborough
Town Hall
25 Bryants Lane
Tyngsborough, MA 01879

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ATTACHMENT 1

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Clean Water Act, as amended, (33 U.S.C. §§1251 et seq.; the "CWA"), and the Massachusetts Clean Waters Act, as amended, (M.G.L. Chap. 21, §§ 26-53),

City of Lowell, Massachusetts

is authorized to discharge from the facility located at

Lowell Regional Wastewater Utility
451 1st Street Boulevard (Route 110)
Lowell, MA 01850
And
Combined Sewer Overflow (CSO) outfalls at 9 locations

to receiving waters named

Merrimack River, Beaver Brook, Concord River
Merrimack Watershed

in accordance with effluent limitations, monitoring requirements and other conditions set forth herein.

The Towns of Chelmsford, Dracut, Tewksbury, and Tyngsborough are co-permittees for Part B, Unauthorized Discharges; Part C, Operation and Maintenance of the Sewer System, which include conditions regarding the operation and maintenance of the collection systems owned and operated by the Towns; and Part D, Alternate Power Source.

Operation and maintenance of the sewer system shall be in compliance with the General Requirements of Part II and the terms and conditions of Part B, Part C and Part D of this permit. The Permittee and each co-permittees are severally liable under Part B, Part C and Part D for their own activities and required reporting with respect to the portions of the collection system that they own or operate. They are not liable for violations of Part B, Part C and Part D committed by others relative to the portions of the collection system owned and operated by others. Nor are they responsible for any reporting that is required of other Permittees under Part B, Part C and Part D. The responsible Town departments are:

Town of Chelmsford
Department of Public Works
Sewer Division
9 Alpha Road
Chelmsford, MA 01824

Town of Dracut
Sewer Department
62 Arlington Road
Dracut, MA 01826

Town of Tewksbury
Department of Public Works
Water and Sewer Division
1009 Main Street
Tewksbury, MA 01876

Town of Tyngsborough
Town Hall
25 Bryants Lane
Tyngsborough, MA 01879

This permit shall become effective on the first day of the calendar month immediately following 60 days after signature.

This permit expires at midnight, five years from the last day of the month preceding the effective date.

This permit supersedes the permit issued on September 1, 2005.

This permit consists of the cover pages, **Part I, Attachment A** (Freshwater Acute Toxicity Test Procedure and Protocol, February 2011), **Attachment B** (Freshwater Chronic Toxicity Test Procedure and Protocol, March 2013), **Attachment C** (Reassessment of Technically Based Industrial Discharge Limits), **Attachment D** (Industrial Pretreatment Program Annual Report Requirements), and **Part II (**NPDES Part II Standard Conditions, April 2018).

Signed this 25th day of September, 2019

/S/SIGNATURE ON FILE

Ken Moraff, Director
Water Division
Environmental Protection Agency
Region 1
Boston, MA

/S/SIGNATURE ON FILE

Lealdon Langley, Director
Division of Watershed Management
Department of Environmental Protection
Commonwealth of Massachusetts
Boston, MA

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date and lasting through the expiration date, the Permittee is authorized to discharge treated effluent through Outfall Serial Number 035 to the Merrimack River. The discharge shall be limited and monitored as specified below; the receiving water and the influent shall be monitored as specified below.

Effluent Characteristic	Effluent Limitation			Monitoring Requirements[1,2,3]	
	Average Monthly	**Average Weekly**	**Maximum Daily**	**Measurement Frequency**	**Sample Type[4]**
Effluent Flow[5]	32 MGD Rolling Average	---	Report MGD	Continuous	Recorder
Effluent Flow[5]	Report MGD	---	---	Continuous	Recorder
$CBOD_5$	25 mg/L 6,672 lb/day	40 mg/L 10,675 lb/day	Report mg/L Report lb/day	5/week	Composite
$CBOD_5$ Removal[6]	≥ 85 %	---	---	---	---
TSS	30 mg/L 8,006 lb/day	45 mg/L 12,010 lb/day	Report mg/L Report lb/day	5/week	Composite
TSS Removal[6]	≥ 85 %	---	---	---	---
pH Range[7]	6.0 - 8.3 S.U.			1/day	Grab
Total Residual Chlorine[8,9]	196 µg/L	---	338 µg/L	1/day	Grab
Total Residual Chlorine[8]	Report µg/L	---	Report, µg/L	Continuous	Recorder
Escherichia coli[8.9]	126 cfu/100 mL	---	409 cfu/100 mL	5/week	Grab
Dissolved Oxygen (April 1 - October 31)	Report mg/L			1/day	Grab
Total Phosphorus[10,11] (April 1 – October 31) (November 1 – March 31)	 1.08 mg/L Report mg/L	 --- ---	 Report mg/L ---	 1/week 1/month	 Composite Composite
Total Nitrogen[10,12] (April 1 – October 31) (November 1 – March 31)	 Report mg/L Report mg/L	 --- ---	 Report mg/L ---	 1/week 1/month	 Composite Composite

Effluent Characteristic	Effluent Limitation			Monitoring Requirements[1,2,3]	
	Average Monthly	**Average Weekly**	**Maximum Daily**	**Measurement Frequency**	**Sample Type[4]**
Total Kjeldahl Nitrogen[10,12]					
(April 1 – October 31)	Report mg/L	---	Report mg/L	1/week	Composite
(November 1 – March 31)	Report mg/L	---	---	1/month	Composite
Total Nitrate+Nitrite[10,12]					
(April 1 – October 31)	Report mg/L	---	Report mg/L	1/week	Composite
(November 1 – March 31)	Report mg/L	---	---	1/month	Composite
Whole Effluent Toxicity (WET) Testing[13,1]					
LC_{50}	---	---	≥ 100 %	1/quarter	Composite
C-NOEC	---	---	Report %	1/quarter	Composite
Hardness	---	---	Report mg/L	1/quarter	Composite
Total Organic Carbon	---	---	Report mg/L	1/quarter	Composite
Dissolved Organic Carbon	---	---	Report mg/L	1/Quarter	Composite
Ammonia Nitrogen	---	---	Report mg/L	1/quarter	Composite
Total Aluminum	---	---	Report mg/L	1/quarter	Composite
Total Cadmium	---	---	Report mg/L	1/quarter	Composite
Total Copper	---	---	Report mg/L	1/quarter	Composite
Total Nickel	---	---	Report mg/L	1/quarter	Composite
Total Lead	---	---	Report mg/L	1/quarter	Composite
Total Zinc	---	---	Report mg/L	1/quarter	Composite

Ambient Characteristic[15]	Reporting Requirements			Monitoring Requirements[1,2,3]	
	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type[4]
Hardness	---	---	Report mg/L	1/quarter	Grab
Total Organic Carbon	---	---	Report mg/L	1/quarter	Grab
Dissolved Organic Carbon	---	---	Report mg/l	1/quarter	Grab
Ammonia Nitrogen	---	---	Report mg/L	1/quarter	Grab
Total Aluminum	---	---	Report mg/L	1/quarter	Grab
Total Cadmium	---	---	Report mg/L	1/quarter	Grab
Total Copper	---	---	Report mg/L	1/quarter	Grab
Total Nickel	---	---	Report mg/L	1/quarter	Grab
Total Lead	---	---	Report mg/L	1/quarter	Grab
Total Zinc	---	---	Report mg/L	1/quarter	Grab
pH[16]	---	---	Report S.U.	1/quarter	Grab
Temperature[16]	---	---	Report °C	1/quarter	Grab
Total Phosphorus[11] (April 1 – October 31)	---	---	Report mg/L	1/month	Grab

Influent Characteristic	Reporting Requirements			Monitoring Requirements[1,2,3]	
	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type[4]
$CBOD_5$	Report mg/L	---	---	2/month	Composite
TSS	Report mg/L	---	---	2/month	Composite

Footnotes:

1. Effluent samples shall yield data representative of the discharge. A routine sampling program shall be developed in which samples are taken at the same location, same time and same days of the week each month. Occasional deviations from the routine sampling program are allowed, but the reason for the deviation shall be documented in correspondence appended to the applicable discharge monitoring report. The Permittee shall report the results to the Environmental Protection Agency Region 1 (EPA) and the State of any additional testing above that required herein, if testing is in accordance with 40 C.F.R. § 136.

2. In accordance with 40 C.F.R. § 122.44(i)(1)(iv), the Permittee shall monitor according to sufficiently sensitive test procedures (i.e., methods) approved under 40 C.F.R. Part 136 or required under 40 C.F.R. Chapter I, Subchapter N or O, for the analysis of pollutants or pollutant parameters (except WET). A method is "sufficiently sensitive" when: 1) The method minimum level (ML) is at or below the level of the effluent limitation established in the permit for the measured pollutant or pollutant parameter; or 2) The method has the lowest ML of the analytical methods approved under 40 C.F.R. Part 136 or required under 40 C.F.R. Chapter I, Subchapter N or O for the measured pollutant or pollutant parameter. The term "minimum level" refers to either the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit (MDL), whichever is higher. Minimum levels may be obtained in several ways: They may be published in a method; they may be based on the lowest acceptable calibration point used by a laboratory; or they may be calculated by multiplying the MDL in a method, or the MDL determined by a laboratory, by a factor.

3. When a parameter is not detected above the ML, the Permittee must report the data qualifier signifying less than the ML for that parameter (e.g., < 50 µg/L, if the ML for a parameter is 50 µg/L). For reporting an average based on a mix of values detected and not detected, assign a value of "0" for all non-detects for that reporting period and report the average of all the results.

4. Each composite sample will consist of at least twenty-four (24) grab samples taken during one consecutive 24-hour period, either collected at equal intervals and combined proportional to flow or continuously collected proportional to flow.

5. Report annual average, monthly average, and the maximum daily flow in million gallons per day (MGD). The limit is an annual average, which shall be reported as a rolling average. The value will be calculated as the arithmetic mean of the monthly average flow for the reporting month and the monthly average flows of the previous eleven months.

The following information shall be reported and submitted as an attachment to the monthly DMRs for each day there was a bypass of secondary treatment:

- date and time of initiation
- total influent flow at time of initiation
- date and time of termination
- total influent flow at time of termination
- total duration of flow
- total volume of flow

A bypass of secondary treatment also is subject to the requirements of Part II.B.4 and Part II.D.1.e. of this permit. Bypass flows shall be measured using a meter. The Permittee shall not add septage to the waste stream at the treatment plant during activation of the secondary treatment bypass.

6. The percent removal requirement for $CBOD_5$ and TSS apply only during dry weather, meaning any calendar day on which there is less than 0.1 inches of rainfall and no snow melt.

7. The pH shall be within the specified range at all times. The minimum and maximum pH sample measurement values for the month shall be reported in standard units (S.U.).

8. The Permittee shall minimize the use of chlorine while maintaining adequate bacterial control. Monitoring for total residual chlorine (TRC) is only required for discharges which have been previously chlorinated or which contain residual chlorine.

   The Permittee shall report the average monthly and maximum daily discharge of TRC using data collected by the continuous TRC analyzer. The Permittee shall collect and analyze a minimum of one grab sample per day for calibration purposes. The same grab sample can be used for both compliance and calibration. Four continuous recording charts (1/week), showing weekly data shall be submitted as an attachment to the monthly DMRs. The Permittee shall substitute the average of three TRC grab samples per day, for any day that they are unable to comply with the continuous reporting requirement.

   Chlorination and dechlorination systems shall include an alarm system for indicating system interruptions or malfunctions. Any interruption or malfunction of the chlorine dosing system that may have resulted in levels of chlorine that were inadequate for achieving effective disinfection, or interruptions or malfunctions of the dechlorination system that may have resulted in excessive levels of chlorine in the final effluent shall be reported with the monthly DMRs. The report shall include the date and time of the interruption or malfunction, the nature of the problem, and the estimated

amount of time that the reduced levels of chlorine or dechlorination chemicals occurred.

9. The monthly average limit for *Escherichia coli* (*E. coli*) is expressed as a geometric mean. *E. coli* monitoring shall be conducted concurrently with TRC monitoring if TRC monitoring is required.

10. Monitoring frequency shall be once per week from April 1 through October 31 and once per month from November 1 through March 31.

11. See Part I.H.1 below for total phosphorus compliance schedule. See Part I.H.4 for ambient phosphorus monitoring requirements.

12. Total Nitrogen shall be calculated as the sum of Total Kjeldahl Nitrogen and Total Nitrate + Nitrite.

13. The Permittee shall conduct acute toxicity tests (LC_{50}) and chronic toxicity tests (C-NOEC) in accordance with test procedures and protocols specified in **Attachment A and B** of this permit. LC_{50} and C-NOEC are defined in Part II.E. of this permit. The Permittee shall test the daphnid (*Ceriodaphnia dubia*). Toxicity test samples shall be collected, and tests completed, during the same weeks in January, April, July and October. The complete report for each toxicity test shall be submitted as an attachment to the second monthly DMR submittal immediately following the completion of the test.

14. For Part I.A.1., Whole Effluent Toxicity Testing, the Permittee shall conduct the analyses specified in **Attachment A and B**, Part VI. CHEMICAL ANALYSIS for the effluent sample. If toxicity test(s) using the receiving water as diluent show the receiving water to be toxic or unreliable, the Permittee shall follow procedures outlined in **Attachment A and B**, Section IV., DILUTION WATER. Minimum levels and test methods are specified in **Attachment A and B**, Part VI. CHEMICAL ANALYSIS.

15. For Part I.A.1., Ambient Characteristic, the Permittee shall conduct the analyses specified in **Attachment A and B**, Part VI. CHEMICAL ANALYSIS for the receiving water sample collected as part of the WET testing requirements. Such samples shall be taken from the receiving water at a point immediately upstream of the permitted discharge's zone of influence at a reasonably accessible location, as specified in **Attachment A and B**. Minimum levels and test methods are specified in **Attachment A and B**, Part VI. CHEMICAL ANALYSIS.

16. A pH and temperature measurement shall be taken of each receiving water sample at the time of collection and the results reported on the appropriate DMR. These pH and temperature measurements are independent from any pH and temperature measurements required by the WET testing protocols.

Part I.A. continued.

2. The discharge shall not cause a violation of the water quality standards of the receiving water.

3. The discharge shall be free from pollutants in concentrations or combinations that, in the receiving water, settle to form objectionable deposits; float as debris, scum or other matter to form nuisances; produce objectionable odor, color, taste or turbidity; or produce undesirable or nuisance species of aquatic life.

4. The discharge shall be free from pollutants in concentrations or combinations that adversely affect the physical, chemical, or biological nature of the bottom.

5. The discharge shall not result in pollutants in concentrations or combinations in the receiving water that are toxic to humans, aquatic life or wildlife.

6. The discharge shall be free from floating, suspended and settleable solids in concentrations or combinations that would impair any use assigned to the receiving water.

7. The discharge shall be free from oil, grease and petrochemicals that produce a visible film on the surface of the water, impart an oily taste to the water or an oily or other undesirable taste to the edible portions of aquatic life, coat the banks or bottom of the water course, or are deleterious or become toxic to aquatic life.

8. The Permittee must provide adequate notice to EPA-Region 1 and the State of the following:

    a. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to § 301 or § 306 of the Clean Water Act if it were directly discharging those pollutants or in a primary industry category (see 40 C.F.R. §122 Appendix A as amended) discharging process water; and

    b. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.

    c. For purposes of this paragraph, adequate notice shall include information on:

        (1) The quantity and quality of effluent introduced into the POTW; and

        (2) Any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

9. Pollutants introduced into the POTW by a non-domestic source (user) shall not pass through the POTW or interfere with the operation or performance of the works.

B. UNAUTHORIZED DISCHARGES

1. This permit authorizes discharges only from the outfall listed in Part I.A.1 and nine combined sewer overflows (CSOs) listed in Part I.F.1 in accordance with the terms and conditions of this permit. Discharges of wastewater from any other point sources, including sanitary sewer overflows (SSOs), are not authorized by this permit and shall be reported in accordance with Part D.1.e.(1) of the Standard Conditions of this permit (24-hour reporting).

2. Starting December 21, 2020, the Permittee must provide notification to the public within 24 hours of becoming aware of any unauthorized discharge on a publicly available website and shall remain on the website for a minimum of 12 months. Such notification shall include the location and description of the discharge; estimated volume; the period of noncompliance, including exact dates and times; and, if the noncompliance has not been corrected, the anticipated time it is expected to continue.

3. Notification of SSOs to MassDEP shall be made on its SSO Reporting Form (which includes MassDEP Regional Office telephone numbers). The reporting form and instruction for its completion may be found on-line at https://www.mass.gov/how-to/sanitary-sewer-overflowbypassbackup-notification.

C. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

Operation and maintenance of the collection system owned and operated respectively by the Lowell Regional Wastewater Utility and the Towns of Chelmsford, Dracut, Tewksbury and Tyngsborough, Massachusetts ("co-permittees") shall be in compliance with the activities and required reporting with respect to the portions of the collection system that each owns or operates. The Permittee and co-permittees shall only be responsible for violations relative to the portions of the collection system that they own and operate.

The Permittee and co-permittees are required to complete the following activities for the respective portions of the collection system which they operate:

1. Maintenance Staff

   The Permittee and co-permittees shall provide an adequate staff to carry out the operation, maintenance, repair, and testing functions required to ensure compliance with the terms and conditions of this permit. Provisions to meet this requirement shall be described in the Collection System O&M Plan required pursuant to Section C.5. below.

2. Preventive Maintenance Program

   The Permittee and co-permittees shall maintain an ongoing preventive maintenance program to prevent overflows and bypasses caused by malfunctions or failures of the sewer system infrastructure. The program shall include an inspection program designed to identify all potential and actual unauthorized discharges. Plans and programs to meet this requirement

shall be described in the Collection System O&M Plan required pursuant to Section C.5. below.

3. Infiltration/Inflow

   The Permittee and co-permittees shall control infiltration and inflow (I/I) into the sewer system as necessary to prevent high flow related unauthorized discharges from their collection systems and high flow related violations of the wastewater treatment plant's effluent limitations. Plans and programs to control I/I shall be described in the Collection System O&M Plan required pursuant to Section C.5. below.

4. Collection System Mapping

   Within 30 months of the effective date of this permit, the Permittee and co-permittees shall prepare a map of the sewer collection system it owns (see page 1 of this permit for the effective date). The map shall be on a street map of the community, with sufficient detail and at a scale to allow easy interpretation. The collection system information shown on the map shall be based on current conditions and shall be kept up-to-date and available for review by federal, state, or local agencies. Such map(s) shall include, but not be limited to the following:

   a. All sanitary sewer lines and related manholes;
   b. All combined sewer lines, related manholes, and catch basins;
   c. All combined sewer regulators and any known or suspected connections between the sanitary sewer and storm drain systems (e.g. combination manholes);
   d. All outfalls, including the treatment plant outfall(s), CSOs, and any known or suspected SSOs, including stormwater outfalls that are connected to combination manholes;
   e. All pump stations and force mains;
   f. The wastewater treatment facility(ies);
   g. All surface waters (labeled);
   h. Other major appurtenances such as inverted siphons and air release valves;
   i. A numbering system which uniquely identifies manholes, catch basins, overflow points, regulators and outfalls;
   j. The scale and a north arrow; and
   k. The pipe diameter, date of installation, type of material, distance between manholes, and the direction of flow to the extent feasible. If certain information is determined to be infeasible to obtain, a justification must be provided along with the map. If EPA disagrees with the assessment, it may require the map to be updated accordingly.

5. Collection System O&M Plan

   The Permittee and co-permittees shall develop and implement a Collection System O&M Plan.

   a. Within six (6) months of the effective date of the permit, the Permittee shall submit to EPA and the State

(1) A description of the collection system management goals, staffing, information management, and legal authorities;
(2) A description of the collection system and the overall condition of the collection system including a list of all pump stations and a description of recent studies and construction activities; and
(3) A schedule for the development and implementation of the full Collection System O&M Plan including the elements in paragraphs b.1. through b.8. below.

b. The full Collection System O&M Plan shall be completed, implemented and submitted to EPA and the State within twenty-four (24) months from the effective date of this permit. The Plan shall include:

(1) The required submittal from paragraph 5.a. above, updated to reflect current information;
(2) A preventive maintenance and monitoring program for the collection system;
(3) Description of sufficient staffing necessary to properly operate and maintain the sanitary sewer collection system and how the operation and maintenance program is staffed;
(4) Description of funding, the source(s) of funding and provisions for funding sufficient for implementing the plan;
(5) Identification of known and suspected overflows and back-ups, including manholes. A description of the cause of the identified overflows and back-ups, corrective actions taken, and a plan for addressing the overflows and back-ups consistent with the requirements of this permit;
(6) A description of the Permittee's programs for preventing I/I related effluent violations and all unauthorized discharges of wastewater, including overflows and by-passes and the ongoing program to identify and remove sources of I/I. The program shall include an inflow identification and control program that focuses on the disconnection and redirection of illegal sump pumps and roof down spouts;
(7) An educational public outreach program for all aspects of I/I control, particularly private inflow; and
(8) An Overflow Emergency Response Plan to protect public health from overflows and unanticipated bypasses or upsets that exceed any effluent limitation in the permit.

6. Annual Reporting Requirement

The Permittee and co-permittees shall submit a summary report of activities related to the implementation of its Collection System O&M Plan during the previous calendar year. The report shall be submitted to EPA and the State annually by March 31. The first annual report is due the first March 31st following submittal of the collection system O&M Plan required by Part I.C.5.b. of this permit. The summary report shall, at a minimum, include:

a. A description of the staffing levels maintained during the year;
b. A map and a description of inspection and maintenance activities conducted and corrective actions taken during the previous year;

c. Expenditures for any collection system maintenance activities and corrective actions taken during the previous year;
d. A map with areas identified for investigation/action in the coming year;
e. A summary of unauthorized discharges during the past year and their causes and a report of any corrective actions taken as a result of the unauthorized discharges reported pursuant to the Unauthorized Discharges section of this permit; and
f. If the average annual flow in the previous calendar year exceeded 80 percent of the facility's 32 MGD design flow (25.6 MGD), or there have been capacity related overflows, the report shall include:

(1) Plans for further potential flow increases describing how the Permittee will maintain compliance with the flow limit and all other effluent limitations and conditions; and
(2) A calculation of the maximum daily, weekly, and monthly infiltration and the maximum daily, weekly, and monthly inflow for the reporting year.

D. ALTERNATE POWER SOURCE

In order to maintain compliance with the terms and conditions of this permit, the Permittee and Co-permittees shall provide an alternative power source(s) sufficient to operate the portion of the publicly owned treatment works it owns and operates, as defined in Part II.E.1 of this permit.

E. INDUSTRIAL USERS AND PRETREATMENT PROGRAM

1. The Permittee shall develop and enforce specific effluent limits (local limits) for Industrial User(s), and all other users, as appropriate, which together with appropriate changes in the POTW Treatment Plant's Facilities or operation, are necessary to ensure continued compliance with the POTW's NPDES permit or sludge use or disposal practices. Specific local limits shall not be developed and enforced without individual notice to persons or groups who have requested such notice and an opportunity to respond. Within 90 days of the effective date of this permit, the Permittee shall prepare and submit a written technical evaluation to the EPA analyzing the need to revise local limits. As part of this evaluation, the Permittee shall assess how the POTW performs with respect to influent and effluent of pollutants, water quality concerns, sludge quality, sludge processing concerns/inhibition, biomonitoring results, activated sludge inhibition, worker health and safety and collection system concerns. In preparing this evaluation, the Permittee shall complete and submit the attached form (see **Attachment C –** Reassessment of Technically Based Industrial Discharge Limits) with the technical evaluation to assist in determining whether existing local limits need to be revised. Justifications and conclusions should be based on actual plant data if available and should be included in the report. Should the evaluation reveal the need to revise local limits, the Permittee shall complete the revisions within 120 days of notification by EPA and submit the revisions to EPA for approval. The Permittee shall carry out the local limits revisions in accordance with EPA's Local Limit Development Guidance (July 2004).

2. The Permittee shall implement the Industrial Pretreatment Program in accordance with the legal authorities, policies, procedures, and financial provisions described in the Permittee's approved Pretreatment Program, and the General Pretreatment Regulations, 40 C.F.R. § 403.

At a minimum, the Permittee must perform the following duties to properly implement the Industrial Pretreatment Program (IPP):

a. Carry out inspection, surveillance, and monitoring procedures which will determine independent of information supplied by the industrial user, whether the industrial user is in compliance with the Pretreatment Standards. At a minimum, all significant industrial users shall be sampled and inspected at the frequency established in the approved IPP but in no case less than once per year and maintain adequate records.

b. Issue or renew all necessary industrial user control mechanisms within 90 days of their expiration date or within 180 days after the industry has been determined to be a significant industrial user.

c. Obtain appropriate remedies for noncompliance by any industrial user with any pretreatment standard and/or requirement.

d. Maintain an adequate revenue structure for continued implementation of the Pretreatment Program.

3. The Permittee shall provide the EPA and the State with an annual report describing the Permittee's pretreatment program activities for the twelve (12) month period ending 60 days prior to the due date in accordance with 40 C.F.R. 403.12(i). The annual report shall be consistent with the format described in **Attachment D** (Industrial Pretreatment Program Annual Report Requirements) of this permit and shall be submitted no later than **March 1** of each year.

4. The Permittee must obtain approval from EPA prior to making any significant changes to the industrial pretreatment program in accordance with 40 C.F.R. 403.18(c).

5. The Permittee must assure that applicable National Categorical Pretreatment Standards are met by all categorical industrial users of the POTW. These standards are published in the Federal Regulations at 40 C.F.R. § 405 et seq.

6. The Permittee must modify its pretreatment program, if necessary, to conform to all changes in the Federal Regulations that pertain to the implementation and enforcement of the industrial pretreatment program. The Permittee must provide EPA, in writing, within 180 days of this permit's effective date proposed changes, if applicable, to the Permittee's pretreatment program deemed necessary to assure conformity with current Federal Regulations. At a minimum, the Permittee must address in its written submission the following areas: (1) Enforcement response plan; (2) revised sewer use ordinances; and (3) slug control evaluations. The Permittee will implement these proposed changes pending EPA Region I's approval under 40 C.F.R. § 403.18. This submission is separate and distinct from any local limits analysis submission described in Part I.E.1.

F. COMBINED SEWER OVERFLOWS (CSOs)

1. Effluent Limitations

   During wet weather (including snow melt), the Permittee is authorized to discharge storm water/wastewater from the CSO outfalls listed below:

Outfall #	Name	Latitude	Longitude	Receiving Water
002-SDS#1	Walker Station	42.64621	-71.33407	Merrimack River
007-SDS#2	Beaver Brook	42.65933	-71.31925	Beaver Brook
008-SDS#3	West Street	42.65254	-71.31032	Merrimack River
011-SDS#4	Read Street	42.64822	-71.30111	Merrimack River
012-SDS#5	First Street	42.64756	-71.29086	Merrimack River
020-SDS#6	Warren Street	42.64277	-71.30502	Concord River
027-SDS#7	Tilden Street	42.65072	-71.31152	Merrimack River
030(1)-SDS#8	Barasford Avenue	42.64531	-71.28841	Merrimack River
030(2)	Merrimack Station	42.64518	-71.28881	Merrimack River

2. The effluent discharged from these CSOs is subject to the following limitations:

   a. The discharges shall receive treatment at a level providing Best Practicable Control Technology Currently Available (BPT), Best Conventional Pollutant Control Technology (BCT) to control and abate conventional pollutants and Best Available Technology Economically Achievable (BAT) to control and abate non-conventional and toxic pollutants. The EPA has made a Best Professional Judgment (BPJ) determination that BPT, BCT, and BAT for combined sewer overflow (CSO) control includes the implementation of Nine Minimum Controls (NMC) specified below. These Nine Minimum Controls and the Nine Minimum Controls Minimum Implementation Levels which are detailed further in Part I.F.3. are requirements of this permit.

      (1) Proper operation and regular maintenance programs for the sewer system and the combined sewer overflows;

      (2) Maximum use of the collection system for storage;

      (3) Review and modification of the pretreatment program to assure CSO impacts are minimized;

      (4) Maximization of flow to the POTW for treatment;

      (5) Prohibition of dry weather overflows from CSOs;

      (6) Control of solid and floatable materials in CSOs;

(7) Pollution prevention programs that focus on contaminant reduction activities;

(8) Public notification to ensure that the public receives adequate notification of CSO occurrences and impacts;

(9) Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls.

b. The discharges shall not cause or contribute to violations of federal or state Water Quality Standards.

3. Nine Minimum Controls Minimum Implementation Levels

a. The Permittee must implement the nine minimum controls in accordance with the documentation provided to EPA and MassDEP or as subsequently modified to enhance the effectiveness of the controls. This implementation must include the following controls plus other controls the Permittee can reasonably undertake as set forth in the documentation.

b. Each CSO structure/regulator, pumping station and/or tidegate shall be routinely inspected, at a minimum of once per month, to ensure that they are in good working condition and adjusted to minimize combined sewer discharges (NMC # 1, 2 and 4). The following inspection results shall be recorded: the date and time of inspection, the general condition of the facility, and whether the facility is operating satisfactorily. If maintenance is necessary, the Permittee shall record: the description of the necessary maintenance, the date the necessary maintenance was performed, and whether the observed problem was corrected. The Permittee shall maintain all records of inspections for at least three years.

c. **Annually, no later than March 31st,** the Permittee shall submit a certification to MassDEP and EPA which states that the previous calendar year's monthly inspections were conducted, results recorded, and records maintained. MassDEP and EPA have the right to inspect any CSO related structure or outfall at any time without prior notification to the Permittee. Discharges to the combined system of septage, holding tank wastes, or other material which may cause a visible oil sheen or containing floatable material are prohibited during wet weather when CSO discharges may be active (NMC # 3, 6, and 7).

d. Dry weather overflows (DWOs) are prohibited (NMC # 5). All dry weather sanitary and/or industrial discharges from CSOs must be reported to EPA and MassDEP orally within 24 hours of the time the Permittee becomes aware of the circumstances and a written submission shall also be provided within 5 days of the time the Permittee becomes aware of the circumstances. See also Paragraph D.1.e of Part II of this permit.

e. The Permittee shall quantify and record all discharges from combined sewer outfalls (NMC # 9). Quantification shall be through direct measurement. The following information must be recorded for each combined sewer outfall for each discharge event,

as set forth in Part I.F.4.:

- Duration (hours) of discharge;
- Volume (gallons) of discharge;
- National Weather Service precipitation data from the nearest gage where precipitation is available at daily (24-hour) intervals and the nearest gage where precipitation is available at one-hour intervals. Cumulative precipitation per discharge event shall be calculated.

The Permittee shall maintain all records of discharges for at least three years from the date of the sample, measurement, report, or application.

f. The Permittee shall install and maintain identification signs for all combined sewer outfall structures (NMC # 8). The signs must be located at or near the combined sewer outfall structures and easily readable by the public from the land and water. These signs shall be a minimum of 12 x 18 inches in size, with white lettering against a green background, and shall contain the following information:

CITY OF LOWELL
WET WEATHER
SEWAGE DISCHARGE
OUTFALL (discharge serial number)

Where easements over property not owned by the Permittee must be obtained to meet this requirement, the Permittee shall identify the appropriate landowners and obtain the necessary easements, to the extent practicable.

The Permittee shall place signs in English, Spanish and Khmer or add a universal wet weather sewage discharge symbol to existing signs.

g. Public Notification Plan

(1) Within 180 days of the effective date of the permit, the Permittee shall submit to EPA and MassDEP a Public Notification Plan describing the measures that will be taken to meet NMC#8 in Part I.F.2 of this permit (NMC #8). The public notification plan shall include the means for disseminating information to the public, including communicating the initial and supplemental notifications required in Part I.F.3.g.(2) and (3) of this permit, as well as procedures for communicating with public health departments, including downstream communities, whose waters may be affected by discharges from the Permittee's CSOs.

(2) Initial notification of a probable CSO activation shall be provided to the public as soon as practicable, but no later than, four (4) hours after becoming aware by monitoring, modeling or other means that a CSO discharge has occurred. Notification may be made through electronic means, including posting to the Permittee's website. The initial notification shall include the following information:

- Date and time of probable CSO discharge
- CSO number and location

(3) Supplemental notification shall be provided to the as soon as practicable, but no later than, twenty-four (24) hours after becoming aware of the termination of any CSO discharge(s). Notification may be made through electronic means, including posting to the Permittee's website. The supplemental notification shall include the following information:

- CSO number and location
- Confirmation of CSO discharge
- Date, start time and stop time of the CSO discharge

(4) Annual notification - Annually, by March 31st, the Permittee shall post information on the locations of CSOs, a summary of CSO activations and volumes, status and progress of CSO abatement work, and contacts for additional information on CSOs and water quality on a website. This information shall be disseminated through the means identified in the Public Notification Plan that is submitted in accordance with Part I.F.3.g.(1) of this permit.

The Public Notification Plan shall be implemented no later than 180 days following the effective date of the permit. The initial, supplemental, and annual public notification requirements shall become effective 180 days following the effective date of the permit.

4. Nine Minimum Controls Reporting Requirement

Annually, no later than March 31st, the Permittee shall submit a report summarizing activities during the previous calendar year relating to compliance with the nine minimum controls. The annual report shall include the CSO outfall monitoring data required by Part I.F.5. of this permit.

5. Combined Sewer Overflow Outfall

For each combined sewer overflow outfall listed in Part I.F.1 of this permit, the Permittee must monitor the following:

Parameters	Reporting Requirements	Monitoring Requirements	
	Total Monthly	**Measurement Frequency**	**Sample Type**
Total Flow	Report Gallons	Daily, when discharging	Continuous
Total Flow Duration (Duration of flow through CSO)	Report Hours	Daily, when discharging	Continuous
Number of CSO Discharge Events	Report Monthly Count	Daily, when discharging	Count

a. For Total Flow, measure the total flow discharged from each CSO outfall during the month. For Total Flow Duration, report the total duration (hours) of discharges for each CSO outfall during the month.

b. For those months when a CSO discharge does not occur, the Permittee must indicate "no discharge" for the outfall for which data was not collected.

c. This information shall be submitted with the annual report required by Part I.F.4. of this permit.

G. SLUDGE CONDITIONS

1. The Permittee shall comply with all existing federal and state laws and regulations that apply to sewage sludge use and disposal practices, including EPA regulations promulgated at 40 C.F.R. § 503, which prescribe "Standards for the Use or Disposal of Sewage Sludge" pursuant to § 405(d) of the CWA, 33 U.S.C. § 1345(d).

2. If both state and federal requirements apply to the Permittee's sludge use and/or disposal practices, the Permittee shall comply with the more stringent of the applicable requirements.

3. The requirements and technical standards of 40 C.F.R. § 503 apply to the following sludge use or disposal practices:

   a. Land application - the use of sewage sludge to condition or fertilize the soil
   b. Surface disposal - the placement of sewage sludge in a sludge only landfill
   c. Sewage sludge incineration in a sludge only incinerator

4. The requirements of 40 C.F.R. § 503 do not apply to facilities which dispose of sludge in a municipal solid waste landfill. 40 C.F.R. § 503.4. These requirements also do not apply to facilities which do not use or dispose of sewage sludge during the life of the permit but rather treat the sludge (e.g., lagoons, reed beds), or are otherwise excluded under 40 C.F.R. § 503.6.

5. The 40 C.F.R. § 503 requirements include the following elements:

- General requirements
- Pollutant limitations
- Operational Standards (pathogen reduction requirements and vector attraction reduction requirements)
- Management practices
- Record keeping
- Monitoring
- Reporting

Which of the 40 C.F.R. § 503 requirements apply to the Permittee will depend upon the use or disposal practice followed and upon the quality of material produced by a facility. The EPA Region 1 Guidance document, "EPA Region 1 - NPDES Permit Sludge Compliance Guidance" (November 4, 1999), may be used by the Permittee to assist it in determining the applicable requirements.[1]

6. The sludge shall be monitored for pollutant concentrations (all Part 503 methods) and pathogen reduction and vector attraction reduction (land application and surface disposal) at the following frequency. This frequency is based upon the volume of sewage sludge generated at the facility in dry metric tons per year, as follows:

less than 290	1/ year
290 to less than 1,500	1 /quarter
1,500 to less than 15,000	6 /year
15,000 +	1 /month

Sampling of the sewage sludge shall use the procedures detailed in 40 C.F.R. § 503.8.

7. Under 40 C.F.R. § 503.9(r), the Permittee is a "person who prepares sewage sludge" because it "is … the person who generates sewage sludge during the treatment of domestic sewage in a treatment works …." If the Permittee contracts with *another* "person who prepares sewage sludge" under 40 C.F.R. § 503.9(r) – i.e., with "a person who derives a material from sewage sludge" – for use or disposal of the sludge, then compliance with § 503 requirements is the responsibility of the contractor engaged for that purpose. If the Permittee does not engage a "person who prepares sewage sludge," as defined in 40 C.F.R. § 503.9(r), for use or disposal, then the Permittee remains responsible to ensure that the applicable requirements in § 503 are met. 40 C.F.R. § 503.7. If the ultimate use or disposal method is land application, the Permittee is responsible for providing the person receiving the sludge with notice and necessary information to comply with the requirements of 40 C.F.R. § 503 Subpart B.

8. The Permittee shall submit an annual report containing the information specified in the 40 C.F.R. § 503 requirements (§ 503.18 (land application), § 503.28 (surface disposal), or § 503.48 (incineration)) by **February 19** (*see also* "EPA Region 1 - NPDES Permit Sludge

[1] This guidance document is available upon request from EPA Region 1 and may also be found at: http://www.epa.gov/region1/npdes/permits/generic/sludgeguidance.pdf

Compliance Guidance"). Reports shall be submitted electronically using EPA's Electronic Reporting tool ("NeT") (see "Reporting Requirements" section below).

H. SPECIAL CONDITIONS

1. The effluent limit for total phosphorus shall be subject to a schedule of compliance, as follows:

   a) Within twelve (12) months of the effective date of the permit, the Permittee shall submit to EPA and MassDEP a status report relative to the planning and design of the facilities necessary to achieve the permit limit.
   b) Within twenty-four (24) months of the effective date of the permit, the Permittee shall complete design of the Facility improvements required to achieve the total phosphorus limit.
   c) Within thirty (30) months of the effective date of the permit, the Permittee shall initiate construction of the Facility improvements required to achieve the total phosphorus limit.
   d) Within forty-two (42) months of the effective date of the permit, the Permittee shall submit to EPA and MassDEP a status report relative to construction of the Facility improvements required to achieve the total phosphorus limit.
   e) Within fifty-four (54) months of the effective date of the permit, the Permittee shall complete construction of the Facility improvements required to achieve the total phosphorus limit and shall comply with the permit limit.

2. The Permittee shall notify the downstream community water systems listed below of any emergency condition, plant upset, bypass, CSO discharges, SSO discharges or other system failure if any of those occurances have the potential to affect the quality of the water to be withdrawn for drinking water purposes. This notification should be made as soon as possible but within four (4) hours, and in the anticipation of such an event, if feasible, without taking away from any response time necessary to alleviate the situation. The Permittee shall follow up with written notification within five (5) days to the contact below. This notification shall include the reason for the emergency, any sampling information, any visual data recorded, a description of how the situation was handled, and when it would be considered to no longer be an emergency.

   Andover Water Department
   387 Lowell Street
   Andover, MA 01810
   Phone Number: (978) 623-8870

   Haverhill Water Treatment Plant
   131 Amesbury Road
   Haverhill, MA 01830
   Phone Number: (978) 374-8870

Lawrence Water Works
410 Water Street
Lawrence, MA 01841
Phone Number: (978) 620-3590

Methuen Water Department
41 Pleasant Street, Room 206
Methuen, MA 01844
Phone Number: (978) 983-8845

Tewksbury Water Department
999 Whipple Road
Tewksbury, MA 01876
Phone Number: (978) 640-0346

3. The Permittee shall notify the Massachusetts Division of Marine Fisheries within 4 hours of any emergency condition, plant upset, bypass, CSO discharges, SSO discharges or other system failure which has the potential to violate bacteria permit limits. Within 24 hours a notification of a permit excursion or plant failure shall be sent to the following address and telephone number:

   Division of Marine Fisheries
   Shellfish Management Program
   30 Emerson Avenue
   Gloucester, MA 01930
   (978) 282-0308

4. The Permittee shall develop and implement a sampling and analysis plan for collecting monthly samples from the Merrimack River at a representative location upstream of the facility. Samples shall be collected once per month, from April through October, during dry weather. Dry weather is defined as any calendar day on which there is less than 0.1 inch of rainfall that is preceded by at least 72 hours without rainfall. The sampling plan shall be submitted to EPA and DEP as part of a Quality Assurance Project at least three months prior to the first planned sampling date.

I. REPORTING REQUIREMENTS

Unless otherwise specified in this permit, the Permittee shall submit reports, requests, and information and provide notices in the manner described in this section.

1. Submittal of DMRs Using NetDMR

   The Permittee shall continue to submit its monthly monitoring data in discharge monitoring reports (DMRs) to EPA and the State no later than the 15th day of the month electronically using NetDMR. When the Permittee submits DMRs using NetDMR, it is not required to

submit hard copies of DMRs to EPA or the State. NetDMR is accessible through EPA's Central Data Exchange at https://cdx.epa.gov/.

2. Submittal of Reports as NetDMR Attachments

   Unless otherwise specified in this permit, the Permittee shall electronically submit all reports to EPA as NetDMR attachments rather than as hard copies. *See* Part I.I.7. for more information on State reporting. Because the due dates for reports described in this permit may not coincide with the due date for submitting DMRs (which is no later than the 15th day of the month), a report submitted electronically as a NetDMR attachment shall be considered timely if it is electronically submitted to EPA using NetDMR with the next DMR due following the report due date specified in this permit.

3. Submittal of Industrial User and Pretreatment Related Reports

   a. Prior to 21 December 2020, all reports and information required of the Permittee in the Industrial Users and Pretreatment Program section of this permit shall be submitted to the Pretreatment Coordinator in Region 1 EPA Water Division (EPA WD). Starting on 21 December 2020, these submittals must be done electronically as NetDMR attachments and/or using EPA's NPDES Electronic Reporting Tool ("NeT"), or another approved EPA system, which will be accessible through EPA's Central Data Exchange at https://cdx.epa.gov/. These requests, reports and notices include:

      (1) Annual Pretreatment Reports,
      (2) Pretreatment Reports Reassessment of Technically Based Industrial Discharge Limits Form,
      (3) Revisions to Industrial Discharge Limits,
      (4) Report describing Pretreatment Program activities, and
      (5) Proposed changes to a Pretreatment Program

   b. This information shall be submitted to EPA WD as a hard copy at the following address:

U.S. Environmental Protection Agency
Water Division
Regional Pretreatment Coordinator
5 Post Office Square - Suite 100 (03)
Boston, MA 02109-3912

4. Submittal of Biosolids/Sewage Sludge Reports

   By February 19 of each year, the Permittee must electronically report their annual Biosolids/Sewage Sludge Report for the previous calendar year using EPA's NPDES Electronic Reporting Tool ("NeT"), or another approved EPA system, which is accessible through EPA's Central Data Exchange at https://cdx.epa.gov/.

5. Submittal of Requests and Reports to EPA WD

   a. The following requests, reports, and information described in this permit shall be submitted to the NPDES Applications Coordinator in EPA WD:

      (1) Transfer of permit notice;
      (2) Request for changes in sampling location;
      (3) Request for reduction in testing frequency;
      (4) Request for change in WET testing requirement; and
      (5) Report on unacceptable dilution water/request for alternative dilution water for WET testing.

   b. These reports, information, and requests shall be submitted to EPA WD electronically at R1NPDESReporting@epa.gov or by hard copy mail to the following address:

U.S. Environmental Protection Agency
Water Division
EPA Water Division NPDES Applications Coordinator
5 Post Office Square - Suite 100 (WD 03)
Boston, MA 02109-3912

6. Submittal of Reports in Hard Copy Form

   a. The following notifications and reports shall be signed and dated originals, submitted as hard copy, with a cover letter describing the submission:

      (1) Prior to 21 December 2020, written notifications required under Part II.B.4.c, for bypasses, and Part II.D.1.e, for sanitary sewer overflows (SSOs). Starting on 21 December 2020, such notifications must be done electronically using EPA's NPDES Electronic Reporting Tool ("NeT"), or another approved EPA system, which will be accessible through EPA's Central Data Exchange at https://cdx.epa.gov/.
      (2) Collection System Operation and Maintenance Plan (from co-permittee)
      (3) Report on annual activities related to O&M Plan (from co-permittee)

   b. This information shall be submitted to EPA ECAD at the following address:

U.S. Environmental Protection Agency
Enforcement and Compliance Assistance Division (ECAD)
Water Compliance Section
5 Post Office Square, Suite 100 (04-SMR)
Boston, MA 02109-3912

7. State Reporting

Duplicate signed copies of all WET test reports shall be submitted to the Massachusetts Department of Environmental Protection, Division of Watershed Management, at the following address:

Massachusetts Department of Environmental Protection
Bureau of Water Resources
Division of Watershed Management
8 New Bond Street
Worcester, Massachusetts 01606

8. Verbal Reports and Verbal Notifications

   a. Any verbal reports or verbal notifications, if required in Parts I and/or II of this permit, shall be made to both EPA and to the State. This includes verbal reports and notifications which require reporting within 24 hours (e.g., Part II.B.4.c. (2), Part II.B.5.c. (3), and Part II.D.1.e.).

   b. Verbal reports and verbal notifications shall be made to:

EPA ECAD at: 617-918-1510
and
MassDEP's Emergency Response at: 888-304-1133

J. STATE PERMIT CONDITIONS

1. This authorization to discharge includes two separate and independent permit authorizations. The two permit authorizations are 1) a Federal National Pollutant Discharge Elimination System permit issued by the U.S. Environmental Protection Agency (EPA) pursuant to the Federal Clean Water Act, 33 U.S.C. §§ 1251 et seq.; and 2) an identical State surface water discharge permit issued by the Commissioner of the Massachusetts Department of Environmental Protection (MassDEP) pursuant to the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53, and 314 CMR 3.00. All of the requirements contained in this authorization, as well as the standard conditions contained in 314 CMR 3.19, are hereby incorporated by reference into this State surface water discharge permit.

2. This authorization also incorporates the State water quality certification issued by MassDEP under § 401(a) of the Federal Clean Water Act, 40 C.F.R. 124.53, M.G.L. c. 21, § 27 and 314 CMR 3.07. All of the requirements (if any) contained in MassDEP's water quality certification for the permit are hereby incorporated by reference into this State surface water discharge permit as special conditions pursuant to 314 CMR 3.11.

3. Each agency shall have the independent right to enforce the terms and conditions of this permit. Any modification, suspension or revocation of this permit shall be effective only with respect to the agency taking such action and shall not affect the validity or status of this

permit as issued by the other agency, unless and until each agency has concurred in writing with such modification, suspension or revocation. In the event any portion of this permit is declared invalid, illegal or otherwise issued in violation of state law such permit shall remain in full force and effect under federal law as a NPDES Permit issued by the EPA. In the event this permit is declared invalid, illegal or otherwise issued in violation of Federal law, this permit shall remain in full force and effect under State law as a permit issued by the Commonwealth of Massachusetts.

ATTACHMENT A
USEPA REGION 1 FRESHWATER ACUTE
TOXICITY TEST PROCEDURE AND PROTOCOL

I. GENERAL REQUIREMENTS

The permittee shall conduct acceptable acute toxicity tests in accordance with the appropriate test protocols described below:

- **Daphnid (Ceriodaphnia dubia) definitive 48 hour test.**
- **Fathead Minnow (Pimephales promelas) definitive 48 hour test.**

Acute toxicity test data shall be reported as outlined in Section VIII.

II. METHODS

The permittee shall use 40 CFR Part 136 methods. Methods and guidance may be found at:

http://water.epa.gov/scitech/methods/cwa/wet/disk2_index.cfm

The permittee shall also meet the sampling, analysis and reporting requirements included in this protocol. This protocol defines more specific requirements while still being consistent with the Part 136 methods. If, due to modifications of Part 136, there are conflicting requirements between the Part 136 method and this protocol, the permittee shall comply with the requirements of the Part 136 method.

III. SAMPLE COLLECTION

A discharge sample shall be collected. Aliquots shall be split from the sample, containerized and preserved (as per 40 CFR Part 136) for chemical and physical analyses required. The remaining sample shall be measured for total residual chlorine and dechlorinated (if detected) in the laboratory using sodium thiosulfate for subsequent toxicity testing. (Note that EPA approved test methods require that samples collected for metals analyses be preserved immediately after collection.) Grab samples must be used for pH, temperature, and total residual chlorine (as per 40 CFR Part 122.21).

Standard Methods for the Examination of Water and Wastewater describes dechlorination of samples (APHA, 1992). Dechlorination can be achieved using a ratio of 6.7 mg/L anhydrous sodium thiosulfate to reduce 1.0 mg/L chlorine. If dechlorination is necessary, a thiosulfate control (maximum amount of thiosulfate in lab control or receiving water) must also be run in the WET test.

All samples held overnight shall be refrigerated at 1- 6^{o}C.

IV. DILUTION WATER

A grab sample of dilution water used for acute toxicity testing shall be collected from the receiving water at a point immediately upstream of the permitted discharge's zone of influence at a reasonably accessible location. Avoid collection near areas of obvious road or agricultural runoff, storm sewers or other point source discharges and areas where stagnant conditions exist. In the case where an alternate dilution water has been agreed upon an additional receiving water control (0% effluent) must also be tested.

If the receiving water diluent is found to be, or suspected to be toxic or unreliable, an alternate standard dilution water of known quality with a hardness, pH, conductivity, alkalinity, organic carbon, and total suspended solids similar to that of the receiving water may be substituted **AFTER RECEIVING WRITTEN APPROVAL FROM THE PERMIT ISSUING AGENCY(S)**. Written requests for use of an alternate dilution water should be mailed with supporting documentation to the following address:

Director
Office of Ecosystem Protection (CAA)
U.S. Environmental Protection Agency-New England
5 Post Office Sq., Suite 100 (OEP06-5)
Boston, MA 02109-3912

and

Manager
Water Technical Unit (SEW)
U.S. Environmental Protection Agency
5 Post Office Sq., Suite 100 (OES04-4)
Boston, MA 02109-3912

Note: USEPA Region 1 retains the right to modify any part of the alternate dilution water policy stated in this protocol at any time. Any changes to this policy will be documented in the annual DMR posting.

See the most current annual DMR instructions which can be found on the EPA Region 1 website at http://www.epa.gov/region1/enforcement/water/dmr.html *for further important details on alternate dilution water substitution requests.*

It may prove beneficial to have the proposed dilution water source screened for suitability prior to toxicity testing. EPA strongly urges that screening be done prior to set up of a full definitive toxicity test any time there is question about the dilution water's ability to support acceptable performance as outlined in the 'test acceptability' section of the protocol.

V. TEST CONDITIONS

The following tables summarize the accepted daphnid and fathead minnow toxicity test conditions and test acceptability criteria:

EPA NEW ENGLAND EFFLUENT TOXICITY TEST CONDITIONS FOR THE DAPHNID, CERIODAPHNIA DUBIA 48 HOUR ACUTE TESTS[1]

1.	Test type	Static, non-renewal
2.	Temperature (^{o}C)	20 $\pm$ 1^{o}C or 25 $\pm$ 1^{o}C
3.	Light quality	Ambient laboratory illumination
4.	Photoperiod	16 hour light, 8 hour dark
5.	Test chamber size	Minimum 30 ml
6.	Test solution volume	Minimum 15 ml
7.	Age of test organisms	1-24 hours (neonates)
8.	No. of daphnids per test chamber	5
9.	No. of replicate test chambers per treatment	4
10.	Total no. daphnids per test concentration	20
11.	Feeding regime	As per manual, lightly feed YCT and Selenastrum to newly released organisms while holding prior to initiating test
12.	Aeration	None
13.	Dilution water[2]	Receiving water, other surface water, synthetic water adjusted to the hardness and alkalinity of the receiving water (prepared using either Millipore Milli-Q^{R} or equivalent deionized water and reagent grade chemicals according to EPA acute toxicity test manual) or deionized water combined with mineral water to appropriate hardness.
14.	Dilution series	$\geq$ 0.5, must bracket the permitted RWC
15.	Number of dilutions	5 plus receiving water and laboratory water control and thiosulfate control, as necessary. An additional dilution at the permitted effluent concentration (% effluent) is required if it is not included in the dilution

		series.
16.	Effect measured	Mortality-no movement of body or appendages on gentle prodding
17.	Test acceptability	90% or greater survival of test organisms in dilution water control solution
18.	Sampling requirements	For on-site tests, samples must be used within 24 hours of the time that they are removed from the sampling device. For off-site tests, samples must first be used within 36 hours of collection.
19.	Sample volume required	Minimum 1 liter

Footnotes:

1. Adapted from EPA-821-R-02-012.
2. Standard prepared dilution water must have hardness requirements to generally reflect the characteristics of the receiving water.

EPA NEW ENGLAND TEST CONDITIONS FOR THE FATHEAD MINNOW (PIMEPHALES PROMELAS) 48 HOUR ACUTE TEST[1]

1.	Test Type	Static, non-renewal
2.	Temperature (^{o}C)	20 $\pm$ 1 ^{o} C or 25 $\pm$ 1^{o}C
3.	Light quality	Ambient laboratory illumination
4.	Photoperiod	16 hr light, 8 hr dark
5.	Size of test vessels	250 mL minimum
6.	Volume of test solution	Minimum 200 mL/replicate
7.	Age of fish	1-14 days old and age within 24 hrs of each other
8.	No. of fish per chamber	10
9.	No. of replicate test vessels per treatment	4
10.	Total no. organisms per concentration	40
11.	Feeding regime	As per manual, lightly feed test age larvae using concentrated brine shrimp nauplii while holding prior to initiating test
12.	Aeration	None, unless dissolved oxygen (D.O.) concentration falls below 4.0 mg/L, at which time gentle single bubble aeration should be started at a rate of less than 100 bubbles/min. (Routine D.O. check is recommended.)
13.	dilution water[2]	Receiving water, other surface water, synthetic water adjusted to the hardness and alkalinity of the receiving water (prepared using either Millipore Milli-Q^{R} or equivalent deionized and reagent grade chemicals according to EPA acute toxicity test manual) or deionized water combined with mineral water to appropriate hardness.
14.	Dilution series	$\geq$ 0.5, must bracket the permitted RWC

15.	Number of dilutions	5 plus receiving water and laboratory water control and thiosulfate control, as necessary. An additional dilution at the permitted effluent concentration (% effluent) is required if it is not included in the dilution series.
16.	Effect measured	Mortality-no movement on gentle prodding
17.	Test acceptability	90% or greater survival of test organisms in dilution water control solution
18.	Sampling requirements	For on-site tests, samples must be used within 24 hours of the time that they are removed from the sampling device. For off-site tests, samples are used within 36 hours of collection.
19.	Sample volume required	Minimum 2 liters

Footnotes:

1. Adapted from EPA-821-R-02-012
2. Standard dilution water must have hardness requirements to generally reflect characteristics of the receiving water.

VI. CHEMICAL ANALYSIS

At the beginning of a static acute toxicity test, pH, conductivity, total residual chlorine, oxygen, hardness, alkalinity and temperature must be measured in the highest effluent concentration and the dilution water. Dissolved oxygen, pH and temperature are also measured at 24 and 48 hour intervals in all dilutions. The following chemical analyses shall be performed on the 100 percent effluent sample and the upstream water sample for each sampling event.

Parameter	Effluent	Receiving Water	ML (mg/l)
Hardness[1]	x	x	0.5
Total Residual Chlorine (TRC)[2, 3]	x		0.02
Alkalinity	x	x	2.0
pH	x	x	--
Specific Conductance	x	x	--
Total Solids	x		--
Total Dissolved Solids	x		--
Ammonia	x	x	0.1
Total Organic Carbon	x	x	0.5
Total Metals			
Cd	x	x	0.0005
Pb	x	x	0.0005
Cu	x	x	0.003
Zn	x	x	0.005
Ni	x	x	0.005
Al	x	x	0.02
Other as permit requires			

Notes:

1. Hardness may be determined by:
   - APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
     - Method 2340B (hardness by calculation)
     - Method 2340C (titration)
2. Total Residual Chlorine may be performed using any of the following methods provided the required minimum limit (ML) is met.
   - APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
     - Method 4500-CL E Low Level Amperometric Titration
     - Method 4500-CL G DPD Colorimetric Method
3. Required to be performed on the sample used for WET testing prior to its use for toxicity testing.

VII. TOXICITY TEST DATA ANALYSIS

LC50 Median Lethal Concentration (Determined at 48 Hours)

Methods of Estimation:

- Probit Method
- Spearman-Karber
- Trimmed Spearman-Karber
- Graphical

See the flow chart in Figure 6 on p. 73 of EPA-821-R-02-012 for appropriate method to use on a given data set.

No Observed Acute Effect Level (NOAEL)

See the flow chart in Figure 13 on p. 87 of EPA-821-R-02-012.

VIII. TOXICITY TEST REPORTING

A report of the results will include the following:

- Description of sample collection procedures, site description
- Names of individuals collecting and transporting samples, times and dates of sample collection and analysis on chain-of-custody
- General description of tests: age of test organisms, origin, dates and results of standard toxicant tests; light and temperature regime; other information on test conditions if different than procedures recommended. Reference toxicant test data should be included.
- All chemical/physical data generated. (Include minimum detection levels and minimum quantification levels.)
- Raw data and bench sheets.
- Provide a description of dechlorination procedures (as applicable).
- Any other observations or test conditions affecting test outcome.

ATTACHMENT B
FRESHWATER CHRONIC
TOXICITY TEST PROCEDURE AND PROTOCOL

USEPA Region 1

I. GENERAL REQUIREMENTS

The permittee shall be responsible for the conduct of acceptable chronic toxicity tests using three fresh samples collected during each test period. The following tests shall be performed as prescribed in Part 1 of the NPDES discharge permit in accordance with the appropriate test protocols described below. (Note: the permittee and testing laboratory should review the applicable permit to determine whether testing of one or both species is required).

- **Daphnid (Ceriodaphnia dubia) Survival and Reproduction Test.**
- **Fathead Minnow (Pimephales promelas) Larval Growth and Survival Test.**

Chronic toxicity data shall be reported as outlined in Section VIII.

II. METHODS

Methods to follow are those recommended by EPA in: Short Term Methods For Estimating The Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, Fourth Edition. October 2002. United States Environmental Protection Agency. Office of Water, Washington, D.C., EPA 821-R-02-013. The methods are available on-line at http://www.epa.gov/waterscience/WET/ . Exceptions and clarification are stated herein.

III. SAMPLE COLLECTION AND USE

A total of three fresh samples of effluent and receiving water are required for initiation and subsequent renewals of a freshwater, chronic, toxicity test. The receiving water control sample must be collected immediately upstream of the permitted discharge's zone of influence. Fresh samples are recommended for use on test days 1, 3, and 5. However, provided a total of three samples are used for testing over the test period, an alternate sampling schedule is acceptable. The acceptable holding times until initial use of a sample are 24 and 36 hours for on-site and off-site testing, respectively. A written waiver is required from the regulating authority for any hold time extension. All test samples collected may be used for 24, 48 and 72 hour renewals after initial use. All samples held for use beyond the day of sampling shall be refrigerated and maintained at a temperature range of 0-6^{o} C.

All samples submitted for chemical and physical analyses will be analyzed according to Section VI of this protocol.

Sampling guidance dictates that, where appropriate, aliquots for the analysis required in this protocol shall be split from the samples, containerized and immediately preserved, or analyzed as per 40 CFR Part 136. EPA approved test methods require that samples collected for metals analyses be preserved immediately after collection. Testing for the presence of total residual chlorine (TRC) must be analyzed immediately or as soon as possible, for all effluent samples, prior to WET testing. TRC analysis may be performed on-site or by the toxicity testing laboratory and the samples must be dechlorinated, as necessary, using sodium thiosulfate prior to sample use for toxicity testing.

If any of the renewal samples are of sufficient potency to cause lethality to 50 percent or more of the test organisms in any of the test treatments for either species or, if the test fails to meet its permit limits, then chemical analysis for total metals (originally required for the initial sample only in Section VI) will be required on the renewal sample(s) as well.

IV. DILUTION WATER

Samples of receiving water must be collected from a location in the receiving water body immediately upstream of the permitted discharge's zone of influence at a reasonably accessible location. Avoid collection near areas of obvious road or agricultural runoff, storm sewers or other point source discharges and areas where stagnant conditions exist. EPA strongly urges that screening for toxicity be performed prior to the set up of a full, definitive toxicity test any time there is a question about the test dilution water's ability to achieve test acceptability criteria (TAC) as indicated in Section V of this protocol. The test dilution water control response will be used in the statistical analysis of the toxicity test data. All other control(s) required to be run in the test will be reported as specified in the Discharge Monitoring Report (DMR) Instructions, Attachment F, page 2,Test Results & Permit Limits.

The test dilution water must be used to determine whether the test met the applicable TAC. When receiving water is used for test dilution, an additional control made up of standard laboratory water (0% effluent) is required. This control will be used to verify the health of the test organisms and evaluate to what extent, if any, the receiving water itself is responsible for any toxic response observed.

If dechlorination of a sample by the toxicity testing laboratory is necessary a "sodium thiosulfate" control, representing the concentration of sodium thiosulfate used to adequately dechlorinate the sample prior to toxicity testing, must be included in the test.

If the use of an alternate dilution water (ADW) is authorized, in addition to the ADW test control, the testing laboratory must, for the purpose of monitoring the receiving water, also run a receiving water control.

If the receiving water diluent is found to be, or suspected to be toxic or unreliable an ADW of known quality with hardness similar to that of the receiving water may be substituted. Substitution is species specific meaning that the decision to use ADW is made for each species and is based on the toxic response of that particular species. Substitution to an ADW is authorized in two cases. The first is the case where repeating a test due to toxicity in the site dilution water requires an **immediate decision** for ADW use be made by the permittee and toxicity testing laboratory. The second is in the case where two of the most recent documented incidents of unacceptable site dilution water toxicity requires ADW use in future WET testing.

For the second case, written notification from the permittee requesting ADW use **and** written authorization from the permit issuing agency(s) is required **prior to** switching to a long-term use of ADW for the duration of the permit.

Written requests for use of ADW must be mailed with supporting documentation to the following addresses:

Director
Office of Ecosystem Protection (CAA)
U.S. Environmental Protection Agency, Region 1
Five Post Office Square, Suite 100
Mail Code OEP06-5
Boston, MA 02109-3912

and

Manager
Water Technical Unit (SEW)
U.S. Environmental Protection Agency
Five Post Office Square, Suite 100
Mail Code OES04-4
Boston, MA 02109-3912

Note: USEPA Region 1 retains the right to modify any part of the alternate dilution water policy stated in this protocol at any time. Any changes to this policy will be documented in the annual DMR posting.

See the most current annual DMR instructions which can be found on the EPA Region 1 website at http://www.epa.gov/region1/enforcementandassistance/dmr.html for further important details on alternate dilution water substitution requests.

V. TEST CONDITIONS AND TEST ACCEPTABILITY CRITERIA

Method specific test conditions and TAC are to be followed and adhered to as specified in the method guidance document, EPA 821-R-02-013. If a test does not meet TAC the test must be repeated with fresh samples within 30 days of the initial test completion date.

V.1. Use of Reference Toxicity Testing

Reference toxicity test results and applicable control charts must be included in the toxicity testing report.

If reference toxicity test results fall outside the control limits established by the laboratory for a specific test endpoint, a reason or reasons for this excursion must be evaluated, correction made and reference toxicity tests rerun as necessary.

If a test endpoint value exceeds the control limits at a frequency of more than one out of twenty then causes for the reference toxicity test failure must be examined and if problems are identified corrective action taken. The reference toxicity test must be repeated during the same month in which the exceedance occurred.

If two consecutive reference toxicity tests fall outside control limits, the possible cause(s) for the exceedance must be examined, corrective actions taken and a repeat of the reference toxicity test must take place immediately. Actions taken to resolve the problem must be reported.

V.1.a. Use of Concurrent Reference Toxicity Testing

In the case where concurrent reference toxicity testing is required due to a low frequency of testing with a particular method, if the reference toxicity test results fall slightly outside of laboratory established control limits, but the primary test met the TAC, the results of the primary test will be considered acceptable. However, if the results of the concurrent test fall well outside the established **upper** control limits i.e. ≥3 standard deviations for IC25 values and ≥ two concentration intervals for NOECs, and even though the primary test meets TAC, the primary test will be considered unacceptable and must be repeated.

V.2. For the *C. dubia* test, the determination of TAC and formal statistical analyses must be performed using only the first three broods produced.

V.3. Test treatments must include 5 effluent concentrations and a dilution water control. An additional test treatment, at the permitted effluent concentration (% effluent), is required if it is not included in the dilution series.

VI. CHEMICAL ANALYSIS

As part of each toxicity test's daily renewal procedure, pH, specific conductance, dissolved oxygen (DO) and temperature must be measured at the beginning and end of each 24-hour period in each test treatment and the control(s).

The additional analysis that must be performed under this protocol is as specified and noted in the table below.

Parameter	Effluent	Receiving Water	ML (mg/l)
Hardness[1, 4]	x	x	0.5
Total Residual Chlorine (TRC)[2, 3, 4]	x		0.02
Alkalinity[4]	x	x	2.0
pH[4]	x	x	--
Specific Conductance[4]	x	x	--
Total Solids[6]	x		--
Total Dissolved Solids[6]	x		--
Ammonia[4]	x	x	0.1
Total Organic Carbon[6]	x	x	0.5
Total Metals[5]			
Cd	x	x	0.0005
Pb	x	x	0.0005
Cu	x	x	0.003
Zn	x	x	0.005
Ni	x	x	0.005
Al	x	x	0.02
Other as permit requires			

Notes:

1. Hardness may be determined by:

- APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
  -Method 2340B (hardness by calculation)
  -Method 2340C (titration)

2. Total Residual Chlorine may be performed using any of the following methods provided the required minimum limit (ML) is met.

- APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
  -Method 4500-CL E Low Level Amperometric Titration
  -Method 4500-CL G DPD Colorimetric Method
- USEPA 1983. Manual of Methods Analysis of Water and Wastes
  -Method 330.5

3. Required to be performed on the sample used for WET testing prior to its use for toxicity testing
4. Analysis is to be performed on samples and/or receiving water, as designated in the table above, from all three sampling events.
5. Analysis is to be performed on the initial sample(s) only unless the situation arises as stated in Section III, paragraph 4
6. Analysis to be performed on initial samples only

VII. TOXICITY TEST DATA ANALYSIS AND REVIEW

A. Test Review

1. Concentration / Response Relationship

A concentration/response relationship evaluation is required for test endpoint determinations from both Hypothesis Testing and Point Estimate techniques. The test report is to include documentation of this evaluation in support of the endpoint values reported. The dose-response review must be performed as required in Section 10.2.6 of EPA-821-R-02-013. Guidance for this review can be found at http://water.epa.gov/scitech/methods/cwa/ . In most cases, the review will result in one of the following three conclusions: (1) Results are reliable and reportable; (2) Results are anomalous and require explanation; or (3) Results are inconclusive and a retest with fresh samples is required.

2. Test Variability (Test Sensitivity)

This review step is separate from the determination of whether a test meets or does not meet TAC. Within test variability is to be examined for the purpose of evaluating test sensitivity. This evaluation is to be performed for the sub-lethal hypothesis testing endpoints reproduction and growth as required by the permit. The test report is to include documentation of this evaluation to support that the endpoint values reported resulted from a toxicity test of adequate sensitivity. This evaluation must be performed as required in Section 10.2.8 of EPA-821-R-02-013.

To determine the adequacy of test sensitivity, USEPA requires the calculation of test percent minimum significant difference (PMSD) values. In cases where NOEC determinations are made based on a non-parametric technique, calculation of a test PMSD value**,** for the sole purpose of assessing test sensitivity, shall be calculated using a comparable parametric statistical analysis technique. The calculated test PMSD is then compared to the upper and lower PMSD bounds shown for freshwater tests in Section 10.2.8.3, p. 52, Table 6 of EPA-821-R-02-013. The comparison will yield one of the following determinations.

- The test PMSD exceeds the PMSD upper bound test variability criterion in Table 6, the test results are considered highly variable and the test may not be sensitive enough to determine the presence of toxicity at the permit limit concentration (PLC). If the test results indicate that the discharge is not toxic at the PLC, then the test is considered insufficiently sensitive and must be repeated within 30 days of the initial test completion using fresh samples. If the test results indicate that the discharge is toxic at the PLC, the test is considered acceptable and does not have to be repeated.

- The test PMSD falls below the PMSD lower bound test variability criterion in Table 6, the test is determined to be very sensitive. In order to determine which treatment(s) are statistically significant and which are not, for the purpose of reporting a NOEC, the relative percent difference (RPD) between the control and each treatment must be calculated and compared to the lower PMSD boundary. See *Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the NPDES Program*, EPA 833-R-00-003, June 2002, Section 6.4.2. The following link: Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the NPDES Program can be used to locate the USEPA website containing this document. If the RPD for a treatment falls below the PMSD lower bound, the difference is considered statistically insignificant. If the RPD for a treatment is greater that the PMSD lower bound, then the treatment is considered statistically significant.

- The test PMSD falls within the PMSD upper and lower bounds in Table 6, the sub-lethal test endpoint values shall be reported as is.

B. Statistical Analysis

1. General - Recommended Statistical Analysis Method

Refer to general data analysis flowchart, EPA 821-R-02-013, page 43

For discussion on Hypothesis Testing, refer to EPA 821-R-02-013, Section 9.6

For discussion on Point Estimation Techniques, refer to EPA 821-R-02-013, Section 9.7

2. *Pimephales promelas*

Refer to survival hypothesis testing analysis flowchart, EPA 821-R-02-013, page 79

Refer to survival point estimate techniques flowchart, EPA 821-R-02-013, page 80

Refer to growth data statistical analysis flowchart, EPA 821-R-02-013, page 92

3. *Ceriodaphnia dubia*

Refer to survival data testing flowchart, EPA 821-R-02-013, page 168

Refer to reproduction data testing flowchart, EPA 821-R-02-013, page 173

VIII. TOXICITY TEST REPORTING

A report of results must include the following:

- Test summary sheets (2007 DMR Attachment F) which includes:
  - Facility name
  - NPDES permit number
  - Outfall number
  - Sample type
  - Sampling method
  - Effluent TRC concentration
  - Dilution water used
  - Receiving water name and sampling location
  - Test type and species
  - Test start date
  - Effluent concentrations tested (%) and permit limit concentration
  - Applicable reference toxicity test date and whether acceptable or not
  - Age, age range and source of test organisms used for testing
  - Results of TAC review for all applicable controls
  - Test sensitivity evaluation results (test PMSD for growth and reproduction)
  - Permit limit and toxicity test results
  - Summary of test sensitivity and concentration response evaluation

In addition to the summary sheets the report must include:

- A brief description of sample collection procedures
- Chain of custody documentation including names of individuals collecting samples, times and dates of sample collection, sample locations, requested analysis and lab receipt with time and date received, lab receipt personnel and condition of samples upon receipt at the lab(s)
- Reference toxicity test control charts
- All sample chemical/physical data generated, including minimum limits (MLs) and analytical methods used
- All toxicity test raw data including daily ambient test conditions, toxicity test chemistry, sample dechlorination details as necessary, bench sheets and statistical analysis
- A discussion of any deviations from test conditions
- Any further discussion of reported test results, statistical analysis and concentration-response relationship and test sensitivity review per species per endpoint

NPDES PART II STANDARD CONDITIONS
(April 26, 2018)[1]

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[1] Updated July 17, 2018 to fix typographical errors.

A. GENERAL REQUIREMENTS

1. Duty to Comply

The Permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act (CWA or Act) and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

a. The Permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.

b. Penalties for Violations of Permit Conditions: The Director will adjust the civil and administrative penalties listed below in accordance with the Civil Monetary Penalty Inflation Adjustment Rule (83 Fed. Reg. 1190-1194 (January 10, 2018) and the 2015 amendments to the Federal Civil Penalties Inflation Adjustment Act of 1990, 28 U.S.C. § 2461 note. See Pub. L.114-74, Section 701 (Nov. 2, 2015)). These requirements help ensure that EPA penalties keep pace with inflation. Under the above-cited 2015 amendments to inflationary adjustment law, EPA must review its statutory civil penalties each year and adjust them as necessary.

(1) Criminal Penalties

(a) *Negligent Violations.* The CWA provides that any person who negligently violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to criminal penalties of not less than $2,500 nor more than $25,000 per day of violation, or imprisonment of not more than 1 year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation or by imprisonment of not more than 2 years, or both.

(b) *Knowing Violations.* The CWA provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a fine of not less than $5,000 nor more than $50,000 per day of violation, or by imprisonment for not more than 3 years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than 6 years, or both.

(c) *Knowing Endangerment.* The CWA provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 303, 306, 307, 308, 318, or 405 of the Act and who knows at that time that he or she is placing another person in imminent danger of death or serious bodily injury shall upon conviction be subject to a fine of not more than $250,000 or by imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing

endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in Section 309(c)(3)(B)(iii) of the Act, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions.

(d) *False Statement.* The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both. The Act further provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.

(2) *Civil Penalties*. The CWA provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a civil penalty not to exceed the maximum amounts authorized by Section 309(d) of the Act, the 2015 amendments to the Federal Civil Penalties Inflation Adjustment Act of 1990, 28 U.S.C. § 2461 note, and 40 C.F.R. Part 19. *See* Pub. L.114-74, Section 701 (Nov. 2, 2015); 83 Fed. Reg. 1190 (January 10, 2018).

(3) *Administrative Penalties*. The CWA provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to an administrative penalty as follows:

(a) *Class I Penalty.* Not to exceed the maximum amounts authorized by Section 309(g)(2)(A) of the Act, the 2015 amendments to the Federal Civil Penalties Inflation Adjustment Act of 1990, 28 U.S.C. § 2461 note, and 40 C.F.R. Part 19. *See* Pub. L.114-74, Section 701 (Nov. 2, 2015); 83 Fed. Reg. 1190 (January 10, 2018).

(b) *Class II Penalty.* Not to exceed the maximum amounts authorized by Section 309(g)(2)(B) of the Act the 2015 amendments to the Federal Civil Penalties Inflation Adjustment Act of 1990, 28 U.S.C. § 2461 note, and 40 C.F.R. Part 19. *See* Pub. L.114-74, Section 701 (Nov. 2, 2015); 83 Fed. Reg. 1190 (January 10, 2018).

2. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit

condition.

3. Duty to Provide Information

The Permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

4. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the Permittee from responsibilities, liabilities or penalties to which the Permittee is or may be subject under Section 311 of the CWA, or Section 106 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA).

5. Property Rights

This permit does not convey any property rights of any sort, or any exclusive privilege.

6. Confidentiality of Information

a. In accordance with 40 C.F.R. Part 2, any information submitted to EPA pursuant to these regulations may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission in the manner prescribed on the application form or instructions or, in the case of other submissions, by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the information will be treated in accordance with the procedures in 40 C.F.R. Part 2 (Public Information).

b. Claims of confidentiality for the following information will be denied:

(1) The name and address of any permit applicant or Permittee;
(2) Permit applications, permits, and effluent data.

c. Information required by NPDES application forms provided by the Director under 40 C.F.R. § 122.21 may not be claimed confidential. This includes information submitted on the forms themselves and any attachments used to supply information required by the forms.

7. Duty to Reapply

If the Permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the Permittee must apply for and obtain a new permit. The Permittee shall submit a new application at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Director. (The Director shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)

8. State Authorities

Nothing in Parts 122, 123, or 124 precludes more stringent State regulation of any activity

covered by the regulations in 40 C.F.R. Parts 122, 123, and 124, whether or not under an approved State program.

9. Other Laws

The issuance of a permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations.

B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a Permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

2. Need to Halt or Reduce Not a Defense

It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

3. Duty to Mitigate

The Permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

4. Bypass

a. Definitions

(1) *Bypass* means the intentional diversion of waste streams from any portion of a treatment facility.

(2) *Severe property damage* means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

b. *Bypass not exceeding limitations.* The Permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs (c) and (d) of this Section.

c. Notice

(1) *Anticipated bypass*. If the Permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass. As of December 21, 2020 all notices submitted in compliance with this Section must be submitted electronically by the Permittee to the Director or initial recipient, as defined in 40 C.F.R. § 127.2(b), in compliance with this Section and 40 C.F.R. Part 3 (including, in all cases, Subpart D to Part 3), § 122.22, and 40 C.F.R. Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, Permittees may be required to report electronically if specified by a particular permit or if required to do so by state law.

(2) *Unanticipated bypass*. The Permittee shall submit notice of an unanticipated bypass as required in paragraph D.1.e. of this part (24-hour notice). As of December 21, 2020 all notices submitted in compliance with this Section must be submitted electronically by the Permittee to the Director or initial recipient, as defined in 40 C.F.R. § 127.2(b), in compliance with this Section and 40 C.F.R. Part 3 (including, in all cases, Subpart D to Part 3), § 122.22, and 40 C.F.R. Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, Permittees may be required to report electronically if specified by a particular permit or required to do so by law.

d. *Prohibition of bypass.*

(1) Bypass is prohibited, and the Director may take enforcement action against a Permittee for bypass, unless:

(a) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

(b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and

(c) The Permittee submitted notices as required under paragraph 4.c of this Section.

(2) The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in paragraph 4.d of this Section.

5. Upset

a. *Definition*. *Upset* means an exceptional incident in which there is an unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or

improper operation.

b. *Effect of an upset.* An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph B.5.c. of this Section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

c. *Conditions necessary for a demonstration of upset.* A Permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

(1) An upset occurred and that the Permittee can identify the cause(s) of the upset;
(2) The permitted facility was at the time being properly operated; and
(3) The Permittee submitted notice of the upset as required in paragraph D.1.e.2.b. (24-hour notice).
(4) The Permittee complied with any remedial measures required under B.3. above.

d. *Burden of proof.* In any enforcement proceeding the Permittee seeking to establish the occurrence of an upset has the burden of proof.

C. MONITORING REQUIREMENTS

1. Monitoring and Records

a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

b. Except for records of monitoring information required by this permit related to the Permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least 5 years (or longer as required by 40 C.F.R. § 503), the Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time.

c. Records of monitoring information shall include:

(1) The date, exact place, and time of sampling or measurements;
(2) The individual(s) who performed the sampling or measurements;
(3) The date(s) analyses were performed;
(4) The individual(s) who performed the analyses;
(5) The analytical techniques or methods used; and
(6) The results of such analyses.

d. Monitoring must be conducted according to test procedures approved under 40 C.F.R. § 136 unless another method is required under 40 C.F.R. Subchapters N or O.

e. The Clean Water Act provides that any person who falsifies, tampers with, or

knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both.

2. Inspection and Entry

The Permittee shall allow the Director, or an authorized representative (including an authorized contractor acting as a representative of the Administrator), upon presentation of credentials and other documents as may be required by law, to:

a. Enter upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

D. REPORTING REQUIREMENTS

1. Reporting Requirements

a. *Planned Changes*. The Permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

(1) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 C.F.R. § 122.29(b); or

(2) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements at 40 C.F.R. § 122.42(a)(1).

(3) The alteration or addition results in a significant change in the Permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.

b. *Anticipated noncompliance*. The Permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

c. *Transfers*. This permit is not transferable to any person except after notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the Permittee and incorporate such other requirements as may be necessary under the Clean Water Act. *See* 40 C.F.R. § 122.61; in some cases, modification or revocation and reissuance is mandatory.

d. *Monitoring reports*. Monitoring results shall be reported at the intervals specified elsewhere in this permit.

(1) Monitoring results must be reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Director for reporting results of monitoring of sludge use or disposal practices. As of December 21, 2016 all reports and forms submitted in compliance with this Section must be submitted electronically by the Permittee to the Director or initial recipient, as defined in 40 C.F.R. § 127.2(b), in compliance with this Section and 40 C.F.R. Part 3 (including, in all cases, Subpart D to Part 3), § 122.22, and 40 C.F.R. Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, Permittees may be required to report electronically if specified by a particular permit or if required to do so by State law.

(2) If the Permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 C.F.R. § 136, or another method required for an industry-specific waste stream under 40 C.F.R. Subchapters N or O, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Director.

(3) Calculations for all limitations which require averaging or measurements shall utilize an arithmetic mean unless otherwise specified by the Director in the permit.

e. *Twenty-four hour reporting.*

(1) The Permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Permittee becomes aware of the circumstances. A written report shall also be provided within 5 days of the time the Permittee becomes aware of the circumstances. The written report shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports must include the data described above (with the exception of time of discovery) as well as the type of event (combined sewer overflows, sanitary sewer overflows, or bypass events), type of sewer overflow structure (e.g., manhole, combined sewer overflow outfall), discharge volumes untreated by the treatment works treating domestic sewage, types of human health and environmental impacts of the sewer overflow event, and whether the noncompliance was related to wet weather. As of December 21, 2020 all

reports related to combined sewer overflows, sanitary sewer overflows, or bypass events submitted in compliance with this section must be submitted electronically by the Permittee to the Director or initial recipient, as defined in 40 C.F.R. § 127.2(b), in compliance with this Section and 40 C.F.R. Part 3 (including, in all cases Subpart D to Part 3), § 122.22, and 40 C.F.R. Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, Permittees may be required to electronically submit reports related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section by a particular permit or if required to do so by state law. The Director may also require Permittees to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section.

(2) The following shall be included as information which must be reported within 24 hours under this paragraph.

(a) Any unanticipated bypass which exceeds any effluent limitation in the permit. *See* 40 C.F.R. § 122.41(g).
(b) Any upset which exceeds any effluent limitation in the permit.
(c) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Director in the permit to be reported within 24 hours. *See* 40 C.F.R. § 122.44(g).

(3) The Director may waive the written report on a case-by-case basis for reports under paragraph D.1.e. of this Section if the oral report has been received within 24 hours.

f. *Compliance Schedules.* Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

g. *Other noncompliance.* The Permittee shall report all instances of noncompliance not reported under paragraphs D.1.d., D.1.e., and D.1.f. of this Section, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph D.1.e. of this Section. For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports shall contain the information described in paragraph D.1.e. and the applicable required data in Appendix A to 40 C.F.R. Part 127. As of December 21, 2020 all reports related to combined sewer overflows, sanitary sewer overflows, or bypass events submitted in compliance with this section must be submitted electronically by the Permittee to the Director or initial recipient, as defined in 40 C.F.R. § 127.2(b), in compliance with this Section and 40 C.F.R. Part 3 (including, in all cases, Subpart D to Part 3), §122.22, and 40 C.F.R. Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, Permittees may be required to electronically submit reports related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section by a particular permit or if required to do so by state law. The Director may also require Permittees to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this Section.

h. *Other information.* Where the Permittee becomes aware that it failed to submit any

relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, it shall promptly submit such facts or information.

i. *Identification of the initial recipient for NPDES electronic reporting data*. The owner, operator, or the duly authorized representative of an NPDES-regulated entity is required to electronically submit the required NPDES information (as specified in Appendix A to 40 C.F.R. Part 127) to the appropriate initial recipient, as determined by EPA, and as defined in 40 C.F.R. § 127.2(b). EPA will identify and publish the list of initial recipients on its Web site and in the FEDERAL REGISTER, by state and by NPDES data group (see 40 C.F.R. § 127.2(c) of this Chapter). EPA will update and maintain this listing.

2. Signatory Requirement

a. All applications, reports, or information submitted to the Director shall be signed and certified. *See* 40 C.F.R. §122.22.

b. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.

3. Availability of Reports.

Except for data determined to be confidential under paragraph A.6. above, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the State water pollution control agency and the Director. As required by the CWA, effluent data shall not be considered confidential. Knowingly making any false statements on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the CWA.

E. DEFINITIONS AND ABBREVIATIONS

1. General Definitions

For more definitions related to sludge use and disposal requirements, see EPA Region 1's NPDES Permit Sludge Compliance Guidance document (4 November 1999, modified to add regulatory definitions, April 2018).

Administrator means the Administrator of the United States Environmental Protection Agency, or an authorized representative.

Applicable standards and limitations means all, State, interstate, and federal standards and limitations to which a "discharge," a "sewage sludge use or disposal practice," or a related activity is subject under the CWA, including "effluent limitations," water quality standards, standards of performance, toxic effluent standards or prohibitions, "best management practices," pretreatment standards, and "standards for sewage sludge use or disposal" under Sections 301, 302, 303, 304, 306, 307, 308, 403 and 405 of the CWA.

Application means the EPA standard national forms for applying for a permit, including any additions, revisions, or modifications to the forms; or forms approved by EPA for use in

"approved States," including any approved modifications or revisions.

Approved program or *approved State* means a State or interstate program which has been approved or authorized by EPA under Part 123.

Average monthly discharge limitation means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month.

Average weekly discharge limitation means the highest allowable average of "daily discharges" over a calendar week, calculated as the sum of all "daily discharges" measured during a calendar week divided by the number of "daily discharges" measured during that week.

Best Management Practices ("BMPs") means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of "waters of the United States." BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Bypass see B.4.a.1 above.

C-NOEC or *"Chronic (Long-term Exposure Test) – No Observed Effect Concentration" means* the highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specified time of observation.

Class I sludge management facility is any publicly owned treatment works (POTW), as defined in 40 C.F.R. § 501.2, required to have an approved pretreatment program under 40 C.F.R. § 403.8 (a) (including any POTW located in a State that has elected to assume local program responsibilities pursuant to 40 C.F.R. § 403.10 (e)) and any treatment works treating domestic sewage, as defined in 40 C.F.R. § 122.2, classified as a Class I sludge management facility by the EPA Regional Administrator, or, in the case of approved State programs, the Regional Administrator in conjunction with the State Director, because of the potential for its sewage sludge use or disposal practice to affect public health and the environment adversely.

Contiguous zone means the entire zone established by the United States under Article 24 of the Convention on the Territorial Sea and the Contiguous Zone.

Continuous discharge means a "discharge" which occurs without interruption throughout the operating hours of the facility, except for infrequent shutdowns for maintenance, process changes, or similar activities.

CWA means the Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Public Law 92-500, as amended by Public Law 95-217, Public Law 95-576, Public Law 96-483and Public Law 97-117, 33 U.S.C. 1251 *et seq*.

CWA and regulations means the Clean Water Act (CWA) and applicable regulations promulgated thereunder. In the case of an approved State program, it includes State program requirements.

Daily Discharge means the "discharge of a pollutant" measured during a calendar day or any

other 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurements, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

Direct Discharge means the "discharge of a pollutant."

Director means the Regional Administrator or an authorized representative. In the case of a permit also issued under Massachusetts' authority, it also refers to the Director of the Division of Watershed Management, Department of Environmental Protection, Commonwealth of Massachusetts.

Discharge

(a) When used without qualification, *discharge* means the "discharge of a pollutant."

(b) As used in the definitions for "interference" and "pass through," *discharge* means the introduction of pollutants into a POTW from any non-domestic source regulated under Section 307(b), (c) or (d) of the Act.

Discharge Monitoring Report ("DMR") means the EPA uniform national form, including any subsequent additions, revisions, or modifications for the reporting of self-monitoring results by Permittees. DMRs must be used by "approved States" as well as by EPA. EPA will supply DMRs to any approved State upon request. The EPA national forms may be modified to substitute the State Agency name, address, logo, and other similar information, as appropriate, in place of EPA's.

Discharge of a pollutant means:

(a) Any addition of any "pollutant" or combination of pollutants to "waters of the United States" from any "point source," or

(b) Any addition of any pollutant or combination of pollutants to the waters of the "contiguous zone" or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation.

This definition includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead to a treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works. This term does not include an addition of pollutants by any "indirect discharger."

Effluent limitation means any restriction imposed by the Director on quantities, discharge rates, and concentrations of "pollutants" which are "discharged" from "point sources" into "waters of the United States," the waters of the "contiguous zone," or the ocean.

Effluent limitation guidelines means a regulation published by the Administrator under section 304(b) of CWA to adopt or revise "effluent limitations."

Environmental Protection Agency ("EPA") means the United States Environmental Protection

Agency.

Grab Sample means an individual sample collected in a period of less than 15 minutes.

Hazardous substance means any substance designated under 40 C.F.R. Part 116 pursuant to Section 311 of CWA.

Incineration is the combustion of organic matter and inorganic matter in sewage sludge by high temperatures in an enclosed device.

Indirect discharger means a nondomestic discharger introducing "pollutants" to a "publicly owned treatment works."

Interference means a discharge (see definition above) which, alone or in conjunction with a discharge or discharges from other sources, both:

(a) Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and

(b) Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resources Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to Subtitle D of the SDWA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Landfill means an area of land or an excavation in which wastes are placed for permanent disposal, and that is not a land application unit, surface impoundment, injection well, or waste pile.

Land application is the spraying or spreading of sewage sludge onto the land surface; the injection of sewage sludge below the land surface; or the incorporation of sewage sludge into the soil so that the sewage sludge can either condition the soil or fertilize crops or vegetation grown in the soil.

Land application unit means an area where wastes are applied onto or incorporated into the soil surface (excluding manure spreading operations) for agricultural purposes or for treatment and disposal.

LC_{50} means the concentration of a sample that causes mortality of 50% of the test population at a specific time of observation. The LC_{50} = 100% is defined as a sample of undiluted effluent.

Maximum daily discharge limitation means the highest allowable "daily discharge."

Municipal solid waste landfill (MSWLF) unit means a discrete area of land or an excavation that receives household waste, and that is not a land application unit, surface impoundment, injection well, or waste pile, as those terms are defined under 40 C.F.R. § 257.2. A MSWLF unit also may receive other types of RCRA Subtitle D wastes, such as commercial solid waste, nonhazardous sludge, very small quantity generator waste and industrial solid waste. Such a landfill may be

publicly or privately owned. A MSWLF unit may be a new MSWLF unit, an existing MSWLF unit or a lateral expansion. A construction and demolition landfill that receives residential lead-based paint waste and does not receive any other household waste is not a MSWLF unit.

Municipality

(a) When used without qualification *municipality* means a city, town, borough, county, parish, district, association, or other public body created by or under State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under Section 208 of CWA.

(b) As related to sludge use and disposal, *municipality* means a city, town, borough, county, parish, district, association, or other public body (including an intermunicipal Agency of two or more of the foregoing entities) created by or under State law; an Indian tribe or an authorized Indian tribal organization having jurisdiction over sewage sludge management; or a designated and approved management Agency under Section 208 of the CWA, as amended. The definition includes a special district created under State law, such as a water district, sewer district, sanitary district, utility district, drainage district, or similar entity, or an integrated waste management facility as defined in Section 201 (e) of the CWA, as amended, that has as one of its principal responsibilities the treatment, transport, use or disposal of sewage sludge.

National Pollutant Discharge Elimination System means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 402, 318, and 405 of the CWA. The term includes an "approved program."

New Discharger means any building, structure, facility, or installation:

(a) From which there is or may be a "discharge of pollutants;"

(b) That did not commence the "discharge of pollutants" at a particular "site" prior to August 13, 1979;

(c) Which is not a "new source;" and

(d) Which has never received a finally effective NPDES permit for discharges at that "site."

This definition includes an "indirect discharger" which commences discharging into "waters of the United States" after August 13, 1979. It also includes any existing mobile point source (other than an offshore or coastal oil and gas exploratory drilling rig or a coastal oil and gas exploratory drilling rig or a coastal oil and gas exploratory drilling rig or a coastal oil and gas developmental drilling rig) such as a seafood processing rig, seafood processing vessel, or aggregate plant, that begins discharging at a "site" for which it does not have a permit; and any offshore or coastal mobile oil and gas exploratory drilling rig or coastal mobile oil and gas developmental drilling rig that commences the discharge of pollutants after August 13, 1979, at a "site" under EPA's permitting jurisdiction for which it is not covered by an individual or general permit and which is located in an area determined by the Director in the issuance of a final permit to be in an area of biological concern. In determining whether an area is an area of biological concern, the Director shall consider the factors specified in 40 C.F.R. §§ 125.122 (a) (1) through (10).

An offshore or coastal mobile exploratory drilling rig or coastal mobile developmental drilling rig will be considered a "new discharger" only for the duration of its discharge in an area of biological concern.

New source means any building, structure, facility, or installation from which there is or may be a "discharge of pollutants," the construction of which commenced:

(a) After promulgation of standards of performance under Section 306 of CWA which are applicable to such source, or

(b) After proposal of standards of performance in accordance with Section 306 of CWA which are applicable to such source, but only if the standards are promulgated in accordance with Section 306 within 120 days of their proposal.

NPDES means "National Pollutant Discharge Elimination System."

Owner or operator means the owner or operator of any "facility or activity" subject to regulation under the NPDES programs.

Pass through means a Discharge (see definition above) which exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation).

Pathogenic organisms are disease-causing organisms. These include, but are not limited to, certain bacteria, protozoa, viruses, and viable helminth ova.

Permit means an authorization, license, or equivalent control document issued by EPA or an "approved State" to implement the requirements of Parts 122, 123, and 124. "Permit" includes an NPDES "general permit" (40 C.F.R § 122.28). "Permit" does not include any permit which has not yet been the subject of final agency action, such as a "draft permit" or "proposed permit."

Person means an individual, association, partnership, corporation, municipality, State or Federal agency, or an agent or employee thereof.

Person who prepares sewage sludge is either the person who generates sewage sludge during the treatment of domestic sewage in a treatment works or the person who derives a material from sewage sludge.

pH means the logarithm of the reciprocal of the hydrogen ion concentration measured at 25° Centigrade or measured at another temperature and then converted to an equivalent value at 25° Centigrade.

Point Source means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff (see 40 C.F.R. § 122.3).

Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials

(except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 *et seq*.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. It does not mean:

(a) Sewage from vessels; or

(b) Water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil and gas production and disposed of in a well, if the well is used either to facilitate production or for disposal purposes is approved by the authority of the State in which the well is located, and if the State determines that the injection or disposal will not result in the degradation of ground or surface water resources.

Primary industry category means any industry category listed in the NRDC settlement agreement (*Natural Resources Defense Council et al. v. Train*, 8 E.R.C. 2120 (D.D.C. 1976), *modified* 12 E.R.C. 1833 (D.D.C. 1979)); also listed in Appendix A of 40 C.F.R. Part 122.

Privately owned treatment works means any device or system which is (a) used to treat wastes from any facility whose operator is not the operator of the treatment works and (b) not a "POTW."

Process wastewater means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

Publicly owned treatment works (POTW) means a treatment works as defined by Section 212 of the Act, which is owned by a State or municipality (as defined by Section 504(4) of the Act). This definition includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes and other conveyances only if they convey wastewater to a POTW Treatment Plant. The term also means the municipality as defined in Section 502(4) of the Act, which has jurisdiction over the indirect discharges to and the discharges from such a treatment works.

Regional Administrator means the Regional Administrator, EPA, Region I, Boston, Massachusetts.

Secondary industry category means any industry which is not a "primary industry category."

Septage means the liquid and solid material pumped from a septic tank, cesspool, or similar domestic sewage treatment system, or a holding tank when the system is cleaned or maintained.

Sewage Sludge means any solid, semi-solid, or liquid residue removed during the treatment of municipal waste water or domestic sewage. Sewage sludge includes, but is not limited to, solids removed during primary, secondary, or advanced waste water treatment, scum, septage, portable toilet pumpings, type III marine sanitation device pumpings (33 C.F.R. Part 159), and sewage sludge products. Sewage sludge does not include grit or screenings, or ash generated during the incineration of sewage sludge.

Sewage sludge incinerator is an enclosed device in which only sewage sludge and auxiliary fuel are fired.

Sewage sludge unit is land on which only sewage sludge is placed for final disposal. This does

not include land on which sewage sludge is either stored or treated. Land does not include waters of the United States, as defined in 40 C.F.R. § 122.2.

Sewage sludge use or disposal practice means the collection, storage, treatment, transportation, processing, monitoring, use, or disposal of sewage sludge.

Significant materials includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substance designated under Section 101(14) of CERCLA; any chemical the facility is required to report pursuant to Section 313 of title III of SARA; fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with storm water discharges.

Significant spills includes, but is not limited to, releases of oil or hazardous substances in excess of reportable quantities under Section 311 of the CWA (see 40 C.F.R. §§ 110.10 and 117.21) or Section 102 of CERCLA (*see* 40 C.F.R. § 302.4).

Sludge-only facility means any "treatment works treating domestic sewage" whose methods of sewage sludge use or disposal are subject to regulations promulgated pursuant to section 405(d) of the CWA, and is required to obtain a permit under 40 C.F.R. § 122.1(b)(2).

State means any of the 50 States, the District of Columbia, Guam, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, the Commonwealth of the Northern Mariana Islands, the Trust Territory of the Pacific Islands, or an Indian Tribe as defined in the regulations which meets the requirements of 40 C.F.R. § 123.31.

Store or storage of sewage sludge is the placement of sewage sludge on land on which the sewage sludge remains for two years or less. This does not include the placement of sewage sludge on land for treatment.

Storm water means storm water runoff, snow melt runoff, and surface runoff and drainage.

Storm water discharge associated with industrial activity means the discharge from any conveyance that is used for collecting and conveying storm water and that is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant.

Surface disposal site is an area of land that contains one or more active sewage sludge units.

Toxic pollutant means any pollutant listed as toxic under Section 307(a)(1) or, in the case of "sludge use or disposal practices," any pollutant identified in regulations implementing Section 405(d) of the CWA.

Treatment works treating domestic sewage means a POTW or any other sewage sludge or waste water treatment devices or systems, regardless of ownership (including federal facilities), used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated for the disposal of sewage sludge. This definition does not include septic tanks or similar devices.

For purposes of this definition, "domestic sewage" includes waste and waste water from humans or household operations that are discharged to or otherwise enter a treatment works. In States where there is no approved State sludge management program under Section 405(f) of the CWA, the Director may designate any person subject to the standards for sewage sludge use and

disposal in 40 C.F.R. Part 503 as a "treatment works treating domestic sewage," where he or she finds that there is a potential for adverse effects on public health and the environment from poor sludge quality or poor sludge handling, use or disposal practices, or where he or she finds that such designation is necessary to ensure that such person is in compliance with 40 C.F.R. Part 503.

Upset see B.5.a. above.

Vector attraction is the characteristic of sewage sludge that attracts rodents, flies, mosquitoes, or other organisms capable of transporting infectious agents.

Waste pile or *pile* means any non-containerized accumulation of solid, non-flowing waste that is used for treatment or storage.

Waters of the United States or waters of the U.S. means:

(a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(b) All interstate waters, including interstate "wetlands;"

(c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands", sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

    (1) Which are or could be used by interstate or foreign travelers for recreational or other purpose;

    (2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

    (3) Which are used or could be used for industrial purposes by industries in interstate commerce;

(d) All impoundments of waters otherwise defined as waters of the United States under this definition;

(e) Tributaries of waters identified in paragraphs (a) through (d) of this definition;

(f) The territorial sea; and

(g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 C.F.R. § 423.11(m) which also meet the criteria of this definition) are not waters of the United States. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the United States (such as disposal area in wetlands) nor resulted from the impoundment of waters of the United States. Waters of the United States do not include prior converted cropland.

Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

Wetlands means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Whole Effluent Toxicity (WET) means the aggregate toxic effect of an effluent measured directly by a toxicity test.

*Zone of Initial Dilution (*ZID) means the region of initial mixing surrounding or adjacent to the end of the outfall pipe or diffuser ports, provided that the ZID may not be larger than allowed by mixing zone restrictions in applicable water quality standards.

2. Commonly Used Abbreviations

BOD	Five-day biochemical oxygen demand unless otherwise specified
CBOD	Carbonaceous BOD
CFS	Cubic feet per second
COD	Chemical oxygen demand
Chlorine	
Cl_2	Total residual chlorine
TRC	Total residual chlorine which is a combination of free available chlorine (FAC, see below) and combined chlorine (chloramines, etc.)
TRO	Total residual chlorine in marine waters where halogen compounds are present
FAC	Free available chlorine (aqueous molecular chlorine, hypochlorous acid, and hypochlorite ion)
Coliform	
Coliform, Fecal	Total fecal coliform bacteria
Coliform, Total	Total coliform bacteria
Cont.	Continuous recording of the parameter being monitored, i.e. flow, temperature, pH, etc.
Cu. M/day or M^3/day	Cubic meters per day
DO	Dissolved oxygen

kg/day	Kilograms per day
lbs/day	Pounds per day
mg/L	Milligram(s) per liter
mL/L	Milliliters per liter
MGD	Million gallons per day
Nitrogen	
Total N	Total nitrogen
NH3-N	Ammonia nitrogen as nitrogen
NO3-N	Nitrate as nitrogen
NO2-N	Nitrite as nitrogen
NO3-NO2	Combined nitrate and nitrite nitrogen as nitrogen
TKN	Total Kjeldahl nitrogen as nitrogen
Oil & Grease	Freon extractable material
PCB	Polychlorinated biphenyl
Surfactant	Surface-active agent
Temp. °C	Temperature in degrees Centigrade
Temp. °F	Temperature in degrees Fahrenheit
TOC	Total organic carbon
Total P	Total phosphorus
TSS or NFR	Total suspended solids or total nonfilterable residue
Turb. or Turbidity	Turbidity measured by the Nephelometric Method (NTU)
µg/L	Microgram(s) per liter
WET	"Whole effluent toxicity"
ZID	Zone of Initial Dilution

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

FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES PURSUANT TO THE CLEAN WATER ACT (CWA)

NPDES PERMIT NUMBER: MA0100633

PUBLIC NOTICE START AND END DATES: June 7, 2019 – July 8, 2019

NAME AND MAILING ADDRESS OF APPLICANT:

Lowell Regional Wastewater Utility
451 1st Street Boulevard (Route 110)
Lowell, MA 01850

The municipalities of Chelmsford, Dracut, Tewksbury and Tyngsborough, Massachusetts are Co-permittees for specific activities required in Sections I.B., I.C., and I.D. of the Draft Permit and described in Section 5.5 of this Fact Sheet. The responsible municipal departments are:

Town of Chelmsford
Department of Public Works
Sewer Division
9 Alpha Road
Chelmsford, MA 01824

Town of Dracut
Sewer Department
62 Arlington Road
Dracut, MA 01826

Town of Tewksbury
Department of Public Works
Water and Sewer Division
1009 Main Street
Tewksbury, MA 01876

Town of Tyngsborough
Town Hall
25 Bryants Lane
Tyngsborough, MA 01879

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Lowell Regional Wastewater Utility
451 1st Street Boulevard (Route 110)
Lowell, MA 01850
and from nine Combined Sewer Overflow Outfalls

RECEIVING WATER AND CLASSIFICATION:

Merrimack Watershed – USGS Code: 01070002
Merrimack River (MA84A-01, 02 and 03): Class B – Treated Water Supply, Warm Water Fishery, CSO
Beaver Brook (MA84A-11): Class B – Cold Water Fishery
Concord River (MA82A-09): Class B – Warm Water Fishery, CSO

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1 Proposed Action

The above-named applicant (the "Permittee") has applied to the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit to discharge from the Treatment Plant (the "Facility") into the designated receiving waters.

The permit currently in effect was issued on September 1, 2005 with an effective date of October 31, 2005 and expired on October 31, 2010 (the "2005 Permit"). The Permittee filed an application for permit reissuance with EPA dated May 25, 2010, as required by 40 Code of Federal Regulations (C.F.R.) § 122.6. Since the permit application was deemed timely and complete by EPA on November 10, 2010 the Facility's 2005 Permit has been administratively continued pursuant to 40 C.F.R. § 122.6 and § 122.21(d).

This NPDES Permit is issued jointly by EPA and MassDEP under federal and state law, respectively. As such, all the terms and conditions of the permit are, therefore, incorporated into and constitute a discharge permit issued by the Director of the Division of Watershed Management pursuant to M.G.L. Chap. 21, § 43.

2 Statutory and Regulatory Authority

Congress enacted the Clean Water Act (CWA), "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." *See* CWA § 101(a). To achieve this objective, the CWA makes it unlawful for any person to discharge any pollutant into the waters of the United States from any point source, except as authorized by specific permitting sections of the CWA, one of which is § 402. *See* CWA §§ 303(a), 402(a). Section 402(a) established one of the CWA's principal permitting programs, the NPDES Permit Program. Under this section, EPA may "issue a permit for the discharge of any pollutant or combination of pollutants" in accordance with certain conditions. *See* CWA § 402(a). NPDES permits generally contain discharge limitations and establish related monitoring and reporting requirements. *See* CWA § 402(a)(1) and (2). The regulations governing EPA's NPDES permit program are generally found in 40 C.F.R. §§ 122, 124, 125, and 136.

Section 301 of the CWA provides for two types of effluent limitations to be included in NPDES permits: "technology-based" effluent limitations (TBELs) and "water quality-based" effluent limitations (WQBELs). *See* CWA §§ 301, 304(b); 40 C.F.R. §§ 122, 125, and 131.

2.1 Technology-Based Requirements

Technology-based limitations, generally developed on an industry-by-industry basis, reflect a specified level of pollutant reducing technology available and economically achievable for the type of facility being permitted. *See* CWA § 301(b). As a class, publicly owned treatment works (POTWs) must meet performance-based requirements based on available wastewater treatment technology. *See* CWA § 301(b)(1)(B). The performance level for POTWs is referred to as "secondary treatment." Secondary treatment is comprised of technology-based requirements expressed in terms of BOD_5, TSS and pH. *See* 40 C.F.R. § 133.

Under § 301(b)(1) of the CWA, POTWs must have achieved effluent limits based upon secondary treatment technology by July 1, 1977. Since all statutory deadlines for meeting various treatment technology-based effluent limitations established pursuant to the CWA have expired, when technology-based effluent limits are included in a permit, compliance with those limitations is from the date the issued permit becomes effective. *See* 40 C.F.R. § 125.3(a)(1).

2.2 Water Quality-Based Requirements

The CWA and federal regulations require that effluent limitations based on water quality considerations be established for point source discharges when such limitations are necessary to meet state or federal water quality standards that are applicable to the designated receiving water. This is necessary when less stringent TBELs would interfere with the attainment or maintenance of water quality criteria in the receiving water. *See* § 301(b)(1)(C) of the CWA and 40 C.F.R. §§ 122.44(d)(1) and 122.44(d)(5).

2.2.1 Water Quality Standards

The CWA requires that each state develop water quality standards (WQSs) for all water bodies within the State. *See* CWA § 303 and 40 C.F.R. § 131.10-12. Generally, WQSs consist of three parts: 1) beneficial designated use or uses for a water-body or a segment of a water-body; 2) numeric or narrative water quality criteria sufficient to protect the assigned designated use(s); and 3) anti-degradation requirements to ensure that once a use is attained it will not be degraded and to protect high quality and National resource waters. *See* CWA § 303(c)(2)(A) and 40 C.F.R. § 131.12. The applicable State WQSs can be found in Title 314 of the Code of Massachusetts Regulations, Chapter 4 (314 CMR 4.00).

Receiving water requirements are established according to numerical and narrative standards in WQSs adopted under State law for each water body classification. When using chemical-specific numeric criteria to develop permit limits, acute and chronic aquatic life criteria and human health criteria are used and expressed in terms of maximum allowable in-stream pollutant concentrations. In general, aquatic-life acute criteria are considered applicable to daily time periods (maximum daily limit) and aquatic-life chronic criteria are considered applicable to monthly time periods (average monthly limit). Chemical-specific human health criteria are typically based on lifetime chronic exposure and are therefore typically applicable to monthly average limits.

When permit effluent limits are necessary for a pollutant to meet narrative water quality criteria, the permitting authority must establish effluent limits in one of three ways: based on a "calculated numeric criterion for the pollutant which the permitting authority demonstrates will attain and maintain applicable narrative water quality criteria and fully protect the designated use," on a "case-by-case basis" using CWA § 304(a) recommended water quality criteria, supplemented as necessary by other relevant information; or, in certain circumstances, based on an indicator parameter. *See* 40 C.F.R. § 122.44(d)(1)(vi)(A-C).

2.2.2 Anti-degradation

Federal regulations found at 40 C.F.R. § 131.12 require states to develop and adopt a statewide anti-degradation policy that maintains and protects existing in-stream water uses and the level of

water quality necessary to protect these existing uses. In addition, the anti-degradation policy ensures that high quality waters which exceed levels necessary to support propagation of fish, shellfish, and wildlife and support recreation in and on the water, are maintained unless the State finds that allowing degradation is necessary to accommodate important economic or social development in the area in which the waters are located.

Massachusetts' statewide anti-degradation policy, entitled "Antidegradation Provisions", is found in the State's WQSs at 314 CMR 4.04. Massachusetts guidance for the implementation of this policy is in an associated document entitled "Implementation Procedure for the Anti-degradation Provisions of the State Water Quality Standards", dated October 21, 2009. According to the policy, no lowering of water quality is allowed, except in accordance with the anti-degradation policy, and all existing in-stream uses and the level of water quality necessary to protect the existing uses of a receiving water must be maintained and protected.

This permit is being reissued with effluent limitations sufficiently stringent to protect the existing uses of the receiving water.

2.2.3 Assessment and Listing of Waters and Total Maximum Daily Loads

The objective of the CWA is to restore and maintain the chemical, physical and biological integrity of the Nation's waters. To meet this goal, the CWA requires states to develop information on the quality of their water resources and report this information to EPA, the U.S. Congress, and the public. To this end, the EPA released guidance on November 19, 2001, for the preparation of an integrated "List of Waters" that could combine reporting elements of both § 305(b) and § 303(d) of the CWA. The integrated list format allows states to provide the status of all their assessed waters in one list. States choosing this option must list each water body or segment in one of the following five categories: 1) Unimpaired and not threatened for all designated uses; 2) Unimpaired waters for some uses and not assessed for others; 3) Insufficient information to make assessments for any uses; 4) Impaired of threatened for one or more uses but not requiring the calculation of a Total Maximum Daily Load (TMDL); and 5) Impaired or threatened for one or more uses and requiring a TMDL.

A TMDL is a planning tool and potential starting point for restoration activities with the ultimate goal of attaining water quality standards. A TMDL is essentially a pollution budget designed to restore the health of an impaired water body. A TMDL typically identifies the source(s) of the pollutant from direct and indirect discharges, determines the maximum load of the pollutant that can be discharged to a specific water body while maintaining WQSs for designated uses, and allocates that load to the various pollutant sources, including point source discharges, subject to NPDES permits. *See* 40 C.F.R. § 130.7.

For impaired waters where a TMDL has been developed for a particular pollutant and the TMDL includes a waste load allocation for a NPDES permitted discharge, the effluent limit in the permit may not exceed the waste load allocation. *See* 40 C.F.R. § 122.44(d)(1)(vii)(B).

2.2.4 Reasonable Potential

Pursuant to 40 C.F.R. § 122.44(d)(1), NPDES permits must contain any requirements in addition to TBELs necessary to achieve water quality standards established under § 303 of the CWA. In

addition, limitations "must control any pollutant or pollutant parameters (conventional, non-conventional, or toxic) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any water quality standard, including State narrative criteria for water quality". *See* 40 C.F.R. § 122.44(d)(1)(i). There is reasonable potential to cause or contribute to an excursion if the projected or actual in-stream concentration exceeds the applicable criterion. If the permitting authority determines that a discharge causes, has the reasonable potential to cause, or contributes to such an excursion, the permit must contain WQBELs for the pollutant. *See* 40 C.F.R. 122.44(d)(1)(iii).

In determining reasonable potential, EPA considers: 1) existing controls on point and non-point sources of pollution; 2) the variability of the pollutant or pollutant parameter in the effluent; 3) the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity); and 4) where appropriate, the dilution of the effluent in the receiving water. EPA typically considers the statistical approach outlined in *Technical Support Document for Water Quality-based Toxics Control (TSD)*[1] to determine if the discharge causes, or has the reasonable potential to cause, or contribute to an excursion above any WQS. *See* 40 C.F.R. § 122.44(d). EPA's quantitative approach statistically projects effluent concentrations based on available effluent data, which are then compared to the applicable WQS.

2.2.5 State Certification

EPA may not issue a permit unless the State Water Pollution Control Agency with jurisdiction over the receiving water(s) either certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate the State WQSs or it is deemed that the state has waived its right to certify. Regulations governing state certification are set forth in 40 C.F.R. § 124.53 and § 124.55. EPA has requested permit certification by the State pursuant to 40 C.F.R. § 124.53 and expects that the Draft Permit will be certified.

If the State believes that any conditions more stringent than those contained in the Draft Permit are necessary to meet the requirements of either the CWA §§ 208(e), 301, 302, 303, 306 and 307 or the appropriate requirements of State law, the State should include such conditions and, in each case, cite the CWA or State law reference upon which that condition is based. Failure to provide such a citation waives the right to certify as to that condition. The only exception to this is that the sludge conditions/requirements implementing § 405(d) of the CWA are not subject to the § 401 State Certification requirements. Reviews and appeals of limitations and conditions attributable to State certification shall be made through the applicable procedures of the State and may not be made through the applicable procedures of 40 C.F.R. § 124.

In addition, the State should provide a statement of the extent to which any condition of the Draft Permit can be made less stringent without violating the requirements of State law. Since the State's certification is provided prior to permit issuance, any failure by the State to provide this statement waives the State's right to certify or object to any less stringent condition.

---

[1] March 1991, EPA/505/2-90-001

It should be noted that under CWA § 401, EPA's duty to defer to considerations of state law is intended to prevent EPA from relaxing any requirements, limitations or conditions imposed by state law. Therefore, "[a] State may not condition or deny a certification on the grounds that State law allows a less stringent permit condition." *See* 40 C.F.R. § 124.55(c). In such an instance, the regulation provides that, "The Regional Administrator shall disregard any such certification conditions or denials as waivers of certification." *Id.* EPA regulations pertaining to permit limits based upon water quality standards and state requirements are contained in 40 C.F.R. § 122.4 (d) and 40 C.F.R. § 122.44(d).

2.3 Effluent Flow Requirements

Sewage treatment plant discharge is encompassed within the definition of "pollutant" and is subject to regulation under the CWA. The CWA defines "pollutant" to mean, *inter alia*, "municipal...waste" and "sewage…discharged into water." 33 U.S.C. § 1362(6).

EPA may use design flow of wastewater effluent both to determine the necessity for effluent limitations in the permit that comply with the Act, and to calculate the limits themselves. EPA practice is to use design flow as a reasonable and important worst-case condition in EPA's reasonable potential and WQBEL calculations to ensure compliance with WQSs under § 301(b)(1)(C). Should the wastewater effluent flow exceed the flow assumed in these calculations, the instream dilution would decrease and the calculated effluent limits may not be protective of WQSs. Further, pollutants that do not have the reasonable potential to exceed WQSs at the lower wastewater discharge flow may have reasonable potential at a higher flow due to the decreased dilution. To ensure that the assumptions underlying the Region's reasonable potential analyses and derivation of permit effluent limitations remain sound for the duration of the permit, the Region may ensure its "worst-case" wastewater effluent flow assumption through imposition of permit conditions for wastewater effluent flow. Thus, the wastewater effluent flow limit is a component of WQBELs because the WQBELs are premised on a maximum level of flow. In addition, the wastewater effluent flow limit is necessary to ensure that other pollutants remain at levels that do not have a reasonable potential to exceed WQSs.

Using a facility's design flow in the derivation of pollutant effluent limitations, including conditions to limit wastewater effluent flow, is consistent with, and anticipated by NPDES permit regulations. Regarding the calculation of effluent limitations for POTWs, 40 C.F.R. § 122.45(b)(1) provides, "permit effluent limitations…shall be calculated based on design flow." POTW permit applications are required to include the design flow of the treatment facility. *Id.* § 122.21(j)(1)(vi).

Similarly, EPA's reasonable potential regulations require EPA to consider "where appropriate, the dilution of the effluent in the receiving water," 40 C.F.R. § 122.44(d)(1)(ii), which is a function of *both* the wastewater effluent flow and receiving water flow. EPA guidance directs that this "reasonable potential" analysis be based on "worst-case" conditions. EPA accordingly is authorized to carry out its reasonable potential calculations by presuming that a plant is operating at its design flow when assessing reasonable potential.

The limitation on wastewater effluent flow is within EPA's authority to condition a permit in order to carry out the objectives of the Act. *See* CWA §§ 402(a)(2) and 301(b)(1)(C); 40 C.F.R.

§§ 122.4(a) and (d); 122.43 and 122.44(d). A condition on the discharge designed to protect EPA's WQBEL and reasonable potential calculations 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 wastewater effluent is consistent with the overall structure and purposes of the CWA.

In addition, as provided in Part II.B.1 of this permit and 40 C.F.R. § 122.41(e), the Permittee is required to properly operate and maintain all facilities and systems of treatment and control. Operating the facilities wastewater treatment systems as designed includes operating within the facility's design wastewater effluent flow. Thus, the permit's wastewater effluent flow limitation is necessary to ensure proper facility operation, which in turn is a requirement applicable to all NPDES permits. *See* 40 C.F.R. § 122.41.

EPA has also included the wastewater effluent flow limit in the permit to minimize or prevent infiltration and inflow (I/I) that may result in unauthorized discharges and compromise proper operation and maintenance of the facility. Improper operation and maintenance may result in non-compliance with permit effluent limitations. Infiltration is groundwater that enters the collection system though physical defects such as cracked pipes or deteriorated joints. Inflow is extraneous flow added to the collection system that enters the collection system through point sources such as roof leaders, yard and area drains, sump pumps, manhole covers, tide gates, and cross connections from storm water systems. Significant I/I in a collection system may displace sanitary flow, reducing the capacity available for treatment and the operating efficiency of the treatment works and to properly operate and maintain the treatment works.

Furthermore, the extraneous flow due to significant I/I greatly increases the potential for sanitary sewer overflows (SSOs) in separate systems. Consequently, the effluent flow limit is a permit condition that relates to the Permittee's duty to mitigate (*i.e.*, minimize or prevent any discharge in violation of the permit that has a reasonable likelihood of adversely affecting human health or the environment) and to properly operate and maintain the treatment works. *See* 40 C.F.R. §§ 122.41(d) and (e).

2.4 Monitoring and Reporting Requirements

2.4.1 Monitoring Requirements

EPA has the authority in accordance with several 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 C.F.R. §§ 122, 124, 125, and 136), CWA § 308(a), 33 USC § 1318(a), and applicable state regulations to include requirements such as monitoring and reporting in NPDES permits.

The monitoring requirements included in this permit have been established to yield data representative of the discharges under the authority of §§ 308(a) and 402(a)(2) of the CWA, and consistent with 40 C.F.R. §§ 122.41(j), 122.43(a), 122.44(i) and 122.48. The monitoring requirements included in this permit specify routine sampling and analysis, which will provide ongoing, representative information on the levels of regulated constituents in the wastewater

discharge streams. The monitoring program is needed to assess effluent characteristics, evaluate permit compliance, and determine if additional permit conditions are necessary to ensure compliance with technology-based and water quality-based requirements, including WQSs. EPA and/or the state may use the results of the chemical analyses conducted pursuant to this permit, as well as national water quality criteria developed pursuant to § 304(a)(1) of the CWA, state water quality criteria, and any other appropriate information or data, to develop numerical effluent limitations for any pollutants, including, but not limited to, those pollutants listed in Appendix D of 40 C.F.R. § 122. Therefore, the monitoring requirements in this permit are included for specific regulatory use in carrying out the CWA.

NPDES permits require that the approved analytical procedures found in 40 C.F.R. § 136 be used for sampling and analysis unless other procedures are explicitly specified. Permits also include requirements necessary to comply with the *National Pollutant Discharge Elimination System (NPDES): Use of Sufficiently Sensitive Test Methods for Permit Applications and Reporting Rule*.[2] This Rule requires that where EPA-approved methods exist, NPDES applicants must use sufficiently sensitive EPA-approved analytical methods when quantifying the presence of pollutants in a discharge. Further, the permitting authority must prescribe that only sufficiently sensitive EPA-approved methods be used for analyses of pollutants or pollutant parameters under the permit. The NPDES regulations at 40 C.F.R. § 122.21(e)(3) (completeness), 40 C.F.R. § 122.44(i)(1)(iv) (monitoring requirements) and/or as cross referenced at 40 C.F.R. § 136.1(c) (applicability) indicate that an EPA-approved method is sufficiently sensitive where:

- The method minimum level[3] (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 facility'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.

2.4.2 Reporting Requirements

The Draft Permit requires the Permittee to electronically report monitoring results obtained during each calendar month as a Discharge Monitoring Report (DMR) to EPA and the State

[2] Federal Register, Vol. 79, No. 160, Tuesday, August 19, 2014; FR Doc. 2014–19557.

[3] The term "minimum level" refers to either the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit (MDL). Minimum levels may be obtained in several ways: They may be published in a method; they may be sample concentrations equivalent to the lowest acceptable calibration point used by a laboratory; or they may be calculated by multiplying the MDL in a method, or the MDL determined by a lab, by a factor. EPA is considering the following terms related to analytical method sensitivity to be synonymous: "quantitation limit," "reporting limit," "level of quantitation," and "minimum level." *See* Federal Register, Vol. 79, No. 160, Tuesday, August 19, 2014; FR Doc. 2014–19557.

using NetDMR no later than the 15th day of the month following the completed reporting period.

NetDMR is a national web-based tool for regulated CWA Permittees to submit DMRs electronically via a secure internet application to EPA through the Environmental Information Exchange Network. NetDMR has allowed participants to discontinue mailing in hard copy forms to EPA under 40 C.F.R. §§ 122.41 and 403.12. NetDMR is accessed from the following website: https://netdmr.zendesk.com/hc/en-us. Further information about NetDMR can be found on the EPA Region 1 NetDMR website.[4]

With the use of NetDMR, the Permittee is no longer required to submit hard copies of DMRs and reports to EPA and the State unless otherwise specified in the Draft Permit. In most cases, reports required under the permit shall 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 Part II Standard Conditions.

2.5 Anti-backsliding

A permit may not be renewed, reissued or modified with less stringent limitations or conditions than those contained in a previous permit unless in compliance with the anti-backsliding requirements of the CWA. See §§ 402(o) and 303(d)(4) of the CWA and 40 C.F.R. § 122.44(l)(1 and 2). Anti-backsliding provisions apply to effluent limits based on technology, water quality, Best Professional Judgement (BPJ) and state certification requirements.

All proposed limitations in the Draft Permit are at least as stringent as limitations included in the 2005 Permit unless specific conditions exist to justify one of the exceptions listed in 40 C.F.R. § 122.44(l)(2)(i) and/or in accordance with § 303(d)(4). Discussion of any applicable exceptions are discussed in sections that follow. Therefore, the Draft Permit complies with the anti-backsliding requirements of the CWA.

3 Description of Facility and Discharge

3.1 Location and Type of Facility

The location of the treatment plant and Outfall 035 to the Merrimack River are shown in Figure 1. Outfall 035 is located at latitude 42.64810 N and longitude 71.28753 W.

The Lowell Regional Wastewater Utility (Lowell RWWU) is an activated sludge wastewater treatment facility that is engaged in the collection and treatment of municipal wastewater. Currently, the Facility serves approximately 110,000 residents in the Town of Lowell, 25,000 in the Town of Tewksbury, 20,000 in the Town of Dracut, 5,000 in the Town of Tyngsboro and 20,000 in the Town of Chelmsford (180,000 total).

The Facility has a design flow of 32 MGD and the average for the last 5 years has been 25 MGD.

[4] https://netdmr.zendesk.com/hc/en-us/articles/209616266-EPA-Region-1-NetDMR-Information.

Wastewater is comprised of domestic wastewater, industrial wastewater, septage and stormwater.

There are 30 industrial users that discharge to the POTW. Pollutants introduced into POTWs by a non-domestic source shall not pass through the POTW or interfere with the operation or performance of the treatment works.

Additionally, there are four Co-permittees. The Towns of Chelmsford, Dracut, Tewksbury and Tyngsborough, Massachusetts own and operate sanitary wastewater collection systems that discharge flows to the WWTF for treatment. These municipalities are Co-permittees for certain activities pertaining to proper operation and maintenance of their respective collection systems (*See* Parts I.B, I.C. and I.D of the Draft Permit) which ensures that they comply with requirements to operate and maintain the collection systems so as to avoid discharges of sewage from the collection systems. These Co-permittees did not apply for permit coverage; with letters sent August 6, 2015, EPA waived application requirements for the four Co-permittees.

A quantitative description of the discharge in terms of effluent parameters, based on monitoring data submitted by the Permittee from January 2014 through December 2018 is provided in Appendix A of this Fact Sheet.

3.1.1 Treatment Process Description

The Lowell RWWU is an activated sludge secondary treatment facility. Influent and septage enter the facility and flow through a mechanical screen. The flow is then split in to six primary clarifiers for settling. Afterwards, the flow is split in to eight aeration basins. A fine-bubble aeration system (installed in 2011) aerates the mixed liquor using four 300 hp centrifugal turbo-blowers. Flow then enters four secondary clarifiers. After flow exits the secondary clarifier, chlorine is added for disinfection. Sodium bisulfite is added to dechlorinate the effluent prior to discharge to a diffuser in the middle of the Merrimack River.

Settled material from the primary clarifier is thickened via gravity thickener. Settled material from the secondary clarifier is put in to a rotary drum thickener (RDT). Sixty percent of the sludge from the primary clarifier is combined with 20 percent of sludge from the secondary clarifier and 20 percent septage for dewatering. The solution is dewatered using a belt filer. In 2018, 25,116 wet tons of sludge were generated at the Lowell RWWU. This sludge is disposed of via landfill and offsite composting.

3.1.2 Collection System Description

The collection system in Lowell is a combination of combined and separate sewers. The collection systems for Tewksbury, Dracut, Tyngsboro, and Chelmsford are separate. A combined sewer system conveys domestic, industrial and commercial sewage in addition to stormwater during storm events. A separate sanitary sewer conveys domestic, industrial and commercial sewage, but not stormwater. It is part of a “two pipe system” consisting of separate sanitary sewers and storm sewers. The two systems have no interconnections; the sanitary sewer leads to the wastewater treatment plant and the storm sewers discharge to a local water body.

4 Description of Receiving Water and Dilution

The Lowell RWWU discharges through Outfall 035 into the Merrimack River within Segment MA84A-03. This segment is 8.8 miles in length and extends from the Lowell RWWU outfall at Duck Island, Lowell to the Essex Dam, Lawrence.

The Lowell RWWU is also authorized to discharge from nine (9) Combined Sewer Overflows (CSOs). CSO 002 discharges to Segment MA84A-01 of the Merrimack River. This segment is 9 miles in length and flows from the state line at Hudson, NH/Tyngsborough to Pawtucket Dam, Lowell. CSOs 008, 027, 030 (1&2), 011 and 012 discharge to Segment MA84A-02 of the Merrimack River. This segment is 3.2 miles in length. It begins at Pawtucket Dam, Lowell and runs to the Lowell RWWU outfall at Duck Island, Lowell. CSO 007 discharges to Beaver Brook within Segment MA84A-11. This segment is 4.8 miles in lengths and travels from the New Hampshire state line near Dracut to the confluence with the Merrimack River in Lowell. CSO 020 discharges to the Concord River within Segment MA82A-09. This segment is 0.9 miles in length and flows from the Rogers Street Bridge, Lowell to the confluence with the Merrimack River in Lowell.

Segments MA84A-03, MA84A-01, MA84A-02, and MA82A-09 have been classified as Class B, warm water fishery in the Massachusetts WQSs, 314 Code of Massachusetts Regulations ("CMR") 4.05(4)(a) The MA WQS at 314 CMR 4.05(3)(b) state that Class B "*waters are designated as habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation. Where designated in 314 CMR 4.06, they shall be a source of public water supply and with appropriate treatment ("Treated Water Supply"). Class B waters shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. These waters shall have consistently good aesthetic value."* MA WQS at 314 CMR 4.06 (1)(d)(8) states that for warm water fisheries *"dissolved oxygen and temperature criteria for warm water fisheries apply.*"

Segment MA84A-11 is classified as a Class B, cold water fishery in the Massachusetts WQS. Class B "*waters are designated as habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation. Where designated in 314 CMR 4.06, they shall be a source of public water supply with appropriate treatment ("Treated Water Supply"). Class B waters shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. These waters shall have consistently good aesthetic value."* Beaver Brook has the added qualifier of being a cold water fishery. MA WQS at 314 CMR 4.06 (1)(d)(7) states with regard to cold water fisheries; "*in these waters dissolved oxygen and temperature criteria for cold water fisheries apply. Certain waters not designated as cold water in 314 CMR 4.00 may contain habitat that supports a cold water fish population and, in such cases, the cold water fish population and habitat shall be protected and maintained as existing uses. The Massachusetts Division of Fisheries and Wildlife is responsible for identifying cold water fish populations that meet their protocol regardless of whether or not the water meets the cold water criteria on 314 CMR 4.00. Where cold water population has been identified by the Division of Fisheries and Wildlife as meeting their protocol, but the water has not been documented to meet the cold water criteria in 314 CMR 4.00, the Department will protect the existing cold water fish population*

and its habitat as an existing use.

Segments MA84A-01, MA84A-02 and MA84A-03 also include classification qualifiers for treated water supply and CSO. Segment MA82A-09 includes a classification qualifier for CSO. The MA WQSs at 314 CMR 4.06 (1)(d)6 states that the qualifier, treated water supply "*denotes those Class B waters that are used as a source of public water supply after appropriate treatment. These waters may be subject to more stringent site-specific criteria established by the Department as appropriate to protect and maintain the use."* The MA WQSs do not include any site-specific criteria for these segments. The MA WQSs at 314 CMR 4.06(1)(d)10 state that waters with the qualifier 'CSO' "*are identified as impacted by the discharge of combined sewer overflows; however, a long-term control plan has not been approved or fully implemented for the CSO discharges.*"

A summary of the ambient data collected in the receiving water upstream of the outfall can be found in Appendix A of this Fact Sheet.

The MassDEP's Massachusetts Year 2014 Integrated List of Waters (2014 Integrated List), the 303(d) list, includes the segments of the Merrimack River, Beaver Brook and the Concord River as a Massachusetts Category 5 Waters and in need of a total maximum daily load (TMDL).

Table 1: Receiving Water Segments and Impairment Causes from *Massachusetts Year 2014 Integrated List of Waters,* MassDEP December 2015

Name	Segment ID	Impairment Cause
Beaver Brook	MA84A-11	(Debris/Floatables/ Trash) (Physical substrate habitat alterations) Aquatic Macroinvertebrate Bioassessments Escherichia coli (*E. coli*) Taste & Odor Turbidity
Merrimack River	MA84A-01	Fecal Mercury in Fish Tissue
Merrimack River	MA84A-02	(Low flow alterations) E. coli Mercury in Fish Tissue Phosphorus (Total)
Merrimack River	MA84A-03	E.coli Mercury in Fish Tissue PCB in Fish Tissue Phosphorus (Total)
Concord River	MA82A-09	(Debris/Floatables/Trash) Excess Algal Growth Fecal Coliform Mercury in Fish Tissue Phosphorus (Total)

In 1975 a Water Quality Management Plan was developed for the Merrimack River[5]. The plan includes a wasteload allocation for the Lowell RWWU based on the secondary treatment requirements of BOD_5 of 30 mg/L at the design flow of 34 MGD for a BOD_5 load of 8,500 lb/day.

4.1 Available Dilution

7-Day, 10-Year Low Flow

To ensure that discharges do not cause or contribute to violations of WQS under all expected circumstances, WQBELs are derived assuming critical conditions for the receiving water (*See* EPA Permit Writer's Manual, Section 6.2.4). For most pollutants and criteria, the critical flow in rivers and streams is some measure of the low flow of that river or stream. Massachusetts water quality regulations require that the available effluent dilution be based on the 7-day, 10-year low flow (7Q10 flow) of the receiving water (314 CMR 4.03(3)(a)). The 7Q10 low flow is the mean low flow over 7 consecutive days, recurring every 10 years.

The 7Q10 flow used in the Draft Permit has been extrapolated from flow data from the most recent 30 years (January 1989 to October 2017) at U.S. Geological Survey gage station no. 01100000 in the area of the Merrimack River in Lowell, MA. The discharge is located about 77 miles downstream from the headwaters of the Merrimack River (at the confluence of the Pemigewassett and Winnipesaukee Rivers in Franklin, NH). The total drainage area for the Merrimack River watershed is about 5,010 square miles; the drainage area upstream of the discharge is about 4,635 square miles.

7Q10 at USGS 01100000 - Merrimack River near Lowell, MA = 832 cubic feet per second (cfs)

Since the gage is just upstream of the Lowell discharge, the 7Q10 for the receiving water at Lowell is also 832 cfs or 537 MGD.

The dilution factor (DF) was calculated using the upstream 7Q10 flow of 537 MGD (Q_s) and the Facility's design flow of 32 MGD (Q_d), as shown below:

$$DF = (Q_s + Q_d)/Q_d = (537 \text{ MGD} + 32 \text{ MGD}) / 32 \text{ MGD} = 17.8$$

5 Proposed Effluent Limitations and Conditions

The proposed limitations and conditions, the bases of which are discussed throughout this Fact Sheet, may be found in Part I of the Draft Permit. EPA determined the pollutants of concern based on EPA's technology-based effluent requirements, pollutants believed present in the permit application, and other information.

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[5] Massachusetts Department of Environmental Quality Engineering, Division of Water Pollution Control, 1975, "Merrimack River Basin, Water Quality Management Plan"

5.1 Effluent Limitations and Monitoring Requirements

In addition to the State and Federal regulations described in Section 2, data submitted by the Permittee in their permit application as well as in monthly discharge monitoring reports (DMRs) and in WET test reports from January 2014 to December 2018 (the "review period") were used to identify the pollutants of concern and to evaluate the discharge during the effluent limitations development process (*See* Appendix A).

5.1.1 Wastewater Effluent Flow

The effluent flow limit in the 2005 Permit is 32 MGD, as a rolling annual average flow, based on the Lowell RWWU's design flow. There were 2 violations of the flow limit during the review period.

The Draft Permit continues the 32 MGD flow limit from the 2005 Permit. The Draft Permit requires that flow be measured continuously and that the rolling annual average flow, as well as the average monthly and maximum daily flow for each month be reported. The rolling annual average flow is calculated as the average of the flow for the reporting month and 11 previous months.

5.1.2 Carbonaceous Biochemical Oxygen Demand ($CBOD_5$)

5.1.2.1 $CBOD_5$ Concentration-Based Limits

The $CBOD_5$ limits in the 2005 Permit were established based on the secondary treatment standards in 40 C.F.R. § 133.102; the average monthly limit is 25 mg/L, and the average weekly limit is 40 mg/L. The daily maximum limit is 50 mg/L. All limits apply year-round.

There was one violation of the $CBOD_5$ concentration limits during the review period.

The Draft Permit proposes the same $CBOD_5$ concentration limits as in the 2005 Permit as no new WLAs have been established and there have been no changes to the secondary treatment standards. The monitoring frequency remains 5 times per week.

5.1.2.2 $CBOD_5$ Mass-Based Limits

The mass-based $CBOD_5$ limit in the 2005 Permit of 6,672 lb/day (monthly average) is based on EPA's secondary treatment standards (25 mg/L) and the design flow of the Facility (32 MGD).

There were no violations of $CBOD_5$ mass limits during the review period.

In the Draft Permit, calculations of maximum allowable loads for average monthly and average weekly $CBOD_5$ are based on the following equation:

$$L = C_d * Q_d * 8.34$$

Where:

L = Maximum allowable load in lb/day
C_d = Maximum allowable effluent concentration for reporting period in mg/L (reporting periods are average monthly and average weekly)
Q_d = Annual average design flow of Facility
8.34 = Factor to convert effluent concentration in mg/L and design flow in MGD to lb/day

Monthly Average: 25 mg/L * 32 MGD * 8.34 = 6,672 lb/day
Weekly Average: 40 mg/L* 32 MGD * 8.34 = 10,675 lb/day

The monthly average mass-based limit is the same as that in the 2005 Permit and the weekly average mass-based limit is newly established. The weekly mass-based limit is based on secondary treatment standards in 40 C.F.R. § 133.102. The new limit is well above the level of $CBOD_5$ currently being discharged and therefore EPA expects that the Lowell RWWU will continue to meet their $CBOD_5$ limits without any further adjustments to their treatment process. The new mass based $CBOD_5$ limits are 6,672 lb/day (monthly average) and 10,675 lb/day (weekly average). The monitoring frequency remains 5 times per week.

5.1.3 Total Suspended Solids (TSS)

5.1.3.1 TSS Concentration-Based Limits

The TSS limits in the 2005 Permit were established based on the secondary treatment standards in 40 C.F.R. § 133.102; the average monthly limit is 30 mg/L and the average weekly limit is 45 mg/L. Additionally, the daily maximum limit is 50 mg/L. All limits apply year-round.

There were seven violations of the TSS concentration limits during the review period.

The Draft Permit proposes the same TSS concentration limits as in the 2005 Permit as no new WLAs have been established and there have been no changes to the secondary treatment standards. The monitoring frequency remains 5 times per week.

5.1.3.2 TSS Mass-Based Limits

The mass-based TSS limit in the 2005 Permit of 8,006 lb/day (monthly average) is based on EPA's secondary treatment standards (30 mg/L) and the design flow of the Facility (32 MGD). The monthly average mass-based limit has been corrected in the Draft Permit: it was miscalculated in the 2005 Permit.

There were two violations of the TSS mass limits during the review period.

In the Draft Permit, calculations of maximum allowable loads for average monthly and average weekly TSS are based on the following equation:

$$L = C_d * Q_d * 8.34$$

Where:

L = Maximum allowable load in lb/day
C_d = Maximum allowable effluent concentration for reporting period in mg/L (reporting periods are average monthly and average weekly)
Q_d = Annual average design flow of Facility
8.34 = Factor to convert effluent concentration in mg/L and design flow in MGD to lb/day

Monthly Average: 30 mg/L * 32 MGD * 8.34 = 8,006 lb/day
Weekly Average: 45 mg/L* 32 MGD * 8.34 = 12,010 lb/day

The monthly average mass-based limit is the same as the limit in the 2005 Permit and the weekly average mass-based limit is newly established. The weekly mass-based limit is based on secondary treatment standards in 40 C.F.R. § 133.102. The new limit is well above the level of TSS currently being discharged and therefore EPA expects that the facility will continue to meet their TSS limits without any further adjustments to their treatment process. The monitoring frequency remains 5 times per week.

5.1.4 Eighty-Five Percent (85%) $CBOD_5$ and TSS Removal Requirement

In accordance with the provisions of 40 C.F.R. § 133.102(a)(3), (4) and (b)(3), the 2005 Permit requires that the 30-day average percent removals for $CBOD_5$ and TSS are not less than 85%.

The requirements to achieve 85% $CBOD_5$ and TSS removal have been carried forward into the Draft Permit.

5.1.5 pH

Consistent with the requirements of Massachusetts WQS at 314 CMR 4.05(3)(b)(3), the Permit requires the pH of the effluent to be not less than 6.5 or greater than 8.3 standard units (S.U.) at any time. The pH range was widened from 6.5 – 8.3 S.U. to 6.0 – 8.3 S.U. in 1994. However, EPA and the state determined that the pH range shall be consistent with the WQS. Therefore, the Lowell RWWU's request to maintain the existing pH limits due to low influent pH cannot be granted. The monitoring frequency is once per day. There was one violation of the pH limit during the review period.

5.1.6 Bacteria

The 2005 Permit includes effluent limitations for bacteria using fecal coliform bacteria as the indicator bacteria with an average monthly limit of 200 colony forming units (cfu)/100 ml and daily maximum limit of 400 cfu/100 ml. These limits were based on the applicable WQS at the time the permit was issued. There were no violations of the fecal coliform limitation during the review period.

Consistent with Massachusetts' new bacteria criteria, which were approved by EPA on September 19, 2007, the bacteria limits proposed in the Draft Permit for Outfall 035 are 126 colony forming units (cfu) of *E.coli* per 100 milliliters (mL) as a geometric mean and 409 cfu of *E.coli* per 100 mL maximum daily value (this is the 90% distribution of the geometric mean of 126 cfu/100 mL[6]). The bacteria limits apply year-round and the monitoring frequency is five (5) per week. Due to the change in the Massachusetts bacteria criteria, there are no effluent limits or monitoring requirements for fecal coliform in the Draft Permit.

5.1.7 Dissolved Oxygen

The 2005 Permit included a dissolved oxygen (DO) monitoring requirement from April through October. This requirement was established to ensure that dissolved oxygen levels remain above the state water quality standard of 5.0 mg/L, particularly during low flow periods.

The DMR data during the review period show that there have been no violations of the DO criterion with a minimum of 7.3 mg/L.

5.1.8 Total Residual Chlorine

The Permittee uses chlorine disinfection. The 2005 Permit includes effluent limitations for total residual chlorine (TRC) of 210 µg/L (monthly average) and 370 µg/L (maximum daily). There were not violations of the TRC limitations during the review period.

The TRC permit limits are based on the instream chlorine criteria defined in *National Recommended Water Quality Criteria: 2002*, EPA 822R-02-047 (November 2002), as adopted by the MassDEP into the state water quality standards at 314 CMR 4.05(5)(e). These freshwater instream criteria for chlorine are 11 µg/l (chronic) and 19 µg/l (acute). Because the upstream chlorine is assumed to be zero in this case, the water quality-based chlorine limits are calculated as the criteria times the dilution factor, as follows:

Chronic criteria * dilution factor = Chronic limit
11 µg/l * 17.8 = 196 µg/l (average monthly)

Acute criteria * dilution factor = Acute limit
19 µg/l * 17.8 = 338 µg/l (maximum daily)

These limits are included in the Draft Permit and are more stringent than the previous limits due to the revised dilution factor. The monitoring frequency for TRC is once per day using a grab sample. Additionally, TRC in the effluent shall be monitored continuously. Compliance will be based upon grab sample results. The results of the grab sample and comparison to the continuous analyzer reading, including the time of the grab sample, shall be included with the discharge monitoring reports (DMRs). Continuous monitoring should continue, and the Draft Permit requires that the chlorination system include an alarm system for indicating interruptions and malfunctions.

[6] MassDEP, "*Draft 6/25/2007 Guidance on Implementation of Proposed Primary Contact Recreation Bacteria Criteria in Massachusetts Surface Water Quality Standards*, 314 CMR 4.00," 2007, p.11, Table 2.

5.1.9 Ammonia

Nitrogen in the form of ammonia can reduce the receiving stream's dissolved oxygen concentration through nitrification and can be toxic to aquatic life, particularly at elevated temperatures. The toxicity level of ammonia depends on the temperature and pH of the receiving water (USEPA 1999). The applicable ammonia water quality criteria are pH and, for the chronic criteria, temperature dependent and can be derived using EPA-recommended ammonia criteria from the document: *Update of Ammonia Water Quality Criteria for Ammonia,* 1999 (EPA 822-R-99-014). These are the freshwater ammonia criteria in EPA's *National Recommended Water Quality Criteria,* 2002 (EPA 822-R-02-047) document, which are included by reference in the Massachusetts WQS (*See* 314 CMR 4.05(5)(e)). The chronic criteria are also dependent on whether early life stages of fish are present. The Merrimack River in the vicinity of the Lowell RWWU discharge is within Essential Fish Habitat (EFH) for Atlantic salmon (*Salmo salar*), so EPA has assumed that salmonids could be present in the receiving waters (see Section 6.2).

The 2005 Permit required quarterly monitoring for ammonia as well as quarterly ambient monitoring as part of the Whole Effluent Toxicity (WET) testing. Ambient data, taken upstream of the Lowell RWWU outfall in the Merrimack River, is presented in Appendix A and shows ammonia concentrations that range from 0 to 0.5 mg/L. The median concentration for the warm weather period (April 1 through October 31) is 0.1 mg/L and for the cold weather period (November 1 through March 31) is 0.2 mg/L. Ambient sampling included pH monitoring as well, which indicates that the median pH is 6.9 S.U. in warm weather and 6.5 S.U. in cold weather. Ambient temperature data is not available, so EPA has assumed a warm weather temperature of 25° C and a cold weather temperature of 5° C. Based on this information, the applicable ammonia criteria are summarized in Table 2 below.

In determining whether the discharge has the reasonable potential to cause or contribute to excursions above the instream water quality criteria for ammonia, the following mass balance equation is used to project the instream ammonia concentrations downstream from the discharge under 7Q10 conditions during both warm and cold weather.

$$Q_d C_d + Q_s C_s = Q_r C_r$$

Solving for the downstream pollutant concentration (C_r) gives:

$$C_r = \frac{Q_d C_d + Q_s C_s}{Q_r}$$

Where:

Q_s = 7Q10 flow upstream of Facility (832 cfs)
Q_d = design flow of Facility (32 MGD = 49.5 cfs)
Q_r = combined stream flow (7Q10 + design flow = 832 + 49.5 = 881.5 cfs)
C_s = median upstream ammonia concentration
= 0.1 mg/L in warm weather
= 0.2 mg/L in cold weather

C_d = effluent ammonia concentration
= 95th percentile[7] of warm weather data (N=14) = 21.6 mg/L
= maximum of cold weather data (N=5) = 24 mg/L

Reasonable potential is then determined by comparing this resultant in-stream concentration with the relevant acute and chronic criteria. The discharge is determined to have the reasonable potential to cause or contribute to a violation of water quality standards if both the effluent concentration (C_d) and the downstream concentration (C_r) exceed the criteria. In EPA's Technical Support Document for Water Quality Based Toxics Control, EPA/505/2-90-001, March 1991, commonly known as the "TSD", box 3-2 describes the statistical approach in determining if there is reasonable potential for an excursion above the maximum allowable concentration. If there is reasonable potential, the appropriate limit is then calculated by rearranging the above mass balance to solve for the effluent concentration (C_d) using the relevant criterion as the resultant in-stream concentration (C_r). Table 2 shows the results of the reasonable potential analysis and the resulting limits, if necessary.

Table 2: Ammonia Reasonable Potential Analysis and Limit Derivation

Season	Q_s	C_s	Q_d	C_d	Q_r	C_r	Criteria	Reasonable Potential	Limits
	cfs	mg/l	cfs	mg/l	cfs	mg/l	mg/l	C_d & C_r > Criteria	µg/l
Warm Weather – Chronic	832	0.1	49.5	21.6	881.5	1.31	3.1	N	N/A
Warm Weather – Acute		0.1		21.6		1.31	26.2	N	N/A
Cold Weather – Chronic		0.2		24		1.54	6.7	N	N/A
Cold Weather - Acute		0.2		24		1.54	32.6	N	N/A

Based on the analysis, there is no reasonable potential, so the Draft Permit does not require ammonia limits. Effluent and ambient monitoring for ammonia will continue to be required in the quarterly WET tests.

5.1.10 Nutrients

Nutrients are compounds containing nitrogen and phosphorus. Although nitrogen and phosphorus are essential for plant growth, high concentrations of these nutrients can cause eutrophication, a condition in which aquatic plant and algal growth is excessive. Plant and algae respiration and decomposition reduces dissolved oxygen in the water, creating poor habitat for fish and other aquatic animals. Recent studies provide evidence that both phosphorus and nitrogen can play a role in the eutrophication of certain ecosystems. However, typically phosphorus is the limiting nutrient triggering eutrophication in fresh water ecosystems and

[7] The Facility's effluent concentrations (*See* Appendix A) were characterized assuming a lognormal distribution to determine the estimated 95th percentile of the daily maximum (*See* Appendix C).

nitrogen in marine or estuarine ecosystems. Thus, for this receiving water, phosphorus and nitrogen are both nutrients of concern at this location. The Lowell RWWU discharges into a freshwater segment of the Merrimack River and downstream of the discharge the river is a marine water.

5.1.10.1 Nitrogen

The Merrimack River is a large and densely populated watershed including 40 POTW discharges in Massachusetts and New Hampshire. EPA estimates that approximately 15,000 lb/day of nitrogen is discharged by POTWs into the fresh water portion of the watershed and another 2,000 lb/day into the marine portion. Recent nitrogen data collected by CDM Smith in 2014 and 2016 in the estuarine portions of the Merrimack River indicate elevated total nitrogen and chlorophyll 'a' levels. High nutrient concentrations can lead to increased levels of chlorophyll 'a', therefore chlorophyll 'a' can be an indicator of elevated nutrient concentrations. In samples with salinity greater than 10 ppt, total nitrogen ranged from 0.442 to 1.67 mg/L while chlorophyll 'a' ranged from 4 to 42 µg/L[8]. EPA collected samples on outgoing tides in 2017 in this area and found total nitrogen levels in the range of 0.62 mg/L to 1.3 mg/L and chlorophyll 'a' ranging from 2 to 11 µg/L in samples with salinity greater than 10 ppt. EPA is concerned about the impacts that these nitrogen levels may be having on aquatic life in the estuary as most of these results are outside the range typically found in healthy estuaries in Massachusetts.[9] However, more data is necessary to determine whether there is reasonable potential for nitrogen discharges from the facility to cause or contribute to a violation of the Massachusetts narrative nutrient criteria in the Merrimack River estuary, particularly data that characterizes aquatic life designated uses that may be affected in this area so that the narrative criteria can be interpreted numerically. In the meantime, EPA finds that quantifying the load of total nitrogen from this facility and others in the Merrimack River watershed is an important step to understanding the loading of nitrogen from point sources and their potential impact on the estuary.

The 2005 Permit included monitoring and reporting requirements for the sum of nitrite and nitrate and total Kjeldahl nitrogen (TKN). Appendix A provides quarterly DMR data from January 2014 through October 2018. The nitrite plus nitrate averaged of 3.47 mg/L and TKN averaged of 13.5 mg/L.

The Draft Permit includes weekly monitoring and reporting requirements for total nitrate plus total nitrite, total Kjeldahl nitrogen and total nitrogen from April through October and monthly reporting from November through March. The monitoring data will provide additional information on the fate of nitrogen through the treatment process and the impact to the Merrimack River estuary. The Agencies recommend the Permittee factor in treatment methods to reduce nitrogen in the effluent for any planned upgrades at the treatment plant, as nitrogen limits may be included in subsequent permits.

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[8] CDM Smith/US Army Corps of Engineers New England District, *Merrimack River Watershed Assessment Study - Phase III Final Monitoring Data Report August 2017*, Appendix C.

[9] Howes, Brian, et al, *Site-Specific Nitrogen Thresholds for Southeastern Massachusetts Embayments: Critical Indicators Interim Report*, Massachusetts Estuaries Project, December 22, 2003.

5.1.10.2 Phosphorus

Phosphorus is an essential nutrient for the growth of aquatic plants and can stimulate rapid plant growth in freshwater ecosystems when it is present in high quantities. The excessive growth of aquatic plants and algae within freshwater systems negatively impacts water quality and can interfere with the attainment of designated uses by: 1) increasing oxygen demand within the water body to support an increase in both plant respiration and the biological breakdown of dead organic (plant) matter; 2) causing an unpleasant appearance and odor; 3) interfering with navigation and recreation; 4) reducing water clarity; 5) reducing the quality and availability of suitable habitat for aquatic life; 6) producing toxic cyanobacteria during certain algal blooms. Cultural (or accelerated) eutrophication is the term used to describe dense and excessive plant growth in a water body that results from nutrients entering the system as a result of human activities. Discharges from municipal and industrial wastewater treatment plants, agriculture runoff, and stormwater are examples of human-derived (i.e. anthropogenic) sources of nutrients in surface waters.

The 2005 Permit includes monthly monitoring and reporting requirement of the maximum daily effluent concentration. Review of the total phosphorus data reported on the discharge monitoring reports from January 2014 through December 2018 is provided in Attachment A. During the growing season (April through October) within the review period, the range of phosphorus was 0.9 mg/L to 3.6 mg/L with an average of 2.29 mg/L.

The MA WQS under 314 CMR 4.05(5)(c) requires that, unless naturally occurring, surface waters must be free from nutrients that cause or contribute to impairment of the existing or designated uses, and the concentration of phosphorus may not exceed site specific criteria develop in a TMDL. Nutrients are also prohibited in concentrations that would cause or contribute to cultural eutrophication.

In the absence of numeric criteria for phosphorus, EPA uses nationally recommended criteria and other technical guidance to develop effluent limitations for the discharge of phosphorus. EPA has published national guidance documents that contain recommended total phosphorus criteria and other indicators of eutrophication. EPA's 1986 *Quality Criteria for Water* (the "Gold Book") recommends that in-stream phosphorus concentrations not exceed 0.05 mg/L in any stream entering a lake or reservoir. 0.1 mg/L for any stream not discharging directly to lakes or impoundments, and 0.025 mg/L within a lake or reservoir. For this segment of the Merrimack River, the 0.1 mg/L would apply downstream of the discharge.

More recently, EPA has released recommended Ecoregional Nutrient Criteria, established as part of an effort to reduce problems associated with excess nutrients in water bodies in specific areas of the country. The published criteria represent conditions in waters within ecoregions that are minimally impacted by human activities, and thus free from the effects of cultural eutrophication. The Merrimack River is located within Ecoregion XIV, Eastern Coastal Plains. The recommended total phosphorus criteria for this ecoregion, found in *Ambient Water Quality Criteria Recommendations: Information Supporting the Development of State and Tribal Nutrient Criteria, Rivers and Streams in Ecoregion XIV (*EPA December 2000) is 31.25 µg/L (0.03125 mg/L).

EPA uses the effects-based Gold Book threshold as a general target applicable in free-flowing streams. As the Gold Book notes, there are natural conditions of a water body that can result in either increased or reduced eutrophication response to phosphorus inputs; in some waters more stringent phosphorus reductions may be needed, while in some others a higher total phosphorus threshold could be assimilated without inducing a eutrophic response. In this case, EPA is not aware of any evidence that the Merrimack River is unusually susceptible to eutrophication impacts, so that the 100 µg/L threshold appears sufficient in this receiving water.

Elevated concentrations of chlorophyll 'a', excessive algal and macrophyte growth, and low levels of dissolved oxygen are all effects of nutrient enrichment. The relationship between these factors and high in-stream total phosphorus concentrations is well documented in scientific literature, including guidance developed by EPA to address nutrient over-enrichment (Nutrient Criteria Technical Guidance Manual – Rivers and Streams, EPA July 2000 [EPA-822-B-00-002]).

Sampling data from the Merrimack River upstream of the discharge is shown in Table 3.[10]

Table 3. Instream Total Phosphorus Data, µg/L

Sampling Date	Phosphorus Concentration (µg/L)
5/24/2018	34.88
6/14/2018	48.82
7/31/2018	44.75
8/1/2018	64.08
8/27/2018	37.63
8/28/2018	44.64
8/29/2018	38.56
9/6/2018	38.56
Median	41.60

EPA has decided to apply the Gold Book criterion because it was developed from an effects-based approach versus the reference conditions-based approach used to develop the ecoregion criteria. The effects-based approach is taken because it is more directly associated with an impairment to a designated use (e.g. fishing). The effects-based approach provides a threshold value above which water quality impairments are likely to occur. It applies empirical observations of a causal variable (i.e. phosphorus) and a response variable (i.e. algal growth) associated with designated use impairments. Referenced-base values are statistically derived from a comparison within a population of rivers in the same ecoregional class. They are a quantitative set of river characteristics (physical, chemical, and biological) that represent minimally impacted conditions.

In determining whether the discharge has the reasonable potential to cause or contribute to excursions above the instream water quality criteria for phosphorus, a mass balance equation is

[10] Coastal Systems Program, SMAST, University of Massachusetts Dartmouth, New Bedford, Massachusetts, 2018.

used to project the instream phosphorus concentration downstream of the discharge under 7Q10 conditions.

$$Q_dC_d + Q_sC_s = Q_rC_r$$

Solving for the downstream phosphorus concentration:

$$C_r = \frac{Q_dC_d + Q_sC_s}{Q_r}$$

C_r = downstream phosphorus concentration in the Merrimack River
Q_d = design flow of treatment plant (49.5 cfs)
C_d = 95th percentile of effluent phosphorus concentrations discharged from the facility during the growing season (3.77 mg/L)
Q_s = 7Q10 low flow of Merrimack River upstream of the discharge (832 cfs)
C_s = median phosphorus concentration upstream in the Merrimack River (0.0416 mg/L)
Q_r = flow in the river downstream of the discharge (49.5 + 832 = 881.5 cfs)

$$C_r = \frac{(832 \text{ cfs})(0.0416 \text{ mg/L}) + (49.5 \text{ cfs})(3.77 \text{ mg/L})}{881.5 \text{ cfs}}$$

$$C_r = 0.251 \text{ mg/L}$$

The phosphorus concentration downstream, 0.251 mg/L, of the discharge is greater than the recommended Gold Book water quality criterion of 0.100 mg/L so there is reasonable potential for total phosphorus discharged from the facility to cause or contribute to a violation of the Gold Book recommended criteria and a limit is required in the Draft Permit.

$$C_d = (Q_r C_r - Q_sC_s)/Q_d$$

C_r = downstream phosphorus concentration in the Merrimack River (0.100 mg/L)
Q_d = design flow of treatment plant (49.5 cfs)
C_d = phosphorus concentrations discharged from the facility to achieve the recommended Gold Book criteria
Q_s = 7Q10 low flow of Merrimack River upstream of the discharge (832 cfs)
C_s = median phosphorus concentration in the Merrimack River at upstream sampling station (0.0416 mg/L)
Q_r = flow in the river downstream of the discharge, (881.5 cfs)

$$C_d = \frac{(881.5 \text{ cfs})(0.100 \text{ mg/L}) - (832 \text{ cfs})(0.0146 \text{ mg/L})}{49.5 \text{ cfs}}$$

$$C_d = 1.08 \text{ mg/L}$$

Given there is reasonable potential for the discharge to cause or contribute to an exceedance of the recommended Gold Book threshold of 0.100 mg/L and MassDEP has listed the segment of the Merrimack River (MA84-03) that receives the facility's discharge as impaired for Total Phosphorus in the 2014 Massachusetts Integrated List of Waters, a monthly average limit of 1.08

mg/L is in the Draft Permit for April 1 through October 31. The Permittee is required to monitor total phosphorus for the months of November through March.

The average total phosphorus effluent concentration during the growing season from the Lowell RWWU is 2.29 mg/L. Therefore, EPA is establishing a compliance schedule of one (1) year for the facility to come into compliance with the effluent limitation of 1.08 mg/L.

Alternative Mass-Based Approach

Given the significant dilution factor (17.8), EPA is also soliciting comment on an alternative approach which may be used to incorporate a mass-based limit for total phosphorus instead of a concentration-based limit. While the Draft Permit incorporates a concentration-based limit as described above, this alternative mass-based approach is presented below and may replace the concentration-based limit following review of any relevant comments submitted during the public notice period.

A mass-based limit must be calculated to be protective of the same instream Gold Book threshold of 0.100 mg/L. To ensure a mass-based limit is protective under critical flow conditions, the limit is calculated using the lowest expected receiving water flow and lowest expected effluent flow. In this case, the upstream 7Q10 receiving water flow is 832 cfs and the lowest monthly average effluent flow during the review period is 16.8 MGD or 26.0 cfs (from Sept 2014; data provided by Lowell on May 24, 2019). The numeric mass-based limit is determined based upon the following mass balance equation:

$$Q_d C_d + Q_S C_S = Q_r C_r$$

Rewritten as:

$$Q_d C_d = Q_r C_r - Q_S C_S$$

Converting to mass-based:

$$M_d = Q_d C_d * 8.345 = (Q_r C_r - Q_S C_S) * 8.345$$

Where:

M_d = mass-based phosphorus limit
Q_d = effluent flow in MGD (lowest effluent monthly average flow = 26.0 cfs)
C_d = effluent phosphorus concentration in mg/L
Q_s = 7Q10 flow of Merrimack River upstream of the discharge (832 cfs)
C_s = median phosphorus concentration in the Merrimack River at upstream sampling station (0.0416 mg/L)
Q_r = downstream 7Q10 flow ($Q_s + Q_d$ = 858 cfs)
C_r = downstream river phosphorus concentration (Gold Book target = 0.100 mg/L)
8.345 = factor to convert from *MGD * mg/l* to *lb/day*

Solving for M_d gives the maximum allowable mass the facility may discharge without violating

water quality standards. This allowable discharge is 276 lb/day, which is equivalent to a concentration of 1.03 mg/L at the design flow of 32 MGD and equivalent to 1.96 mg/L at the lowest monthly average flow of 16.8 MGD.

From 2014 through 2018, monthly average total phosphorus discharged by the facility from April to October ranged from 204.0 lb/day to 789.4 lb/day with an average of 446.6 lb/day over this 5-year period. EPA would apply a compliance schedule of 1 year for the facility to come into compliance with this alternative mass-based limit.

Under this alternative approach, the Draft Permit would include a monthly average phosphorus limit of 276 lb/day from April 1 through October 31 with monitoring frequency of once per week during April through October and once per month from November through March.

5.1.11 Metals

Dissolved fractions of certain metals in water can be toxic to aquatic life. Therefore, there is a need to limit toxic metal concentrations in the effluent where aquatic life may be impacted. For the development of the Draft Permit, analyses were completed to evaluate whether there is reasonable potential for effluent discharges to cause or contribute to exceedances of the water quality criteria for aluminum, cadmium, copper, lead, nickel and zinc, given the updated upstream hydrologic and chemical characteristics of the receiving water. Effluent and receiving water data from the Whole Effluent Toxicity (WET) tests are presented in Appendix A. Additional ambient data was provided by the Permittee using clean sampling techniques and is presented in Table 4 below.

Table 4: Supplemental Upstream Metals Data

Sampling Date	Aluminum	Cadmium	Copper	Lead	Nickel	Zinc
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
07/11/2016	0.041	0	0.0011	0	0	0.005
10/03/2016	0.018	0	0.0011	0.0002	0	0.003
11/08/2016	0.064	0	0.0009	0.0003	0	0.005
09/28/2017	0.035	0	0.0009	0.0003	0	0.004
10/18/2017	0.023	0	0.0008	0.0002	0	0.006
10/25/2017	0.021	0	0.0009	0	0	0.024
07/30/2018	0.1	0	0.0011	0.0005	0	0.006

In general, this supplemental data has been used in combination with the WET test data for characterizing ambient conditions. However, for aluminum EPA compared this additional ambient data to the WET test data and observed that all samples were taken at approximately the same location within the receiving water and two samples (July 2016 and October 2016) were taken on the same day and at the same time and the results indicated that the data using clean sampling techniques was significantly lower that the aluminum data from the WET tests. For this reason, EPA has chosen to use only the clean sampling data for aluminum in this analysis.

5.1.11.1 Applicable Metals Criteria

State water quality criteria for cadmium, copper, lead, nickel and zinc are established in terms of dissolved metals. However, many inorganic components of domestic wastewater, including

metals, are in particulate form, and differences in the chemical composition between the effluent and the receiving water affects the partitioning of metals between the particulate and dissolved fractions as the effluent mixes with the receiving water, often resulting in a transition from the particulate to dissolved form (*The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion* (USEPA 1996 [EPA-823-B96-007]). Consequently, quantifying only the dissolved fraction of metals in the effluent prior to discharge may not accurately reflect the biologically-available portion of metals in the receiving water. Regulations at 40 C.F.R. § 122.45(c) require, with limited exceptions, that effluent limits for metals in NPDES permits be expressed as total recoverable metals.

Massachusetts aluminum criteria are not hardness-dependent and are expressed as total recoverable aluminum. However, the criteria for cadmium, copper, lead, nickel and zinc are hardness-dependent using the equations in EPA's National Recommended Water Quality Criteria: 2002, which are incorporated into the Massachusetts WQS by reference. The estimated hardness of the Merrimack River downstream of the treatment plant is calculated using the critical low flow (7Q10), the design flow of the treatment plant, and the median hardness for both the receiving water upstream of the discharge and the treatment plant effluent. Using the mass balance equation discussed in the next section (substituting hardness for metal concentration), the resulting downstream hardness is 25.4 mg/L and the corresponding criteria are presented in Appendix B.

5.1.11.2 Reasonable Potential Analysis and Limit Derivation

To determine whether the effluent has the reasonable potential to cause or contribute to an exceedance above the in-stream water quality criteria for each metal, the following mass balance is used to project in-stream metal concentrations downstream from the discharge.

$$Q_d C_d + Q_s C_s = Q_r C_r$$

Solving for the receiving water metal concentration downstream of the discharge (C_r) yields:

$$C_r = \frac{Q_d C_d + Q_s C_s}{Q_r}$$

Where:

Q_s = 7Q10 flow upstream of Facility
Q_d = design flow of Facility
Q_r = combined stream flow (7Q10 + design flow)
C_s = median upstream metal concentration
C_d = effluent metals concentration (95th percentile[11])

Reasonable potential is then determined by comparing this resultant in-stream concentration with the acute and chronic criteria for each metal. The discharge is determined to have the reasonable

[11] The Facility's effluent concentrations (*See* Appendix A) were characterized assuming a lognormal distribution to determine the estimated 95th percentile of the daily maximum (*See* Appendix C).

potential to cause or contribute to a violation of water quality standards if both the effluent concentration (C_d) and the downstream concentration (C_r) exceed the criteria. In EPA's *Technical Support Document for Water Quality Based Toxics Control*, EPA/505/2-90-001, March 1991, commonly known as the "TSD", box 3-2 describes the statistical approach in determining if there is reasonable potential for an excursion above the maximum allowable concentration. If there is reasonable potential for either acute or chronic conditions, the appropriate limit is then calculated by rearranging the above mass balance to solve for the effluent concentration (C_d) using the relevant criterion as the resultant in-stream concentration (C_r).

The results of this analysis for each metal are presented in Appendix B, indicating the Draft Permit does not require any metals limits. Monitoring for each of these metals will continue to be required as part of the quarterly WET tests.

5.1.12 Whole Effluent Toxicity

Sections 402(a)(2) and 308(a) of the CWA provide EPA and States with the authority to require toxicity testing. Section 308 specifically describes biological monitoring methods as techniques that may be used to carry out objectives of the CWA. Whole effluent toxicity (WET) testing is conducted to ensure that the additivity, antagonism, synergism and persistence of the pollutants in the discharge do not cause toxicity, even when the pollutants are present at low concentrations in the effluent. The inclusion of WET requirements in the Draft Permit will assure that the Facility does not discharge combinations of pollutants into the receiving water in amounts that would affect aquatic life or human health.

In addition, under § 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on WQSs. Under certain narrative State WQSs, 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". The Massachusetts WQSs at 314 CMR 4.05(5)(e) state, "*All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife."*

National studies conducted by the EPA have demonstrated that domestic sources, as well as industrial sources, contribute toxic constituents to POTWs. These constituents include metals, chlorinated solvents, aromatic hydrocarbons and others. Some of these constituents may cause synergistic effects, even if they are present in low concentrations. Because of the source variability and contribution of toxic constituents in domestic and industrial sources, EPA assumes that there is a reasonable potential for this discharge to cause or contribute to an exceedance of the "no toxics in toxic amounts" narrative water quality standard.

Further, EPA Region 1 and MassDEP[12] current toxic policy requires toxicity testing for all dischargers such as the Lowell RWWU. In accordance with these policies, whole effluent chronic effects are regulated by limiting the highest measured continuous concentration of an effluent that causes no observed chronic effect on a representative standard test organism, known

[12] *Implementation Policy for the Control of Toxic Pollutants in Surface Waters*, MassDEP 1990

as the chronic No Observed Effect Concentration (C-NOEC). Whole effluent acute effects are regulated by limiting the concentration that is lethal to 50% of the test organisms, known as the LC_{50}. According to this policy dischargers having a dilution factor between 10 and 20 are required to conduct acute and chronic toxicity testing four times per year for two species.

The chronic and acute WET limits in the 2005 Permit are C-NOEC reporting requirement and LC_{50} greater than or equal to 100%, respectively, using the daphnid, *Ceriodaphnia dubia (C. dubia)*, as the test species. EPA reduced the test species to *Ceriodaphnia dubia* only and made the Chronic limit a report only requirement in the Response to Comments for the 2005 permit. The Facility has consistently met these limits, as can be seen from the DMR summary in Appendix A.

Based on the potential for toxicity from domestic and industrial contributions, the state narrative water quality criterion, the dilution factor of 17.8, and in accordance with EPA national and regional policy and 40 C.F.R. § 122.44(d), the Draft Permit continues the effluent limits from the 2005 Permit including the test organism and the testing frequency. Toxicity testing must be performed in accordance with the updated EPA Region 1 WET test procedures and protocols specified in Attachments A and B of the Draft Permit (USEPA Region 1 Freshwater Acute Toxicity Test Procedure and Protocol, February 2011 and USEPA Region 1 Freshwater Chronic Toxicity Test Procedure and Protocol, March 2013).

5.2 Industrial Pretreatment Program

The Permittee is required to administer a pretreatment program based on the authority granted under 40 C.F.R. 122.44(j), 40 C.F.R. Part 403 and Section 307 of the Act. The Lowell RWWU pretreatment program received EPA approval on December 9, 1998 and, as a result, appropriate pretreatment program requirements were incorporated into the 2005 Permit, which were consistent with that approval and federal pretreatment regulations in effect when the permit was issued.

The Federal Pretreatment Regulations in 40 C.F.R. Part 403 were amended in October 1988, in July 1990, and again in October 2005. Those amendments established new requirements for implementation of pretreatment programs. Upon reissuance of this NPDES permit, the Permittee is obligated to modify its pretreatment program to be consistent with current Federal Regulations. Those activities that the Permittee must address include, but are not limited to, the following: 1) develop and enforce EPA approved specific effluent limits (technically-based local limits); 2) revise the local sewer-use ordinance or regulation, as appropriate, to be consistent with Federal Regulations; 3) develop an enforcement response plan; 4) implement a slug control evaluation program; 5) track significant noncompliance for industrial users; and 6) establish a definition of and track significant industrial users.

These requirements are necessary to ensure continued compliance with the POTW's NPDES permit and its sludge use or disposal practices.

In addition to the requirements described above, the Draft Permit requires the Permittee to submit to EPA in writing, within 180 days of the permit's effective date, a description of proposed changes to Permittee's pretreatment program deemed necessary to assure conformity

with current federal pretreatment regulations. These requirements are included in the Draft Permit to ensure that the pretreatment program is consistent and up-to-date with all pretreatment requirements in effect. Lastly, the Permittee must continue to submit, annually by March 1st, a pretreatment report detailing the activities of the program for the twelve-month period ending 60 days prior to the due date.

5.3 Sludge Conditions

Section 405(d) of the Clean Water Act requires that EPA develop technical standards regarding the use and disposal of sewage sludge. On February 19, 1993, EPA promulgated technical standards. These standards are required to be implemented through permits. The conditions in the permit satisfy this requirement.

5.4 Infiltration/Inflow (I/I)

Infiltration is groundwater that enters the collection system though physical defects such as cracked pipes, or deteriorated joints. Inflow is extraneous flow entering the collection system through point sources such as roof leaders, yard and area drains, sump pumps, manhole covers, tide gates, and cross connections from storm water systems. Significant I/I in a collection system may displace sanitary flow, reducing the capacity and the efficiency of the treatment works and may cause bypasses to secondary treatment. It greatly increases the potential for sanitary sewer overflows (SSOs) in separate systems, and combined sewer overflows (CSOs) in combined systems.

The Draft Permit includes a requirement for the Permittee and Co-permittees to control infiltration and inflow (I/I) within the sewer collections systems that they own and operate. The Permittee and Co-permittees shall each develop an I/I removal program commensurate with the severity of I/I in their respective collection systems. This program may be scaled down in sections of the collection system that have minimal I/I.

5.5 Operation and Maintenance of the Sewer System

The standard permit conditions for 'Proper Operation and Maintenance', found at 40 C.F.R. § 122.41(e), require the proper operation and maintenance of permitted wastewater systems and related facilities to achieve permit conditions. The requirements at 40 C.F.R. § 122.41(d) impose a 'duty to mitigate' upon the Permittee, which requires that "all reasonable steps be taken to minimize or prevent any discharge violation of the permit that has a reasonable likelihood of adversity affecting human health or the environment. EPA and MassDEP maintain that an I/I removal program is an integral component of ensuring permit compliance with the requirements of the permit under the provisions at 40 C.F.R. § 122.41(d) and (e).

General requirements for proper operation and maintenance, and mitigation have been included in Part II of the permit. Specific permit conditions have also been included in Part I.C. and I.D. of the Draft Permit. These requirements include mapping of the wastewater collection system, preparing and implementing a collection system operation and maintenance plan, reporting of unauthorized discharges including SSOs, maintaining an adequate maintenance staff, performing preventative maintenance, controlling inflow and infiltration to separate sewer collection systems

(combined systems are not subject to I/I requirements) to the extent necessary to prevent SSOs and I/I related effluent violations at the Lowell RWWU and maintaining alternate power where necessary. These requirements are included to minimize the occurrence of permit violations that have a reasonable likelihood of adversely affecting human health or the environment.

Several of the requirements in the Draft Permit are not included in the 2005 Permit, including collection system mapping, and preparation of a collection system operation and maintenance plan. EPA has determined that additional requirements are necessary to ensure the proper operation and maintenance of the collection system and has included schedules for completing these requirements in the Draft Permit.

Because the municipalities of Chelmsford, Dracut, Tewksbury and Tyngsborough, Massachusetts, each own and operate collection systems that discharge to the Lowell RWWU, these municipalities have been included as Co-permittees for the specific permit requirements discussed in the paragraph above. The historical background and legal framework underlying this Co-permittee approach is set forth in Appendix D to this Fact Sheet, EPA Region 1 NPDES Permitting Approach for Publicly Owned Treatment Works that Include Municipal Satellite Sewage Collection Systems.

5.6 Combined Sewer Overflows

Description

The wastewater collection system that conveys flow to the Lowell Regional Wastewater Utility WWTF consists partially of combined sewers that convey both sanitary sewage and stormwater runoff during rain events. During wet weather, the combined flow exceeds the capacity of the interceptor sewers and the wastewater treatment plant, and a portion of the combined flow is discharged to the Merrimack and Concord Rivers as well as to Beaver Brook. CSOs have been identified as causing or contributing to water quality impairments in the segments of the Merrimack and Concord Rivers into which Lowell's CSO discharges occur. See *SuAsCo Watershed 2001 Water Quality Assessment Report, Concord Subwatershed* (MassDEP August 2005) and *Merrimack River Watershed 2004 Water Quality Assessment Report* (MassDEP January 2010).

The system currently has nine CSO outfalls which discharge to the Merrimack River, Beaver Brook, and Concord Rivers (see list of outfalls in Appendix E).

Regulatory Framework

CSOs are point sources subject to NPDES permit requirements for both water-quality based and technology-based requirements but are not subject to the secondary treatment regulations applicable to publicly owned treatment works in accordance with 40 C.F.R. §133.103(a). Section 301(b)(1)(C) of the Clean Water Act of 1977 mandated compliance with water quality standards by July 1, 1977. Technology-based permit limits must be established for best conventional pollutant control technology (BCT) and best available technology economically achievable (BAT) based on best professional judgment (BPJ) in accordance with Section 301(b) and Section 402(a) of the Water Quality Act Amendments of 1987 (WQA). The framework for compliance

with Clean Water Act requirements for CSOs is set forth in EPA's National CSO Control Policy, 59 Fed. Reg. 18688 (1994). It sets the following objectives:

1) To ensure that if the CSO discharges occur, they are only as a result of wet weather;

2) To bring all wet weather CSO discharge points into compliance with the technology-based requirements of the CWA and applicable federal and state water quality standards; and

3) To minimize water quality, aquatic biota, and human health impacts from wet weather flows.

Among the elements established to achieve these objectives, the CSO Policy set forth the minimum BCT/BAT controls (i.e., technology-based limits) that represent the BPJ of the Agency on a consistent, national basis. These are the Nine Minimum Controls (NMCs) defined in the CSO Policy and set forth in Part I.F. of the Draft Permit: 1) proper operation and regular maintenance programs for the sewer system and the combined sewer overflows; 2) maximum use of the collection system for storage; 3) review and modification of the pretreatment programs to assure CSO impacts are minimized; 4) maximization of flow to the POTW for treatment; 5) prohibition of dry weather overflows; 6) control of solid and floatable materials in CSOs; 7) pollution prevention programs which focus on contaminant reduction activities; 8) public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts; and 9) monitoring to effectively characterize CSO impacts and the efficacy of CSO controls.

To reflect advances in technologies, the Draft Permit includes more specific public notification implementation level requirements to ensure that the public receives adequate notification of CSO occurrences and CSO impacts. The Draft Permit requires the Permittee to develop a public notification plan to fulfill NMC #8. As part of this plan, notification shall be provided electronically to any interested party, and a posting made on the Permittee's website, of a probable CSO activation. EPA is proposing a requirement in the revised Draft Permit for the Permittee to provide initial notification to the public of a probable CSO discharge no later than four hours after becoming aware of a likely CSO discharge. This notification may be based on modeling estimates of discharge(s) based on rainfall (or other predictive modeling methodologies) rather than on actual CSO discharge measurements.

This initial notification shall be followed by supplemental notification within twenty-four hours of the cessation of a discharge event to confirm whether an actual discharge occurred, and if so, to include information specific to each discharge, including the CSO outfall number and location, the date of the discharge, as well as the time the discharge commenced and ceased.

The CSO Policy also recommended that each community that has a combined sewer system develop and implement a CSO Long-Term Control Plan (CSO LTCP) that will ultimately result in compliance with the requirements of the CWA. The LRWWU submitted a Draft LTCP to address its CSOs in 1991. Subsequent revisions to the 1991 LTCP were submitted in 2001 and 2014. In 2017, EPA issued an Administrative Order on Consent (AOC) which provides a process for the development and implementation of a CSO LTCP within the context of an Integrated Plan (IP) for addressing, among other items, the City's CSOs.

Permit Requirements

In accordance with the National CSO Policy, the Draft Permit contains the following conditions for the CSO discharges:

(i) Dry weather discharges from CSO outfalls are prohibited. Dry weather discharges must be immediately reported to EPA and MassDEP.
(ii) During wet weather, the discharges must not cause any exceedance of water quality standards.
(iii) The Permittee shall meet the technology-based NMCs described above and shall comply with the implementation levels as set forth in Part I.B. of the Draft Permit.
(iv) The Permittee shall review its entire NMC program and revise it as necessary. Documentation of this review and any resultant revisions made to the NMC program shall be submitted to EPA and MassDEP within 6 months of the effective date of the permit. An annual report shall be provided by April 30th of each year which describes any subsequent revisions made to the NMC program and shall also include monitoring results from CSO discharges, and the status of CSO abatement projects.

5.7 Standard Conditions

The standard conditions of the permit are based on 40 C.F.R. §122, Subparts A, C, and D and 40 C.F.R. § 124, Subparts A, D, E, and F and are consistent with management requirements common to other permits.

6 Federal Permitting Requirements

6.1 Endangered Species Act

Section 7(a) of the Endangered Species Act of 1973, as amended (ESA), grants authority to and imposes requirements on Federal agencies regarding endangered or threatened species of fish, wildlife, or plants (listed species) and any habitat of such species that has been designated as critical under the ESA (*i.e.*, "critical habitat").

Section 7(a)(2) of the ESA requires every Federal agency, in consultation with and with the assistance of the Secretary of Interior, to ensure that any action it authorizes, funds or carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat. The United States Fish and Wildlife Service (USFWS) administers Section 7 consultations for freshwater species. The National Marine Fisheries Service (NMFS) administers Section 7 consultations for marine and anadromous species.

The Federal action being considered in this case is EPA's proposed NPDES permit for the Lowell Regional Wastewater Utility Facility, located in Lowell Massachusetts, which discharges from Outfall 035 in to the mainstem of the Merrimack River at latitude 42.64810 N and longitude 71.28753 W, along with nine Combined Sewer Overflow discharges. The Draft Permit is intended to replace the 2005 Permit in governing the Facility's discharge of pollutants. As the

federal agency charged with authorizing the discharge from this Facility, EPA determines potential impacts to federally listed species and initiates consultation with the Services when required under § 7(a)(2) of the ESA.

EPA has reviewed the federal endangered or threatened species of fish, wildlife, and plants in the expected action area of the outfall to determine if EPA's proposed NPDES permit could potentially impact any such listed species. For protected species under the jurisdiction of the USFWS, one listed endangered species, the northern long-eared bat (*Myotis septentrionalis*), was identified as potentially occurring in the action area of Merrimack River.[13] According to the USFWS, the northern long-eared bat is found in "winter – mines and caves, summer – wide variety of forested habitats. This species is not aquatic, so the discharge will have no direct effect on this mammal. Further, the permit action is also expected to have no indirect effect on the species because it is not expected to impact insects, the primary prey of the northern long-eared bat. Therefore, the proposed permit action is deemed to have no impact on this listed species.

For protected species under the jurisdiction of NMFS, subadult and adult life stages of Atlantic sturgeon (*Acipenser oxyrinchus*), as well as adult shortnose sturgeon (*Acipenser brevirostrom*), are present in the Merrimack River. Their upstream passage is limited by the Essex Dam (Great Stone Dam) in Lawrence, Massachusetts. In addition, areas of the Merrimack River downstream of the Essex Dam have been designated as critical habitat for Atlantic sturgeon.[14]

The Essex Dam is approximately 8.5 river miles downstream from the Facility discharge. In addition, the Facility discharges via a diffuser near the middle of the river and has a calculated dilution factor of 17.8.

Because of the dilution and great distance between the action area of the discharge and the location of the protected sturgeon species and the Atlantic sturgeon critical habitat, EPA has made the determination that it is highly unlikely that the protected species would be present in the vicinity of this discharge and the action area of the outfall. In addition, the critical habitat will not come in contact with the discharge. Therefore, the proposed permit action will have no impact on these listed anadromous fish species or the critical habitat.

Based on the above review, EPA finds that adoption of the proposed permit will have no effect on any threatened or endangered species or their designated critical habitat. Therefore, EPA has judged that consultation pursuant to Section 7 of the ESA is not required.

Reinitiation of consultation will take place: (a) if new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered in the consultation; (b) if the identified action is subsequently modified in a manner

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[13]See §7 resources for USFWS at https://ecos.fws.gov/ipac/.

[14] See §7 resources for NMFS at https://noaa.maps.arcgis.com/apps/webappviewer/index.html?id=1bc332edc5204e03b250ac11f9914a27

that causes an effect to the listed species or critical habitat that was not considered in the consultation; or (c) if a new species is listed or critical habitat is designated that may be affected by the identified action.

6.2 Essential Fish Habitat

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (*see* 16 U.S.C. § 1801 et seq., 1998), EPA is required to consult with the National Marine Fisheries Service (NMFS) if EPA's action or proposed actions that it funds, permits, or undertakes, "may adversely impact any essential fish habitat". *See* 16 U.S.C. § 1855(b).

The Amendments broadly define "essential fish habitat" (EFH) as: "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity". *See* 16 U.S.C. § 1802(10). "Adverse impact" means any impact that reduces the quality and/or quantity of EFH, 50 C.F.R. § 600.910(a). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions. EFH is only designated for fish species for which federal Fisheries Management Plans exist. *See* 16 U.S.C. § 1855(b)(1)(A). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999. . In some cases, a narrative identifies rivers and other waterways that should be considered EFH due to present or historic use by federally managed species.[15]

The federal action being considered in this case is EPA's proposed National Pollutant Discharge Elimination System (NPDES) permit reissuance for the Lowell Regional Wastewater Utility (Lowell RWWU) in Lowell, Massachusetts. The Draft Permit is intended to replace the 2005 Permit in governing the Facility's discharge of pollutants.

The Facility discharges to the Merrimack River Segment MA84A-03. Only Atlantic salmon is believed to be present within the EFH Area, which encompasses the existing discharge site. No "habitat areas of particular concern", as defined under §600.815(a)(9) of the Magnuson-Stevens Act, have been designated for this site. Although EFH has been designated for this general location, EPA has concluded that this activity is not likely to adversely affect EFH or its associated species for the following reasons:

- This permit action does not constitute a new source of pollutants. It is the reissuance of an existing NPDES permit;
- The Facility withdraws no water from the Merrimack River, so no life stages of Atlantic salmon are vulnerable to impingement or entrainment from this facility;
- The flow from the Facility is limited by the Draft Permit to 32 MGD, as a monthly average;
- Effluent receives secondary treatment with extended aeration process;
- Effluent is discharged into the Merrimack River via a diffuser with a dilution factor of 17.8;

[15] NOAA EFH Mapper available at http://www.habitat.noaa.gov/protection/efh/efhmapper/

- The Draft Permit proposes to limit CBOD, TSS, pH, total residual chlorine, *E. coli*, total aluminum, total lead, and total phosphorus;
- The Permittee is required to minimize the use of chlorine while maintaining adequate bacterial control;
- Acute toxicity tests will be continued four times a year. Present toxicity test results are in compliance with the permit limits;
- The Draft Permit prohibits the discharge of pollutants or combination of pollutants in toxic amounts;
- The effluent limitations and conditions in the Draft Permit were developed to be protective of all aquatic life; and
- The Draft Permit prohibits violations of the state water quality standards.

EPA believes that the conditions and limitations contained within the Draft Permit adequately protect all aquatic life, including Atlantic salmon, the designated EFH species 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 reinitiated.

In addition to this Fact Sheet and the Draft Permit, information to support EPA's finding is included in a letter under separate cover that will be sent to the NMFS Habitat Division during the public comment period.

7 Public Comments, Hearing Requests and Permit Appeals

All persons, including applicants, who believe any condition of the Draft Permit 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 Meridith Finegan, U.S. EPA, Water Division**,** Municipal Permits Section, 5 Post Office Square, Suite 100 (06-1), Boston, Massachusetts 02109-3912 or via email to Finegan.Meridith@epa.gov; and Claire Golden, MassDEP, 205 B Lowell Street, Wilmington, MA 01867 or via email to claire.golden@mass.gov.

Any person, prior to the close of the public comment period, may submit a request in writing for a public hearing to consider the Draft Permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public meeting may be held if the criteria stated in 40 C.F.R. § 124.12 are satisfied. In reaching a final decision on the Draft Permit, the EPA will respond to all significant comments and make these responses available to the public at EPA's Boston office.

Following the close of the comment period, and after any public hearings, if such hearings are held, the EPA will issue a Final Permit decision, forward a copy of the final decision to the applicant, and provide a copy or notice of availability of the final decision to each person who has submitted written comments or requested notice. Within 30 days following the notice of the Final Permit decision, any interested person may submit a petition for review of the permit to EPA's Environmental Appeals Board consistent with 40 C.F.R. § 124.19 and/or submit a request for an adjudicatory hearing to MassDEP's Office of Appeals and Dispute Resolution consistent

with 310 CMR 1.00.

8 EPA and MassDEP Contacts

The administrative record on which this Draft Permit is based may be obtained between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays from:

Meridith Finegan
EPA New England, Region 1
5 Post Office Square, Suite-100 (06-1)
Boston, MA 02109-3912
Telephone: (617) 918-1533, FAX: (617)918-0533
Email: Finegan.Meridith@epa.gov

Claire Golden
Massachusetts Department of Environmental Protection
Surface Water Discharge Permit Program
24 B Lowell Street
Wilmington, MA 01867
Telephone: (978) 694-3244
Email: claire.golden@mass.gov

06/07/2019
Date

Ken Moraff, Director
Water Division
U.S. Environmental Protection Agency

Figure 1: Lowell Regional Wastewater Utility Map

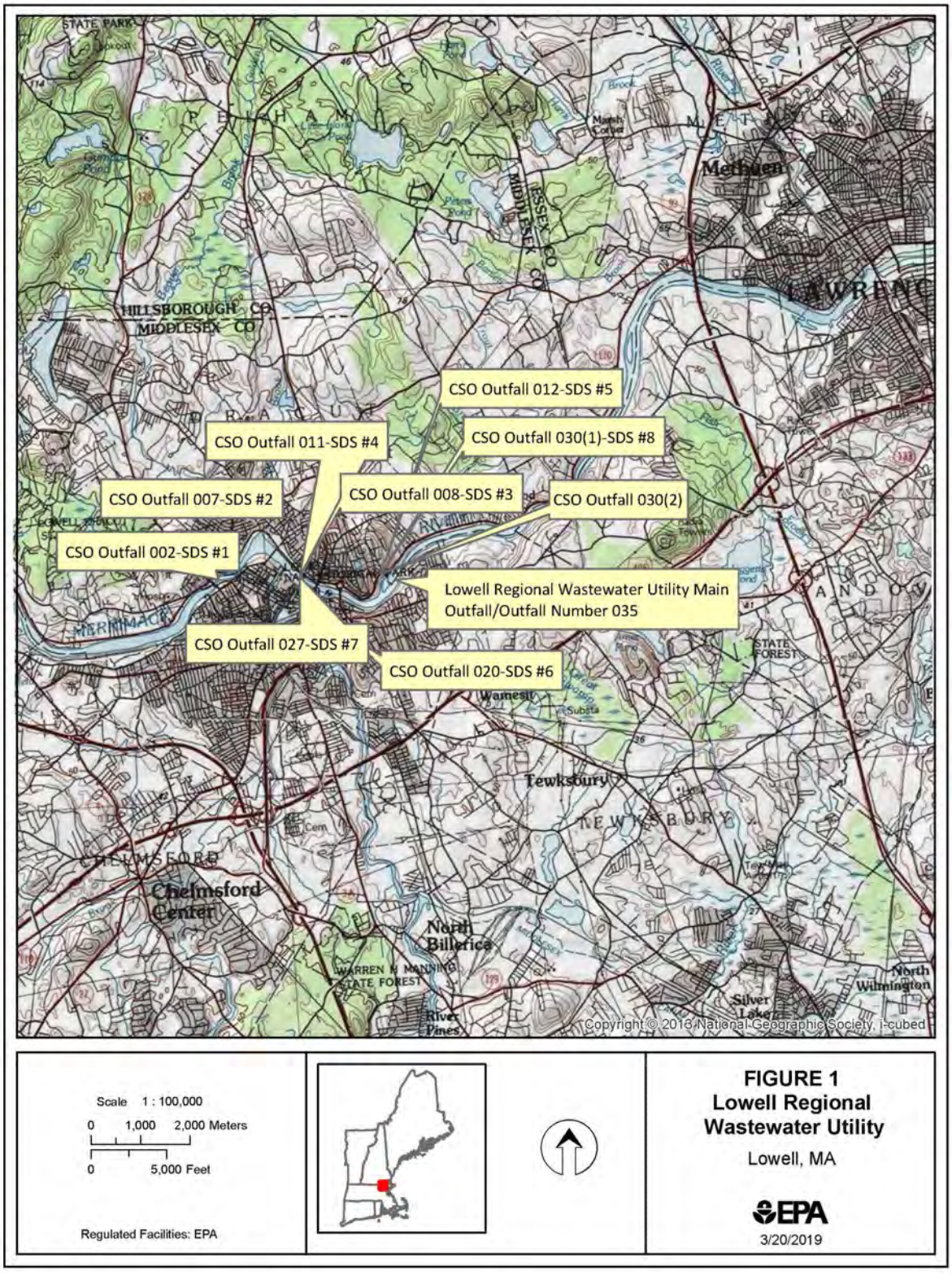
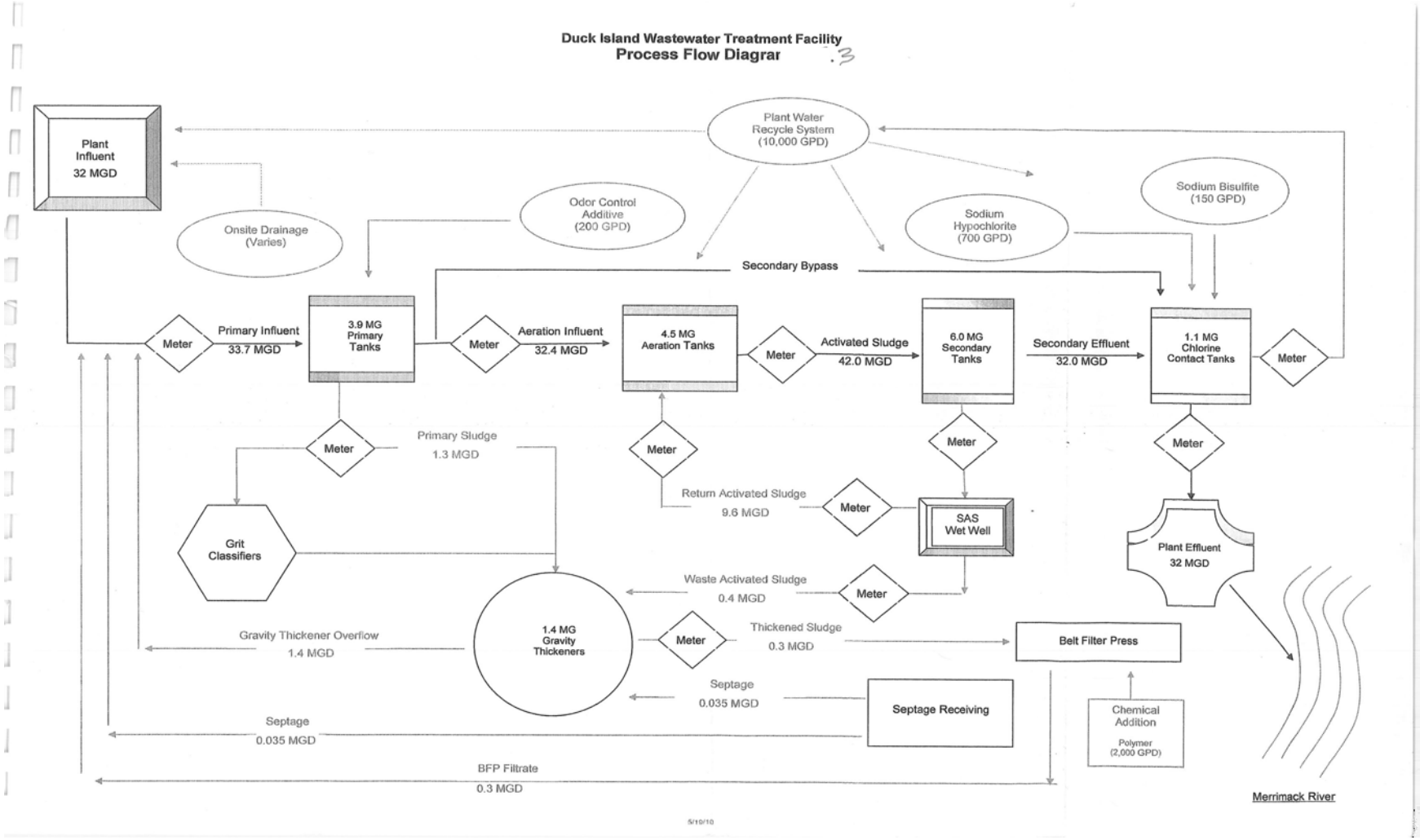


Figure 1: Flow diagram



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DISCHARGE MONITORING REPORT SUMMARY

Outfall 035

Parameter	Flow	Flow	CBOD5	CBOD5	CBOD5	CBOD5	TSS
	Annual Rolling Ave	Daily Max	Monthly Ave	Monthly Ave	Weekly Ave	Daily Max	Monthly Ave
Units	MGD	MGD	lb/d	mg/L	mg/L	mg/L	lb/d
Effluent Limit	32	Report	6672	25	40	50	8006
Minimum	21.01	20.7	417	2.9	3.28	5.6	635
Maximum	33.4	81.48	5241	15.1	34.72	55	9948
Average	25	47.8	1610	6.63	9.95	18	2360
No. of Violations	2	N/A	0	0	0	1	2
1/31/2014	23.84	54.51	1307	5.6	6.38	14.6	2466
2/28/2014	23.7	38.66	756	4.1	5.16	12	1397
3/31/2014	23.34	76.26	4156	15.1	34.72	50	9948
4/30/2014	24.32	59.98	2978	8.2	18.38	19.5	3108
5/31/2014	24.7	51.74	1010	4.2	6.06	11.5	1597
6/30/2014	23.74	36.22	768	4.3	5.96	12	1315
7/31/2014	23.36	44.92	786	4	4.2	11.2	772
8/31/2014	23.18	48.77	735	3.6	5.64	15.3	1008
9/30/2014	23	26.38	417	2.9	3.28	5.6	635
10/31/2014	23.32	73.23	985	4.3	6.56	15.4	1674
11/30/2014	23.73	49.85	1096	5	7.36	18.9	1367
12/31/2014	24.92	61.48	1922	5.9	8.84	18	2757
1/31/2015	24.85	51.91	1356	5.4	6.72	13.2	1746
2/28/2015	24.56	20.7	854	5.4	5.74	10.6	823
3/31/2015	24.49	46.1	1456	6	6.92	14	2164
4/30/2015	24.09	47.42	1858	6.4	7.96	18.8	2582
5/31/2015	23.59	30.1	747	4.1	5.62	8.2	1142
6/30/2015	23.9	53.73	1109	4.1	6.22	10.2	1922
7/31/2015	23.91	36.4	658	3.6	5.08	9.2	794
8/31/2015	23.83	24.92	717	4.7	5.76	9.3	1017
9/30/2015	23.92	50.52	2121	12.9	24.4	55	3630
10/31/2015	23.78	38.59	1322	8	17.84	16.6	1973
11/30/2015	23.38	36.34	1059	7.2	8.5	13.5	1359
12/31/2015	22.23	37.84	1132	6.5	8.18	10.8	1512
1/31/2016	22.09	48.63	1378	6.5	7.98	17.3	1780
2/29/2016	22.63	40.58	3114	13.4	31.62	47	3029
3/31/2016	22.53	42.88	1390	5.7	9.22	18	1649
4/30/2016	21.8	45.74	2066	9.1	18.1	27.5	2058
5/31/2016	21.71	27.95	979	5.3	5.58	9.3	1462
6/30/2016	21.22	34.42	1017	5.9	6.98	13	1434
7/31/2016	21.08	26.51	666	4.6	7.32	7.7	695
8/31/2016	21.07	32.82	1118	6.7	8.56	13.8	1532
9/30/2016	21.01	37.04	957	6.1	6.78	13.4	1282
10/31/2016	21.2	44.39	1072	6.1	7.48	15.1	1225

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Outfall 035

Parameter	Flow	Flow	CBOD5	CBOD5	CBOD5	CBOD5	TSS
	Annual Rolling Ave	Daily Max	Monthly Ave	Monthly Ave	Weekly Ave	Daily Max	Monthly Ave
Units	MGD	MGD	lb/d	mg/L	mg/L	mg/L	lb/d
Effluent Limit	32	Report	6672	25	40	50	8006
11/30/2016	21.39	35.73	1685	8.6	10.08	21.6	2309
12/31/2016	21.54	42.92	1799	8.9	13.14	16.5	2684
1/31/2017	22.1	43.97	1849	6.9	7.68	18.6	2301
2/28/2017	22.37	38.61	1530	6.3	6.98	9	2246
3/31/2017	22.51	44.64	2777	11.5	23.28	40.1	2819
4/30/2017	24.04	70.95	4186	10.4	16.08	21.6	4711
5/31/2017	24.74	49.15	1542	6	7.02	12.9	1956
6/30/2017	25.63	63.71	2111	6.3	11.68	34.7	1940
7/31/2017	26.23	43.11	1094	4.8	6.32	17.6	1868
8/31/2017	26.74	32.48	935	4.6	5.38	9.9	956
9/30/2017	27.28	42.09	1357	6.1	9.14	16	1374
10/31/2017	27.6	60.77	1617	6.7	9.14	13	1806
11/30/2017	28.11	38.19	1553	7.1	8.02	13	2138
12/31/2017	28.21	35.64	1437	7.1	9.66	18	2233
1/31/2018	28.21	62.45	1313	5.7	8.92	15	1866
2/28/2018	28.78	78.44	1444	4.7	6.82	10.2	3417
3/31/2018	29.77	71.52	1953	5.9	6.4	11.4	3702
4/30/2018	29.69	80.46	5241	12.8	21.38	39.7	8487
5/31/2018	29.75	42.74	2554	9.3	15.2	24.3	4877
6/30/2018	29.28	48.18	1668	8.2	11.98	21.5	4223
7/31/2018	29.23	51.35	1474	6.5	9.54	18.9	3230
8/31/2018	29.62	46.35	1695	6.3	10.16	22.8	2488
9/30/2018	30.1	67.41	2028	7.3	8.84	26.6	3761
10/31/2018	30.43	46.9	1478	6	6.96	15	2022
11/30/2018	32.4	81.48	3351	7.3	8.86	19.7	4733
12/31/2018	33.4	68.96	1742	5.4	7.22	17.6	2577

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Outfall 035

Parameter	TSS	TSS	TSS	pH	pH	Fecal Coliform	Fecal Coliform
	Monthly Ave	Weekly Ave	Daily Max	Minimum	Maximum	Monthly Geometric Mean	Daily Max
Units	mg/L	mg/L	mg/L	SU	SU	#/100mL	#/100mL
Effluent Limit	30	45	50	6	8.3	200	400
Minimum	3.7	4.94	6.7	5.9	6.7	1	1
Maximum	33.6	74.76	136	6.8	7.3	12	390
Average	9.48	14.6	28.2	6.45	7.06	3.92	81.9
No. of Violations	1	2	4	1	0	0	0
1/31/2014	10.5	17	35	6.8	7.1	1	1
2/28/2014	7.5	9.14	30	6.7	7.2	1	6
3/31/2014	33.6	74.76	136	6.7	7.1	2	47
4/30/2014	8.9	32.4	20	6.7	7.1	4	360
5/31/2014	6.6	7.44	17.9	6.3	7	2	16
6/30/2014	7.4	11.18	21.6	6.5	7	1	6
7/31/2014	3.7	5.18	13.7	6.5	7	3	82
8/31/2014	5	7.08	21.2	6.3	7.1	3	225
9/30/2014	4.4	4.94	9.1	6.6	7	3	27
10/31/2014	7.3	9.56	25.4	6.5	7	7	159
11/30/2014	6.4	9.24	23.4	6.4	7.1	2	53
12/31/2014	8.4	13.22	21.5	6.5	7	2	35
1/31/2015	6.7	9.28	21.6	6.6	7	1	5
2/28/2015	5.2	5.52	7.1	6.6	7.1	1	1
3/31/2015	8.6	10.28	23.8	6.5	7.1	1	6
4/30/2015	9.1	10.58	19.8	6.6	7	1	3
5/31/2015	6	9.34	19.4	6.4	7.1	1	9
6/30/2015	6.9	11.34	19.7	6.3	6.9	2	49
7/31/2015	4.2	8.7	12.1	6.3	7	2	48
8/31/2015	6.6	8.14	12.7	6.3	7	2	32
9/30/2015	22.2	54	111	6.5	7.2	7	119
10/31/2015	11.8	22.44	21	6.4	7.1	11	355
11/30/2015	9.3	14.48	20.6	6.4	7.1	3	37
12/31/2015	8.4	9.34	15.1	6.3	7	2	13
1/31/2016	8.1	11.92	27	6.2	7.2	1	2
2/29/2016	13	27.5	40.5	6.6	7.2	2	350
3/31/2016	6.8	8.98	18	6.6	7.2	2	37
4/30/2016	8.9	16.9	27.8	6.5	7.1	6	35
5/31/2016	7.9	8.52	18.2	6.3	7	8	36
6/30/2016	8.1	13.12	24.4	6.6	7	2	22
7/31/2016	4.8	8.82	6.7	6.5	7.1	4	37
8/31/2016	9	12.64	21.4	6.5	7	9	104
9/30/2016	7.8	10.52	23.8	6.5	7.3	8	150
10/31/2016	7.1	8.24	15.8	6.6	7.1	7	109

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Outfall 035

Parameter	TSS	TSS	TSS	pH	pH	Fecal Coliform	Fecal Coliform
	Monthly Ave	Weekly Ave	Daily Max	Minimum	Maximum	Monthly Geometric Mean	Daily Max
Units	mg/L	mg/L	mg/L	SU	SU	#/100mL	#/100mL
Effluent Limit	30	45	50	6	8.3	200	400
11/30/2016	12.3	11.94	25.8	6.4	7	4	29
12/31/2016	13.2	18.74	23	6.5	7.1	2	7
1/31/2017	8.6	10.4	20.2	6.6	7	2	16
2/28/2017	9.2	10.84	14.2	6.5	6.9	1	8
3/31/2017	11.3	17.44	28.4	6.6	7.1	1	23
4/30/2017	11.4	20.76	25.6	6.7	6.9	5	390
5/31/2017	7.5	11.26	23	6.4	7.1	2	18
6/30/2017	6.1	10.32	24.4	6.4	7	3	85
7/31/2017	7.7	12.64	46.5	6.3	7	3	68
8/31/2017	4.6	5.82	12	6.3	7	3	70
9/30/2017	6	9.1	19	6.6	7.1	7	119
10/31/2017	6.7	8.86	23	6.4	7.1	11	170
11/30/2017	9.9	11.44	14.6	6.5	7.1	3	43
12/31/2017	11.1	13.64	16.8	6.6	7.2	2	40
1/31/2018	7.5	12.24	20.1	6.5	7.1	2	9
2/28/2018	9	12.92	41	6.6	7.1	1	3
3/31/2018	11.2	12.74	22.7	6.4	7	2	161
4/30/2018	20.4	32.4	89	6.4	6.8	5	225
5/31/2018	17.6	27.4	48.6	6.3	7	3	13
6/30/2018	19.7	25.24	46	6.4	7.1	6	42
7/31/2018	12.3	17.04	62.5	6.4	7.1	8	108
8/31/2018	9.8	12.16	23	5.9	7.1	9	92
9/30/2018	13	14.48	44	6.2	7.3	12	300
10/31/2018	8.1	11.04	23	6	7.2	11	25
11/30/2018	10.4	11.5	26.4	6.4	7	11	265
12/31/2018	8	10.94	24	6.2	6.7	2	7

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DISCHARGE MONITORING REPORT SUMMARY

Outfall 035

Parameter	TRC	TRC	TRC	TRC	DO	TP
	Monthly Ave	Daily Max	Continuous - Monthly Ave	Continuous - Daily Max	Monthly Ave	Daily Max
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Effluent Limit	0.21	0.37	Report	Report	Report	Report
Minimum	0	0	21.01	20.7	7.3	0.7
Maximum	0.08	0.34	33.4	81.48	9.7	3.6
Average	0.0228	0.118	25	47.8	7.89	2.16
No. of Violations	0	0	N/A	N/A	N/A	N/A
1/31/2014	0	0	0.03	0.18		1
2/28/2014	0	0	0.02	0.04		2.4
3/31/2014	0.01	0.1	0.01	1.74		1
4/30/2014	0	0	0	0.44	8.3	1.4
5/31/2014	0.01	0.15	0.001	0.69	8.3	1.9
6/30/2014	0.01	0.11	0.014	0.27	7.8	2.7
7/31/2014	0	0	0.03	1.37	7.6	2.1
8/31/2014	0.01	0.12	0.003	0.28	7.6	2.1
9/30/2014	0	0.1	0.002	0.71	7.7	2.6
10/31/2014	0.01	0.14	0.007	0.31	8.1	2.2
11/30/2014	0	0.03	0	0.26		1.4
12/31/2014	0	0.01	0.003	0.88		0.7
1/31/2015	0	0	0.001	0.08		1.8
2/28/2015	0.01	0.15	0.011	0.13		2.2
3/31/2015	0	0	0.002	0.09		1.4
4/30/2015	0	0.04	0.002	0.19	8.3	0.9
5/31/2015	0	0.1	0.002	0.01	7.8	1.7
6/30/2015	0	0.02	0.007	0.26	7.8	2.6
7/31/2015	0.01	0.23	0.002	0.18	7.7	3
8/31/2015	0	0.1	0.006	0.41	7.5	3.4
9/30/2015	0.06	0.31	0.002	0.43	7.5	3.4
10/31/2015	0.07	0.19	0	0.1	7.9	2.9
11/30/2015	0.05	0.15	0.001	0.24		2.7
12/31/2015	0.03	0.12	0	0.15		2.6
1/31/2016	0.04	0.17	0.01	2		2.3
2/29/2016	0.04	0.16	0.001	0.25		2.6
3/31/2016	0.03	0.18	0	0.34		2.6
4/30/2016	0.03	0.1	0	0.17	8.1	2.3
5/31/2016	0.02	0.1	0.002	0.17	7.9	2.2
6/30/2016	0.08	0.24	0.007	0.59	7.5	2.2
7/31/2016	0.06	0.34	0.003	0.4	7.3	3
8/31/2016	0.06	0.12	0.001	0.37	7.5	2.1
9/30/2016	0.05	0.16	0.005	2	7.5	3.5
10/31/2016	0.07	0.23	0.005	2	7.9	2.3

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Parameter	TRC	TRC	TRC	TRC	DO	TP
	Monthly Ave	Daily Max	Continuous - Monthly Ave	Continuous - Daily Max	Monthly Ave	Daily Max
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Effluent Limit	0.21	0.37	Report	Report	Report	Report
11/30/2016	0.03	0.08	0.005	0.35		2
12/31/2016	0.04	0.32	0.015	0.91		2.7
1/31/2017	0.02	0.06	0.008	0.44		1.9
2/28/2017	0.02	0.04	0.006	0.51		2
3/31/2017	0.02	0.05	0.007	0.34		2.5
4/30/2017	0.02	0.12	0.008	1.07	8.3	1.5
5/31/2017	0.02	0.08	0.006	2	8	2.3
6/30/2017	0.02	0.06	0.003	0.44	7.7	1.6
7/31/2017	0.02	0.08	0.018	0.24	7.4	1.8
8/31/2017	0.03	0.14	0.016	0.75	7.4	2.1
9/30/2017	0.03	0.13	0.001	0.3	7.4	2.2
10/31/2017	0.01	0.06	0.005	0.41	7.5	3.4
11/30/2017	0.04	0.26	0.004	0.54		2.7
12/31/2017	0.02	0.19	0.004	2		2.3
1/31/2018	0.02	0.07	0.004	1.19		2.2
2/28/2018	0.02	0.06	0.004	1.58		1.8
3/31/2018	0.02	0.07	0.002	0.56		1.2
4/30/2018	0.02	0.18	0.006	1.88	8.4	1.1
5/31/2018	0.03	0.13	0	0.13	8.1	1.2
6/30/2018	0.02	0.1	0.003	0.06	8.1	3.6
7/31/2018	0.02	0.06	0.001	0.27	7.9	1.8
8/31/2018	0.03	0.13	0.001	0.28	8	2.8
9/30/2018	0.03	0.22	0.005	2	8.8	1.8
10/31/2018	0.02	0.25	0.021	0.15	9.7	2.4
11/30/2018	0.02	0.07	0.028	1.62		1.9
12/31/2018	0.02	0.09	0.014	0.08		1.5

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Outfall 035

Parameter	Ammonia	Nitrite+Nitrate	TKN
	Daily Max	Daily Max	Daily Max
Units	mg/L	mg/L	mg/L
Effluent Limit	Report	Report	Report
Minimum	0.1	0.16	3.7
Maximum	19.8	8.81	30.1
Average	9.45	3.47	13.5
No. of Violations	N/A	N/A	N/A
1/31/2014	15.8	3.62	20.1
4/30/2014	7.1	0.53	11.4
7/31/2014	3.8	1.71	3.9
10/31/2014	11.6	6.02	19.9
1/31/2015	10	2.04	16.7
4/30/2015	10.6	0.32	8.5
7/31/2015	3	1.71	4.6
10/31/2015	15.3	5.74	24.2
1/31/2016	4.8	8.81	8.8
4/30/2016	17.7	0.9	30.1
7/31/2016	6.2	5.81	8.7
10/31/2016	5.7	8.59	8.8
1/31/2017	14.7	3.14	15.5
4/30/2017	8.5	2.1	16.3
7/31/2017	3.7	4.26	3.7
10/31/2017	17.5	4.5	17.5
1/31/2018	19.8	2.14	19.8
4/30/2018	7.9	2.46	8.4
7/31/2018	0.1	0.16	18.2
10/31/2018	5.2	4.78	5.2

APPENDIX A

DISCHARGE MONITORING REPORT SUMMARY

WET - Effluent Data

Parameter	LC50 Acute Ceriodaphnia	Noel Static 7Day Chronic Ceriodaphnia	Ammonia	pH	Hardness	Aluminum	Cadmium	Copper
	Daily Min	Daily Min	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max
Units	%	%	mg/L	S.U.	mg/L	mg/L	mg/L	mg/L
Effluent Limit	100	Report	Report	Report	Report	Report	Report	Report
Minimum	100	6.25	2.9	6.8	44.8	0	0	0
Maximum	100	100	24	7.1	115	0.19	0.0006	0.017
Average	100	85.6	10.9	6.98	78.6	0.0722	0.0000387	0.00919
No. of Violations	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1/31/2014	100	100	24			0.03	0	0.013
4/30/2014	100	100						
7/31/2014	100	6.25	3.5			0.02	0	0.008
10/31/2014	100	50	10.3			0.05	0	0.007
1/31/2015	100	100	9.4			0.117	0.0006	0.009
4/30/2015	100	100	11.4			0.074	0	0.009
7/31/2015	100	100	2.9			0.05	0	0.009
10/31/2015	100	100	15.3			0.05	0	0.017
1/31/2016	100	100	4.7			0.19	0	0.011
4/30/2016	100	100	14.4			0.1	0	0.014
7/31/2016	100	100	9.4		53.9	0.07	0	0.007
10/31/2016	100	100	7		72.5	0.12	0	0.013
1/31/2017	100	100	16.6		44.8	0.05	0	0.007
4/30/2017	100	100	8.74			0.132	0.000136	0.00963
7/31/2017	100	100	3.6	6.9	72.9	0.081	0	0.009
10/31/2017	100	6.25	17.6	7.1	73.8	0.052	0	0.005
1/31/2018	100	50	20.4	7.1	84.4	0	0	0.01
4/30/2018	100	100	15.7	6.8	115	0.099	0	0.007
7/31/2018	100	100	6.2	7.1	106	0.046	0	0.01
10/31/2018	100	100	5.5	6.9	84.5	0.041	0	0

APPENDIX A

DISCHARGE MONITORING REPORT SUMMARY

WET - Effluent Data

Parameter	Lead	Nickel	Zinc
	Daily Max	Daily Max	Daily Max
Units	mg/L	mg/L	mg/L
Effluent Limit	Report	Report	Report
Minimum	0	0	0.04
Maximum	0.0027	0.005	0.095
Average	0.000869	0.00168	0.0648
No. of Violations	N/A	N/A	N/A
1/31/2014	0.002	0	0.04
4/30/2014			
7/31/2014	0	0	0.051
10/31/2014	0.002	0	0.087
1/31/2015	0.0027	0	0.069
4/30/2015	0	0.005	0.07
7/31/2015	0.001	0	0.052
10/31/2015	0.002	0.003	0.074
1/31/2016	0.0018	0	0.078
4/30/2016	0.0018	0	0.068
7/31/2016	0	0	0.04
10/31/2016	0	0	0.054
1/31/2017	0	0.002	0.095
4/30/2017	0.000806	0.004	0.0705
7/31/2017	0	0.003	0.059
10/31/2017	0.0003	0.002	0.053
1/31/2018	0	0.002	0.083
4/30/2018	0.0008	0.004	0.076
7/31/2018	0.0009	0.004	0.065
10/31/2018	0.0004	0.003	0.046

APPENDIX A

DISCHARGE MONITORING REPORT SUMMARY

WET - Ambient Data

Parameter	Ammonia	pH	Hardness	Aluminum	Cadmium	Copper	Lead	Nickel	Zinc
	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max	Daily Max
Units	mg/L	S.U.	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Effluent Limit	Report	Report	Report	Report	Report	Report	Report	Report	Report
Minimum	0	6.5	15.1	0	0	0	0	0	0
Maximum	0.5	7.2	88.2	0.365	0	0.01	0.003	0.002	0.08
Median	0.15	6.9	22.6	0.14	0	0	0.000411	0	0.0109
1/31/2014	0.500			0.075	0.000	0.010	0.001	0.000	0.007
4/30/2014									
7/31/2014	0.000			0.150	0.000	0.000	0.003	0.000	0.000
10/31/2014	0.100			0.050	0.000	0.000	0.002	0.000	0.008
1/31/2015	0.100			0.080	0.000	0.000	0.001	0.000	0.006
4/30/2015	0.200			0.194	0.000	0.005	0.000	0.000	0.008
7/31/2015	0.000			0.170	0.000	0.003	0.003	0.000	0.008
10/31/2015	0.000			0.240	0.000	0.000	0.000	0.000	0.015
1/31/2016	0.200			0.090	0.000	0.000	0.000	0.000	0.017
4/30/2016	0.100			0.150	0.000	0.000	0.001	0.000	0.080
7/31/2016	0.000		25.7	0.130	0.000	0.007	0.000	0.000	0.024
10/31/2016	0.400		88.2	0.130	0.000	0.006	0.000	0.000	0.000
1/31/2017	0.200		15.1	0.270	0.000	0.000	0.000	0.002	0.018
4/30/2017	0.000			0.365	0.000	0.000	0.001	0.000	0.013
7/31/2017	0.200	7.2	16.8	0.344	0.000	0.005	0.003	0.002	0.024
10/31/2017	0.200	6.9	25.9	0.048	0.000	0.000	0.000	0.000	0.009
1/31/2018	0.500	6.5	22.6	0.000	0.000	0.000	0.000	0.000	0.016
4/30/2018	0.400	6.8	18.5	0.149	0.000	0.000	0.000	0.000	0.009
7/31/2018	0.000	6.9	22.5	0.131	0.000	0.000	0.001	0.000	0.013
10/31/2018	0.100	6.7	20.1	0.148	0.000	0.000	0.001	0.000	0.000

APPENDIX B
METALS REASONABLE POTENTIAL AND LIMITS CALCULATIONS

Metal	Q_s	C_s [1]	Q_d	C_d [2]		Q_r	C_r		Criteria		Acute Reasonable Potential	Chronic Reasonable Potential	Limits	
	cfs	µg/l	cfs	Acute (µg/l)	Chronic (µg/l)	cfs	Acute (µg/l)	Chronic (µg/l)	Acute (µg/l)	Chronic (µg/l)	C_d & C_r > Criteria	C_d & C_r > Criteria	Acute (µg/l)	Chronic (µg/l)
Aluminum	832.00	35.0	49.54	164.6	164.6	881.54	42.28	42.3	750	87	N	N	N/A	N/A
Cadmium		0.0		0.3	0.3		0.02	0.02	0.53	0.10	N	N	N/A	N/A
Copper		0.4		15.1	15.1		1.23	1.23	3.85	2.89	N	N	N/A	N/A
Lead		0.30		3.0	3.0		0.45	0.45	14.25	0.56	N	N	N/A	N/A
Nickel		0.0		4.7	4.7		0.27	0.27	147.09	16.35	N	N	N/A	N/A
Zinc		8.0		95.2	95.2		12.90	12.9	37.50	37.50	N	N	N/A	N/A

[1]Median concentration for the receiving water upstream of the facility's discharge during the review period.

[2]Values represent the 95th percentile (for $n \geq 10$) or maximum (for $n < 10$) concentrations from the DMR data and/or WET testing data during the review period (see Attachments A & C). If the metal already has a limit (for either acute or chronic conditions), the value represents the existing limit.

Appendix C
Statistical Approach for Effluent Data (N ≥ 10)

EPA bases its determination of "reasonable potential" on a characterization of the upper bound of expected effluent concentrations based on a statistical analysis of the available monitoring data. As noted in the *Technical Support Document for Water Quality Based Toxics Control* (EPA 1991) ("TSD"), "[a]ll monitoring data, including results for concentrations of individual chemicals, have some degree of uncertainty associated with them. The more limited the amount of test data available, the larger the uncertainty." Thus, with a limited data set, the maximum concentration that has been found in the samples may not reflect the full range of effluent concentration.

To account for this, EPA has developed a statistical approach to characterizing effluent variability when the monitoring dataset includes 10 or more samples.[1] As "experience has shown that daily pollutant discharges are generally lognormally distributed," *TSD* at App. E, EPA uses a lognormal distribution to model the shape of the observed data, unless analysis indicates a different distributional model provides a better fit to the data. The model parameters (mean and variance) are derived from the monitoring data. The model parameter μ is the mean of the natural logs of the monitoring data values, while σ is the standard deviation of the natural logs of the monitoring data values.

The lognormal distribution generally provides a good fit to environmental data because it is bounded on the lower end (i.e. you cannot have pollutant concentrations less than zero) and is positively skewed. It also has the practical benefit that if an original lognormal data set X is logarithmically transformed (i.e. Y = ln[X]) the resulting variable Y will be normally distributed. Then the upper percentile expected values of X can be calculated using the z-score of the standardized normal distribution (i.e. the normal distribution with mean = 0 and variance = 1), a common and relatively simple statistical calculation. The p^{th} percentile of X is estimated by

$$X_p = \exp(\mu_y + z_p \times \sigma_y),$$

where μ_y = mean of Y
σ_y = standard deviation of Y
Y = ln[X]
z_p = the z-score for percentile "p"

For the 95^{th} percentile, $z_{95} = 1.645$, so that

$$X_{95} = \exp(\mu_y + 1.645 \times \sigma_y)$$

The 95^{th} percentile value is used to determine whether a discharge has a reasonable potential to cause or contribute to an exceedance of a water quality standard. The combination of the upper bound effluent concentration with dilution in the receiving water is calculated to determine whether the water quality criteria will be exceeded.

Datasets including non-detect values

The *TSD* also includes a procedure for determine such percentiles when the dataset includes non-detect results, based on a delta-lognormal distribution. In the delta-lognormal procedures, non-detect values are weighted in proportion to their occurrence in the data. The values above the detection limit are assumed to be lognormally distributed values.

[1] A different statistical approach is applied where the monitoring data set includes less than 10 samples.

The statistical derivation of the delta-lognormal upper bounds is quite complex and is set forth in the TSD at Appendix E. Calculation of the 95th percentile of the distribution, however, involves a relatively straightforward adjustment of the equations given above for the lognormal distribution, as follows.

For the delta-lognormal, the pth percentile of X, referred to here as X_p*, is given by

$$X_p^* = \exp(\mu_y^* + z_p^* \times \sigma_y^*),$$

where μ_y*= mean of Y values for data points above the detection limit;
σ_y*= standard deviation of Y for data points above the detection limit;
Y = ln[X*];
X*= monitoring data above detection limit; and
z_p* = an adjusted z score that is given by the equation:

$$z_p^* = \text{z-score}[(p - \delta)/(1 - \delta)]$$

where δ is the proportion of non-detects in the monitoring dataset.

k = total number of dataset
r = number of non-detect values in the dataset
δ = r/k

For the 95th percentile, this takes the form of z_p* = z-score[(.95 – δ)/(1 - δ)]. The resulting values of z_p* for various values of δ is set forth in the table below; the calculation is easily performed in excel or other spreadsheet programs.

Example calculations of z_p* for 95th percentile

δ	(0.95 - δ)/ (1 - δ)	z_p*
0	0.95	1.645
0.1	0.94	1.593
0.3	0.93	1.465
0.5	0.90	1.282
0.7	0.83	0.967

Appendix D

EPA REGION 1 NPDES PERMITTING APPROACH FOR PUBLICLY OWNED TREATMENT WORKS THAT INCLUDE MUNICIPAL SATELLITE SEWAGE COLLECTION SYSTEMS

This regional interpretative statement provides notice to the public of EPA Region 1's interpretation of the Clean Water Act ("CWA" or "Act") and implementing regulations, and advises the public of relevant policy considerations, regarding the applicability of the National Pollutant Discharge Elimination System ("NPDES") program to publicly owned treatment works ("POTWs") that include municipal satellite sewage collection systems ("regionally integrated POTWs"). When issuing NPDES permits to these types of sanitary sewer systems, it is EPA Region 1's practice to include and regulate the owners/operators of the municipal satellite collection systems through a co-permitting structure. This interpretative statement is intended to explain, generally, the basis for this practice. EPA Region 1's decision in any particular case will be made by applying the law and regulations on the basis of specific facts when permits are issued.

EPA has set out a national policy goal for the nation's sanitary sewer systems to adhere to strict design and operational standards:

> "Proper [operation and maintenance] of the nation's sewers is integral to ensuring that wastewater is collected, transported, and treated at POTWs; and to reducing the volume and frequency of …[sanitary sewer overflow] discharges. Municipal owners and operators of sewer systems and wastewater treatment facilities need to manage their assets effectively and implement new controls, where necessary, as this infrastructure continues to age. Innovative responses from all levels of government and consumers are needed to close the gap."[1]

Because ownership/operation of a regionally integrated POTW is divided among multiple parties, the owner/operator of the treatment plant many times lacks the means to implement comprehensive, system-wide operation and maintenance ("O & M") procedures. Failure to properly implement O & M measures in a POTW can cause, among other things, excessive extraneous flow (*i.e.*, inflow and infiltration) to enter, strain and occasionally overload treatment system capacity. This failure not only impedes EPA's national policy goal concerning preservation of the nation's wastewater infrastructure assets, but also frustrates achievement of the water quality- and technology-based requirements of CWA § 301 to the extent it results in sanitary sewer overflows and degraded treatment plant performance, with adverse impacts on human health and the environment.

In light of these policy objectives and legal requirements, it is EPA Region 1's permitting practice to subject all portions of the POTW to NPDES requirements in order to ensure that the treatment system as a whole is properly operated and maintained and that human health and water quality impacts resulting from excessive extraneous flow are minimized. The approach of addressing O&M concerns in a regionally integrated treatment works by adding municipal

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[1] *See Report to Congress: Impacts and Control of CSOs and SSOs* (EPA 833-R-04-001) (2004), at p. 10-2. *See also* "1989 National CSO Control Strategy," 54 Fed. Reg. 37371 (September 8, 1989).

satellite collection systems as co-permittees is consistent with the definition of "publicly owned treatment works," which by definition includes sewage collection systems. Under this approach, the POTW in its entirety is subject to NPDES regulation as a point source discharger under the Act. This entails imposition of permitting requirements applicable to the POTW treatment plant along with a more limited set of conditions applicable to the connected municipal satellite collection systems.

The factual and legal basis for the Region's position is set forth in greater detail in *Attachment A*.

Attachment A

ANALYSIS SUPPORTING EPA REGION 1 NPDES PERMITTING APPROACH FOR PUBLICLY OWNED TREATMENT WORKS THAT INCLUDE MUNICIPAL SATELLITE SEWAGE COLLECTION SYSTEMS

Exhibit A	List of regional centralized POTW treatment plants and municipal satellite collection systems subject to the co-permittee policy
Exhibit B	Analysis of extraneous flow trends for representative systems
Exhibit C	List of municipal satellite collection systems that have had SSOs
Exhibit D	Form of Regional Administrator's waiver of permit application requirements for municipal satellite collection systems

Introduction

On May 28, 2010, the U.S. EPA Environmental Appeals Board ("Board") issued a decision remanding to the Region certain NPDES permit provisions that included and regulated satellite collection systems as co-permittees. *See In re Upper Blackstone Water Pollution Abatement District*, NPDES Appeal Nos. 08-11 to 08-18 & 09-06, 14 E.A.D. __ (*Order Denying Review in Part and Remanding in Part*, EAB, May 28, 2010).[2] While the Board "did not pass judgment" on the Region's position that its NPDES jurisdiction encompassed the entire POTW and not only the treatment plant, it held that "where the Region has abandoned its historical practice of limiting the permit only to the legal entity owning and operating the wastewater treatment plant, the Region had not sufficiently articulated in the record of this proceeding the statutory, regulatory, and factual bases for expanding the scope of NPDES authority beyond the treatment plant owner/operator to separately owned/operated collection systems that do not discharge directly to waters of the United States, but instead that discharge to the treatment plant." *Id., slip op.* at 2, 18. In the event the Region decided to include and regulate municipal satellite collection systems as co-permittees in a future permit, the Board posed several questions for the Region to address in the analysis supporting its decision:

(1) Is the scope of NPDES authority limited to owners/operators of the treatment plant, or does the authority extend to owners/operators of the municipal satellite collection systems that comprise the wider POTW?

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[2] The decision is available on the Board's website via the following link: http://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/30b93f139d3788908525706c005185b4/34e841c87f346d94852577360068976f!OpenDocument.

(2) If the latter, how far up the collection system does NPDES jurisdiction reach, *i.e.*, where does the "collection system" end and the "user" begin?

(3) Do municipal satellite collection systems "discharge [ ] a pollutant" within the meaning of the statute and regulations?

(4) Are municipal satellite collection systems "indirect dischargers" and thus excluded from NPDES permitting requirements?

(5) Is the Region's rationale for regulating municipal satellite collection systems as co-permittees consistent with the references to "municipality" in the regulatory definition of POTW, and the definition's statement that "[t]he term also means the municipality…which has jurisdiction over the Indirect Discharges to and the discharges from such a treatment works"?

(6) Is the Region's rationale consistent with the permit application and signatory requirements under NPDES regulations?

See *Blackstone, slip op.* at 18, 20, n. 17.

This regional interpretative statement is, in part, a response to the Board's decision. It details the legal and policy bases for regulating as co-permittees publicly owned treatment works ("POTWs") that include municipal satellite collection systems. Region 1's analysis is divided into five sections. First, the Region provides context for the co-permitting approach by briefly describing the health and environmental impacts associated with poorly maintained sanitary sewer systems. Second, the Region outlines its evolving permitting practice regarding regionally integrated POTWs, particularly its attempts to ensure that such entity's municipal satellite collection systems are properly maintained and operated. Third, the Region explains the legal authority to include municipal satellite collection systems as co-permittees when permitting regionally integrated POTWs. In this section, the Region answers the questions posed by the Board in the order presented above. Fourth, the Region sets forth the basis for the specific conditions to which the municipal satellite collection systems are subject as co-permittees. Finally, the Region discusses other considerations informing its decision to employ a co-permittee structure when permitting regionally integrated POTWs.

I. Background

A sanitary sewer system (SSS) is a wastewater collection system owned by a state or municipality that is designed to collect and convey only sanitary wastewater (domestic sewage from homes as well as industrial and commercial wastewater).[3] The purpose of these systems is

[3] A combined sewer, on the other hand, is a type of sewer system that collects and conveys sanitary sewage and stormwater runoff in a single-pipe system to a POTW treatment plant. *See generally* Report to Congress: Impacts and Control of CSOs and SSOs (EPA 833-R-04-001) (2004), from which EPA Region 1 has drawn this background material.

to transport wastewater uninterrupted from its source to a treatment facility. Developed areas that are served by sanitary sewers often also have a separate storm sewer system (*e.g.*, storm drains) that collects and conveys runoff, street wash waters and drainage and discharges them directly to a receiving water (*i.e.*, without treatment at a POTW). While sanitary sewers are not designed to collect large amounts of runoff from precipitation events or provide widespread drainage, they typically are built with some allowance for higher flows that occur during periods of high groundwater and storm events. They are thus able to handle minor and controllable amounts of extraneous flow (*i.e.*, inflow and infiltration, or I/I) that enter the system. Inflow generally refers to water other than wastewater—typically precipitation like rain or snowmelt—that enters a sewer system through a direct connection to the sewer. Infiltration generally refers to other water that enters a sewer system from the ground, for example through defects in the sewer.

Municipal sanitary sewer collection systems can consist of a widespread network of pipes and associated components (*e.g.*, pump stations). These systems provide wastewater collection service to the community in which they are located. In some situations, the municipality that owns the collector sewers may not provide treatment of wastewater, but only conveys its wastewater to a collection system that is owned and operated by a different municipal entity (such as a regional sewer district). This is known as a satellite community. A "satellite" community is a sewage collection system owner/operator that does not have ownership of the treatment facility and a specific or identified point of discharge but rather the responsibility to collect and convey the community's wastewater to a POTW treatment plant for treatment. *See* 75 Fed. Reg. 30395, 30400 (June 1, 2010).

Municipal sanitary sewer collection systems play a critical role in protecting human health and the environment. Proper operation and maintenance of sanitary sewer collection systems is integral to ensuring that wastewater is collected, transported, and treated at POTW treatment plants. Through effective operation and maintenance, collection system operators can maintain the capacity of the collection system; reduce the occurrence of temporary problem situations such as blockages; protect the structural integrity and capacity of the system; anticipate potential problems and take preventive measures; and indirectly improve treatment plant performance by minimizing deterioration due to I/I-related hydraulic overloading.

Despite their critical role in the nation's infrastructure, many collection systems exhibit poor performance and are subjected to flows that exceed system capacity. Untreated or partially treated overflows from a sanitary sewer system are termed "sanitary sewer overflows" (SSOs). SSOs include releases from sanitary sewers that reach waters of the United States as well as those that back up into buildings and flow out of manholes into city streets.

There are many underlying reasons for the poor performance of collection systems. Much of the nation's sanitary sewer infrastructure is old, and aging infrastructure has deteriorated with time. Communities also sometimes fail to provide capacity to accommodate increased sewage delivery and treatment demand from increasing populations. Furthermore, institutional arrangements relating to the operation of sewers can pose barriers to coordinated action, because many

municipal sanitary sewer collection systems are not entirely owned or operated by a single municipal entity.

The performance and efficiency of municipal collection systems influence the performance of sewage treatment plants. When the structural integrity of a sanitary sewer collection system deteriorates, large quantities of infiltration (including rainfall-induced infiltration) and inflow can enter the collection system, causing it to overflow. These extraneous flows are among the most serious and widespread operational challenges confronting treatment works.[4]

Infiltration can be long-term seepage of water into a sewer system from the water table. In some systems, however, the flow characteristics of infiltration can resemble those of inflow, *i.e.*, there is a rapid increase in flow during and immediately after a rainfall event, due, for example, to rapidly rising groundwater. This phenomenon is sometimes referred to as rainfall-induced infiltration.

Sanitary sewer systems can also overflow during periods of normal dry weather flows. Many sewer system failures are attributable to natural aging processes or poor operation and maintenance. Examples include years of wear and tear on system equipment such as pumps, lift stations, check valves, and other moveable parts that can lead to mechanical or electrical failure; freeze/thaw cycles, groundwater flow, and subsurface seismic activity that can result in pipe movement, warping, brittleness, misalignment, and breakage; and deterioration of pipes and joints due to root intrusion or other blockages.

Inflow and infiltration impacts are often regional in nature. Satellite collection systems in the communities farthest from the POTW treatment plant can cause sanitary sewer overflows ("SSOs") in communities between them and the treatment plant by using up capacity in the interceptors. This can cause SSOs in the interceptors themselves or in the municipal sanitary sewers that lead to them. The implication of this is that corrective solutions often must also be regional in scope to be effective.

The health and environmental risks attributed to SSOs vary depending on a number of factors including location and season (potential for public exposure), frequency, volume, the amount and type of pollutants present in the discharge, and the uses, conditions, and characteristics of the receiving waters. The most immediate health risks associated with SSOs to waters and other areas with a potential for human contact are associated with exposure to bacteria, viruses, and other pathogens.

Human health impacts occur when people become ill due to contact with water or ingestion of water or shellfish that have been contaminated by SSO discharges. In addition, sanitary sewer systems can back up into buildings, including private residences. These discharges provide a

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[4] In a 1989 Water Pollution Control Federation survey, 1,003 POTWs identified facility performance problems. Infiltration and inflow was the most frequently cited problem, with 85 percent of the facilities reporting I/I as a problem. I/I was cited as a major problem by 41 percent of the facilities (32 percent as a periodic problem). [BP: Is there anything more recent?]

direct pathway for human contact with untreated wastewater. Exposure to land-based SSOs typically occurs through the skin via direct contact. The resulting diseases are often similar to those associated with exposure through drinking water and swimming (*e.g.*, gastroenteritis), but may also include illness caused by inhaling microbial pathogens. In addition to pathogens, raw sewage may contain metals, synthetic chemicals, nutrients, pesticides, and oils, which also can be detrimental to the health of humans and wildlife.

II. EPA Region 1 Past Practice of Permitting POTWs that Include Municipal Satellite Collection Systems

EPA Region 1's practice in permitting regionally integrated POTWs has developed in tandem with its increasing focus on addressing I/I in sewer collection systems, in response to the concerns outlined above. Up to the early 1990s, POTW permits issued by Region 1 generally did not include specific requirements for collection systems. When I/I and the related issue of SSOs became a focus of concern both nationally and within the region in the mid-1990s, Region 1 began adding general requirements to POTW permits that required the permittees to "eliminate excessive infiltration and inflow" and provide an annual "summary report" of activities to reduce I/I. As the Region gathered more information and gained more experience in assessing these reports and activities, it began to include more detailed requirements and reporting provisions in these permits.

MassDEP also engaged in a parallel effort to address I/I, culminating in 2001 with the issuance of MassDEP Policy No. BRP01-1, "Interim Infiltration and Inflow Policy." Among other provisions, this policy established a set of standard NPDES permit conditions for POTWs that included development of an I/I control plan (including funding sources, identification and prioritization of problem areas, and public education programs) and detailed annual reporting requirements (including mapping, reporting of expenditures and I/I flow calculations). Since September 2001, these requirements have been the basis for the standard operation and maintenance conditions related to I/I.

Regional treatment plants presented special issues as I/I requirements became more specific, as it is generally the member communities, rather than the regional sewer district, that own the collection systems that are the primary source of I/I. Before the focus on I/I, POTW permits did not contain specific requirements related to the collection system component of POTWs. Therefore, when issuing NPDES permits to authorize discharges from regionally integrated treatment POTWs, EPA Region 1 had generally only included the legal entity owning and/or operating the regionally centralized wastewater treatment plant. As the permit conditions were focused on the treatment plant itself, this was sufficient to ensure that EPA had authority to enforce the permit requirements.

In implementing the I/I conditions, Region 1 initially sought to maintain the same structure, placing the responsibility on the regional sewer district to require I/I activities by the contributing systems and to collect the necessary information from those systems for submittal to EPA. MassDEP's 2001 Interim I/I Policy reflected this approach, containing a condition for regional systems:

((FOR REGIONAL FACILITIES ONLY)) The permittee shall require, through appropriate agreements, that all member communities develop and implement infiltration and inflow control plans sufficient to ensure that high flows do not cause or contribute to a violation of the permittees effluent limitations, or cause overflows from the permittees collection system.

As existing NPDES permittees, the POTW treatment plants were an obvious locus of regulation. The Region assumed the plants would be in a position to leverage preexisting legal and/or contractual relationships with the satellite collection systems they serve to perform a coordinating function, and that utilizing this existing structure would be more efficient than establishing a new system of direct reporting to EPA by the collection system owners. The Region also believed that the owner/operator of the POTW treatment plant would have an incentive to reduce flow from contributing satellite systems because doing so would improve treatment plant performance and reduce operation costs. While relying on this cooperative approach, however, EPA Region 1 also asserted that it had the authority to require that POTW collection systems be included as NPDES permittees and that it would do so if it proved necessary. Indeed, in 2001 Region 1 acceded to Massachusetts Water Resources Authority's ("MWRA") request that the contributing systems to the MWRA Clinton wastewater treatment plant ("WWTP") be included as co-permittees, based on evidence provided by MWRA that its specific relationship with those communities would not permit it to run an effective I/I reduction program for these collection systems. EPA Region 1 also put satellite collection systems on notice that they would be directly regulated through legally enforceable permit requirements if I/I reductions were not pursued or achieved.

In time, the Region realized that its failure to assert direct jurisdiction over municipal satellite dischargers was becoming untenable in the face of mounting evidence that cooperative (or in some cases non-existent) efforts on the part of the POTW treatment plant and associated satellites were failing to comprehensively address the problem of extraneous flow entering the POTW. The ability and/or willingness of regional sewer districts to attain meaningful I/I efforts in their member communities varied widely. The indirect structure of the requirements also tended to make it difficult for EPA to enforce the implementation of meaningful I/I reduction programs.

It became evident to EPA Region 1 that a POTW's ability to comply with CWA requirements depended on successful operation and maintenance of not only the treatment plant but also the collection system. For example, the absence of effective I/I reduction and operation/maintenance programs was impeding the Region's ability to prevent or mitigate the human health and water quality impacts associated with SSOs. *See Exhibit B* (Municipal satellite collection systems with SSOs). Additionally, these excess flows stressed POTW treatment plants from a hydraulic capacity and performance standpoint, adversely impacting effluent quality. *See Exhibit C* (Analysis of extraneous flow trends for representative systems). Addressing these issues in regional systems was essential, as these include most of the largest systems in terms of flow, population served and area covered, and serve the largest population centers.

The Region's practice of imposing NPDES permit conditions on the municipal collection systems in addition to the treatment plant owner/operator represents a necessary and logical progression in its continuing effort to effectively address the serious problem of I/I in sewer collection systems.[5] In light of its past permitting experience and the need to effectively address the problem of extraneous flow on a system-wide basis, Region 1 decided that it was necessary to refashion permits issued to regionally integrated POTWs to encompass all owners/operators of the treatment works (*i.e.*, the regional centralized POTW treatment plant and the municipal satellite collection systems.[6] Specifically, Region 1 determined that the satellite systems should be subject as co-permittees to a limited set of O&M-related conditions on permits issued for discharges from regionally integrated treatment works. These conditions pertain only to the portions of the POTW collection system that the satellites own. This ensures maintenance and pollution control programs are implemented with respect to all portions of the POTW. Accordingly, since 2005, Region 1 has generally included municipal satellite collection systems as co-permittees for limited purposes, in addition to the owner/operator of the treatment plant as the main permittee subject to the full array of NPDES requirements, including secondary treatment and water-quality based effluent limitations. The Region has identified 25 permits issued by the Region to POTWs in New Hampshire and Massachusetts that include municipal satellite collection systems as co-permittees. *See Exhibit A*. The 25 permits include a total of 55 satellite collection systems as co-permittees.

III. Legal Authority

The Region's prior and now superseded practice of limiting the permit only to the legal entity owning and/or operating the wastewater treatment plant had never been announced as a regional policy or interpretation. Similarly, the Region's practice of imposing NPDES permit conditions on the municipal collection systems in addition to the treatment plant owner/operator has also never been expressly announced as a uniform, region-wide policy or interpretation. Upon consideration of the Board's decision, described above, EPA Region 1 has decided to supply a clearer, more detailed explanation regarding its use of a co-permittee structure when issuing NPDES permits to regionally integrated POTWs. In this section, the Region addresses the questions posed by the Board in the *Upper Blackstone* decision referenced above.

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[5] Although EPA Region 1 has in the past issued NPDES permits only to the legal entities owning and operating the wastewater treatment plant (*i.e.*, only a portion of the "treatment works"), the Region's reframing of permits to include municipal satellite collection systems does not represent a break or reversal from its historical legal position. EPA Region 1 has never taken the legal position that the satellite collection systems are beyond the reach of the CWA and the NPDES permitting program. Rather, the Region as a matter of discretion had merely never determined it necessary to exercise its statutory authority to directly reach these facilities in order to carry out its NPDES permitting obligations under the Act.

[6] EPA has "considerable flexibility in framing the permit to achieve a desired reduction in pollutant discharges." *Natural Resources Defense Council, Inc. v. Costle*, 568 F.2d 1369, 1380 (D.C.Cir.1977). ("[T]his ambitious statute is not hospitable to the concept that the appropriate response to a difficult pollution problem is not to try at all.").

(1) Is the scope of NPDES authority limited to owners/operators of the treatment plant, or does the authority extend to owners/operators of the municipal satellite collection systems that comprise the wider POTW?

The scope of NPDES authority extends beyond the owners/operators of the treatment plant to include to owners/operators of portions of the wider POTW, for the reasons discussed below.

The CWA prohibits the "discharge of any pollutant by any person" from any point source to waters of the United States, except, *inter alia,* in compliance with an NPDES permit issued by EPA or an authorized state pursuant to Section 402 of the CWA. CWA § 301, 402(a)(1); 40 C.F.R. § 122.1(b). Where there is a discharge of pollutants, NPDES regulations require the "operator" of the discharging "facility or activity" to obtain a permit in circumstances where the operator is different from the owner. *Id.* § 122.21(b). "Owner or operator" is defined as "the owner or operator of any 'facility or activity' subject to regulation under the NPDES program," and a "facility or activity" is "any NPDES 'point source' or any other facility or activity (including land or appurtenances thereto) that is subject to regulation under the NPDES program." *Id.* § 122.2.

"Publicly owned treatment works" are facilities subject to the NPDES program. Statutorily, POTWs as a class must meet performance-based requirements based on available wastewater treatment technology. *See* CWA § 402(a)(1) ("[t]he Administrator may…issue a permit for the discharge of any pollutant….upon condition that such discharge will meet (A) all applicable requirements under [section 301]…"); § 301(b)(1)(B) ("In order to carry out the objective of this chapter there shall be achieved…for publicly owned treatment works in existence on July 1, 1977...effluent limitations based upon secondary treatment[.]"); *see also* 40 C.F.R. pt 133. In addition to secondary treatment requirements, POTWs are also subject to water quality-based effluent limits if necessary to achieve applicable state water quality standards. *See* CWA § 301(b)(1)(C). *See also* 40 C.F.R. § 122.44(a)(1) ("…each NPDES permit shall include…[t]echnology-based effluent limitations based on: effluent limitations and standards published under section 301 of the Act") and (d)(1) (same for water quality standards and state requirements). NPDES regulations similarly identify the "POTW" as the entity subject to regulation. *See* 40 C.F.R. § 122.21(a), (requiring "new and existing POTWs" to submit information required in 122.21(j)," which in turn requires "all POTWs," among others, to provide permit application information).

A municipal satellite collection system is part of a POTW under applicable law. The CWA and its implementing regulations broadly define "POTW" to include not only wastewater treatment plants but also the sewer systems and associated equipment that collect wastewater and convey it to the plants. Under NPDES regulations at 40 C.F.R. §§ 122.2 and 403.3(q), the term "Publicly Owned Treatment Works" or "POTW" means "a treatment works as defined by section 212 of the Act, which is owned by a State or municipality (as defined by section 502(4) of the Act)." Under section 212 of the Act,

> "(2)(A) The term 'treatment works' means any devices and systems used in the storage, treatment, recycling, and reclamation of municipal sewage or industrial wastes of a liquid

> nature to implement section 1281 of this title, or necessary to recycle or reuse water at the most economical cost over the estimated life of the works, including intercepting sewers, outfall sewers, *sewage collection systems* [emphasis added], pumping, power, and other equipment, and their appurtenances; extensions, improvements, remodeling, additions, and alterations thereof; elements essential to provide a reliable recycled supply such as standby treatment units and clear well facilities; and any works, including site acquisition of the land that will be an integral part of the treatment process (including land used for the storage of treated wastewater in land treatment systems prior to land application) or is used for ultimate disposal of residues resulting from such treatment.
>
> (B) In addition to the definition contained in subparagraph (A) of this paragraph, 'treatment works' means any other method or system for preventing, abating, reducing, storing, treating, separating, or disposing of municipal waste, including storm water runoff, or industrial waste, including waste in combined storm water and *sanitary sewer systems* [emphasis added]. Any application for construction grants which includes wholly or in part such methods or systems shall, in accordance with guidelines published by the Administrator pursuant to subparagraph (C) of this paragraph, contain adequate data and analysis demonstrating such proposal to be, over the life of such works, the most cost efficient alternative to comply with sections 1311 or 1312 of this title, or the requirements of section 1281 of this title."

Under the NPDES program regulations, this definition has been interpreted as follows:

> "The term *Publicly Owned Treatment Works* or *POTW* [emphasis in original]…includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes and other conveyances only if they convey wastewater to a POTW Treatment Plant. The term also means the municipality as defined in section 502(4) of the Act, which has jurisdiction over the Indirect Discharges to and the discharges from such a treatment works."

See 40 C.F.R. § 122.2, cross-referencing 403.3(q).

The statutory and regulatory definitions plainly encompass both the POTW treatment plant and municipal satellite collection systems. Municipal satellite collection systems are part of a POTW by definition (*i.e.*, they are "sewage collection systems" under section 212(A) and "sanitary sewer systems" under section 212(B)). They are also conveyances that send wastewater to a POTW treatment plant for treatment under 40 C.F.R. 403.3(q)). The preamble to the rule that created the regulatory definition of POTW supports the reading that the treatment plant comprises only a portion of the POTW. *See* 44 Fed. Reg. 62260, 62261 (Oct. 29, 1979).[7]

[7] "A new provision…defining the term 'POTW Treatment Plant' has been added to avoid an ambiguity that now exists whenever a reference is made to a POTW (publicly owned treatment works). …[T]he existing regulation defines a POTW to include both the treatment plant and the sewer pipes and other conveyances leading to it. As a result, it is unclear whether a particular reference is to the pipes, the treatment plant, or both. The term "POTW

Consistent with EPA Region 1's interpretation, courts have similarly taken a broad reading of the terms treatment works and POTW.[8]

(2) If the latter, how far up the collection system does NPDES jurisdiction reach, i.e., where does the "collection system" end and the "user" begin?

NPDES jurisdiction extends beyond the treatment plant to the outer boundary of the municipally-owned sewage collection systems, which are defined as sewers whose purpose is to be a common carrier of wastewater for others to a POTW treatment plant for treatment, as explained below.

As discussed in response to Question 1 above, the term "treatment works" is defined to include "sewage collection systems." CWA § 212. In order to define the extent of the sewage collection system for purposes of co-permittee regulation—*i.e.*, to identify the boundary between the portions of the collection system that are subject to NPDES requirements and those that are not—Region 1 is relying on EPA's regulatory interpretation of the term "sewage collection system." In relevant part, EPA regulations define "sewage collection system" at 40 C.F.R. § 35.905 as:

> ".... each, and all, of the common lateral sewers, within a publicly owned treatment system, which are primarily installed to receive waste waters directly from facilities which convey waste water from individual structures or from private property and which include service connection "Y" fittings designed for connection with those facilities. The facilities which convey waste water from individual structures, from private property to the public lateral sewer, or its equivalent, are specifically excluded from the definition…."

Put otherwise, a municipal satellite collection system is subject to NPDES jurisdiction under the Region's approach insofar as its purpose is to be a common carrier of wastewater for others to a POTW treatment plant for treatment. The use of this primary purpose test (i.e., common sewer installed as a recipient and carrier waste water from others) allows Region 1 to draw a principled, predictable and readily ascertainable boundary between the POTW's collection system and user. This test would exclude, for example, branch drainpipes that collect and transport wastewater from fixtures in a commercial building or public school to the common lateral sewer. This type

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treatment plant" will be used to designate that portion of the municipal system which is actually designed to provide treatment to the wastes received by the municipal system."

[8] *See, e.g.*, *United States v. Borowski, 977 F.2d 27, 30 n.5* (1st Cir. 1992) ("We read this language [POTW definition] to refer to such sewers, pipes and other conveyances that are publicly owned. Here, for example, the City of Burlington's sewer is included in the definition because it conveys waste water to the Massachusetts Water Resource Authority's treatment works."); *Shanty Town Assoc. v. Envtl. Prot. Agency, 843 F.2d 782, 785* (4th Cir. 1988) ("As defined in the statute, a 'treatment work' need not be a building or facility, but can be any device, system, or other method for treating, recycling, reclaiming, preventing, or reducing liquid municipal sewage and industrial waste, including storm water runoff.") (citation omitted); *Comm. for Consideration Jones Fall Sewage System v. Train,* 375 F. Supp. 1148, 1150-51 (D. Md. 1974) (holding that NPDES wastewater discharge permit coverage for a wastewater treatment plant also encompasses the associated sanitary sewer system and pump stations under § 1292 definition of "treatment work").

of infrastructure would not be considered part of the collection system, because it is not designed to be a common recipient and carrier of wastewaters from other users. Rather, it is designed to transport its users' wastewater to such a common collection system at a point further down the sanitary sewer system.

EPA's reliance on the definition of "sewage collection system" from outside the NPDES regulations for interpretative guidance is reasonable as the construction grants regulations at 40 C.F.R. Part 35, subpart E pertain to grants for POTWs, the entity that is the subject of this NPDES policy. Additionally, the term "sewage collection systems" expressly appears in the definition of treatment works under section 212 of the Act as noted above. Finally, this approach is also consistent with EPA's interpretation in other contexts, such as the SSO listening session notice, published in the Federal Register on June 1, 2010, which describes wastewater collection systems as those that "collect domestic sewage and other wastewater from homes and other buildings and convey it to wastewater sewage treatment plants for proper treatment and disposal." *See* "Municipal Sanitary Sewer Collection Systems, Municipal Satellite Collection Systems, Sanitary Sewer Overflows, and Peak Wet Weather Discharges From Publicly Owned Treatment Works Treatment Plants Serving Separate Sanitary Sewer Collection Systems," 75 Fed. Reg. 30395.[9]

(3) Do municipal satellite collection systems "discharge [] a pollutant" within the meaning of the statute and regulations?

Yes, because they are a part of the POTW, municipal satellite collection systems discharge pollutants to waters of the United States through one or more outfalls (point sources).

The "discharge of a pollutant," triggers the need for a facility to obtain an NPDES permit. A POTW "discharges [ ] pollutant[s]" if it adds pollutants from a point source to waters of the U.S. (See 40 C.F.R. § 122.2, section (a) of the definition of "discharge of a pollutant.") As explained above, municipal satellite collection systems are part of the POTW. The entire POTW is the entity that discharges pollutants to waters of the U.S. through point source outfalls typically located at the treatment plant but also occasionally through other outfalls within the overall system. The fact that a collection system may be located in the upstream portions of the POTW and not necessarily near the ultimate discharge point at the treatment plant is not material to the question of whether it "discharges" a pollutant and consequently may be subject to conditions of an NPDES permit issued for discharges from the POTW. [10]

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[9] That EPA has in the past looked for guidance from Part 35 when construing the NPDES permitting program, for instance, in the context of storm water permitting, provides further support to the Region that its practice in this regard is sound. *See, e.g.*, "National Pollutant Discharge Elimination System Permit Application Regulations for Storm Water Discharges," 55 Fed. Reg. 47990, 47955 (looking to the definition of "storm sewer" at 40 C.F.R. § 35.2005(b)(47) when defining "storm water" under the NDPES program).

[10] This position differs from that taken by the Region in the *Upper Blackstone* litigation. There, the Region argued that the treatment plant was the sole discharging entity for regulatory purposes. The Region has revised this view upon further consideration of the statute, regulations and case law and determined that the POTW as a whole is the discharging entity.

"Discharge of a pollutant" at 40 C.F.R. § 122.2 is also defined to include "… discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person *which do not lead to a treatment works*."(emphasis added). Some municipal collection systems have argued that this sentence means that only municipal discharges that do not lead to a "treatment plant" fall within the scope of "discharge of a pollutant." They further argue that because discharges through satellite collection systems do lead to a treatment plant, such systems do not "discharge [] pollutant[s]" and therefore are not subject to the NPDES permit requirements. This argument is flawed in that it incorrectly equates "treatment works," the term used in the definition above, with "treatment plant." To interpret "treatment works" as it appears in the regulatory definition of "discharge of a pollutant" as consisting of only the POTW treatment plant would be inconsistent with the definition of "treatment works" at 40 C.F.R. § 403.3(q), which expressly includes the collection system. *See also* § 403.3(r) (defining "POTW Treatment Plant" as "*that portion* [emphasis added] of the POTW which is designed to provide treatment (including recycling and reclamation) of municipal sewage and industrial waste").

(4) Are municipal satellite collection systems "indirect dischargers" and thus excluded from NPDES permitting requirements?

No, municipal satellite collection systems are part of the POTW, not "indirect dischargers" to the POTW.

Section 307(b) of the Act requires EPA to establish regulatory pretreatment requirements to prevent the "introduction of pollutants into treatment works" that interfere, pass through or are otherwise incompatible with such works. Section 307 is implemented through the General Pretreatment Regulations for Existing and New Sources of Pollution (40 C.F.R. Part 403) and categorical pretreatment standards (40 C.F.R. Parts 405-471). Section 403.3(i) defines "indirect discharger" as "any non-domestic" source that introduces pollutants into a POTW and is regulated under pretreatment standards pursuant to CWA § 307(b)-(d). The source of an indirect discharge is termed an "industrial user." *Id*. at § 403.3(j). Under regulations governing the NPDES permitting program, the term "indirect discharger" is defined as "a non-domestic discharger introducing 'pollutants' to a 'publicly owned treatment works.'" 40 C.F.R. § 122.2. Indirect dischargers are excluded from NPDES permit requirements by the indirect discharger rule at 40 C.F.R. § 122.3(c), which provides, "The following discharges do not require an NPDES permit: . . . The introduction of sewage, industrial wastes or other pollutants into publicly owned treatment works by indirect dischargers."

Municipal satellite collection satellite systems are not indirect dischargers as that term is defined under part 122 or 403 regulations. Unlike indirect dischargers, municipal satellite collection systems are not "introducing pollutants" to POTWs under 40 C.F.R. § 122.2; they are, instead, part of the POTW by definition. Similarly, they are not a non-domestic *source* that introduces pollutants into a POTW within the meaning of § 403.3(j), but as part of the POTW collect and convey municipal sewage from industrial, commercial and domestic users of the POTW.

The Region's determination that municipal satellite collection systems are not indirect dischargers is, additionally, consistent with the regulatory history of the term indirect discharger.

The 1979 revision of the part 122 regulations defined "indirect discharger" as "a non-municipal, non-domestic discharger introducing pollutants to a publicly owned treatment works, which introduction does not constitute a 'discharge of pollutants'…" *See* National Pollutant Discharge Elimination System, 44 Fed. Reg. 32854, 32901 (June 7, 1979). The term "non-municipal" was removed in the Consolidated Permit Regulations, 45 Fed. Reg. 33290, 33421 (May 19, 1980) (defining "indirect discharger" as "a nondomestic discharger…"). Although the change was not explained in detail, the substantive intent behind this provision remained the same. EPA characterized the revision as "minor wording changes." 45 Fed. Reg. at 33346 (Table VII: "Relationship of June 7[, 1979] Part 122 to Today's Regulations"). The central point again is that under any past or present regulatory incarnation, municipal satellite collection systems, as POTWs, are not within the definition of "indirect discharger," which is limited to dischargers that introduce pollutants to POTWs.

The position that municipal satellite collection systems are part of, rather than discharge to, the POTW also is consistent with EPA guidance. EPA's 1994 Multijurisdictional Pretreatment Programs Guidance Manual, (EPA 833-B94-005) (June 1994), at p. 19, asserts that EPA has the authority to require municipal satellite collection systems to develop pretreatment programs by virtue of their being part of the POTW.

(5) How is the Region's rationale consistent with the references to "municipality" in the regulatory definition of POTW found at 40 C.F.R. § 403.3(q), and the definition's statement that "[t]he term also means the municipality….which has jurisdiction over the Indirect Discharges to and the discharges from such a treatment works?"

There is no inconsistency between the Region's view that municipally-owned satellite collection systems are part of a POTW, and the references to municipality in 40 C.F.R. § 403.3(q), including the final sentence of the regulatory definition of POTW in the pretreatment regulations.

The Region's co-permitting rationale is consistent with the first part of the pretreatment program's regulatory definition of POTW, because the Region is only asserting NPDES jurisdiction over satellite collection systems that are owned by a "State or municipality (as defined by section 502(4) of the Act)." The term "municipality" as defined in CWA § 502(4) "means a city, town, borough, county, parish, district, association, or other public body created by or pursuant to State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes…" Thus, in order to qualify under this definition, a wastewater collection system need only be "owned by a State or municipality." There is no requirement that the constituent components of a regionally integrated POTW, *i.e.*, the collection system and regional centralized POTW treatment plant, be owned by the same State or municipal entity.

Furthermore, there is no inconsistency between the Region's view that a satellite collection system is part of a POTW, and the final sentence of the regulatory definition of POTW in the pretreatment regulations. As noted above, the sentence provides that "POTW" may "also" mean a municipality which has jurisdiction over indirect discharges to and discharges from the treatment works. This is not a limitation because of the use of the word "also" (contrast this with the "only if" language in the preceding sentence of the regulatory definition).

(6) How does the Region's rationale comport with the permit application and signatory requirements under NPDES regulations?

EPA's authority to require municipal satellite collection systems to separately comply with the permit application requirements, or to provide waivers from these requirements where appropriate, is consistent with NPDES regulations, which provide that all POTWs must submit permit application information set forth in 40 C.F.R. § 122.21(j) unless otherwise directed, and municipal satellite collection systems are part of the POTW.

EPA has the authority to require municipal satellite collection systems to submit permit applications. These entities are operators of parts of the POTW. NPDES regulations characterize the operator "of the POTW" (which by definition includes the sewage collection system) as opposed to the operator "of the POTW treatment plant" as an appropriate applicant. *Id.* § 122.21(a), (requiring applicants for "new and existing POTWs" to submit information required in 122.21(j)," which in turn requires "all POTWs," among others, to provide permit application information). This reading of the regulation is in keeping with the statutory text, which subjects the POTW writ large to the secondary treatment and water quality-based requirements. *See* CWA § 301(b)(1)(B), (C). In fact, the NPDES permit application for POTWs solicits information concerning portions of the POTW beyond the treatment plant itself, including the collection system used by the treatment works. *See* 40 C.F.R. 122.21(j)(1).

Notwithstanding that EPA could require applications for all the municipal satellite collection systems, requiring such applications may result in duplicative or immaterial information. The Regional Administrator ("RA") may waive any requirement of this paragraph if he or she has access to substantially identical information. 40 C.F.R. § 122.21(j). *See generally*, 64 Fed. Reg. 42440 (August 4, 1999). The RA may also waive any application requirement that is not of material concern for a specific permit. Region 1 believes that it will typically receive information sufficient for NPDES permitting purposes from the POTW treatment plant operator's application.

In most cases, EPA Region 1 believes that having a single permit application from the POTW treatment plant operator will be more efficient in carrying out the regulation's intent than multiple applications from the satellite systems. (The treatment plant operator would of course be required to coordinate as necessary with the constituent components of the POTW to ensure that the information provided to EPA is accurate and complete). EPA Region 1 therefore intends to issue waivers to exempt municipal satellite collection systems from permit application and signatory requirements in accordance with 40 C.F.R. § 122.21(j). To the extent the Region requires additional information, it intends to use its information collection authority under CWA § 308.

IV. Basis for the Specific Conditions to which the Municipal Satellite Collection Systems are Subject as Co-permittees

The legal authority for extending NPDES conditions to all portions of the municipally-owned treatment works to ensure proper operation and maintenance and to reduce the quantity of extraneous flow into the POTW is Section 402(a) of the CWA. This section of the Act authorizes EPA to issue a permit for the "discharge of pollutants" and to prescribe permit conditions as necessary to carry out the provisions of the CWA, including Section 301 of the Act. Among other things, Section 301 requires POTWs to meet performance-based requirements based on secondary treatment technology, as well as any more stringent requirements of State law or regulation, including water quality standards. *See* CWA § 301(b)(1)(B),(C).

The co-permittee requirements are required to assure continued achievement of secondary treatment requirements and water quality standards in accordance with sections 301 and 402 of the Act and to prevent unauthorized discharges of sewage from collection systems. With respect to secondary treatment, the inclusion of the satellite systems as co-permittees is necessary because high levels of I/I dilute the strength of influent wastewater and increase the hydraulic load on treatment plants, which can reduce treatment efficiency (*e.g.*, result in violations of technology-based percent removal limitations for BOD and TSS due to less concentrated influent, or violation of other technology effluent limitations due to reduction in treatment efficiency), lead to bypassing a portion of the treatment process, or in extreme situations make biological treatment facilities inoperable (*e.g.*, wash out the biological organisms that treat the waste).

As to water quality standards, the addition of the satellite systems as co-permittees is necessary to ensure collection system operation and maintenance, which will reduce extraneous flow entering the system and free up available capacity. This will facilitate compliance with water quality-based effluent limitations—made more difficult by reductions in treatment efficiency and also reduce water quality standard violations that result from the occurrence of SSOs. *See Exhibits B* (Municipal satellite collection systems with SSOs) and *C* (Analysis of extraneous flow trends for representative systems). SSOs that reach waters of the U.S. are discharges in violation of section 301(a) of the CWA to the extent not authorized by an NPDES permit.

Subjecting portions of an NPDES-regulated entity upstream of the ultimate discharge point is consistent with EPA's interpretation of the CWA in other contexts. For example, it is well established that EPA has the ability to apply discharge limitations and monitoring requirements to internal process discharges, rather than to outfalls, on the grounds that compliance with permit limitations "may well involve controls applied at points other than the ultimate point of discharge." *See Decision of the General Counsel No. 27 (In re Inland Steel Company)*, August 4, 1975 ("Limitations upon internal process discharges are proper, if such discharges would ultimately be discharged into waters of the United States, and if such limitations are necessary to carry out the principal regulatory provisions of the Act."). In the case of regionally integrated POTWs, placing conditions on satellite collection systems—though located farther up the system than the point of discharge—is a logical implication of the regulations and serves to effectuate the statute.

Without imposing conditions on the satellite communities, standard permit conditions applicable to all NPDES permits by regulation cannot be given full effect. To illustrate, there is no dispute

that the operator of the POTW treatment plant and outfall is discharging pollutants within the meaning the CWA and, accordingly, is subject to the NPDES permit program. NPDES permitting regulations require standard conditions that "apply to all NPDES permits," pursuant to 40 C.F.R. § 122.41, including a duty to mitigate and to properly operate and maintain "all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of the permit." *Id.* at § 122.41(d), (e). EPA regulations also require additional conditions applicable to specified categories of NPDES permit, including "Publicly owned treatment works." *See id.* at § 122.42(b). A municipal satellite collection system, as demonstrated above, falls within the regulatory definition of a POTW. In light of EPA's authority to require appropriate operation and maintenance of collection systems necessary to achieve compliance with an NPDES permit, and because the operator of the POTW treatment plant may not own or operate a significant portion of the wider treatment works (*i.e.*, the collection systems that send flow to the POTW treatment plant), it is appropriate, and in some cases necessary, to extend pertinent, mandated standard conditions to all portions of the POTW, which is subject to regulation in its entirety. The alternative of allowing state and local jurisdictional boundaries to place significant portions of the POTW beyond the reach of the NPDES permitting program would not only be inconsistent with the broad statutory and regulatory definition of the term POTW but would impede Region 1 from carrying out the objectives of the CWA. It would also, illogically, preclude the Region from imposing on POTWs standard conditions EPA has by regulation mandated for those entities.

Other Considerations Informing EPA Region 1's Decision to Use a Co-permittee Permitting Structure for Regionally Integrated POTWs

In addition to consulting the relevant statutes, regulations, and preambles, Region 1 also considered other EPA guidance in coming to its determination to employ a co-permittee structure for regionally integrated POTWs. EPA's 1994 Multijurisdictional Pretreatment Programs Guidance Manual, p. 19, asserts that EPA has the authority to include municipal satellite collection systems as co-permittees by virtue of their being part of the POTW:

> If the contributing jurisdiction owns or operates the collection system within its boundaries, then it is a co-owner or operator of the POTW. As such, it can be included on the POTW's NPDES permit and be required to develop a pretreatment program. Contributing jurisdictions should be made co-permittees where circumstances or experience indicate that it is necessary to ensure adequate pretreatment program implementation.

The same logic that led EPA to conclude it had authority to require municipal satellite collection systems to develop a pretreatment program pursuant to an NPDES permit supports EPA Region 1's decision to impose permit conditions on such facilities to undertake proper O & M and to reduce inflow and infiltration.

EPA Region 1 also took notice of federal listening session materials on the June 2010 proposed SSO rule and associated model permits and fact sheet. The position articulated by EPA in these

model documents—specifically the application of standard NPDES conditions to municipal satellite collection systems—generally conform to Region 1's co-permitting approach.

Finally, in addition to federal requirements, EPA Region 1 considered the co-permittee approach in light of state regulations and policy pertaining to wastewater treatment works. The Region found its approach to be consistent with such requirements. Under Massachusetts law, "Any person operating treatment works shall maintain the facilities in a manner that will ensure proper operation of the facilities or any part thereof," where "treatment works" is defined as "any and all devices, processes and properties, real or personal, used in the collection, pumping, transmission, storage, treatment, disposal, recycling, reclamation or reuse of waterborne pollutants, but not including any works receiving a hazardous waste from off the site of the works for the purpose of treatment, storage or disposal, or industrial wastewater holding tanks regulated under 314 CMR 18.00" *See* 314 CMR 12.00 ("Operation and Maintenance and Pretreatment Standards for Wastewater Treatment Works and Indirect Dischargers"). MassDEP has also prioritized this area, issuing detailed operation and maintenance guidelines entitled "Optimizing Operation, Maintenance and Rehabilitation of Sanitary Sewer Collection Systems."

Exhibit A

Name	Issue Date
Massachusetts Water Resources Authority – Clinton (NPDES Permit No. MA0100404)	September 27, 2000
City of Brockton (NPDES Permit No. MA0101010)	May 11, 2005
City of Marlborough (NPDES Permit No. MA0100480)	May 26, 2005
Westborough Wastewater Treatment Plant (NPDES Permit No. MA0100412)	May 20, 2005
Lowell Regional Wastewater Utilities (NPDES Permit No. MA0100633)	September 1, 2005
Town of Webster Sewer Department (NPDES Permit No. MA0100439)	March 24, 2006
Town of South Hadley, Board of Selectmen (NPDES Permit No. MA0100455)	June 12, 2006
City of Leominster (NPDES Permit No. MA0100617)	September 28, 2006
Hoosac Water Quality District (NPDES Permit No. MA0100510)	September 28, 2006
Board of Public Works, North Attleborough (NPDES Permit No. MA0101036)	January 4, 2007
Town of Sunapee (NPDES Permit No. 0100544)	February 21, 2007
Lynn Water and Sewer Commission (NPDES Permit No. MA0100552)	March 3, 2007
City of Concord (NPDES Permit No. NH0100331)	June 29, 2007
City of Keene (NPDES Permit No. NH0100790)	August 24, 2007
Town of Hampton (NPDES No. NH0100625)	August 28, 2007
Town of Merrimack, NH (NPDES No. NH0100161)	September 25, 2007
City of Haverhill (NPDES Permit No. MA0101621)	December 5, 2007
Greater Lawrence Sanitary District (NPDES Permit No. MA0100447)	August 11, 2005

City of Pittsfield, Department of Public Works (NPDES No. MA0101681)	August 22, 2008
City of Manchester (NPDES No. NH0100447)	September 25, 2008
City of New Bedford (NPDES Permit No. MA0100781)	September 28, 2008
Winnipesaukee River Basin Program Wastewater Treatment Plant (NPDES Permit No. NH0100960)	June 19, 2009
City of Westfield (NPDES Permit No. MA0101800)	September 30, 2009
Hull Permanent Sewer Commission (NPDES Permit No. MA0101231)	September 1, 2009
Gardner Department of Public Works (NPDES Permit No. MA0100994)	September 30, 2009

Exhibit B

I/I Flow Analysis for Sample Regional Publicly Owned Treatment Works

I. Representative POTWS

The **South Essex Sewer District (SESD)** is a regional POTW with a treatment plant in Salem, Massachusetts. The SESD serves a total population of 174,931 in six communities: Beverly, Danvers, Marblehead, Middleton, Peabody and Salem. The **Charles River Pollution Control District (CRPCD)** is a regional POTW with a treatment plant in Medway, Massachusetts. The CRPCD serves a total population of approximately 28,000 in four communities: Bellingham, Franklin, Medway and Millis. Both of these facilities have been operating since 2001 under permits that place requirements on the treatment plant to implement I/I reduction programs with the satellite collection systems, in contrast to Region 1's current practice of including the satellite collection systems as co-permittees.

II. Comparison of flows to standards for nonexcessive infiltration and I/I

Flow data from the facilities' discharge monitoring reports (DMRs) are shown in comparison to the EPA standard for nonexcessive infiltration/inflow (I/I) of 275 gpcd wet weather flow and the EPA standard for nonexcessive infiltration of 120 gallons per capita per day (gpcd) dry weather flow; the standards are multiplied by population served for comparison with total flow from the facility. See *I/I Analysis and Project Certification*, EPA Ecol. Pub. 97-03 (1985); 40 CFR 35.2005(b)(28) and (29).

Figures 1 and 2 show the Daily Maximum Flows (the highest flow recorded in a particular month) for the CRPCD and SESD, respectively, along with monthly precipitation data from nearby weather stations. Both facilities experience wet weather flows far exceeding the standard for nonexcessive I/I, particularly in wet months, indicating that these facilities are receiving high levels of inflow and wet weather infiltration.

Figure 1. CRPCD Daily Maximum Flow Compared to Nonexcessive I/I Standard

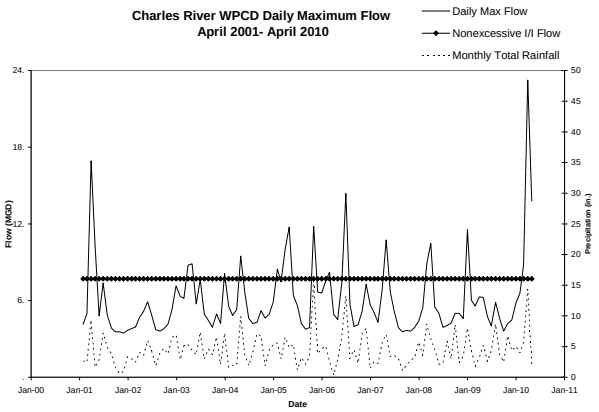
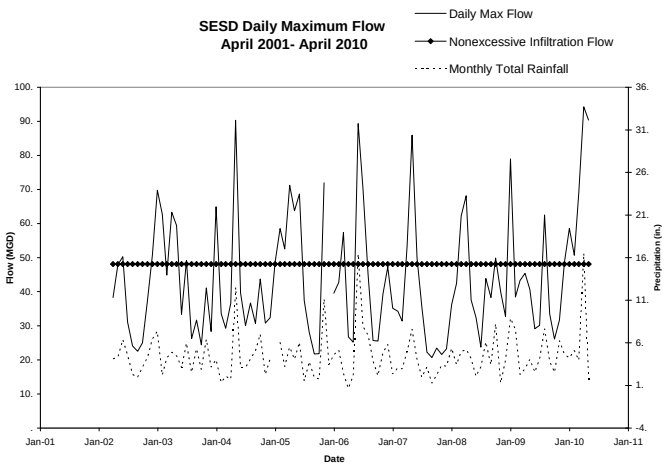


Figure 2. SESD Daily Maximum Flow Compared to Nonexcessive I/I Standard



Figures 3 and 4 shows the Average Monthly Flows for the CRPCD and SESD, which exceed the nonexcessive infiltration standard for all but the driest months. This indicates that these systems experience high levels of groundwater infiltration into the system even during dry weather.

Figure 3. CRPCD Monthly Average Flow Compared to Nonexcessive Infiltration Standard

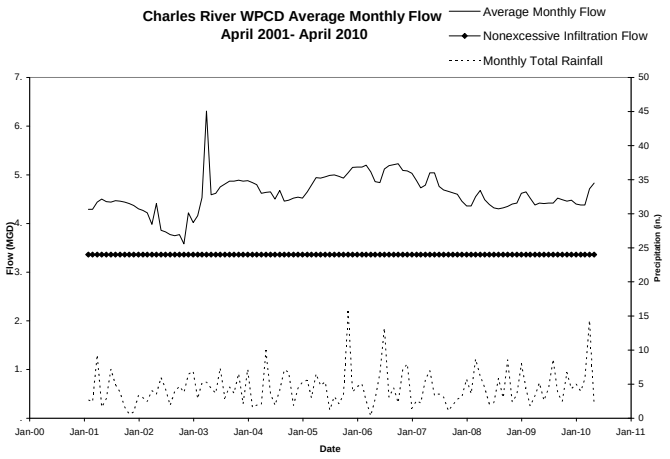
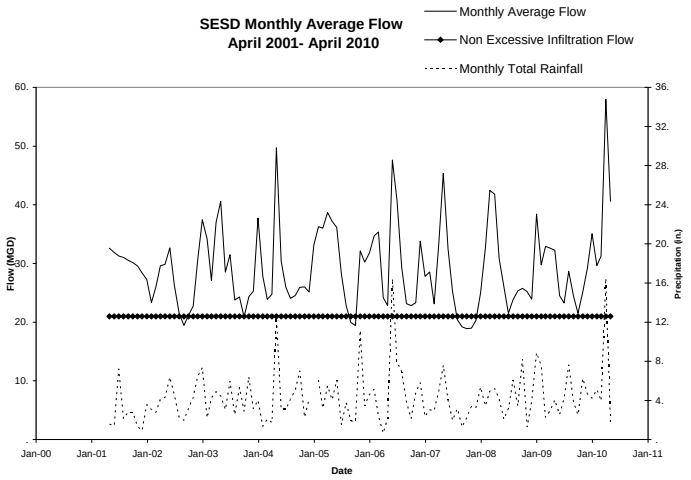


Figure 4. SESD Monthly Average Flow Compared to Nonexcessive Infiltration Standard



II. Flow Trends

Figures 5 and 6 show the trend in Maximum Daily Flows over the period during which these regional facilities have been responsible for implementing cooperative I/I reduction programs with the satellite collection systems. The Maximum Daily Flow reflects the highest wet weather flow for each month. The trend over this time period has been of increasing Maximum Daily Flow, indicating that I/I has not been reduced in either system despite the permit requirements.

Figure 5. CRPCD Daily Maximum Flow Trend

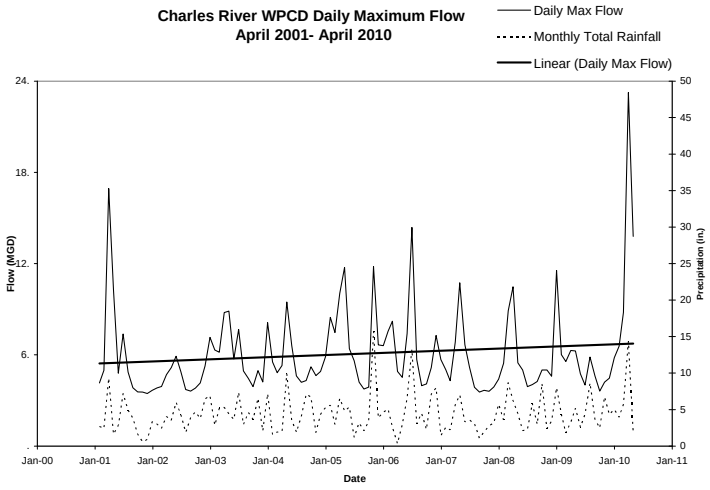
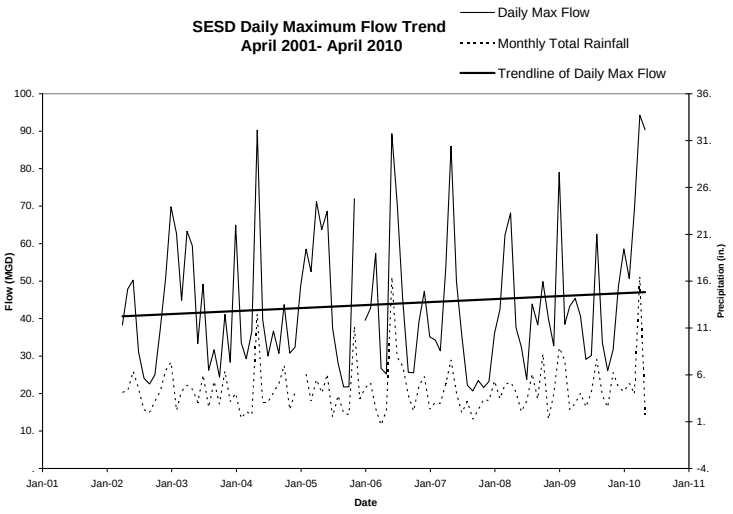


Figure 6. SESD Daily Maximum Flow Trend



III. Violations Associated with Wet Weather Flows

Both the CRPCD and SESD have experienced permit violations that appear to be related to I/I, based on their occurrence during wet weather months when excessive I/I standards are exceeded. Figure 7 shows violations of CRPCD's effluent limits for CBOD (concentration) and TSS (concentration and percent removal). Twelve of the sixteen violations occurred during months when daily maximum flows exceeded the EPA standard.

Figure 7. CRPCD CBOD and TSS Effluent Limit Violations

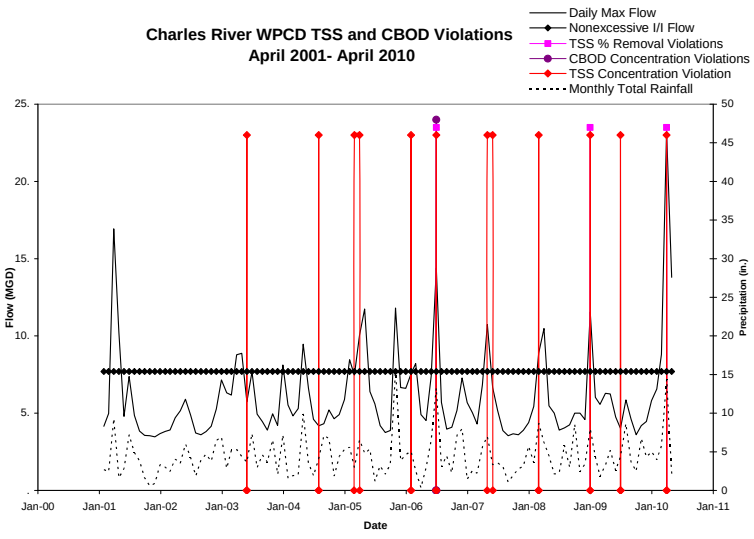
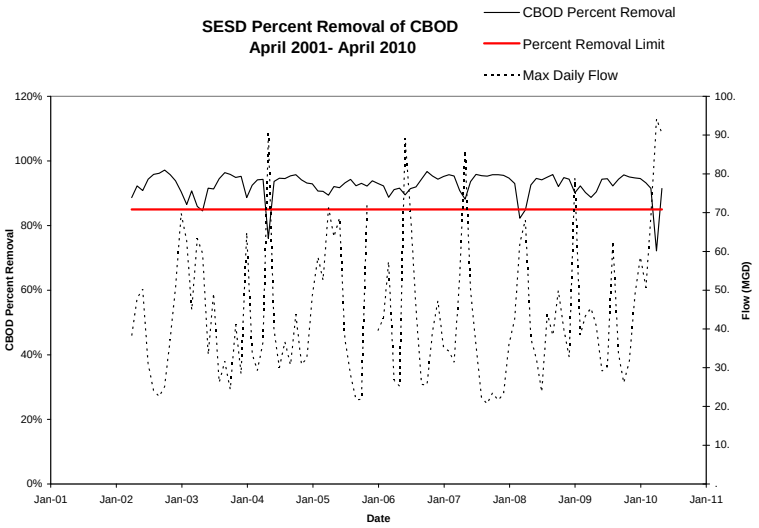


Figure 8 shows SESD's results for removal of CBOD, in percentage, as compared to maximum daily flow. SESD had three permit violations where CBOD removal fell below 85%, all during months with high Maximum Daily Flows.

Figure 8. SESD CBOD Percent Removal



In addition, both of these regional POTWs have experienced SSOs within the municipal satellite collection systems. In the SESD system, Beverly, Danvers, Marblehead and Peabody have reported SSOs between 2006 and 2008, based on data provided by MassDEP. In the CRPCD system, both Franklin and Bellingham have reported SSOs between 2006 and 2009.

Exhibit C

List of municipal satellite collection systems that have had SSOs

Exhibit D

Form of Regional Administrator's waiver of permit application requirements for municipal satellite collection systems

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
1 CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

Re: Waiver of Permit Application and Signatory Requirements for [Municipal Satellite Sewage Collection System]

Dear _____:

Under NPDES regulations, all POTWs must submit permit application information set forth in 40 C.F.R. § 122.21(j) unless otherwise directed. Where the Region has "access to substantially identical information," the Regional Administrator may waive permit application requirements for new and existing POTWs. *Id.* Pursuant to my authority under this regulation, I am waiving NPDES permit application and signatory requirements applicable to the above-named municipal satellite collection systems.

Although EPA has the authority to require municipal satellite collection systems to submit individual permit applications, in this case I find that requiring a single permit application executed by the regional POTW treatment plant owner/operator will deliver "substantially identical information," and will be more efficient, than requiring separate applications from each municipal satellite collection system owner/operator. Municipal satellite collection system owners/operators are expected to consult and coordinate with the regional POTW treatment plant operators to ensure that any information provided to EPA about their respective entities is accurate and complete. In the event that EPA requires additional information, it may use its information collection authority under CWA § 308. 33 U.S.C. § 1318.

This notice reflects my determination based on the specific facts and circumstances in this case. It is not intended to bind the agency in future determinations where a separate permit for municipal satellites would not be duplicative or immaterial.

If you have any questions or would like to discuss this decision, please contact [EPA Contact] at [Contact Info].

Sincerely,

Regional Administrator

Appendix E

CSO Outfall Locations

Outfall #	Name	Latitude	Longitude	Receiving Water
002-SDS#1	Walker Station	42.64621	-71.33407	Merrimack River
007-SDS#2	Beaver Brook	42.65933	-71.31925	Beaver Brook
008-SDS#3	West Street	42.65254	-71.31032	Merrimack River
011-SDS#4	Read Street	42.64822	-71.30111	Merrimack River
012-SDS#5	First Street	42.64756	-71.29086	Merrimack River
020-SDS#6	Warren Street	42.64277	-71.30502	Concord River
027-SDS#7	Tilden Street	42.65072	-71.31152	Merrimack River
030(1)-SDS#8	Barasford Avenue	42.64531	-71.28841	Merrimack River
030(2)	Merrimack Station	42.64518	-71.28881	Merrimack River

ATTACHMENT 2

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Clean Water Act as amended, (33 U.S.C. §§1251 et seq.; the "CWA"), and the Massachusetts Clean Waters Act, as amended, (M.G.L. Chap. 21, §§26-53),

Lowell Regional Wastewater Utilities, (the Permittee)

is authorized to discharge from the facility located at

First Street Boulevard (Route 110)
Lowell, Massachusetts 01850 and nine Combined Sewer Overflows (CSO's)

to receiving waters named

Merrimack River, Concord River, and Beaver Brook

in accordance with effluent limitations, monitoring requirements and other conditions set forth herein.

The Massachusetts Municipalities of Chelmsford, Dracut, Tewksbury and, Tyngsboro (the Co-permittees) are co-permittees for specific activities required in Part I.C. Unauthorized Discharges, Part I.D. Operation Maintenance of the Sewer System and, Part I.E. Alternate Power Source. The responsible Municipal Departments are:

Town of Chelmsford
Sewer Commission
50 Billerica Road
Chelmsford, MA 01824

Town of Dracut
Sewer Commission
1196 Lakeview Avenue
Dracut, MA 01826

Town of Tewksbury
Department of Public Works
999 Whipple Road
Tewksbury, MA 01876

and, Town of Tyngsborough
Town Hall
25 Bryants Lane
Tyngsborough, MA 01879

This permit shall become effective sixty days from the date of signature.
This permit and the authorization to discharge expire at midnight, five (5) years from the effective date.
This permit supersedes the permit issued on August 14, 1997.

This permit consists of 16 pages in Part I including effluent limitations, monitoring requirements, Attachments A through E, and 35 pages in Part II including General Conditions and Definitions.

Signed this 1st day of September, 2005

/s/ SIGNATURE ON FILE

Linda M. Murphy, Director
Office of Ecosystem Protection
Environmental Protection Agency
Boston, MA

Director
Division of Watershed Management
Department of Environmental Protection
Commonwealth of Massachusetts
Boston, MA

PART I

A.1. During the period beginning the effective date and lasting through expiration, the permittee is authorized to discharge from outfall serial number **035,** treated effluent. Such discharges shall be limited and monitored as specified below.

EFFLUENT CHARACTERISTIC	EFFLUENT LIMITS					MONITORING REQUIREMENTS	
PARAMETER	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE[3] TYPE**
FLOW[2]	********	******	32 MGD	*******	Report MGD	CONTINUOUS	RECORDER
$CBOD_5$	6672 lbs/Day	******	25 mg/l	40 mg/l	50 mg/l	5/WEEK	24-HOUR COMPOSITE[4,5]
TSS	6672 lbs/Day	******	30 mg/l	45 mg/l	50 mg/l	5/WEEK	24-HOUR COMPOSITE[4,5]
pH RANGE[1]	6.0 - 8.3 SU SEE PERMIT PAGE 6 OF 16, PARAGRAPH I.A.1.b.					1/DAY	GRAB
TOTAL CHLORINE RESIDUAL[6,7]	********	**********	0.21 mg/l	*********	0.37 mg/l	1/Day	GRAB
TOTAL CHLORINE RESIDUAL[6,7]	********	**********	REPORT mg/l	*********	REPORT mg/l	CONTINUOUS	RECORDER
FECAL COLIFORM[1,6,8]	********	**********	200/100 ml	*********	400/100 ml	5/WEEK	GRAB
DISSOLVED OXYGEN (APRIL 1 - OCTOBER 31)	REPORT					1/DAY	GRAB

:

A.1. During the period beginning the effective date and lasting through expiration, the permittee is authorized to discharge from outfall serial number **035,** treated effluent. Such discharges shall be limited and monitored as specified below.

EFFLUENT CHARACTERISTIC	EFFLUENT LIMITS					MONITORING REQUIREMENTS	
PARAMETER	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE[3] TYPE**
AMMONIA NITROGEN[9]	********	********	********	********	REPORT	1/QUARTER	24-HOUR COMPOSITE[4,5]
TOTAL KJELDAHL NITROGEN[9]	********	********	********	********	REPORT	1/QUARTER	24-HOUR COMPOSITE[4,5]
NITRITE & NITRATE NITROGEN[9]	********	********	********	********	REPORT	1/QUARTER	24-HOUR COMPOSITE[4,5]
TOTAL PHOSPHORUS[9]	********	********	********	********	REPORT	1/MONTH	24-HOUR COMPOSITE[4,5]
WHOLE EFFLUENT TOXICITY[10,11,12,12]	Acute $LC_{50} \geq 100\%$ Chronic C-NOEC $\geq$ Report %					4/YEAR	24-HOUR COMPOSITE[5]

All sampling shall be representative of the effluent that is discharged through outfall 035 to the Merrimack River. A routine sampling program shall be developed in which samples are taken at the same location, same time and same days of every month. Any deviations from the routine sampling program shall be documented in correspondence appended to the applicable discharge monitoring report that is submitted to EPA.

Footnotes

1. Required for State Certification.

2. For flow, report maximum and minimum daily rates and total flow for each operating date. This is an annual average limit, which shall be reported as a rolling average. The first value will be calculated using the monthly average flow for the first full month ending after the effective date of the permit and the eleven previous monthly average flows. Each subsequent month's DMR will report the annual average flow that is calculated from that month and the previous 11 months.

3. All samples shall be taken at the outfall structure after the chlorine contact chamber. Any change in sampling location must be reviewed and approved in writing by EPA and MADEP. All samples shall be tested using the analytical methods found in 40 CFR §136, or alternative methods approved by EPA in accordance with the procedures in 40 CFR §136. Samples shall be 24-hour composites unless specified as a grab sample in 40 CFR §136.

4. Sampling required for influent and effluent.

5. A 24-hour flow proportional composite sample will consist of at least twenty four (24) grab samples taken during one working day. A working day is defined as a 24-hour period , i.e, 12:00 midnight to 12:00 midnight the following day.

6. Fecal coliform and total residual chlorine monitoring will be conducted year round. Fecal coliform is a State certification requirement. Fecal coliform discharges shall not exceed an average monthly geometric mean of 200 colony forming units per100 ml (cfu) nor shall they exceed 400 cfu per 100 ml as a daily maximum. Fecal coliform samples shall be taken 5 times per week and be conducted concurrently with the TRC sampling described below.

   The chlorination system shall include an alarm for indicating system interruptions or malfunctions. Any interruption or malfunction of the chlorine dosing system that may have resulted in levels of chlorine that were inadequate for achieving effective disinfection shall be reported with the monthly DMRs. The report shall include the date and time of the interruption or malfunction, the nature of the problem, and the estimated amount of time that the reduced levels of chlorination occurred.

7. The permittee shall collect one TRC grab sample per day for compliance purposes. Any additional grab sample monitoring results shall be included in the compliance report. The results of the grab samples and a comparison to the continuous analyzer reading, including the time of the grab samples, shall be included with the DMRs.

   The minimum level (ML) for total residual chlorine is defined as 20 ug/l. This value is the minimum level for chlorine using EPA approved methods found in the most currently approved version of Standard Methods for the Examination of Water and Wastewater, Method 4500 CL-E and G, or United States Environmental Protection Agency Manual of Methods of Analysis of Water and Wastes, Method 330.5. One of these methods must be used to determine total residual chlorine. For effluent limitations less than 20 ug/l, compliance/non-compliance will be determined based on the ML. Sample results of 20 ug/l or less shall be reported as zero on the discharge monitoring report.

   The permittee shall also report the average monthly and daily maximum discharge of TRC using data collected by the continuous TRC analyzer. The permittee shall collect and analyze a minimum of one grab sample per day for calibration purposes. One grab sample can be used for both compliance and calibration.

Four continuous recording charts, (1/week), showing weekly data shall be submitted with the monthly DMRs The permittee shall report the average of three TRC grab sample per day, if the continuous analyzer is not working properly.

8. The permittee is required to submit an additional fecal coliform grab sample of the final combined effluent that is discharged into the receiving water when there is a bypass. This requirement applies during regular operating hours at the LRWU. Regular operating working hours are Monday through Friday, 7:00 am to 3:00 pm. The sample shall be representative of the blended effluent discharged to the river. This is a report only requirement and shall be included with the CSO/bypass reports submitted with the monthly DMRs.

9. The permittee shall report two additional samples collected during days when secondary treatment is bypassed. A high flow event is defined as flow that exceeds 19 MGD.

10. The permittee shall conduct chronic (and modified acute) toxicity tests six times per year. The chronic test may be used to calculate the acute LC_{50} at the 48 hour exposure interval. The permittee shall test the invertebrate, Ceriodadaphnia dubia, only. Four toxicity test samples shall be collected and tests completed during the second week of January, April, July, and October. Results for these tests are to be submitted by last day of the month following the test date. An additional two samples shall be collected and acute toxicity test shall be completed on these additional samples during days when secondary treatment is bypassed. These two test may be conducted during any month of the year. The results for these tests shall be submitted by the last day of the month following the test in which they are taken. See Permit Attachment A, Toxicity Test Procedure and Protocol.

Test Dates Second Week in	**Submit Results By:**	**Test Species**	**Acute Limit LC_{50}**	**Chronic NOEC**
January April July October	February 28th May 31th August 31th November 30 th	Ceriodaphnia dubia (daphnid) See Attachment A	≥ 100 %	≥ Report %

11. The LC_{50} is the concentration of effluent which causes mortality to 50% of the test organisms. Therefore, a 100% limit means that a sample of 100% effluent (no dilution) shall cause no more than a 50% mortality rate.

12. C-NOEC (chronic-no observed effect concentration) is defined as the highest concentration of toxicant or effluent to which organisms are exposed in a life cycle or partial life cycle test which causes no adverse effect on growth, survival, or reproduction at a specific time of observation as determined from hypothesis testing where the test results exhibit a linear dose-response relationship. However, where the test results do not exhibit a linear dose-response relationship, the permittee must report the lowest concentration where there is no observable effect.

13. If toxicity test(s) using receiving water as diluent show the receiving water to be toxic or unreliable, the permittee shall follow procedures outlined in **Attachment A Section IV., DILUTION WATER** in order to obtain permission to use an alternate dilution water. In lieu of individual approvals for alternate dilution water required **in Attachment A**, EPA-New England has developed a Self-Implementing Alternative Dilution

Water Guidance document (called "Guidance Document") which may be used to obtain automatic

approval of an alternate dilution water, including the appropriate species for use with that water.

If this Guidance document is revoked, the permittee shall revert to obtaining approval as outlined in **Attachment A**. The "Guidance Document" has been sent to all permittees with their annual set of DMRs and Revised Updated Instructions for Completing EPA's Pre-Printed NPDES Discharge Monitoring Report (DMR) Form 3320-1 and is not intended as a direct attachment to this permit. Any modification or revocation to this

"Guidance Document" will be transmitted to the permittees as part of the annual DMR instruction package. However, at any time, the permittee may choose to contact EPA-New England directly using the approach outlined in **Attachment A**.

Part I.A.1. (Continued)

a. The discharge shall not cause a violation of the water quality standards of the receiving waters.

b. The pH of the effluent shall not be less than 6.0 nor greater than 8.3 at any time.

c. The discharge shall not cause objectionable discoloration, odor or turbidity of the receiving waters.

d. The effluent shall contain neither a visible oil sheen, foam, nor floating solids at any time.

e. The permittee shall minimize the use of chlorine while maintaining adequate bacterial control.

f. The results of sampling for any parameter above its required frequency must also be reported.

2. All POTWs must provide adequate notice to the Director of the following:

a. any new introduction of pollutants into that POTW from an indirect discharger in a primary industry category discharging process water; and

b. any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.

c. For purposes of this paragraph, adequate notice shall include information on:

(1) the quantity and quality of effluent introduced into the POTW; and

(2) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

3. Prohibitions Concerning Interference and Pass Through:

Pollutants introduced into POTW's by a non-domestic source (user) shall not pass through the POTW or interfere with the operation or performance of the works.

4. Toxics Control

a. The permittee shall not discharge any pollutant or combination of pollutants in toxic amounts.

b. Any toxic components of the effluent shall not result in any demonstrable harm to aquatic life or violate any state or federal water quality standard which has been or may be promulgated. Upon promulgation of any such standard, this permit may be revised or amended in accordance with such standards.

5. Numerical Effluent Limitations for Toxicants

EPA or DEP may use the results of the toxicity tests and chemical analyses conducted pursuant to this permit, as well as national water quality criteria developed pursuant to Section 304(a)(1) of the Clean Water Act (CWA), state water quality criteria, and any other appropriate information or data, to develop numerical effluent limitations for any pollutants, including but not limited to those pollutants listed in Appendix D of 40 CFR Part 122.

B. INDUSTRIAL PRETREATMENT PROGRAM

1. The permittee shall develop and enforce specific effluent limits (local limits) for Industrial User(s), and all other users, as appropriate, which together with appropriate changes in the POTW Treatment Plant's Facilities or operation, are necessary to ensure continued compliance with the POTW's NPDES permit or sludge use or disposal practices. Specific local limits shall not be developed and enforced without individual notice to persons or groups who have requested such notice and an opportunity to respond. Within (120 days of the effective date of this permit), the permittee shall prepare and submit a written technical evaluation to the EPA analyzing the need to revise local limits. As part of this evaluation, the permittee shall assess how the POTW performs with respect to influent and effluent of pollutants, water quality concerns, sludge quality, sludge processing concerns/inhibition, biomonitoring results, activated sludge inhibition, worker health and safety and collection system concerns. In preparing this evaluation, the permittee shall complete and submit the attached form (Attachment B) with the technical evaluation to assist in determining whether existing local limits need to be revised. Justifications and conclusions should be based on actual plant data if available and should be included in the report. Should the evaluation reveal the need to revise local limits, the permittee shall complete the revisions within 180 days of notification by EPA and submit the revisions to EPA for approval. The Permittee shall carry out the local limits revisions in accordance with EPA Guidance Manual for the Development and Implementation of Local Discharge Limitations Under the Pretreatment Program (December, 1987).

a. The permittee shall implement the Industrial Pretreatment Program in accordance with the legal authorities, policies, procedures, and financial provisions described in the permittee's approved Pretreatment Program, and the General Pretreatment Regulations, 40 CFR 403. At a minimum, the permittee must perform the following duties to properly implement the Industrial Pretreatment Program (IPP):

1. Carry out inspection, surveillance, and monitoring procedures which will determine, independent of information supplied by the industrial user, whether the industrial user is in compliance with the Pretreatment Standards. At a minimum, all significant industrial users shall be sampled and inspected at the frequency established in the approved IPP but in no case less than once per year and maintain adequate records.

2. Issue or renew all necessary industrial user control mechanisms within 90 days of their expiration date or within 180 days after the industry has been determined to be a significant industrial user.

3. Obtain appropriate remedies for noncompliance by any industrial user with any pretreatment standard and/or requirement.

4. Maintain an adequate revenue structure for continued implementation of the Pretreatment Program.

b. The permittee shall provide the EPA and MA DEP with an annual report describing the permittee's pretreatment program activities for the twelve month period ending 60 days prior to the due date in accordance with 403.12(i). The annual report shall be consistent with the format described in Attachment C of this permit and shall be submitted no later than March 1 of each year.

c. The permittee must obtain approval from EPA prior to making any significant changes to the industrial pretreatment program in accordance with 40 CFR 403.18(c).

d. The permittee must assure that applicable National Categorical Pretreatment Standards are met by all categorical industrial users of the POTW. These standards are published in the Federal Regulations at 40 CFR 405 et. seq.

e. The permittee must modify its pretreatment program to conform to all changes in the Federal Regulations that pertain to the implementation and enforcement of the industrial pretreatment program. The permittee must provide EPA, in writing, within 180 days of this permit's effective date proposed changes, **if applicable**, to the permittee's pretreatment program deemed necessary to assure conformity with current Federal Regulations. At a minimum, the permittee must address in its written submission the following areas: (1) development of an enforcement response plan; (2) revise the local sewer-use ordinance or regulation, as appropriate, to be consistent with Federal Regulations; (3) slug control evaluations. The permittee will implement these proposed changes pending EPA Region I's approval under 40 CFR 403.18. This submission is separate and distinct from any local limits analysis submission described in Part I.B.1. If the permittee has already submitted the above documents to EPA for approval and is awaiting an EPA decision, this section shall not apply.

C. UNAUTHORIZED DISCHARGES

The permit only authorizes discharges in accordance with its terms and conditions and only from outfalls listed in Part 1.A.1.of this permit and the combined sewer overflow outfalls identified in Attachment D of the permit. Discharges of wastewater from any other point sources, including sanitary sewer overflows (SSOs) are not authorized by this permit and shall be reported in accordance with Part II. Section D.1.e. (1) of the General Requirements of this permit (Twenty-four hour reporting).

D. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

Operation and maintenance of the sewer system shall be in compliance with the General Requirements in Part II, and the following terms and conditions. The permittee and each co-permittee are required to complete the following activities for the collection system which it owns.

1. Maintenance Staff

Provide an adequate staff to carry out the operation, maintenance, repair, and testing functions required to ensure compliance with the terms and conditions of this permit.

2. Preventative Maintenance Program

Maintain an ongoing preventative maintenance program to prevent overflows and bypasses caused by malfunctions or failures of the sewer system infrastructure. The program shall include an inspection program designed to identify all potential and actual unauthorized discharges.

3. Infiltration/Inflow Control Plan:

Develop and implement a plan to control infiltration and inflow (I/I) to the separate sewer systems. The plan shall be submitted to EPA, MA DEP and, the Lowell Regional Water and Wastewater Utilities within six months of the effective date of this permit (see page 1 of this permit for the effective date) and shall describe the permittees' and co-permittees' program for preventing I/I related effluent limit violations, and all unauthorized discharges of wastewater, including overflows and by-passes due to excessive I/I. In addition, the plan shall also prioritize the I/I removal program in areas tributary to combined sewer areas so that the frequency, duration and volume of discharges from combined sewer overflows is minimized or reduced during the effective period of this permit.

The plan shall include:

- An ongoing program to identify and remove sources of I/I. The program shall include the necessary funding level and the source(s) of funding.

- An inflow identification and control program that focuses on the disconnection and redirection of illegal sump pumps and roof down spouts. Priority should be given to removal of public and private inflow sources that are upstream from, and potentially contribute to, known areas of sewer system backups and/or overflows.

- Identification and prioritization of areas that will provide increased aquifer recharge as the result of reduction/elimination of I/I to the system.

- An educational public outreach program for all aspects of I/I control, particularly private inflow.

Reporting Requirements:

A summary report of all actions taken to minimize I/I during the previous calendar year shall be submitted to EPA and the MADEP annually, by the anniversary date of the effective date of this permit. The summary report shall, at a minimum, include:

- A map and a description of inspection and maintenance activities conducted and corrective actions taken during the previous year.

- Expenditures for any I/I related maintenance activities and corrective actions taken during the previous year.

- A map with areas identified for I/I related investigation/action in the coming year.

- A calculation of the annual average I/I, the maximum monthly I/I for the reporting year.

- A report of any I/I related corrective actions taken as a result of unauthorized discharges reported pursuant to 314 CMR 3.19(20) and reported pursuant to the Section 1.C., Unauthorized Discharges section of this permit.

E. ALTERNATE POWER SOURCE

In order to maintain compliance with the terms and conditions of this permit, the permittee and co-permittees shall continue to provide an alternative power source with which to sufficiently operate the Publically Owned Treatment Works as defined at 40 CFR §403.3.

F. COMBINED SEWER OVERFLOWS (CSO's)

1. EFFLUENT LIMITATIONS

a. During wet weather, the permittee is authorized to discharge storm water/wastewater from combined sewer outfalls listed in Attachment D, subject to the following effluent limitations.

i. The discharges shall receive treatment at a level providing Best Practicable Control Technology Currently Available (BPT), Best Conventional Pollutant Control Technology (BCT) to control and abate conventional pollutants and Best Available Technology Economically Achievable (BAT) to control and abate non-conventional and toxic pollutants. The EPA has made a Best Professional Judgement (BPJ) determination that BPT, BCT, and BAT for combined sewer overflow (CSO) control include the implementation of Nine Minimum Controls (NMC) specified below and detailed further in Part I.E.2. "Nine Minimum Controls, Minimum Implementation Levels" of this permit:

1. Proper operation and regular maintenance programs for the sewer system and the combined sewer overflows.

2. Maximum use of the collection system for storage.

3. Review and modification of the pretreatment program to assure CSO impacts are minimized.

4. Maximization of flow to the POTW for treatment.

5. Prohibition of dry weather overflows from CSOs.

6. Control of solid and floatable materials in CSO.

7. Pollution prevention programs that focus on contaminant reduction activities.

8. Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts.

9. Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls. Implementation of these controls is required by the effective date of the permit.

Documentation of the implementation of these controls has been submitted and is currently under review by EPA and the State. EPA and the State consider that approvable

documentation must include the minimum requirements set forth in Part I.F.2 of this Permit and additional activities the permittee can reasonably undertake.

ii. The discharges shall not cause **or contribute to** violations of Federal or State Water Quality Standards.

2. Nine Minimum Controls, Minimum Implementation Levels

a. The permittee must implement the nine minimum controls in accordance with the documentation provided to EPA and MADEP or as subsequently modified to enhance the effectiveness of the controls. This implementation must include the following controls plus other controls the Permittee can reasonably implement as set forth in the documentation.

b. Each CSO structure/regulator, pumping station and/or tidegate shall be routinely inspected, at a minimum of once per month, to insure that they are in good working condition and adjusted to minimize combined sewer discharges and tidal surcharging. (NMC # 1, 2 and 4). The following inspection results shall be recorded: the date and time of the inspection, the general condition of the facility, and whether the facility is operating satisfactorily. If maintenance is necessary, the permittee shall record: the description of the necessary maintenance, the date the necessary maintenance was performed, and whether the observed problem was corrected. The permittee shall maintain all records of inspections for at least three years. The State and EPA have the right to inspect any CSO related structure or outfall at any time without prior notification to the permittee.

c. Discharges to the combined system of septage, holding tank wastes or other material which may cause a visible oil sheen or containing floatable material are prohibited during wet weather when CSO discharges may be active. (NMC# 3,6, and 7).

d. Dry weather overflows (DWOs) are prohibited (NMC# 5). All dry weather sanitary and/or industrial discharges from CSOs must be reported to EPA and the State within 24 hours and provide a written report within 5 days in accordance with the reporting requirements for plant bypass (Paragraph D.1.e(1) of Part II of this permit).

e. The permittee shall quantify and record all discharges from combined sewer outfalls (NMC# 9). Quantification may be through direct measurement or estimation. When estimating, the permittee shall make reasonable efforts, i.e. gaging, measurements, to verify the validity of the estimation technique. The following information must be recorded for each combined sewer outfall for each discharge event:

- Estimated duration (hours) of discharge;
- Estimated volume (gallons) of discharge; and
- National Weather Service precipitation data from the nearest gage where precipitation is available at daily (24-hour) intervals and the nearest gage where precipitation is available at one-hour intervals. Cumulative precipitation per discharge event shall be calculated.

The permittee shall maintain all records of discharges for at least six years after the effective date of this permit.

Annually no later than March 31st, the permittee shall submit a certification to the State and EPA which states that all discharges from combined sewer overflow outfalls were recorded and records maintained for the previous calendar year.

f. The permittee shall install and maintain identification signs for all combined sewer outfall structures (NMC# 8) The signs must be located at or near the combined sewer outfall structures and easily readable by the public. These signs shall be a minimum of 12 x 18 inches in size, with white lettering against a green background, and shall contain the following information:

CITY OF LOWELL
WET WEATHER
SEWAGE DISCHARGE
OUTFALL (discharge serial number)

3. Annual Report

By April 30, 2005 and April 30 of each year thereafter the permittee shall submit a report which includes the following information;

a. Activation frequency and discharge volume for each CSO during the previous calendar year. The report shall include this information for each of the authorized CSO discharges listed on Attachment D.

b. Precipitation during the previous year for each day, including total rainfall, peak intensity, and average intensity.

c. A certification which states that the previous calendar year's monthly inspections were conducted, results recorded, and records maintained

d. A summary of modifications to the approved NMC program which have been evaluated, and a description of those which will be implemented during the upcoming year.

In the first annual report submitted in accordance with this permit, the permittee shall submit a public notification plan to describe the measures actively being taken to meet NMC #8 (see NMC #8), and an evaluation of further measures to enhance the public notification program, including the following;

i. Outfall signs visible from both water and land.

ii. Signs/Notices at areas where people may be using CSO-impacted waters for recreation such as swimming, boating or fishing. The notice would include information on the health risks posed by CSOs and links for additional information on CSOs and water quality.

iii. Review of the sewer system model to determine the threshold rain events which normally will cause overflows.

iv. Quarterly postings on the permittee's website which would give the locations of the CSOs, and associated health risks and estimates of CSO activations and volumes.

v. Annual press release and notification to interested individuals and groups on the progress of the CSO abatement work, also noting contacts for additional information on CSOs and water quality.

vi. Notice to local health agents and other downstream public officials, including drinking water treatment plants, shellfish wardens, and harbormasters within 24 hours of activation of CSOs. The public notification plan shall include a schedule for implementation of enhanced public notice measures.

G. SLUDGE CONDITIONS

1. The permittee shall comply with all existing federal and state laws and regulations that apply to sewage sludge use and disposal practices and with the CWA Section 405(d) technical standards.

2. The permittee shall comply with the more stringent of either the state or federal (40 CFR part 503), requirements.

3. The requirements and technical standards of 40 CFR part 503 apply to facilities which perform one or more of the following use or disposal practices.

   a. Land application - the use of sewage sludge to condition or fertilize the soil

   b. Surface disposal - the placement of sewage sludge in a sludge only landfill

   c. Sewage sludge incineration in a sludge only incinerator

4. The 40 CFR part 503 conditions do not apply to facilities which place sludge within a municipal solid waste landfill. These conditions also do not apply to facilities which do not dispose of sewage sludge during the life of the permit but rather treat the sludge e.g. lagoons, reed beds, or are otherwise excluded under 40 CFR 503.6. See Sludge Guidance Attachment.

5. The permittee shall use and comply with the attached sludge compliance guidance document to determine appropriate conditions. Appropriate conditions contain the following elements.

   - General requirements
   - Pollutant limitations
   - Operational Standards (pathogen reduction requirements and vector attraction reduction requirements)
   - Management practices
   - Record keeping
   - Monitoring
   - Reporting

   Depending upon the quality of material produced by a facility, all conditions may not apply to the facility.

6. The permittee shall monitor the pollutant concentrations, pathogen reduction and vector attraction reduction at the following frequency. This frequency is based upon the volume of sewage sludge generated at the facility in dry metric tons per year

less than 290	1/ year
290 to less than1500	1 /quarter

1500 to less than 15000	6 /year
15000 +	1 /month

7. The permittee shall sample the sewage sludge using the procedures detailed in 40 CFR 503.8.

8. The permittee shall submit an annual report containing the information specified in the guidance by February 19. Reports shall be submitted to the address contained in the reporting section of the permit. Sludge monitoring is not required by the permittee when the permittee is not responsible for the ultimate sludge disposal. The permittee must be assured that any third party contractor is in compliance with appropriate regulatory requirements. In such case, the permittee is required only to submit an annual report by February 19 containing the following information:

- Name and address of contractor responsible for sludge disposal
- Quantity of sludge in dry metric tons removed from the facility by the sludge contractor

G. MONITORING AND REPORTING

1. Reporting

Monitoring results obtained during each calendar month shall be summarized and reported on Discharge Monitoring Report Form(s) postmarked no later than the 15th day of the following month.

Signed and dated originals of these, and all other reports required herein, shall be submitted to the Director and the State at the following addresses:

Environmental Protection Agency
Water Technical Unit (SEW)
P.O. Box 8127
Boston, Massachusetts 02114

The State Agency is:

Massachusetts Department of Environmental Protection
Northeast Regional Office
Bureau of Resource Protection
1 Winter Street
Boston, MA 02108

Signed and dated Discharge Monitoring Report Forms and toxicity test reports required by this permit shall also be submitted to the State at:

Massachusetts Department of Environmental Protection
Division of Watershed Management
Surface Water Discharge Permit Program
627 Main Street, 2nd Floor
Worcester, Massachusetts 01608

Signed and dated Industrial Pretreatment reports and Industrial User reports revising local limits required by this permit shall also be submitted to the State at:

Massachusetts Department of Environmental Protection
Bureau of Waste Prevention - Industrial Waste Section
1 Winter Street
Boston, MA 02108

2. The permittee shall notify all downstream water supply communities listed below of any emergency condition, plant upset, bypass, CSO discharge or other system failure which has the potential to violate permit limits and affect harvesting of shellfish or the quality of water to be withdrawn for drinking water purposes. This notification should be made as soon as possible, and in anticipation of such an event, if feasible, without taking away from any response time necessary to attempt to alleviate the situation. The permittee shall follow up with written notification within 10 days to the contacts below. This notification shall include the reason for the emergency, any sampling information, any visual data recorded, a description of how the situation was handled, and when it would be considered to no longer be an emergency situation. Below are the contacts and phone numbers of the drinking water suppliers which will contacted:

Andover Water Department: Treatment Facility (508) 623-8350
1) DPW Superintendent, Robert McQuade
2) Treatment Facility Operator, John Polano

Lawrence Water Department: Treatment Facility (508) 794-5779, Pumping Station/Office (508) 794-5781
1) Head Chemist, Bill McCarthy
2) Head Operator/Water Manager, Dante Savastano

Methuen Water Division: Treatment Facility (508) 794-3286
1) Water Superintendent, Harold Johnson
2) Water Treatment Plant Supervisor, Mark Riopelle

Tewksbury Water Division: Treatment Facility (508) 858-0345
1) Treatment Facility Supervisor, Leon Garrant
2) Head Chemist, Lou Zediana

3. The permittee shall notify the Massachusetts Division of Marine Fisheries, within twenty-four hours when a permit excursion for fecal coliform or plant failure occurs. A twenty four hour notification of a permit excursion or plant failure should be sent to the following address and telephone number:

Division of Marine Fisheries
Shellfish Management Program
30 Emerson Avenue
Gloucester, MA 01930
(978)282-0308

H. STATE PERMIT CONDITIONS

This Discharge Permit is issued jointly by the U. S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (DEP) under Federal and State law, respectively. As such, all the terms and conditions of this permit are hereby incorporated into and constitute a discharge permit issued by the Commissioner of the MA DEP pursuant to M.G.L. Chap.21, §43.

Each Agency shall have the independent right to enforce the terms and conditions of this Permit. Any modification, suspension or revocation of this Permit shall be effective only with respect to the Agency taking such action, and shall not affect the validity or status of this Permit as issued by the other Agency, unless and until each Agency has concurred in writing with such modification, suspension or revocation. In the event any portion of this Permit is

declared, invalid, illegal or otherwise issued in violation of State law such permit shall remain in full force and effect under Federal law as an NPDES Permit issued by the U.S. Environmental Protection Agency. In the event this Permit is declared invalid, illegal or otherwise issued in violation of Federal law, this Permit shall remain in full force and effect under State law as a Permit issued by the Commonwealth of Massachusetts.

ATTACHMENT 3

LOWELL WASTEWATER UTILITY
WASTEWATER TRANSPORT AND TREATMENT

MARK A. YOUNG
EXECUTIVE DIRECTOR

SERVING LOWELL
CHELMSFORD DRACUT
TEWKSBURY TYNGSBORO

Meridith Finegan
US EPA Region 1
5 Post Office Square
Suite 100
Boston, MA 02109-3912

Date: July 22, 2019

Subject: Renewal of Lowell Wastewater NPDES Permit No. MA0100633

Ms. Finegan:

On behalf of the City of Lowell, the Lowell Regional Wastewater Utility (Lowell) is submitting the attached comments regarding the referenced NPDES permit renewal. Although Lowell appreciates the opportunity to comment on our draft permit, we are reiterating our request for additional time to comment on this extraordinarily important document.

Our NPDES permit is the primary regulatory mechanism for the operation, maintenance, and management of Lowell's wastewater transport and treatment system, one of the largest systems in Massachusetts. The permit also regulates four surrounding towns (Chelmsford, Dracut, Tewksbury, and Tyngsborough) that are listed as co-permittees. This permit has profound implications for the communities that we serve, and the environment that we protect. To illustrate the consequences of an inadequate comment period, Lowell has not had an opportunity to consult with our co-permittees regarding this draft permit. As such, Lowell is requesting the permit comment period be extended for sixty days (until September 23, 2019).

In the meantime, we offer our comments on Lowell's draft permit, with the caveat that more time is needed in order to thoroughly review and thoughtfully comment on this permit. During our initial review of the draft permit, Lowell has identified several areas of concern, including: unnecessary and outdated requirements, inconsistencies with similar NPDES permits, the appropriateness of general water quality standards compliance language, certain permit limits that conflict or compete with Lowell's wet-weather flow treatment goals, the inclusion of a Phosphorous permit limit, and a lack of authorization for the permittee to implement CSO control policy.

Lowell believes that these issues have substantial interest to the public. Therefore, we are requesting a public hearing for this draft permit. Additionally, Lowell proposes a meeting with EPA and MassDEP to discuss our comments and identify a potential path for moving forward with this permit.

In the event that our concerns could be satisfactorily addressed through an agreement that might come out of such a meeting, followed by the issuance of a revised draft permit to reflect such revision, Lowell would likely waive its right to a public hearing.

Since our last NPDES permit was issued in 2005, Lowell has made considerable progress to improve the Duck Island wastewater treatment facility and the collection system that transports wastewater from the communities that we serve to the treatment facility. Currently, we are in the midst of a $16M upgrade to the Duck Island Clean Water Facility. This upgrade, which will be completed in 2020, features improvements that optimize peak flow treatment, increase process reliability, and strengthen our ability to consistently meet permit limits.

These objectives will be achieved through major equipment replacement or repair, including an influent pumping upgrade, new clarifier mechanisms, new sludge pumps, a modified aeration process, enhanced chemical addition, and a revamped SCADA system that monitors and controls the facility's processes. In addition to these treatment facility upgrades, Lowell is also constructing a $6M improvement project for our satellite facilities, both sewer pump stations and CSO diversion stations, that will improve the reliability of our wastewater transport system. Improvements consist of new back-up power generators, as well as various structural, mechanical, and electrical upgrades.

Lowell is also completing an updated Combined Sewer Overflow (CSO) Long-Term Control Plan, as part of an Integrated Plan that is one of the first to be developed under the newly enacted Clean Water Act Section 402(s). These projects and programs are worthwhile and challenging initiatives – especially for a mid-sized utility with limited financial resources. Since 2003, Lowell has invested nearly $150 million in CSO control and other capital improvements that have enabled us to achieve an 80% reduction in typical year CSO discharge volumes.

This impressive progress is a source of great pride for Lowell. We understand our role in providing clean water as a precious resource, while minimizing the impact of our facilities on the communities that we serve and the environment that we protect. We acknowledge the need for additional CSO controls and even more reliable wastewater transport and treatment systems. Lowell is committed to continued improvement in all areas of its facility operations, system maintenance, and program management. With this in mind, we are pleased to share the news that Lowell's City Council recently authorized funding for a $112M capital improvement program that will allow Lowell to meet these obligations moving forward.

Considering the passage of time and the many changes to our facilities since our last permit renewal, we have conducted a careful review of the draft permit, to the extent that the limited comment period permits, with substantial assistance from our consulting team. Our team believes that the draft permit contains legacy language that is obsolete, and requirements that are no longer warranted for a variety of reasons. Some provisions are no longer warranted because of changes in law, regulation, or due to errors in our 2005 permit. Other requirements are no longer necessary because of our consistent record of compliance. An example of the latter instance is a requirement for quarterly WET tests; instead, we propose a semi-annual requirement for this test.

Lowell believes that the draft permit also needs to be restructured to more effectively support maximization of wet weather flow treatment; this is an objective that we can all agree is preferable to discharging untreated volumes of CSOs. Two examples of provisions that we believe require restructuring, in order to facilitate maximization of wet-weather treatment, are the daily maximum TSS and CBOD limits, as well as the treatment plant flow limit. These limits conflict with our goal of maximizing peak flow treatment. Most NPDES permits for CSO facilities do not include daily maximum and flow limits for this very reason. To that point, we have experienced non-compliance with both the flow limit and daily maximum limits – due to our efforts (as EPA has acknowledged) to maximize flow through the treatment facility during wet weather.

Evidently, EPA recognized this conflict when it modified Lowell's flow limit in an administrative order dated September 30, 2010 (Paragraph IV.5). This paragraph states that "… *the limitation for Annual Average Flow through the WWTF shall be monitor only*", and further states that "*the Permittee shall continue to maximize flow to the WWTF in accordance with the requirements of Part I.F of the NPDES Permit*".

Maximizing wet weather flow through the treatment facility makes obvious sense because such flows receive treatment (especially disinfection); whereas, if we do not maximize flows, those volumes would be released as untreated CSO discharges. This reality is undoubtedly the reason that maximizing peak flow through the treatment facility is one of the Nine Minimum Controls in the CSO policy. Thus, we ask that EPA remove or revise permit requirements that function as obstacles to our ability to maximize wet weather flows through the Duck Island treatment facility. In our comments on the draft permit, we have identified several specific obstacles, along with suggestions for addressing these obstacles.

Similarly, the permit should also address Lowell's peak flow treatment facilities and programs, and incorporate by reference our current high flow management plan. This plan details how we are optimizing flows through inline storage and secondary bypass in response to wet weather flows. Notably, we have identified several critical inconsistencies between the Lowell draft permit and other recent NPDES permits for similar utilities. We believe these inconsistencies should be addressed and resolved in revised draft permits, including ours. It is also important to mention Lowell's objection to the inclusion of a Phosphorous limit in the draft permit. In our comments below, we describe in detail our concerns with this permit limit, in terms of timing, derivation, and appropriateness.

As previously mentioned, because several of the issues that we raise have a significant degree of public interest, we also request that EPA hold a public hearing on this draft permit. Lowell firmly believes that the fundamental issues described in our comments warrant a public hearing. The inconsistencies among the pending draft renewal permits also support the need for a public hearing.

Other issues that warrant a public hearing include the need to ensure that our permit and those for other CSO communities are consistent with CWA Section 402(q), the incorporation of high flow management plans to enable maximization of peak flow treatment, the appropriateness of general water quality standards compliance language, as well as daily maximum limits for treatment facilities serving combined sewer systems. Please note that to the extent a meeting with EPA and MassDEP results in an agreement to revise our draft permit, Lowell would likely withdraw this hearing request.

Lowell appreciates your consideration of the attached comments and we look forward to the opportunity to discuss our comments with EPA and MassDEP. Please let me know if you have any questions or need any additional information.

Sincerely,

Mark A. Young
Executive Director
Lowell Wastewater Utility
978-674-1675

Enclosures:

Lowell NPDES Draft Permit Comments

Copy:

Ellen Weitzler, EPA Region 1

Claire Golden, MassDEP Northeast Section

Mike Stuer, Lowell Wastewater Utility

Co-Permittees (Chelmsford, Dracut, Tewksbury, and Tyngsborough)

Paul Calamita, AquaLaw

Saya Qualls, Hazen & Sawyer

City of Lowell Comments on Draft NPDES Permit No: MA0100633

Total Phosphorous Limit (Page 3)

We support protecting the Merrimack River from excessive phosphorous loadings and are taking a proactive approach to accomplish this objective – such as our ongoing facility upgrade that will improve our ability to reduce phosphorous loadings – as well as additional future improvements that may be warranted. However, we have concerns about the phosphorous limit proposed in our permit.

First, we don't understand why EPA has not adopted its "Gold Book" value through notice and comment rulemaking. We believe it is both necessary and appropriate for EPA to provide the public with the safeguards of rulemaking to evaluate the appropriateness of the Gold Book limits along with how those criteria will be implemented.

Rulemaking is particularly warranted given that EPA is imposing the same Gold Book limit on all of the dischargers to the Merrimack River. It is clearly being applied as a binding norm and, therefore, meets the definition of a rule. We also note that in addition to the opportunity for stakeholders to evaluate the appropriateness of the Gold Book criteria in notice and comment rulemaking, such rulemaking brings additional safeguards such as compliance with various Executive Orders and financial impact analyses.

We note that EPA's 2010 Permit Writers' Manual, in Section 6.4, provides guidance on assessing reasonable potential using water quality models. For conservative pollutants, EPA recommends the use of steady-state dilution models; however, for nutrients, EPA instead recommends, "modeling that accounts for biological activity or reaction chemistry."

EPA's dilution-based approach for nutrients, as described in Lowell's draft permit, is inconsistent with EPA's own permitting guidance. Oftentimes, a more appropriate water quality model that considers reactivity is not available; however, Lowell is currently developing a Qual2K reactive model for the Lowell reach of the Merrimack River. Once calibrated, the model's output could be used to predict instream conditions for response variables associated with nutrients, such as dissolved oxygen and algal growth, thus supporting a more accurate evaluation of reasonable potential for the Duck Island discharge to cause or contribute to impairment associated with nutrients.

Accordingly, EPA should:

- As an interim measure, EPA should impose a Total Phosphorous loading limit for Lowell that is based upon our 2.24 mg/L multi-year annual average concentration (from EPA's Fact Sheet) times our 32 MGD design flow.
- Require Lowell to optimize our ongoing Duck Island treatment facility upgrade, and then report to EPA on our facility's phosphorous removal capability. A two-year timeframe is necessary in order for Lowell to complete its current phosphorous reduction improvements, and optimize this system.
- Include a reopener in the permit that would incorporate any new limit based upon site-specific data acquired from Qual2K modeling.
- Impose a compliance schedule for any limit based upon the water quality model, consistent with the schedule for same in Lowell's approved CWA Section 402(s) Integrated Plan.

We disagree with the dilution-based approach that EPA utilizes to justify the inclusion of a phosphorous limit in Lowell's draft permit. In addition, Lowell has several other concerns with the phosphorous limit in our draft permit, as follows:

- Most permitting agencies base loading limits for conservative pollutants, such as metals, on the facility's design flow. EPA's approach, which uses the lowest monthly average, is overly conservative, given that nutrient impacts tend to be long-term, as opposed to the potentially acute impacts associated with conservative (metal) pollutants.
- EPA's approach of developing limits based upon the plants' lowest monthly average flows is grossly unfair to CSO systems because it discounts the wet weather flows that we must treat.
- CSO systems like Lowell's should be given an additional loading based on the phosphorous loadings in their CSO discharges. As CSOs are reduced, these loadings should be shifted to the POTW. Another approach would be to exclude from the annual average calculation our concentration/loadings on any day when our treatment facility flows exceed 32 MGD. This is particularly appropriate given that EPA is using the 7Q10 rather than a longer term flow value to establish this twelve month rolling average limit.
- For these reasons, we believe that the mass calculation for a phosphorous loading limit in the permit is incorrect. The permit would give us 276 pounds of phosphorous per day using the lowest monthly average effluent flow. We think the correct approach is to base our loading on our design flow (32 MGD). That approach would give us 288 pounds per day.
- We also believe that EPA should give us a revised allocation that reflects the anticipated instream reductions that will result from the upstream facilities' reducing their phosphorous loadings.
- It is clearly erroneous to base our annual average total phosphorous limit on a 7Q10 river flow value. The 7Q10 condition occurs 1-3 percent of the time, so it is logically untenable to apply that flow as the basis for an annual average limit. While acknowledging MassDEP's regulations specify the use of the 7Q10 for aquatic life criteria, the narrative criteria for nutrients are related to "nuisance conditions", as opposed to acute impacts on fish and aquatic life. Therefore, within the existing regulations, there is flexibility in determining appropriate hydrologic conditions for establishing nutrient limits. We also note that the Permit Writers' Manual, in Section 6.1, suggests that states adopt seasonal or annual averaging periods for nutrients, as opposed to conditions set out for toxic pollutants. For these reasons, we believe that the harmonic mean or annual average flow is a more appropriate basis for characterizing stream flow in a reasonable potential analysis.

Effluent Flow Limit (Page 3)

The effluent flow limit must be removed from the permit. It is completely unnecessary to protect public health or the environment. The concentration and/or mass limits do that. There is no circumstance where a flow limit is necessary. Because of this reality, most states (and their EPA Regional Offices) do not impose flow limits (certainly not on CSO facilities). We note that EPA Headquarters and Region 3 do not impose a flow limit for the District of Columbia's Blue Plains treatment facility. Thus, it is clear that NPDES permits can legally and technically be issued without flow limits.

Moreover, flow limits are counterproductive for CSO facilities because such limits conflict with the technology-based requirement of the Nine Minimum Controls to maximize flow (not comply with an unnecessary flow limit) through the treatment facility. Why would we ever impose a restriction on how much flow we can take through the treatment facility? Accordingly, a flow limit will cause us to reduce wet weather flows to the Duck Island facility so that we don't exceed a permitted flow limit. This is not a hypothetical concern – we have exceeded the flow limit in two of last five years.

We thought EPA understood this reality and the unintended consequences from our flow limit when EPA agreed to impose interim "monitor only' limits for flow in our 2010 administrative order (Order Docket 010-026; 9/30/10). We anticipated that the "monitor only" approach would be carried over into this draft permit. We continue to believe that is the correct approach. This is not an issue involving faulty operation of our facility, but rather of conflicting permitting provisions that must be resolved.

We also note that concerns about inflow and infiltration are misplaced in terms of an attempt to justify inclusion of a flow limit. As a CSO community, Lowell's long-term control plan will address any cost-effective opportunities to remove excessive inflow and infiltration. A flow limit is far too removed from that planning and will, in effect, limit Lowell's ability to cost-effectively comply with the CSO Policy because such a limit restricts Lowell's use of its treatment facility capacity to manage peak wet weather flows. This will make Lowell's CSO control program unnecessarily more expensive and will result in greater untreated sewer overflows.

We also question EPA's legal authority to limit the flow that can be discharged from a POTW. In one of the most significant Clean Water Act decisions in the last thirty years, the U.S. District Court for the Eastern District of Virginia issued an opinion holding that EPA lacks authority under the Clean Water Act to regulate flow in a TMDL. Fairfax County and the Virginia Department of Transportation (VDOT) appealed a TMDL issued by EPA establishing flow limits for Accotink Creek in Northern Virginia. The flow limits were intended to reduce the amount of sediment in the creek. Fairfax and VDOT successfully argued that the Clean Water Act clearly denies EPA the authority to regulate flow, even as a surrogate for a pollutant such as sediment.

United States District Court Judge Liam O'Grady conducted an analysis under *Chevron* Step 1, concluding that, under the plain language of the statute, EPA unambiguously does not have authority to establish TMDLs for non-pollutants, such as flow, as surrogates for pollutants. The court invalidated any interpretation of EPA's regulations that would allow the agency to regulate non-pollutants such as flow. The decision went on to find that, even with the deference that would be accorded to EPA in a *Chevron* Step 2 analysis, EPA's interpretation of the Clean Water Act to allow the regulation of flow would be an impermissible construction of the statute [*Virginia Department of Transportation et al v. United States Environmental Protection Agency et al., case number 1:12-cv-00775*].

While we feel strongly that there should be no flow limit whatsoever – because it provides no environmental protection (keep in mind that the vast majority of POTW permits in the country do not include flow limits) – if EPA were to insist on a flow limit, it should at least be set at a level that won't prevent our maximization of wet weather flows.

For example, rather than using our long-term average flow of 32 MGD, the permit limit could be based on a higher, peak flow value or simply allow us to exclude from the calculation any flows greater than 32 MGD that occur in response to wet weather events. Nevertheless, Lowell retains the right to challenge the inclusion of even such modified flow limits.

Unless the flow limits are removed, Lowell will either have to challenge the permit in order to be able to continue to maximize wet weather flow through the treatment facility, or we will have to modify our high flow management plan to ensure that we throttle back flows at the treatment facility in order to ensure compliance with the flow limit.

Finally, we note that flow is not a pollutant under Massachusetts law either [*see 314 CMR 3.19*].

Daily Maximum Limits for CBOD and TSS (Page 3)

The daily maximum limits for CBOD and TSS are technology-based limits. They are legally inconsistent with EPA's regulations, which require monthly and weekly average limits, unless impracticable [*40 CFR § 122.45(d)(2)*]. The development of average monthly and weekly permit limits is clearly not impracticable, because EPA has, in fact, imposed them in the permit as well. We also note that the vast majority of POTW permits in the country have monthly/weekly only limits for CBOD and TSS – including facilities such as the District of Columbia's Blue Plains treatment plant (permit issued by EPA Headquarters/Region III).

As with the flow limits addressed above, the daily maximum CBOD/TSS limits are also counter-productive environmentally because they are a de facto limit on how much peak wet weather flow we can take through the Duck Island treatment facility. Specifically, we have exceeded the TSS daily maximum limits on a number of occasions. It makes no sense to restrict flows into the treatment facility (which flows would then receive treatment - including disinfection) as opposed to discharging those same volumes as untreated combined sewage from our CSO outfalls.

We also note that the expression of the daily maximum TSS limit appears to be incorrect. We assume EPA is working from the construct of taking the monthly average (30 mg/L) and multiplying it by 1.5 to get the weekly average (45 mg/L) found in the secondary treatment regulation and then multiplying the monthly average value times "2" to get the daily maximum value of "60". However, the permit includes a highly unusual value of "50" for TSS.

Finally, we note that these limits are neither necessary nor appropriate, as they were not included in the recent draft permits for Springfield and Haverhill. EPA has provided no explanation as to why such limits are necessary and appropriate for Lowell (and Lawrence), but not for the other two communities. As with the flow limits, our exceedance of these inappropriate limits is not due to our faulty operation of our treatment facility. Instead, it is due to conflicting and inappropriate permitting requirements for our facility.

CBOD/TSS Percent Removal (Page 3)

Lowell objects to the 85 percent removal requirement for CBOD and TSS in the permit. There is no need for this limit. Percent removal provides no environmental protection whatsoever – that is done by the mass/concentration limits for both CBOD and TSS. Accordingly, we ask that the percent removal requirement be removed.

If the percent removal limit is to remain – over our objection and without waiving our right to challenge its retention – EPA should specify that the percent removal requirement only applies during dry weather days. This is the approach EPA took in Springfield's permit and is appropriate for all CSO systems.

E. Coli Daily Maximum Limit (Page 3)

First, we note that the daily maximum limit should be deleted because it is based on EPA's criteria Statistical Threshold Value (STV) (410 colonies per 100 mL), which is derived from the same statistical distribution as the geometric mean-based average value, both derived to protect the defined intestinal illness rate. As such, protection of the average is also protection of the STV (particularly given the high monitoring frequency), and it is unnecessary to impose a daily limit for protection of the criteria and the designated use.

We also note that there is no reason that EPA could not calculate monthly and weekly average bacteria limits for our facility, in lieu of monthly and daily limits. After all, several states calculate weekly bacteria limits (such as North Carolina, Kentucky, and Missouri while other States such as Virginia, Maryland, and the District of Columbia use monthly geometric mean limits only.

Moreover, for the same reasons noted above for the daily maximum limits for CBOD and TSS, we urge EPA to provide some flexibility with the daily maximum E. coli limit. Most POTWs across the country have either monthly geometric mean limits or monthly and weekly average/geo-mean limits. Unless some flexibility is provided on this daily maximum E. coli limit, it could cause Lowell to have to restrict its wet weather treatment capacity.

Also, we note EPA Region III's response to public comments urging EPA to impose a daily maximum bacteria limit on the District of Columbia's Blue Plains treatment facility. In rejecting the inclusion of a daily maximum E. coli permit limit for Blue Plains, EPA stated: "Single sample maximums are not normally taken to evaluate continuous municipal discharges."

We also note that because the water quality standard for E. coli is applied to Lowell at the end-of-pipe, we should be given some compliance flexibility. Lowell benefits from an 18:1 dilution during 7Q10 flows (which occur 1-3 percent of the time) and significantly higher dilution during all other periods. We suggest that Lowell is allowed to exceed the daily maximum permit limit one percent of the number of annual samples that we take. This is the approach that West Virginia DEP has taken – particularly to accommodate CSO programs. During wet weather, when CSOs (and urban runoff) discharges are active, holding the treatment facility to a daily maximum limit does not make sense.

Under our one percent proposal, if we sample five times per week, that equates to 256 samples per year – resulting in an allowable 3 exceedances of the daily maximum limit over those 256 samples. Given the dilution available to us, that would ensure year-round compliance with the instream bacteria standard. Accordingly, we ask that EPA add the following footnote to the E. coli limit: "The permittee shall not exceed this daily maximum limit in more than one percent of the samples taken each year. For this permit cycle, the permittee will sample 256 times per year, so the daily maximum limit may not be exceeded in more than three samples in any calendar year."

There are many approaches that EPA could take in order to provide some appropriate flexibility while still meeting the instream bacteria standard (to the extent it is even attainable during wet weather events). Another approach could be a higher bacteria limit when treatment facility flows exceed our 32 MGD design capacity. We only exceed that capacity during wet weather events.
In such circumstances, a higher limit – say 2040 counts (five times higher than dry weather yet only occurring when we get enormous dilutions) would be appropriate and fully protective of instream water quality. By way of example, even in 7Q10 conditions, a treatment facility discharge of 2040 counts, diluted 18 times would equate to a concentration of approximately 200 counts at the edge of our mixing zone. This assumes a background concentration of 100 counts. During wet weather, the dilution factor would increase dramatically and the bacteria concentration at the edge of the mixing zone would drop essentially to the river background level.

Whole Effluent Toxicity (Page 4)

We object to the permit requirement to continue performing whole effluent toxicity testing on a quarterly basis. We have been doing so since 2005. This quarterly testing is in addition to the four two-species tests we performed for our permit renewal. Associated with this WET testing is additional testing for metals and other parameters which EPA has required. This unnecessary testing costs Lowell thousands of dollars over a five year permit term.

After 14 years of quarterly WET testing, our effluent is well characterized as being non-toxic. We have passed all of our quarterly tests as well as the four, two-species tests we performed for the application for renewal. This comes as no surprise, given that our instream waste concentration is approximately five percent. After more than 56 straight passes, our effluent is beyond being well-characterized as non-toxic.

Moreover, as EPA's reasonable potential spreadsheet reveals, our effluent is nowhere close to having reasonable potential for the common municipal toxicants (e.g., copper, lead, ammonia). Thus, the quarterly WET testing is simply a waste of time and public resources. We ask that it be removed from the permit. We do agree, however, with a requirement to perform the four two-species tests required for each future permit renewal.

Sampling for Metals (Page 4)

As noted above, we are nowhere close to having reasonable potential for any of the metals we test for. Accordingly, we object to the continued quarterly sampling requirement for AL, CD, CU, NI, PB, and ZN. Instead, we propose to continue to sample for these pollutants as part of the three priority pollutant scans that we conduct each permit term.

Mandating Sampling Day and Time (Page 6)

We object to Footnote 1 on page 6 which requires that we sample on the same days of the month at the same times. This is micromanaging the operation of our facility and program. There is no legal (or practical) basis for such a requirement. EPA's regulation (and the permit) already requires representative sampling. That is the applicable legal requirement. We do not believe that sampling requirement is imposed on other permittees.

We similarly object to Footnote 13 on Page 8, which requires that WET testing be done during the same week in the months of January, April, July, and October. As noted above, the quarterly WET testing should be removed from the permit. In addition, there is no legal or technical basis to mandate a particular week within a particular month in the quarter.
Numerous other NPDES permits around the country simply specify "quarterly" sampling for parameters without mandating the month, and certainly not the week. We note that EPA's permit renewal regulation specifies four WET tests for major dischargers as part of applications for renewal without specifying a particular month or week.

Additional Monitoring by Permittee (Page 6)

We request a clarification of the following requirement of Footnote 1 as follows:

The Permittee shall report the results to the USEPA Region 1 and the State of Massachusetts any additional testing of finished effluent for any pollutant required to be tested by this permit above the frequency ~~that~~ required herein, if testing is in accordance with 40 C.F.R. Section 136.

This comment is intended to clarify that only testing for pollutants required to be analyzed, using finished effluent (as opposed to process control testing) must be submitted to EPA. Please confirm this interpretation.

Finally, while still objecting to EPA's authority to impose this prescriptive sampling regimen at all, we note that EPA allowed Springfield flexibility should there be deviations from the date and time of sampling but did not afford that option to Lowell (along with other permittees).

Assigning Half the MDL to Non-Detected Data (Page 6)

Footnote 4 requires that we assign one-half the minimum detection limit (MDL) to non-detected values, if we have any detectable result for the pollutant in question during the prior twelve months. This is both legally and technically wrong.

If a pollutant is not detected in the effluent, it is legally not there. EPA cannot require the permittee to assign an arbitrary number to that non-detect and then certify the arbitrary number (which was really non-detected) as being "true, accurate, and complete." No other State or EPA region takes this approach to our knowledge. Instead, non-detected data should be reported as "0" and assigned "0" in the calculation of any multi-day averages.

While not a major issue for our facility given the level of our limits and the dilution in our receiving instream, it is still inappropriate to require that 11 non-detected results be assigned one-half the detection level because one sample out of twelve is above the detection level. Such an approach clearly biases the pollutant data on the high end and then puts the permittee in the untenable position of having to then certify the ½ MDL value is a true, accurate, and complete result.

We ask that EPA provide us with any statutory or regulatory reference which supports the requirement to assign and then certify and report one-half the MDL to non-detected data. Finally, we note that this condition is not included in the Springfield draft permit. EPA should remove it from Lowell's permit as well.

CSO Bypass (Page 7)

Footnote 6 explains that the flow limit is an annual average flow for the current and prior eleven months. This footnote then goes on to prohibit secondary bypasses which don't qualify as allowable bypasses (Standard Conditions Part II.B.4.c and 24-hour reporting (Part II.D.1.e)).

Lowell has a secondary bypass which allows us to treat significant peak wet weather flows as part of our efforts to maximize flows at the treatment facility (Nine Minimum Controls - Part I.F.2.a.4). Such bypasses are to maximize the treatment of wet weather flows and not for essential maintenance as contemplated by Part II.B.4.c. Accordingly, the reference to Part II.B.4.c should be removed.

We note that Springfield's permit explicitly authorizes their secondary bypass. Lowell's secondary bypass should be authorized as well.

Moreover, the permit should:

- Identify and authorize our high flow management facilities and
- Incorporate by reference our High Flow Management Plan. This plan was submitted to EPA and DEP in 2011 in accordance with our 2010 Administrative Order. While we did our part to develop and submit the plan, EPA has yet to issue the plan approval expressly contemplated by the 2010 order. Because our plan is a living document, it makes the most sense to us to incorporate by reference an updated High Flow Management Plan, with a requirement to submit annual updates as appropriate. For example, we are working on a major facility upgrade. Once that project is complete and we have completed an optimization period, we will need to submit an updated High Flow Management Plan.

Prohibition on Septage During Wet Weather (Page 7)

Lowell intends to continue to accept septage and hauled wastes, with the understanding that we will manage acceptance of these wastes in accordance with a hauled waste management plan. The plan will ensure that we optimize treatment of such wastes to the extent practicable. We are not aware of any plant or instream impacts from our acceptance of such wastes and our hauled waste management plan will be focused on continuing that successful program. In addition to providing the appropriate facilities to process such wastes, our processing of these wastes generates critical revenues for our utility that are being used for our current facility upgrade and future treatment facility and CSO-related controls. A critical part of our septage receiving facility is an equalization tank that we use to store wastes for subsequent introduction into our facility's treatment process at a controlled rate.

We object to the prohibition on our acceptance of septage at the treatment facility on any day when a bypass of secondary treatment is anticipated. This prohibition is environmentally unnecessary, as the volumes are relatively small and our facility has the capacity to handle the pollutant loadings. On wet-weather days, the plant meets 7Q10-based limits when instream flows are significantly higher, allowing far greater dilution. There is simply no environmental problem with our acceptance of such waste streams. Notably, our quarterly WET testing has included two tests each year when our treatment facility is bypassing. We have passed each of those tests.

This prohibition is also counterproductive financially for Lowell. Hauled waste fees are critical in funding the highest practical level of CSO control, along with other facility improvements such as phosphorous control.

Finally, we note that this prohibition on accepting septage at the treatment facility is contradicted on Page 16 – which only prohibits acceptance of septage (to the collection system) if certain instream impacts are expected to result – such as an oil sheen."

20 ug/L MDL for Residual Chlorine (Page 7)

The permit imposes an MDL of 20 ug/L for residual chlorine when our permit limit is 338 ug/L (daily max) and 196 ug/L (monthly average). Given the magnitude of our permit limits, there is no need to impose a 20 ug/L MDL. Instead, we request it be set at 100 ug/L or, at worst, 50 ug/L. Many states use 100 ug/L or 50 ug/L as their MDLs. We think these are more appropriate levels in light of analytical issues and the magnitude of the limits that we must meet.

General Water Quality Standards Compliance Language (Page 9)

It appears that the sections/numbering is off from page 8 to page 9. At the top of page 9, the following prohibition is imposed:

"2. The discharge shall not cause a violation of water quality standards of the receiving water."

This language is legally incorrect and fundamentally unfair. Legally, this provision deprives Lowell of its Clean Water Act permit shield in that Lowell will never know what it can or can't discharge at any given time. The provision deprives Lowell of its right to fair notice of what it must do to comply. More importantly, there is no opportunity for due process. In this context, due process is Lowell's (and all stakeholders') right to know what limits EPA/DEP believe are warranted, an opportunity to comment on the correctness of such limits and the right to appeal such determinations. Moreover, for a public body, the provision deprives us of a compliance schedule to come into compliance with a new or more stringent requirement.

There has been significant litigation over similar provisions in recent years and Lowell will be compelled to file a challenge should this language be retained. We note that the State of West Virginia recently removed similar language from its NPDES permits. EPA Region 3 treated that action as a change to WV's NPDES permit program which triggered EPA review and approval. EPA approved the change by letter dated March 27, 2019 (incorporated herein by reference). EPA concluded that such language is not a requirement of the NPDES Permit program.

Further the restrictions imposed in Paragraphs 3- 7 are more than broad enough to protect the general standard.

For these reasons, Paragraph 2 language must be removed from Lowell's permit. It impermissibly undermines the CWA permit shield, deprives dischargers of fair notice of what they can discharge and due process (to comment on, seek compliance schedules, and appeal effluent limits). It is inconsistent with other EPA Regions as demonstrated by the EPA Region 3 March 27, 2019 formal finding that such a permit condition is not required under the CWA.

Pass Through and Interference (Page 9)

We ask that Part I.A.9 (Page 9) be removed because it is unnecessary and duplicative to suggest that it could be a violation of the permit for a non-domestic user to cause pass-through, when by definition pass-through already is predicated on a permit exceedance. *See* 40 C.F.R. §403.3(p) (pass-through is "a discharge that exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit") (emphasis added). Similarly, interference with plant operation or performance is an event that the owner must remedy, but such interference should not by itself constitute a permit violation.

Requirement to Identify All Potential and Actual Unauthorized Discharges (Page 10)

Part I.C.2 requires the permittee to develop a preventive maintenance program that includes a system-wide inspection program designed "to identify all potential and actual unauthorized indirect discharges." This requirement should be restated, because no inspection program will identify all *potential* or even actual unauthorized discharges. For example, local residents may report unauthorized discharges to Lowell's collection system. The premise that Lowell staff should be responsible for identifying all potential and actual unauthorized indirect discharges is impracticable. The requirement should be modified to require an inspection program designed:

"To the extent practicable, to identify actual or potential collection system releases."

Collection System Inflow/Infiltration Requirements Should be Limited to Co-Permittees (Page 11)

Part I.C.3 requires the Permittee and co-permittees to address I/I into the sewer system to prevent high flow releases from the collection system and high-flow-related violations at the Permittee's treatment facility. The Permittee already address I/I as part of our NMC and CSO LTCP requirements. Accordingly, the reference to "Permittee" should be removed such that this section is limited to the Co-permittees.

Furthermore, Lowell's I/I control program, which is part of its LTCP, should be referenced within the permit. Lowell's implementation of I/I and CSO control should be guided by our written control plans, which should be incorporated by reference in the permit.

Collection System Mapping (Page 11)

Part I.C.4 requires extensive collection system mapping work to be completed within 30 months of the permit effective date. Some of the mandated information is unlikely to be available. For example, we won't know with certainty where every sewer pipe in our system is, what it is made of, the diameter, date of installation, distance between manholes, etc. We are particularly concerned with the breadth and scope of Subsections 4.a, 4.c, and 4.k.

Accordingly, the requirement in this part should be qualified "to the extent practicable" by the Permittee. Also, a requirement to update the mapping each permit term to reflect new infrastructure or newly characterized infrastructure would be acceptable.

Preventing Unauthorized Discharges (Page 12)

All collection systems will experience releases from time-to-time due a wide range of operational and capacity-related issues. Consistent with this reality, please revise Part I.C.5.b(6) to require and I/I program for "minimizing" and not (the impossible of) "preventing" unauthorized discharges. Otherwise, we have double jeopardy for having an unauthorized discharge and then a separate violation for not preventing it pursuant to this requirement. Neither EPA nor the permittees can guarantee no overflows.

Imposing Local Limits Guidance (Page 13)

We object to EPA requiring that we comply with EPA's Local Limit Development Guidance (July 2004). We are agreeable with a requirement that we use such guidance in developing local limits, but this guidance is not law and, accordingly, cannot be imposed as a mandatory requirement. The provision should require the Permittee to review its local limits in consultation with EPA's Local Limit Development Guidance (2004).

Assuring Significant Industrial User Compliance (Page 14)

Part I.E.5 requires the Permittee to "assure" that applicable pretreatment standards are met by all categorical industrial users of the POTW. The Permittee is not a guarantor of SIU performance. This must be changed to require that the Permittee require that SIUs meet applicable categorical standards through the issuance of appropriate permits to such users. Otherwise, if an SIU violates a categorical standard – through no fault of the Permittee – the Permittee will be in non-compliance. That is a legally incorrect and unfair requirement.

CSO Authorization (Page 15)

Part I.F.1 should be revised as follows:

During wet weather and/or periods of snow melt, the Permittee is authorized to discharge wastewater from the CSO outfalls listed below:

This change is a common and necessary approach for CSO permits in the northern half of the country where sewer overflows can be triggered by both rainfall and/or snow melt.

CSO Long-Term Control Plan Development Language (Page 15)

The permit is inconsistent with CWA Section 402(q), because it fails to address the development of our CSO Long-Term Control Plan (LTCP). We are still at the stage of a Phase 1 permit under EPA's CSO Policy. The Policy requires that a deadline for submittal of our CSO LTCP update be included in the permit. We request the opportunity to discuss the appropriate deadline with EPA.

High Flow Management/Secondary Bypass Authorization (Page 15)

As noted above, Part I.F should incorporate our current High Flow Management Procedures. These procedures ensure that we maximize flow at the treatment plant to the maximum extent practicable.

General Water Quality Standards Compliance Language for CSOs (Page 16)

Part I.F.2.b imposes the same WQS compliance language that we objected to above in relation to the POTW discharge. It is legally and factually wrong to apply these standards to the POTW discharge, and particularly egregious to apply the WQS to our CSO discharges – which are untreated. EPA cannot logically on one hand authorize our CSO discharges and then on the other hand require compliance with water quality standards at all times. It is physically impossible and legally inconsistent with CWA 402(q), which specifies the conditions for Phase I and Phase 2 CSO NPDES permits.

CSO Structures Set to Minimize Overflows (Page 16)

Part I.F.3.b should be revised as follows:
Each CSO structure/regulator, pumping station and/or tide gate shall be routinely inspected, at a minimum of once per month, to ensure that they are in good working condition and adjusted to minimize combined sewer discharges consistent with system operation (not causing upstream surcharges nor plant operational problems) and compliance with all effluent limitations and conditions in this permit (NMC #1, 2, and 4).

Prohibition on Acceptance of Septage into the Collection System During CSO Events (Page16)

Lowell agrees with Part I.F.3.c, which prohibits the acceptance of septage discharges into the collection system (as compared with the treatment facility prohibition on Page 7, which we objected to above). We think this prohibition makes sense.

Requiring Direct Measurement of CSO Discharge Information (Page 16)

Part I.F.3.e requires the "direct measurement" of duration and volume for each of the nine CSO outfalls. Lowell already complies with this requirement by calculating flow over a weir or flow through an orifice. In addition to actual weirs, Lowell uses the weir calculation for its downward-opening diversion gates, and the orifice calculation for its upward-opening diversion gates. Please confirm that our existing approach satisfies this requirement. If for any reason it does not, we ask that the requirement be refined to match our operational practice (which has been effective).

Requiring Record Retention for 6 Instead of 3 Years (Page 17)

Part I.F.3.e requires that Lowell retain records of CSO discharges for six years instead of the three years specified in EPA's regulations. This should be changed to three years from the creation of the record.

Total Phosphorous Compliance Schedule (Page 21)

Lowell objects to the one-year compliance schedule for Total Phosphorous (Part I.H.1) for several reasons. First, we are still completing a major treatment facility upgrade that won't be fully in service for another 12 months. Second, we have not yet determined how we will comply with the total phosphorous limit. One year is indisputably inadequate for us to plan, design, permit, fund, and construct such an upgrade. Last, but by no means least, we are due to submit our integrated plan (pursuant to CWA 402(s)) to EPA by December 31, 2019. That plan will specifically balance a number of CWA and related capital needs and programs.

The compliance schedule for our new TP limit will be identified in that CWA 402(s) integrated plan. Upon EPA's approval of that plan, the compliance schedule associated with the total phosphorous limit should become a part of this permit. Accordingly, we request the following compliance schedule language for the new Total Phosphorous limit:

The Permittee is required to submit an integrated plan to EPA in accordance with CWA-AO-RO1—FY17-016 (October 2, 2017) on December 31, 2019. The plan will include a compliance schedule for Lowell to meet the new total phosphorous limit. Upon EPA's approval of the plan, the compliance schedule therein for Lowell to comply with the total phosphorous limit shall be incorporated into this permit as if set forth herein.

Notice to Downstream Community Water Systems (Page 21)

Lowell objects to the wording of the requirement to notify downstream community water systems. Of course, virtually every water system is downstream of some upstream community. Accordingly, these facility operators make investments in their water systems that assume challenging source water conditions (not necessarily dumping of unusual chemicals in large quantities, but certainly upstream sources such as CSOs, urban stormwater, and background pollution). Accordingly, we believe Part I.H.2 is overly broad. Read literally, it would require us to notify downstream water systems about each and every SSO we have, regardless of volume. That serves no real purpose. We believe the provision should be replaced with the following:

"The Permittee shall notify the downstream community water systems listed below of any emergency condition, plant upset or bypass, collection system release into surface waters, or permit noncompliance, which could potentially adversely affect their ability to adequately treat drinking water. The Permittee may consult with such community water systems for the purpose of developing written agreements as to the type of events/releases by the Permittee that they want notice of. A copy of any such agreement shall be provided to EPA and DEP."

Notification to Massachusetts Division of Marine Fisheries (Page 21)

We object to Part I.H.3, which requires us to notify Mass Department of Marine Fisheries (DMF) within 4 hours of "any emergency condition, plant upset, bypass, CSO discharges, SSO discharges or other system failure that has the potential to violate bacteria permit limits." This needs to be revised. This notification requirement is far too broad. Also, why are we notifying DMF rather than DEP regarding bacteria-related issues? We think this notice requirement should be deleted or revised to target meaningful events that warrant notice to DMF.

Definition of Waters of the United States (Page 19 of the Standard Conditions)

We question whether this definition needs to be in the permit. The vast majority of NPDES permits do not include this definition. Given the uncertainty and controversy over defining WOTUS, we ask that EPA remove this definition.

ATTACHMENT 4

RESPONSE TO COMMENTS
NPDES PERMIT NO. MA0100633
LOWELL REGIONAL WASTEWATER UTILITY
LOWELL, MASSACHUSETTS

The U.S. Environmental Protection Agency's Region 1 ("EPA") and the Massachusetts Department of Environmental Protection ("MassDEP") are issuing a Final National Pollutant Discharge Elimination System ("NPDES") Permit to the City of Lowell ("the City" or "Lowell") for the Lowell Regional Wastewater Utility ("LRWU") located in Lowell, Massachusetts. This permit is being issued under the Federal Clean Water Act ("CWA" or "Act"), 33 U.S.C., §§ 1251 *et seq.*, and the Massachusetts Clean Waters Act, M.G.L. Ch. 21, §§ 26-35.

This permit is being jointly issued by EPA and MassDEP. EPA will generally present responses to comments as EPA's and MassDEP's, even where the reference is only to EPA. MassDEP's certification and joint issuance of the permit establishes that MassDEP affirms EPA's response. Accordingly, this document represents the joint determinations of EPA and MassDEP, which are reflected in separately enforceable discharge permits issued under federal and state law.

In accordance with the provisions of 40 C.F.R. §124.17, this document presents EPA's responses to comments received on the Draft NPDES Permit No. MA0100633 ("Draft Permit"). The Response to Comments explains EPA's determinations that form the basis of the Final Permit. From June 7, 2019 through July 23, 2019, EPA and MassDEP (together, the "Agencies") solicited public comments on the Draft Permit.

EPA and MassDEP received comments from:

- Mark A. Young, Executive Director, Lowell Wastewater Utility dated July 22, 2019
- Stephen E. Jahnle, Assistant Director, Town of Chelmsford Department of Public Works dated July 23, 2019
- Town of Tyngsborough Sewer Commission dated July 23, 2019
- Richard Montuori, Town Manager, Town of Tewksbury dated July 23, 2019
- Betsy Reilley, Ph.D., Director, Environmental Quality Department, Massachusetts Water Resources Authority dated July 23, 2019
- Heather McMann, Executive Director, Groundwork Lawrence dated July 23, 2019
- Julia Blatt, Executive Director, Massachusetts Rivers Alliance and Caitlin Peale Sloan, Senior Attorney, Conservation Law Foundation dated July 23, 2019
- Alison Field-Juma, Executive Director, OARS for the Assabet Sudbury & Concord dated July 23, 2019
- Gene Porter, Chair, Lower Merrimack River Local Advisory Committee on July 20, 2019
- Christina Eckert, Co-Executive Director and John Macone, Co-Executive Director, Merrimack River Watershed Council dated July 22, 2019
- Philip D. Guerin, President & Chairman, Massachusetts Coalition for Water Resources Stewardship dated July 22, 2019
- Peter Severance, River Merrimack dated July 22, 2019

EPA received one additional comment letter that arrived on August 26, 2019, over a month after the close of the comment period. This comment letter was untimely, and accordingly, pursuant to EPA's NPDES regulations, it can neither be utilized to establish the commenter's standing, nor preserve any of the specific issues raised in it for review under 40 C.F.R. Part 124 procedures. Nevertheless, EPA, in its discretion, reviewed the letter and concluded that it does not raise any new issues beyond those addressed in Comments and Responses 4, 18, 21, 37 & 39 below.

After a review of the timely-submitted comments, EPA and MassDEP have made a final decision to issue this permit authorizing the discharge. The Final Permit takes the same fundamental approach as the Draft Permit made available for public comment. EPA's decision-making process has benefited from the various comments and additional information submitted and, as an outgrowth of those materials, EPA has made certain revisions to the permit in response. EPA also has supplemented certain analyses supporting the Final Permit, also in response to comments. These improvements and changes are detailed in this document and reflected in the Final Permit. A summary of the changes made in the Final Permit is listed below. The analyses underlying these changes are explained in the responses to individual comments that follow, which are identified after each change where applicable.

A copy of the Final Permit and this response to comments document will be posted on the EPA Region 1 web site: http://www.epa.gov/region1/npdes/permits_listing_ma.html.

A copy of the Final Permit may be also obtained by contacting Meridith Finegan, U.S. EPA, 5 Post Office Square, Suite 100 (Mail Code: 06-1), Boston, MA 02109-3912; Telephone: (617) 918-1533; Email finegan.meridith@epa.gov.

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I. Summary of Changes to the Final Permit

1. The maximum daily limits for $CBOD_5$ and TSS have been removed and replaced with report only requirements in the Final Permit. *See* Response 5.

2. A footnote to Part I.A.1 of the Final Permit has been added to the 85% removal requirements for $CBOD_5$ and TSS indicating that these limits apply only during dry weather, meaning any calendar day on which there is less than 0.1 inches of rain and no snow melt. *See* Response 6.

3. Footnote 1 to Part I.A.1 of the Final Permit has been modified to include flexibility as follows: "Occasional deviations from the routine sampling program are allowed, but the reason for the deviation shall be documented in correspondence appended to the applicable discharge monitoring report." *See* Response 11.

4. Footnote 4 to Part I.A.1 of the Final Permit has been deleted and footnote 3 has been modified for clarification to say: "For reporting an average based on a mix of values detected and not detected, assign a value of "0" for all non-detects for that reporting period and report the average of all the results." *See* Response 12.

5. Footnote 5 (footnote 6 of the Draft Permit) to Part I.A.1 of the Final Permit has been modified to clarify that a bypass of secondary treatment is subject to the requirements of Part II.B.4. (and not just Part II.B.4.c.) of the permit. *See* Response 13.

6. The last sentence of footnote 5 (footnote 6 of the Draft Permit) to Part I.A.1 of the Final Permit has been modified to say: "The Permittee shall not add septage to the waste stream at the treatment plant during activation of the secondary treatment bypass." *See* Responses 14.

7. Footnote 8 to Part I.A.1 of the Final Permit has been modified to remove the requirement to achieve a minimum level of 20 µg/L for total residual chlorine. *See* Response 15.

8. Part I.C.4.k of the Final Permit has been updated to include "to the extent feasible." The Final Permit also requires the following: "If certain information is determined to be infeasible to obtain, a justification must be included along with the map. If EPA disagrees with the assessment, it may require the map to be updated accordingly." *See* Response 20.

9. Part I.F.1 of the Final Permit has been modified to include snow melt as a source of wet weather. *See* Response 24.

10. Part I.F.3.e of the Final Permit has been modified to specify a record retention period of three years from date of the sample measurement, report, or application. *See* Response 31.

11. The total phosphorus compliance schedule in the Final Permit has been modified. *See* Response 32.

12. Part I.H.2 of the Final Permit has been modified to say: "The Permittee shall notify the downstream community water systems listed below of any emergency condition, plant upset, bypass, CSO discharges, SSO discharges or other system failure if any of those occurrences have the potential to affect the quality of the water to be withdrawn for drinking water purposes." *See* Response 33.

13. Footnote 13 to Part I.A.1 of the Final Permit has been modified to allow WET results to be submitted on the "second monthly DMR submittal following completion of the test." *See* Response 47.

14. Part I.B.2 of the Final Permit has been modified to specify that notifications shall remain on the Permittee's website for a minimum of 12 months. *See* Response 48.

15. Part I.B.2 of the Final Permit has been modified to require public notification within 24 hours of *becoming aware* of any unauthorized discharge impacting the surface water or the public. *See* Response 48.

16. Part I.F.3.g of the Final Permit has been modified to remove references to "affected entities" and "affected parties." *See* Response 49.

17. Part I.F.3.f of the Final Permit has been modified to require signage in English, Spanish and Khmer or the addition of a universal wet weather sewage discharge symbol to existing signs. *See* Response 58.

II. Responses to Comments

Comments are reproduced below as received and have not been edited.

A. Comments from Mark A. Young, Executive Director, Lowell Wastewater Utility on July 22, 2019:

Comment 1

Our NPDES permit is the primary regulatory mechanism for the operation, maintenance, and management of Lowell's wastewater transport and treatment system, one of the largest systems in Massachusetts. The permit also regulates four surrounding towns (Chelmsford, Dracut, Tewksbury, and Tyngsborough) that are listed as co-permittees. This permit has profound implications for the communities that we serve, and the environment that we protect. To illustrate the consequences of an inadequate comment period, Lowell has not had an opportunity to consult with our co-permittees regarding this draft permit. As such, Lowell is requesting the permit comment period be extended for sixty days (until September 23, 2019).

In the meantime, we offer our comments on Lowell's draft permit, with the caveat that more time is needed in order to thoroughly review and thoughtfully comment on this permit. During our

initial review of the draft permit, Lowell has identified several areas of concern, including: unnecessary and outdated requirements, inconsistencies with similar NPDES permits, the appropriateness of general water quality standards compliance language, certain permit limits that conflict or compete with Lowell's wet-weather flow treatment goals, the inclusion of a Phosphorous permit limit, and a lack of authorization for the permittee to implement CSO control policy.

Lowell believes that these issues have substantial interest to the public. Therefore, we are requesting a public hearing for this draft permit. Additionally, Lowell proposes a meeting with EPA and MassDEP to discuss our comments and identify a potential path for moving forward with this permit.

In the event that our concerns could be satisfactorily addressed through an agreement that might come out of such a meeting, followed by the issuance of a revised draft permit to reflect such revision, Lowell would likely waive its right to a public hearing.

Response 1

EPA appreciates the comments submitted by the City on the Draft Permit and has addressed the topics referred to in this comment throughout the document. In addition to the required 30-day public comment period pursuant to 40 C.F.R. § 124.10, EPA granted a 15-day extension that provided all stakeholders (including the Co-Permittees) with additional time to review the Draft Permit and submit relevant comments. Therefore, EPA is not further extending the public comment period, given that in its experience 30 days is typically sufficient to submit comments on a draft permit, especially in the context of a permit reissuance, where the permittee is already familiar with facility operations, permit regulations and attendant permit requirements, the vast majority of which remain unchanged from permit to permit. EPA also observes that this permit is long-expired and every reasonable effort should be made to ensure its expeditious reissuance, as contemplated by the Act.

Moreover, the permittee has been on notice that a draft permit was forthcoming even before the notice and comment period commenced. The Agencies met with representatives of the Lowell Regional Wastewater Utility ("LRWU") on multiple occasions to discuss the development of the NPDES Draft Permit and the permit renewal process. Most recently, on May 15, 2019, EPA met with representatives of the LRWU to further discuss the Draft Permit and also shared EPA's goal of finalizing permits within a six month period. This goal is in the FY 2018-2022 U.S. EPA Strategic Plan, and represents one of EPA's highest policy priorities.[1] The City was forewarned that draft permit proceedings were reaching a critical juncture, and it could have taken measures to retain any necessary technical and legal assistance beyond those already available to a municipality of Lowell's size in advance of the public comment period.

[1] FY 2018-2022 U.S EPA Strategic Plan, February 2018 (Updated September 2019), page 46. https://www.epa.gov/sites/production/files/2019-09/documents/fy-2018-2022-epa-strategic-plan.pdf

EPA disagrees that a public hearing is necessary. A public hearing would delay the issuance of these permits, which address issues of significance to human health and the environment, not only to the City but to downstream communities as well. The permit, in addition, is expired, so EPA does not take the prospect of further delay lightly. Additionally, the format of public hearings is not well -suited to clarify the types of complex legal and technical issues associated with this permit decision. The submission of written comments is in EPA's experience a more efficient and effective manner through which to communicate these issues to EPA. Accordingly, for each and all these reasons, the request for a public hearing is denied.

Comment 2

Total Phosphorous Limit (Page 3)

We support protecting the Merrimack River from excessive phosphorous loadings and are taking a proactive approach to accomplish this objective – such as our ongoing facility upgrade that will improve our ability to reduce phosphorous loadings – as well as additional future improvements that may be warranted. However, we have concerns about the phosphorous limit proposed in our permit.

First, we don't understand why EPA has not adopted its "Gold Book" value through notice and comment rulemaking. We believe it is both necessary and appropriate for EPA to provide the public with the safeguards of rulemaking to evaluate the appropriateness of the Gold Book limits along with how those criteria will be implemented.

Rulemaking is particularly warranted given that EPA is imposing the same Gold Book limit on all of the dischargers to the Merrimack River. It is clearly being applied as a binding norm and, therefore, meets the definition of a rule. We also note that in addition to the opportunity for stakeholders to evaluate the appropriateness of the Gold Book criteria in notice and comment rulemaking, such rulemaking brings additional safeguards such as compliance with various Executive Orders and financial impact analyses.

We note that EPA's 2010 Permit Writers' Manual, in Section 6.4, provides guidance on assessing reasonable potential using water quality models. For conservative pollutants, EPA recommends the use of steady-state dilution models; however, for nutrients, EPA instead recommends, "modeling that accounts for biological activity or reaction chemistry."

EPA's dilution-based approach for nutrients, as described in Lowell's draft permit, is inconsistent with EPA's own permitting guidance. Oftentimes, a more appropriate water quality model that considers reactivity is not available; however, Lowell is currently developing a Qual2K reactive model for the Lowell reach of the Merrimack River. Once calibrated, the model's output could be used to predict instream conditions for response variables associated with nutrients, such as dissolved oxygen and algal growth, thus supporting a more accurate evaluation of reasonable potential for the Duck Island discharge to cause or contribute to impairment associated with nutrients.

Accordingly, EPA should:

- As an interim measure, EPA should impose a Total Phosphorous loading limit for Lowell that is based upon our 2.24 mg/L multi-year annual average concentration (from EPA's Fact Sheet) times our 32 MGD design flow.
- Require Lowell to optimize our ongoing Duck Island treatment facility upgrade, and then report to EPA on our facility's phosphorous removal capability. A two-year timeframe is necessary in order for Lowell to complete its current phosphorous reduction improvements and optimize this system.
- Include a reopener in the permit that would incorporate any new limit based upon site-specific data acquired from Qual2K modeling.
- Impose a compliance schedule for any limit based upon the water quality model, consistent with the schedule for same in Lowell's approved CWA Section 402(s) Integrated Plan.

Response 2

Prior to offering specific responses to the City's comments, EPA observes that its overall approaches to establishing both phosphorus and nitrogen effluent limitations in NPDES permits have been extensively adjudicated over the past fifteen years, and they have been found to be reasonable and upheld by both the Environmental Appeals Board and the United States Court of Appeals for the First Circuit. Petitions for *certiorari* have twice been denied by the United States Supreme Court for Region 1 nutrient permitting (total phosphorus and total nitrogen) decisions under 40 C.F.R. §122.44(d)(1)(vi) in recent years. Arguments similar if not substantively identical to the ones relating to the use of the Gold Book as relevant information in setting phosphorus effluent limitations, as well as those raised below concerning 7Q10 and use of dilution, seasonal averaging periods, permit delay based on development of new models or TMDLs, and others, have been addressed and have been decided in EPA's favor. *See e.g., Upper Blackstone Water Pollution Abatement Dist. v. U.S. Envtl. Prot. Agency*, 690 F.3d 9 (1st Cir. 2012), cert. denied, 133 S. Ct. 2382 (2013); *City of Taunton v. U.S. Envtl. Prot. Agency,* 895 F.3d 120 (1st Cir. 2018), cert. denied, 139 U.S. 1240 (2019). Should the City wish to review these decisions, they are available here:

City of Taunton v. EPA (EAB and First Circuit)

- https://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/NPDES%20Permit%20Appeals%20(CWA)/0A045314B61E682785257FA80054E600/$File/Denying%20Review%20Vol-17.pdf

- https://yosemite.epa.gov/oa/eab_web_docket.nsf/A568248B44D1C63785258053005AEDD0/$File/Opinion%207.9.2018%20(46%20pages).pdf

  Upper Blackstone Water Pollution Abatement Dist. v. EPA (EAB and First Circuit)

- https://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/NPDES%20Permit%20Appeals%20(CWA)/A44361EC4C211B0685257865006EA1EC/$File/Upper%20Blackstone.pdf

- https://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/2D0D249E441A18F185257B6600725F04/$File/October%2018%202017.pdf

In re Town of Newmarket Wastewater Treatment Plant

- https://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/NPDES%20Permit%20Appeals%20(CWA)/97CCD304C9B7E58585257C3500799108/$File/Newmarket%20Decision%20Vol%2016.pdf

In re City of Attleboro MA Wastewater Treatment Plant

- https://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/NPDES%20Permit%20Appeals%20(CWA)/D506EBEE22A1035E8525763300499A78/$File/Attleboro.pdf

EPA is both confident in and committed to the overarching decision-making framework for nutrient permitting established by these precedents: administrative and judicial bodies have expressly found EPA's approach to be reasonable under the Act and, for its part, EPA has found the approach in its experience to be workable, expeditious, as well as demonstrably effective in addressing nutrient pollution, in a manner that is neither overly stringent, nor overly lax. While drawing on information from the scientific literature and national and regional EPA guidance, EPA also accounts for site-specific facts and circumstances surrounding the discharge and receiving waters in arriving at the permit result. EPA acknowledges that there are a range of alternative technical approaches and opinions when permitting for nutrients to ensure that uses for the waters designated by the Commonwealth for its citizens are achieved; while some of these may have merit, EPA's existing approach has been proven to have merit. EPA, accordingly, has discerned no persuasive reason to abandon the protective approach that has been adopted in the Draft Permit, and that has proven effective in other permitting initiatives, for the *far* less stringent and unproven one proffered by the City.

The commenter questions the use of the Gold Book in setting phosphorus limits. As stated in the Fact Sheet (at 23), the Massachusetts Water Quality Standards (MA WQS) contain a narrative criterion for phosphorus. *See* 314 CMR 4.05(5)(c). Until the State adopts numeric criteria, EPA must derive phosphorus limits that are protective of the State's narrative water quality standards.

In the course of deriving protective phosphorus effluent limits that meet the narrative phosphorus criterion, the Region looked to a variety of sources, including the Gold Book, Ecoregional Nutrient Criteria (*Ambient Water Quality Criteria Recommendations: Information Supporting the Development of State and Tribal Nutrient Criteria, Rivers and Streams in Ecoregion XIV (*EPA December 2000) and Nutrient Criteria Guidance (*Nutrient Criteria Technical Guidance Manual: Rivers and Streams, July 2000)*. These

constitute information published under CWA §304(a) and were used as *guidance* to interpret the State's narrative criterion for nutrients and not as substitutes for state water quality criteria. The Region's use of the Gold Book and other relevant materials published under Section 304(a) to develop a numeric phosphorus limit sufficiently stringent to achieve the narrative nutrient criterion is consistent with applicable NPDES regulations. The Gold Book does not contain a phosphorus criterion, but instead, as the commenter is aware, presents a "rationale to support such a criterion." Gold Book at 240. EPA's guidance document recommends in-stream phosphorus concentrations of 0.05 mg/L in any stream entering a lake or reservoir, 0.1 mg/L for any stream not discharging directly to lakes or impoundments, and 0.025 mg/L within the lake or reservoir.[2] When deriving a numeric limit to implement a narrative water quality criterion, EPA is authorized under 40 C.F.R. §122.44(d)(1)(vi)(B) to: "Establish effluent limits on a case-by-case basis, using EPA's water quality criteria, published under Section 304(a) of the CWA, supplemented where necessary by other relevant information." EPA also relied on 40 C.F.R. §122.44(d)(1)(vi)(A) in arriving at its determination. This provision similarly entails derivation of an instream target based on relevant information that will protect designated uses.

NPDES permit proceedings are informal adjudications, and may result in the imposition of limitations, conditions and other requirements on a discharge prior to authorizing that discharge. The imposition of conditions in a permit pursuant to the Act and implementing regulations, of course, does not amount to a rulemaking. While it is certainly true that EPA has over a period of years endeavored to utilize its experience and technical expertise to fashion a consistent technical approach to implement the Commonwealth's narrative water quality standard for nutrients, under the authority of *existing* regulations governing the translation of narrative water quality criteria, it is also a fact that this approach has been applied, as here, on a permit-specific basis: EPA's determination here does not bind the public generally and does not bind EPA in future permitting actions. Those actions will be based on the best information reasonably available in the administrative record at the time. EPA's permit-specific decisions, conducted under the rubric of 40 C.F.R. § 122.44(d), take into account, *indeed turn on*, site-specific information relating to the discharge and receiving water, and other relevant facts and circumstances. Thus, the phosphorus limitation was derived from the Act and existing regulations using relevant information in the course of translating the Commonwealth's narrative nutrient water quality criterion.

The City suggests the use of water quality modeling that accounts for biological activity and/or reaction chemistry. While EPA is open to considering this information, the City acknowledges that such a model is not available for use at the time of permitting. Congress intended for EPA to revisit and reissue NPDES permits at regular intervals, which is why permit terms are not to exceed five years. As EPA has noted, this permit is long expired, and EPA is in the process of clearing a very substantial permit backlog. Additionally, the types of impacts to human health and the environment resulting from the discharge here, including phosphorus and CSOs, are extremely significant from the

[2] The issue of whether Lowell discharges into a river or an impoundment/reservoir was raised by a commenter is a difficult one; it is addressed in Comment 97.

standpoint of human health and the environment, and directly and adversely impact members of the public, including the City's own citizens who recreate and otherwise utilize the Merrimack River.[3]

The administrative record establishes that the discharge has the reasonable potential to cause or to contribute to violations of the Commonwealth's narrative water quality standard for nutrients in Merrimack River. EPA appreciates that the City "supports protecting the Merrimack River from excessive phosphorous loadings," but this assertion is *not* consistent with the City's proposal for EPA to *indefinitely* forestall permit issuance pending development of a water quality model, whose completion date the City does not commit to and whose results obviously are unknown. Under law, EPA cannot fail to include a permit effluent limitation that it has determined to be necessary under Section 301, as that provision of the Act and implementing regulations requires, among other things, EPA to include limits in permits necessary to assure compliance with water quality standards. The commenter's proposals of either including an interim limit based on an arbitrary long-term average performance (since the facility has not in the past been subject to any nutrient controls) or based on technological capabilities associated with the plant upgrade are not considerations based in water quality and have no purchase under Section 301 from the standpoint of *establishing* water quality-based effluent limitations.

All of these factors counsel in favor of reasonably expeditious permit issuance, rather than waiting on the hope or expectation that more or better science will develop, while water quality degradation persists and potentially intensifies. Therefore, EPA has acted upon all available information and has concluded that the steady-state model applying the Gold Book guidance, as informed by other information in the administrative record, is a reasonable basis for the permit limit at this time. Should the permittee complete the model, it may submit that information to EPA as a permit modification and EPA will adjust the limit up or down, as warranted.

Comment 3

Total Phosphorous Limit (Page 3)

We disagree with the dilution-based approach that EPA utilizes to justify the inclusion of a phosphorous limit in Lowell's draft permit. In addition, Lowell has several other concerns with the phosphorous limit in our draft permit, as follows:

- Most permitting agencies base loading limits for conservative pollutants, such as metals, on the facility's design flow. EPA's approach, which uses the lowest monthly average, is overly conservative, given that nutrient impacts tend to be long-term, as opposed to the potentially acute impacts associated with conservative (metal) pollutants.

[3] *See e..g.*, https://www.nytimes.com/2015/10/01/us/toxic-algae-outbreak-overwhelms-a-polluted-ohio-river.html?searchResultPosition=3; https://www.nytimes.com/2017/07/07/nyregion/beware-the-blooms-toxic-algae-found-in-some-city-ponds.html?searchResultPosition=1; https://www.nytimes.com/2019/08/12/us/blue-green-algae-dogs.html?searchResultPosition=2.

- EPA's approach of developing limits based upon the plants' lowest monthly average flows is grossly unfair to CSO systems because it discounts the wet weather flows that we must treat.
- CSO systems like Lowell's should be given an additional loading based on the phosphorous loadings in their CSO discharges. As CSOs are reduced, these loadings should be shifted to the POTW. Another approach would be to exclude from the annual average calculation our concentration/loadings on any day when our treatment facility flows exceed 32 MGD. This is particularly appropriate given that EPA is using the 7Q10 rather than a longer term flow value to establish this twelve month rolling average limit.
- For these reasons, we believe that the mass calculation for a phosphorous loading limit in the permit is incorrect. The permit would give us 276 pounds of phosphorous per day using the lowest monthly average effluent flow. We think the correct approach is to base our loading on our design flow (32 MGD). That approach would give us 288 pounds per day.
- We also believe that EPA should give us a revised allocation that reflects the anticipated instream reductions that will result from the upstream facilities' reducing their phosphorous loadings.
- It is clearly erroneous to base our annual average total phosphorous limit on a 7Q10 river flow value. The 7Q10 condition occurs 1-3 percent of the time, so it is logically untenable to apply that flow as the basis for an annual average limit. While acknowledging MassDEP's regulations specify the use of the 7Q10 for aquatic life criteria, the narrative criteria for nutrients are related to "nuisance conditions", as opposed to acute impacts on fish and aquatic life. Therefore, within the existing regulations, there is flexibility in determining appropriate hydrologic conditions for establishing nutrient limits. We also note that the Permit Writers' Manual, in Section 6.1, suggests that states adopt seasonal or annual averaging periods for nutrients, as opposed to conditions set out for toxic pollutants. For these reasons, we believe that the harmonic mean or annual average flow is a more appropriate basis for characterizing stream flow in a reasonable potential analysis.

Response 3

The limit as calculated is appropriate given EPA's knowledge of currently prevailing background conditions, the uncertainty of accurately projecting the extent of reduced background concentrations in the near-term, and the reasonable potential for the discharge to violate water quality standards downstream. The waters downstream of this discharge have been listed by the Commonwealth as impaired for phosphorus on its 303(d) list. It is prudent to adopt a reasonably conservative, or protective, approach in aquatic systems at risk of cultural eutrophication. In order for a river to be restored to health, the eutrophic cycle must be broken by limiting the amount of excessive phosphorus available for uptake by aquatic plants and to allow whatever existing phosphorus has accumulated in the sediments in the past to gradually flush out of the system over time. Once the cycle is underway, it is much more difficult and costly to restore designated uses in the receiving waters. Thus, from a pollution management standpoint, a preventative approach makes sense in the context of nutrient permitting. This is particularly important since Lowell discharges upstream of a segment whose hydrology has been altered. This approach is entirely consistent with EPA's nutrient technical guidance, as well as case law in the First Circuit.

EPA has an obligation under the Act to establish effluent limits in an NPDES permit necessary to achieve water quality standards. As discussed in the Fact Sheet, the implementing regulation at 40 C.F.R. § 122.44(d)(1)(i) states that, "Limitations must control all pollutants or pollutant parameters which may be discharged at a level which will cause, have reasonable potential to cause or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." EPA uses the design flow of a treatment plant as well as the 7Q10 low flow of the receiving water to calculate concentration-based effluent limits. In determining water quality-based effluent limits for an individual permit, EPA reviews water quality standards, characterizes the effluent and the receiving water, then determines the need for a water quality-based limit using a reasonable potential analysis.

The City suggests that the use of the design flow would be more appropriate than the lowest monthly average flow in calculating the mass-based phosphorus limit. While the phosphorus limit in the Draft Permit is a concentration-based limit based on design flow, EPA also presented an alternative approach applying a mass-based limit in the Fact Sheet (at 26-27) based on the lowest monthly average flow. As described in the Fact Sheet, the mass-based approach is based on a critical condition of 7Q10 low flow and the lowest monthly average flow from the WWTF. This critical condition would result in the lowest downstream flow that would provide the lowest available dilution for the allowable load and still protect water quality standards. In other words, if the mass-based limit were 288 lb/day based on design flow (4% higher than the 276 lb/day based on the lowest monthly average flow) then water quality standards could be violated under these critical conditions. If the discharge of 288 lb/day occurred at the lowest monthly average flow during 7Q10 conditions, the resulting downstream concentration would be 103 µg/L (> 100 µg/L). Therefore, in order to protect water quality standards under the critical condition allowed in the permit, the mass-based limit must be based on the lowest average monthly flow. EPA notes that, given the dilution available, there is only a 4% difference between the limits based on the lowest monthly average flow and the design flow. However, EPA notes that the Final Permit contains a concentration-based limit using the facility's design flow and not a mass-based limit using the lowest monthly average flow, as described below.

The City asserts that under high flow conditions (> 32 MGD), the mass-based limit may be overly stringent as the facility attempts to minimize CSO discharges. EPA notes that the limit is a monthly average limit based on weekly monitoring, so any sampling done under conditions above 32 MGD would only partially impact the resulting monthly average. However, EPA understands the concern related to high flow events and has determined that the concentration-based limit of 1.08 mg/L would be appropriate in light of this consideration. Under this limit, as flows increase to 32 MGD the allowable mass would increase proportionally to approximately 288 lb/day. Therefore, the Final Permit maintains the concentration-based limit from the Draft Permit.

The City requests that EPA account for potential future reductions in phosphorus from upstream dischargers. EPA notes that the permit limit is based on ambient data from

2018, which is reflective of any recent upstream load reductions. While upstream loads of phosphorus may be reduced over time, the magnitude, timing and impact of those reductions are unclear. It is inequitable for the City to ask members of the public who recreate on these and downstream waters to bear the risk of this uncertainty, or to shift the responsibility for protecting these waters to upstream communities. While *permitted or regulatorily planned* upstream reductions might well be a sound basis on which to analyze downstream permit limits, to base a permit limit on potential or merely "anticipated" future reductions is sheer conjecture. The fact that permits are to be issued at five-year intervals, and EPA's commitment to reducing the permit backlog by timely reissuance, will allow water quality conditions to be assessed at relatively short intervals and limits adjusted as necessary.

Crediting Lowell for any reductions in CSO flow with an additional phosphorus allocation would not be consistent with Section 301 under the circumstances here, especially given the nature of nutrient pollution and the reasonably protective approach EPA is required to take when confronted with nutrient impaired waters, or those at risk of impairment. Unlike CSO phosphorus loading, POTW phosphorus loading is continuous and less dilute, and will occur not only during wet weather, when there may be some buffering capacity in the receiving waters, but also during critical low flow conditions, when those waters are most stressed. In other words, the City's efforts to reduce the adverse water quality impacts of one of its discharges does not give its license to then exacerbate an ongoing water quality exceedance caused by another.

Finally, the City suggests that the use of the 7Q10 flow is inappropriate as the basis of an annual average phosphorus limit. First, EPA notes that the commenter mistakenly references the phosphorus limit as an annual average limit. Rather, the limit is a *monthly* average limit applied from April through October. Second, the Gold Book values are clearly referenced as values not to be exceeded at any time, not annual averages. Therefore, it is appropriate to apply the recommended values to the 7Q10 flow as a critical condition. For comparison, the ecoregional value (31.25 µg/L) represents average values during the critical growing season. If EPA were to use a seasonal or annual averaging period and the associated harmonic mean flow, the ecoregional value would be a more appropriate in-stream target concentration. Given the upstream median concentration of 41.6 µg/L, this approach would likely result in more stringent effluent limits. Moreover, as the City fully acknowledges, MA WQS are *required* to be met under 7Q10 conditions, and EPA therefore used the 7Q10 flow for the purposes of deriving the limit.

There is good reason for this in the context of nutrient permitting, which can, contrary to the commenter's assertion, result in adverse short-term impacts on receiving water quality and aquatic life, including low DO, in addition to recreational and other designated uses. During the growing season, when light and temperature are optimal for plant growth and the receiving water is subject to elevated nutrient concentrations, aquatic plant biomass growth can proliferate in relatively short periods of time. A permit limit based on 0.1 mg/L and calculated using seasonal or annual flows would have the potential to allow periods of excessive loading of nutrients during and around critical low

flow conditions while still meeting the overall limit. The resulting biomass from any plant growth would violate water quality standards and have the potential to settle into the sediments and contribute to future water quality violations. It is imperative, therefore, to ensure that phosphorus effluent discharges from the facility and the resulting ambient phosphorus concentrations are maintained at consistently low levels. A phosphorus effluent limit that assumes worst case hydrological conditions will accomplish the objective of maintaining consistently low phosphorus in-stream concentrations.

In terms of compliance, EPA imposes the limit as a monthly average, as explained. Not only is imposition of a 30-day average limit consistent with federal regulations governing the NPDES programs, such an averaging period will again reasonably minimize (when compared to a seasonal average limit) the amount of time that phosphorus effluent concentrations from the facility can cause an instream exceedance of 0.1 mg/L and still comply with the limit.[4] This approach maintains consistently low phosphorus effluent concentrations, as well as minimizes overall phosphorus loading into the system, which is important in impaired waters, like the receiving water here, and where there may be some potential for the existing sediment phosphorus deposits to recycle in the water column. A conservative approach is appropriate and consistent with EPA's obligation to ensure compliance with water quality standards. EPA does not foreclose the imposition of limits based on seasonal or annual flows in all instances, so long as such limits are sufficiently low to ensure compliance with water quality standards. Based on EPA's review of protective seasonally-based ambient phosphorus values that were available in EPA's Nutrient Technical Guidance Manual and the peer-reviewed literature, it is clear that the City proposals would not be sufficiently stringent to meet this test.

In sum, EPA does not believe a 0.1 mg/L target that is calculated using seasonal or annual average flows would be sufficiently protective to *ensure* the discharge complies with applicable water quality standards, as it is required to under the Act.

Comment 4

Effluent Flow Limit (Page 3)

The effluent flow limit must be removed from the permit. It is completely unnecessary to protect public health or the environment. The concentration and/or mass limits do that. There is no circumstance where a flow limit is necessary. Because of this reality, most states (and their EPA Regional Offices) do not impose flow limits (certainly not on CSO facilities). We note that EPA Headquarters and Region 3 do not impose a flow limit for the District of Columbia's Blue Plains treatment facility. Thus, it is clear that NPDES permits can legally and technically be issued without flow limits.

Moreover, flow limits are counterproductive for CSO facilities because such limits conflict with the technology-based requirement of the Nine Minimum Controls to maximize flow (not comply with an unnecessary flow limit) through the treatment facility. Why would we ever impose a

[4] *See* 40 C.F.R. § 122.45(d)(2) ("For continuous discharges all permit effluent limitations, standards and prohibitions, including those necessary to achieve water quality standards, shall unless impracticable be stated as average weekly and average monthly discharge limitations for POTWs.").

restriction on how much flow we can take through the treatment facility? Accordingly, a flow limit will cause us to reduce wet weather flows to the Duck Island facility so that we don't exceed a permitted flow limit. This is not a hypothetical concern – we have exceeded the flow limit in two of last five years.

We thought EPA understood this reality and the unintended consequences from our flow limit when EPA agreed to impose interim "monitor only' limits for flow in our 2010 administrative order (Order Docket 010-026; 9/30/10). We anticipated that the "monitor only" approach would be carried over into this draft permit. We continue to believe that is the correct approach. This is not an issue involving faulty operation of our facility, but rather of conflicting permitting provisions that must be resolved.

We also note that concerns about inflow and infiltration are misplaced in terms of an attempt to justify inclusion of a flow limit. As a CSO community, Lowell's long-term control plan will address any cost-effective opportunities to remove excessive inflow and infiltration. A flow limit is far too removed from that planning and will, in effect, limit Lowell's ability to cost-effectively comply with the CSO Policy because such a limit restricts Lowell's use of its treatment facility capacity to manage peak wet weather flows. This will make Lowell's CSO control program unnecessarily more expensive and will result in greater untreated sewer overflows.

We also question EPA's legal authority to limit the flow that can be discharged from a POTW. In one of the most significant Clean Water Act decisions in the last thirty years, the U.S. District Court for the Eastern District of Virginia issued an opinion holding that EPA lacks authority under the Clean Water Act to regulate flow in a TMDL. Fairfax County and the Virginia Department of Transportation (VDOT) appealed a TMDL issued by EPA establishing flow limits for Accotink Creek in Northern Virginia. The flow limits were intended to reduce the amount of sediment in the creek. Fairfax and VDOT successfully argued that the Clean Water Act clearly denies EPA the authority to regulate flow, even as a surrogate for a pollutant such as sediment.

United States District Court Judge Liam O'Grady conducted an analysis under Chevron Step 1, concluding that, under the plain language of the statute, EPA unambiguously does not have authority to establish TMDLs for non-pollutants, such as flow, as surrogates for pollutants. The court invalidated any interpretation of EPA's regulations that would allow the agency to regulate non-pollutants such as flow. The decision went on to find that, even with the deference that would be accorded to EPA in a Chevron Step 2 analysis, EPA's interpretation of the Clean Water Act to allow the regulation of flow would be an impermissible construction of the statute [Virginia Department of Transportation et al v. United States Environmental Protection Agency et al., case number 1:12-cv-00775].

While we feel strongly that there should be no flow limit whatsoever – because it provides no environmental protection (keep in mind that the vast majority of POTW permits in the country do not include flow limits) – if EPA were to insist on a flow limit, it should at least be set at a level that won't prevent our maximization of wet weather flows.
For example, rather than using our long-term average flow of 32 MGD, the permit limit could be based on a higher, peak flow value or simply allow us to exclude from the calculation any flows

greater than 32 MGD that occur in response to wet weather events. Nevertheless, Lowell retains the right to challenge the inclusion of even such modified flow limits.

Unless the flow limits are removed, Lowell will either have to challenge the permit in order to be able to continue to maximize wet weather flow through the treatment facility, or we will have to modify our high flow management plan to ensure that we throttle back flows at the treatment facility in order to ensure compliance with the flow limit.

Finally, we note that flow is not a pollutant under Massachusetts law either [see 314 CMR 3.19].

Response 4

EPA Region 1 has included limits on the wastewater effluent flow from POTWs, based on the design capacity of the facility, throughout Massachusetts (96 facilities since 1984, 13 of which include CSOs, including the 2005 NPDES Permit issued to Lowell) and increasingly in New Hampshire (13 facilities since 2005). Moreover, States and other EPA Regions have issued over 3750 NPDES permits (92 facilities with CSOs) to POTWs with similar limits in other parts of the country.

The inclusion of a wastewater effluent flow limit in the Lowell Regional Wastewater Utility permit is authorized by the CWA § 402(a)(2), which provides that "[t]he Administrator shall prescribe conditions for such permits to assure compliance with the requirements of" CWA § 402(a)(1) – including, by reference, CWA § 301 – "and such other requirements as [she] deems appropriate." As discussed below, the Lowell wastewater effluent flow limit is an appropriate "operation and maintenance" requirement that assures compliance with the technology and water quality-based effluent limitations required by CWA § 301 and is "appropriate" pursuant to CWA § 402(a)(2).

40 C.F.R. §§ 122.41(d) and (e) require the permittee to (1) "take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment," and (2) "at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of the permit." The design capacity-based wastewater effluent flow limit is authorized by section 402(a)(2) and appropriate in order to assure that Lowell operates its facility to comply with its permit's technology- and water quality-based effluent limitations.

As stated in the Fact Sheet, using a facility's design flow in the derivation of pollutant effluent limitations, including conditions to limit wastewater effluent flow, is fully consistent with, and anticipated by NPDES permit regulations. 40 C.F.R. § 122.45(b)(1) provides, "permit effluent limitations…shall be calculated based on design flow." POTW permit applications are required to include the design flow of the treatment facility. Id. § 122.21(j)(1)(vi).

The City unfairly contends that EPA sought to limit wastewater effluent flow from the facility on the basis that flow, or quantity of water, was a "pollutant" whose discharge could be regulated under the Act. This is not the case. Establishing water quality-based

effluent limitations that are sufficiently protective to meet in-stream water quality criteria requires EPA to account for both *wastewater effluent* and receiving water flows, as EPA explained in the Fact Sheet. Conditions imposed by EPA to limit wastewater effluent flows from the facility for the permit term are designed to assure that the facility's pollutant discharges do not result in excursions above in-stream water quality criteria, in accordance with section 301(b)(1)(C) of the Act and implementing regulations. 40 C.F.R. §§ 122.4(d), 122.44(d)(1), 122.44(d)(1)(vii)(A), 122.44(d)(5). Most trenchantly, 40 C.F.R. § 122.4(d) prohibits issuance of an NPDES permit "[w]hen the imposition of conditions cannot ensure [emphasis added] compliance with the applicable water quality requirements of all affected States." Section 122.44(d)(1) is similarly broad in scope and obligates the Region to include in NPDES permits "any requirements…necessary to: (1) Achieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality." "Congress has vested in the Administrator [of EPA] broad discretion to establish conditions for NPDES permits" in order to achieve the statutory mandates of Section 301 and 402. *Arkansas v. Oklahoma*, 503 U.S. 91, 105 (1992). Under CWA section 402, EPA may issue NPDES permits "for the discharge of any pollutant, or combination of pollutants" if the permit conditions assure that the discharge complies with certain requirements, including those of section 301 of the CWA. The Act defines "pollutant" to mean, inter alia, "municipal . . . waste[]" and "sewage…discharged into water." CWA § 502(6). EPA has implemented Sections 301(b)(1)(C) and 402 of the Act through numerous regulations, which specify when the Region must include specific permit conditions, water quality-based effluent limitations or other requirements in NPDES permits. The wastewater effluent flow limit is a condition designed to ensure that WQS will be met. More specifically, EPA based both its reasonable potential calculations and its permit effluent limitations for individual pollutants on a presumed maximum wastewater effluent discharge from the facility. EPA's reasonable potential regulations require EPA to consider "where appropriate, the dilution of the effluent in the receiving water," 40 C.F.R. § 122.44(d)(1)(ii), which is a function of both the wastewater effluent flow and receiving water flow. EPA guidance directs that this reasonable potential analysis be based on critical conditions. EPA, accordingly, is authorized to carry out its reasonable potential analysis by presuming that a plant is operating at its design flow during critical instream conditions (*i.e.*, 7Q10) when assessing reasonable potential.[5]

The commenter's citation to *Virginia Department of Transportation* is not relevant to this proceeding. That case concerned EPA's approval of TMDLs under Section 303 of the Act, not the development of reasonable effluent limitations under separate and distinct authority governing the NPDES permitting process—Sections 301, 402 and implementing regulations.

EPA guidance for the Nine Minimum Controls ("NMCs") states that the fourth minimum control, maximizing flow to the POTW, "requires particular attention to regulatory

[5] USEPA, 2010, National Pollutant Discharge Elimination System (NPDES) Permit Writers' Manual, EPA-833-K-10-001, p. 6-17

considerations as well as treatment and capacity considerations. Although many POTWs have the physical capacity to accept increased flows during wet weather events, the following regulatory and technical issues must be addressed, however, in order to ensure that flow maximization provides a net environmental benefit.[6]"

EPA included a flow limit in Lowell's 2005 NPDES Permit. EPA recognizes that that the effluent flow limit was later the subject of an Administrative Order (AO) and that the effluent flow limit was changed to monitor only "…until the issuance of a new Permit". The AO required significant work by Lowell to address effluent flow and CSOs. Lowell is not the only POTW with CSOs and a flow limit; EPA has included flow limits in NPDES permits for twelve other POTWs with CSOs in Massachusetts. The flow limit in the permit is based on the design flow of the treatment facility. Nine Minimum Control number 4 ("maximization of flow to the POTW for treatment") should be implemented within the capacity of the facility.

Finally, EPA observes that the public notice period is not the proper venue in which to request an increase in the permitted effluent flow, absent an antidegradation review by the State supporting such a request, for any parameters calculated on the basis of flow. The City has neither submitted, nor to EPA or MassDEP's knowledge, conducted such a review. Should the City decide to seek an increase, it may contact MassDEP and EPA concerning the information necessary for the Agencies to review such a request (*i.e.*, the Massachusetts' Comprehensive Wastewater Management Plan, relevant antidegradation provisions and applicable local, state, and federal regulations).

EPA has maintained the flow limit in the Final Permit. *See* Response 37. The flow limit does not represent a change from the prior permit, and City acknowledges that it has worked with EPA enforcement to address flow issues relating to CSOs to the satisfaction of the City while ensuring a protective environmental outcome. EPA or the relevant state has worked with virtually every CSO community in New England to develop CSO abatement schedules to be memorialized in administrative or judicial enforcement mechanisms. As necessary, such schedules are adjusted to reflect new information and evolving financial conditions.

Comment 5

Daily Maximum Limits for CBOD and TSS (Page 3)

The daily maximum limits for CBOD and TSS are technology-based limits. They are legally inconsistent with EPA's regulations, which require monthly and weekly average limits, unless impracticable [40 CFR § 122.45(d)(2)]. The development of average monthly and weekly permit limits is clearly not impracticable, because EPA has, in fact, imposed them in the permit as well. We also note that the vast majority of POTW permits in the country have monthly/weekly only limits for CBOD and TSS – including facilities such as the District of Columbia's Blue Plains treatment plant (permit issued by EPA Headquarters/Region III).

[6] U.S. EPA, Office of Water, 1995, "Combined Sewer Overflows: Guidance for Nine Minimum Controls," EPA-832-B-95-003, p. 5-2.

As with the flow limits addressed above, the daily maximum CBOD/TSS limits are also counter-productive environmentally because they are a de facto limit on how much peak wet weather flow we can take through the Duck Island treatment facility. Specifically, we have exceeded the TSS daily maximum limits on a number of occasions. It makes no sense to restrict flows into the treatment facility (which flows would then receive treatment - including disinfection) as opposed to discharging those same volumes as untreated combined sewage from our CSO outfalls.

We also note that the expression of the daily maximum TSS limit appears to be incorrect. We assume EPA is working from the construct of taking the monthly average (30 mg/L) and multiplying it by 1.5 to get the weekly average (45 mg/L) found in the secondary treatment regulation and then multiplying the monthly average value times "2" to get the daily maximum value of "60". However, the permit includes a highly unusual value of "50" for TSS.

Finally, we note that these limits are neither necessary nor appropriate, as they were not included in the recent draft permits for Springfield and Haverhill. EPA has provided no explanation as to why such limits are necessary and appropriate for Lowell (and Lawrence), but not for the other two communities. As with the flow limits, our exceedance of these inappropriate limits is not due to our faulty operation of our treatment facility. Instead, it is due to conflicting and inappropriate permitting requirements for our facility.

Response 5

EPA agrees that the maximum daily limits are not listed as technology-based limits for secondary treatment in 40 C.F.R. § 133.102 and, in this case, may create a disincentive to minimize CSO discharges. Therefore, EPA has removed the maximum daily limits from the Final Permit and replaced them with reporting only requirements. EPA is requiring monitoring as this data along with monthly and weekly average data will be useful to assess overall operation of the facility.

Comment 6

CBOD/TSS Percent Removal (Page 3)

Lowell objects to the 85 percent removal requirement for CBOD and TSS in the permit. There is no need for this limit. Percent removal provides no environmental protection whatsoever – that is done by the mass/concentration limits for both CBOD and TSS. Accordingly, we ask that the percent removal requirement be removed.

If the percent removal limit is to remain – over our objection and without waiving our right to challenge its retention – EPA should specify that the percent removal requirement only applies during dry weather days. This is the approach EPA took in Springfield's permit and is appropriate for all CSO systems.

Response 6

Regarding the percent removal requirement, EPA notes that the 85 percent removal requirements for $CBOD_5$ and TSS are included in the Draft Permit as technology-based limits for secondary treatment pursuant to 40 C.F.R. § 133.102. However, a special

consideration may be made for treatment works with combined sewer systems based on 40 C.F.R. § 133.103(a), which allows for flexibility with respect to percentage removal levels on a case-by-case basis. EPA has determined upon review of the record before it that an attainable percentage removal level cannot be defined under wet weather conditions. To avoid creating any disincentive to minimize CSO discharges, EPA agrees with the commenter and has added a footnote in Part I.A.1 of the Final Permit to clarify that the 85 percent removal requirement applies only during dry weather (meaning any calendar day on which there is less than 0.1 inches of rainfall and no snow melt).

Comment 7

E. Coli Daily Maximum Limit (Page 3)

First, we note that the daily maximum limit should be deleted because it is based on EPA's criteria Statistical Threshold Value (STV) (410 colonies per 100 mL), which is derived from the same statistical distribution as the geometric mean-based average value, both derived to protect the defined intestinal illness rate. As such, protection of the average is also protection of the STV (particularly given the high monitoring frequency), and it is unnecessary to impose a daily limit for protection of the criteria and the designated use.

We also note that there is no reason that EPA could not calculate monthly and weekly average bacteria limits for our facility, in lieu of monthly and daily limits. After all, several states calculate weekly bacteria limits (such as North Carolina, Kentucky, and Missouri while other States such as Virginia, Maryland, and the District of Columbia use monthly geometric mean limits only.

Moreover, for the same reasons noted above for the daily maximum limits for CBOD and TSS, we urge EPA to provide some flexibility with the daily maximum E. coli limit. Most POTWs across the country have either monthly geometric mean limits or monthly and weekly average/geo-mean limits. Unless some flexibility is provided on this daily maximum E. coli limit, it could cause Lowell to have to restrict its wet weather treatment capacity.

Also, we note EPA Region III's response to public comments urging EPA to impose a daily maximum bacteria limit on the District of Columbia's Blue Plains treatment facility. In rejecting the inclusion of a daily maximum E. coli permit limit for Blue Plains, EPA stated: "Single sample maximums are not normally taken to evaluate continuous municipal discharges."

We also note that because the water quality standard for E. coli is applied to Lowell at the end-of-pipe, we should be given some compliance flexibility. Lowell benefits from an 18:1 dilution during 7Q10 flows (which occur 1-3 percent of the time) and significantly higher dilution during all other periods. We suggest that Lowell is allowed to exceed the daily maximum permit limit one percent of the number of annual samples that we take. This is the approach that West Virginia DEP has taken – particularly to accommodate CSO programs. During wet weather, when CSOs (and urban runoff) discharges are active, holding the treatment facility to a daily maximum limit does not make sense.

Under our one percent proposal, if we sample five times per week, that equates to 256 samples per year – resulting in an allowable 3 exceedances of the daily maximum limit over those 256 samples. Given the dilution available to us, that would ensure year-round compliance with the instream bacteria standard. Accordingly, we ask that EPA add the following footnote to the E. coli limit: "The permittee shall not exceed this daily maximum limit in more than one percent of the samples taken each year. For this permit cycle, the permittee will sample 256 times per year, so the daily maximum limit may not be exceeded in more than three samples in any calendar year."

There are many approaches that EPA could take in order to provide some appropriate flexibility while still meeting the instream bacteria standard (to the extent it is even attainable during wet weather events). Another approach could be a higher bacteria limit when treatment facility flows exceed our 32 MGD design capacity. We only exceed that capacity during wet weather events. In such circumstances, a higher limit – say 2040 counts (five times higher than dry weather yet only occurring when we get enormous dilutions) would be appropriate and fully protective of instream water quality. By way of example, even in 7Q10 conditions, a treatment facility discharge of 2040 counts, diluted 18 times would equate to a concentration of approximately 200 counts at the edge of our mixing zone. This assumes a background concentration of 100 counts. During wet weather, the dilution factor would increase dramatically and the bacteria concentration at the edge of the mixing zone would drop essentially to the river background level.

Response 7

While EPA acknowledges that there are different methodologies available for implementing recreational bacteria criteria, EPA has opted for a protective approach that is consistent with the Commonwealth's interpretation and application of its water quality standards. Recreational use of waters contaminated with microbial contamination can result in human health problems such as sore throat, gastroenteritis, or even meningitis or encephalitis (Cabelli, 1983; USPEA, 1986; Cabelli, 1989; Haile, 1996; Pruss, 1998). In 2007 Massachusetts finalized the adoption of EPA's then recommended 1986 recreational bacteria criteria.[7] The 1986 EPA recommendations are summarized in Table 1. EPA's subsequent guidance on implementation of the criteria recommended that states decide how to apply the single sample maximum (SSM) for purposes beyond the context of beach notifications and closure decisions. This guidance was included in the preamble to the final Water Quality Standards for Coastal and Great Lakes Recreational Waters, on November 16, 2004.[8]

[7]EPA, *Ambient Water Quality Criteria for Bacteria*-1986, EPA440/5-84-002, January 1986,
[8]Federal Register/Vol. 69, No. 220/Tuesday, November 16, 2004, paragraph IV.B.3, page 67224.

Table 1 - 1986 Recommended Recreational Criteria for Fresh Water[9]

		Geometric mean*	SSM*			
	Use/ frequency		Designated Bathing Beach Area	Moderate Full Body Contact Recreation	Lightly Used Full Body Contact Recreation	Infrequently Used Full Body Contact Recreation waters
	Confidence level		upper 75%	upper 82%	upper 90%	upper 95%
Fresh waters						
enterococci		33	61	89	107	151
E. coli		126	235	298	409	575

*Values are colonies per 100 ml.

MassDEP regulations at 314 CMR 4.05(3)(b)(4)(b), regarding Class B bacteria for other (non-bathing) waters state "where E. coli is the chosen indicator… no single sample taken during the bathing season shall exceed 235 colonies per 100 ml." This language refers to a single sample of ambient water quality, not wastewater effluent.

In its implementation of the Class B bacteria criteria, MassDEP uses the 90th percentile single sample maximum (SSM) recommended criteria as the maximum daily effluent limitations for NPDES discharges. EPA and DEP agree that the 90th percentile single sample maximum recommended value is protective of human health while accounting for the comparatively lower recreational use in the immediate vicinity of wastewater treatment plant outfalls.

NPDES permits issued in Massachusetts have established bacterial limitations equal to the water quality criteria with no allowance for dilution. The Massachusetts Water Quality Standards at 314 CMR 4.03(2), Mixing Zones allow the recognition of a limited area or volume of a waterbody as a mixing zone, and that waters within the mixing zone may fail to meet specific water quality criteria. However, among the conditions that must be met before a mixing zone may be established is that the mixing zone may not "interfere with the existing or designated uses of surface waters". Because bacterial counts in excess of the applicable water quality criteria would interfere with attainment of primary and secondary contact uses within the mixing zone, EPA and MassDEP have in other cases not allowed mixing zones for bacteria and have instead incorporated the water quality criteria as end-of-pipe limits.

This practice is further supported by MassDEP's "Implementation Policy for Mixing Zones".[10] Part III a) of this policy states that "The most important site-specific factors governing the application of mixing zones are the actual and projected water uses in the segment. Certain uses may be deemed critical in that no excursions from criteria are desirable. These include areas that are highly sensitive or extensively used. In order to

[9]EPA, *Ambient Water Quality Criteria for Bacteria*-1986, EPA440/5-84-002, January 1986, Table 4 on page 15.
[10] MassDEP, *Implementation Policy for Mixing Zones,* January 1993, page 2.

provide a reasonable margin of safety for these uses, no mixing zone can be permitted." Among such critical uses listed in the policy are shellfish harvest areas (Class SA and SB waters) and public bathing beaches and other heavily used recreational waters.

Further support for not allowing mixing zones for bacteria may be found in a November 12, 2008 memo[11] prepared by EPA's Office of Science and Technology regarding initial zones of dilution for bacteria in rivers and streams designated for primary contact recreation that concludes that "…we cannot envision a circumstance where discharges that elevate bacteria levels beyond criteria can be viewed as protective of primary recreation use in fresh flowing waters like rivers and streams."

EPA believes that use of mixing zones which allow for an elevated level of bacteria in waterbodies which are designated for primary and secondary contact recreation is inconsistent with the designated use of the water and should not be allowed as it may result in a significant health risk. Thus, the Final Permit provides that the effluent limitations for bacteria shall be met at the end of pipe.

Comment 8

Whole Effluent Toxicity (Page 4)

We object to the permit requirement to continue performing whole effluent toxicity testing on a quarterly basis. We have been doing so since 2005. This quarterly testing is in addition to the four two-species tests we performed for our permit renewal. Associated with this WET testing is additional testing for metals and other parameters which EPA has required. This unnecessary testing costs Lowell thousands of dollars over a five year permit term.

After 14 years of quarterly WET testing, our effluent is well characterized as being non-toxic. We have passed all of our quarterly tests as well as the four, two-species tests we performed for the application for renewal. This comes as no surprise, given that our instream waste concentration is approximately five percent. After more than 56 straight passes, our effluent is beyond being well-characterized as non-toxic.

Moreover, as EPA's reasonable potential spreadsheet reveals, our effluent is nowhere close to having reasonable potential for the common municipal toxicants (e.g., copper, lead, ammonia). Thus, the quarterly WET testing is simply a waste of time and public resources. We ask that it be removed from the permit. We do agree, however, with a requirement to perform the four two-species tests required for each future permit renewal.

Response 8

As indicated in the Fact Sheet, the MassDEP[12] current toxic policy requires toxicity testing for all dischargers such as the LRWU. EPA notes that the test species was reduced in 2005 to a single species (*Ceriodaphnia dubia*), with a report only requirement for the

[11] Ephraim S. King, Director, Office of Science and Technology, U.S. EPA Memo to Walter Spratlin, Director, Water, Wetlands and Pesticides, U.S. EPA, RE: Initial Zones of Dilution for Rivers and Streams Designated for Primary Contact Recreation, November 12, 2008, p. 2.

[12] *Implementation Policy for the Control of Toxic Pollutants in Surface Waters*, MassDEP 1990

chronic C-NOEC test. Recent monitoring data during the review period reveal multiple occasions of chronic toxicity at as low as 6.25 percent effluent. Given that a potential permit limit for chronic toxicity would be 5.6 percent effluent (1 / (dilution factor) = 1/17.8 = 0.056), the recent results demonstrate the potential for toxicity to occur.

Additionally, EPA disagrees that the previous chemical-specific whole effluent toxicity ("WET") data reveals the effluent is "nowhere close" to having reasonable potential. Rather, the data for certain metals (e.g., lead) reveal that the downstream concentration is quite close to the chronic criterion (i.e., 0.45 µg/L compared to 0.56 µg/L). EPA intends to use the ambient and effluent chemical-specific WET data for future reasonable potential analyses and notes that quarterly samples over the next permit term would allow for a more robust analysis.

For these reasons, the quarterly WET test requirement will be maintained in the Final Permit.

Comment 9

Sampling for Metals (Page 4)

As noted above, we are nowhere close to having reasonable potential for any of the metals we test for. Accordingly, we object to the continued quarterly sampling requirement for AL, CD, CU, NI, PB, and ZN. Instead, we propose to continue to sample for these pollutants as part of the three priority pollutant scans that we conduct each permit term.

Response 9

As described in Response 8 above, the data for certain metals (*e.g.*, lead) reveal that the downstream concentration is close to the chronic criterion (*i.e.*, 0.45 µg/L compared to 0.56 µg/L). Given that chemical-specific monitoring is required as part of the WET protocol, these requirements will remain in the Final Permit.

Comment 10

Mandating Sampling Day and Time (Page 6)

We object to Footnote 1 on page 6 which requires that we sample on the same days of the month at the same times. This is micromanaging the operation of our facility and program. There is no legal (or practical) basis for such a requirement. EPA's regulation (and the permit) already requires representative sampling. That is the applicable legal requirement. We do not believe that sampling requirement is imposed on other permittees.

We similarly object to Footnote 13 on Page 8, which requires that WET testing be done during the same week in the months of January, April, July, and October. As noted above, the quarterly WET testing should be removed from the permit. In addition, there is no legal or technical basis to mandate a particular week within a particular month in the quarter.

Numerous other NPDES permits around the country simply specify "quarterly" sampling for parameters without mandating the month, and certainly not the week. We note that EPA's permit

renewal regulation specifies four WET tests for major dischargers as part of applications for renewal without specifying a particular month or week.

Response 10

Regarding footnote 1, EPA disagrees that a routine sampling plan with specific days and times of sampling does not have any basis. Rather, such a plan facilitates the ability to track long-term trends in effluent quality and to characterize the discharge without any bias related to the variability within a given day or week. This is a standard permit requirement which has been applied, in general, in all recent Massachusetts NPDES permits issued to POTWs, and further delineates the representativeness requirement, which may be subject to varying interpretations. EPA has in the past encountered issues with certain permittees' sampling practices that tested the boundaries of the term "representative," to which this additional layer of guidance is a response.

Regarding footnote 13, EPA similarly disagrees that a routine sampling plan with specific weeks and months of sampling does not have any basis. Rather, such a plan facilitates the ability to track long-term trends in effluent and ambient quality without any bias related to the variability within a given calendar quarter.

Comment 11

Additional Monitoring by Permittee (Page 6)

We request a clarification of the following requirement of Footnote 1 as follows:

The Permittee shall report the results to the USEPA Region 1 and the State of Massachusetts any additional testing of finished effluent for any pollutant required to be tested by this permit above the frequency ~~that~~ required herein, if testing is in accordance with 40 C.F.R. Section 136.

This comment is intended to clarify that only testing for pollutants required to be analyzed, using finished effluent (as opposed to process control testing) must be submitted to EPA. Please confirm this interpretation.

Finally, while still objecting to EPA's authority to impose this prescriptive sampling regimen at all, we note that EPA allowed Springfield flexibility should there be deviations from the date and time of sampling but did not afford that option to Lowell (along with other permittees).

Response 11

EPA agrees with the interpretation presented by the commenter regarding additional data that must be submitted to EPA.

Regarding Springfield, the 2018 Draft Permit did allow some occasional flexibility. The same language will be added to the Lowell Final Permit, which says: "Occasional deviations from the routine sampling program are allowed, but the reason for the deviation shall be documented in correspondence appended to the applicable discharge monitoring report."

Comment 12

Assigning Half the MDL to Non-Detected Data (Page 6)

Footnote 4 requires that we assign one-half the minimum detection limit (MDL) to non-detected values, if we have any detectable result for the pollutant in question during the prior twelve months. This is both legally and technically wrong.

If a pollutant is not detected in the effluent, it is legally not there. EPA cannot require the permittee to assign an arbitrary number to that non-detect and then certify the arbitrary number (which was really non-detected) as being "true, accurate, and complete." No other State or EPA region takes this approach to our knowledge. Instead, non-detected data should be reported as "0" and assigned "0" in the calculation of any multi-day averages.

While not a major issue for our facility given the level of our limits and the dilution in our receiving instream, it is still inappropriate to require that 11 non-detected results be assigned one-half the detection level because one sample out of twelve is above the detection level. Such an approach clearly biases the pollutant data on the high end and then puts the permittee in the untenable position of having to then certify the ½ MDL value is a true, accurate, and complete result.

We ask that EPA provide us with any statutory or regulatory reference which supports the requirement to assign and then certify and report one-half the MDL to non-detected data. Finally, we note that this condition is not included in the Springfield draft permit. EPA should remove it from Lowell's permit as well.

Response 12

EPA agrees that footnote 4 should be removed from the Final Permit to avoid any compliance issues raised based on non-detected sampling results. Additionally, EPA has added the following language to footnote 3 for clarification in calculating averages:

For reporting an average based on a mix of values detected and not detected, assign a value of "0" to all non-detects for that reporting period and report the average of all the results.

Comment 13

CSO Bypass (Page 7)

Footnote 6 explains that the flow limit is an annual average flow for the current and prior eleven months. This footnote then goes on to prohibit secondary bypasses which don't qualify as allowable bypasses (Standard Conditions Part II.B.4.c and 24-hour reporting (Part II.D.1.e)).

Lowell has a secondary bypass which allows us to treat significant peak wet weather flows as part of our efforts to maximize flows at the treatment facility (Nine Minimum Controls - Part I.F.2.a.4). Such bypasses are to maximize the treatment of wet weather flows and not for essential maintenance as contemplated by Part II.B.4.c. Accordingly, the reference to Part II.B.4.c should be removed.

We note that Springfield's permit explicitly authorizes their secondary bypass. Lowell's secondary bypass should be authorized as well.

Moreover, the permit should:

- Identify and authorize our high flow management facilities and
- Incorporate by reference our High Flow Management Plan. This plan was submitted to EPA and DEP in 2011 in accordance with our 2010 Administrative Order. While we did our part to develop and submit the plan, EPA has yet to issue the plan approval expressly contemplated by the 2010 order. Because our plan is a living document, it makes the most sense to us to incorporate by reference an updated High Flow Management Plan, with a requirement to submit annual updates as appropriate. For example, we are working on a major facility upgrade. Once that project is complete and we have completed an optimization period, we will need to submit an updated High Flow Management Plan.

Response 13

Permit conditions related to bypasses of secondary treatment are set forth in Part II.B.4. of the Final Permit. Specifically, in accordance with 40 C.F.R. § 122.41, Part II.B.4 incorporates verbatim the *Bypass* rule at 40 C.F.R. § 122.41(m).

The Permittee's comments regarding the authorization of a CSO-related bypass implicate Section 7 of the 1994 CSO Policy, entitled "Maximizing Treatment at the Existing POTW Treatment Plant." 18688 Fed. Reg. at 18693. Following the approach set forth therein, EPA could include a CSO-related bypass provision in the permit if there are no feasible alternatives to bypassing under specific conditions. Section 7 of the CSO Policy further provides that:

> "[T]he feasible alternatives requirement of the [bypass] regulation can be met if the record shows that the secondary treatment system is properly operated and maintained, that the system has been designed to meet secondary limits for flows greater than the peak dry weather flow, plus an appropriate quantity of wet weather flow, and that it is either technically or financially infeasible to provide secondary treatment at the existing facilities for greater amounts of wet weather flow. The feasible alternative analysis should include, for example, consideration of enhanced primary treatment (e.g., chemical addition) and non-biological secondary treatment. Other bases supporting a finding of no feasible alternative may also be available on a case-by-case basis."

Id. at 18694.

The Permittee has not submitted sufficient information or analysis directed to satisfy these requirements for inclusion of CSO-related bypass conditions in the Permit for

specific flows. Consequently, the permit does not contain such conditions. The Permittee is welcome to submit such documentation for EPA's consideration.

EPA acknowledges that the Permittee has submitted a high flow management plan ("HFMP"), dated March 1, 2011, in accordance with an enforcement action taken by EPA. The HFMP identifies the circumstances under which some wet weather flows may be diverted around secondary treatment. The HFMP does not itself satisfy the requirements for the approach outlined in Section 7 of the CSO Policy such that it alters the appropriate permitting approach for CSO-related bypasses. Accordingly, there is no basis for incorporating the HFMP into the permit.

EPA acknowledges language contained in the *draft* NPDES permit for the Springfield Regional Waste Water Treatment Facility. EPA continues to review comments and the basis for draft language in that permit. That permit has not yet been finalized.

The notification requirements that apply in the event of a bypass are set forth in Part II.B.4 of the Final Permit. Specifically, if the Permittee knows in advance of the need to bypass secondary treatment (i.e., an anticipated bypass), prior notice shall be submitted at least ten days before the date of the anticipated bypass (see Part II.B.4.c. of the Final Permit.). In the event of a bypass which was not anticipated (i.e., unanticipated bypass), notification shall be submitted within twenty-four hours of the bypass in accordance with Part II.D.1.e. of the Final Permit. Footnote 5 (footnote 6 of the Draft Permit) to Part I.A.1. of the Final Permit has been modified to clarify that a bypass of secondary treatment is subject to the requirements of Part II.B.4. (and not just Part II.B.4.c.) of the permit (which incorporates the regulations in their entirety which pertain to bypasses of secondary treatment that are established at 40 C.F.R. 122.41(m)).

The commenters reference to "essential maintenance" seems to pertain to Standard Conditions Part II.B.4.b which is not referenced in Footnote 5, formerly footnote 6.

Comment 14

Prohibition on Septage During Wet Weather (Page 7)

Lowell intends to continue to accept septage and hauled wastes, with the understanding that we will manage acceptance of these wastes in accordance with a hauled waste management plan. The plan will ensure that we optimize treatment of such wastes to the extent practicable. We are not aware of any plant or instream impacts from our acceptance of such wastes and our hauled waste management plan will be focused on continuing that successful program. In addition to providing the appropriate facilities to process such wastes, our processing of these wastes generates critical revenues for our utility that are being used for our current facility upgrade and future treatment facility and CSO-related controls. A critical part of our septage receiving facility is an equalization tank that we use to store wastes for subsequent introduction into our facility's treatment process at a controlled rate.

We object to the prohibition on our acceptance of septage at the treatment facility on any day when a bypass of secondary treatment is anticipated. This prohibition is environmentally

unnecessary, as the volumes are relatively small and our facility has the capacity to handle the pollutant loadings. On wet-weather days, the plant meets 7Q10-based limits when instream flows are significantly higher, allowing far greater dilution. There is simply no environmental problem with our acceptance of such waste streams. Notably, our quarterly WET testing has included two tests each year when our treatment facility is bypassing. We have passed each of those tests.

This prohibition is also counterproductive financially for Lowell. Hauled waste fees are critical in funding the highest practical level of CSO control, along with other facility improvements such as phosphorous control.

Finally, we note that this prohibition on accepting septage at the treatment facility is contradicted on Page 16 – which only prohibits acceptance of septage (to the collection system) if certain instream impacts are expected to result – such as an oil sheen."

Response 14

EPA disagrees that the prohibition of septage during a bypass of secondary treatment is environmentally unnecessary. The high concentrations of pollutants in septage discharged to the Merrimack River without secondary treatment could pose significant environmental and public health concerns. As such, the intent of Footnote 5 (footnote 6 of the Draft Permit) to Part I.A.1. of the Draft Permit is to minimize any negative impacts from septage received during periods when flows may not be receiving secondary treatment. EPA recognizes that the septage receiving practices employed at the LRWU, as described in the above comment, ensure that septage is managed in such a way to mitigate any potential negative impacts.

In recognition of these practices, and to clarify the intent of Footnote 5 (footnote 6 of the Draft Permit) to Part I.A.1. of the Draft Permit, the Final Permit has been modified to read as follows:

"*The Permittee shall not add septage to the waste stream at the treatment plant during activation of the secondary treatment bypass".*

Finally, EPA disagrees with the commenter's interpretation of the prohibition of septage on page 16 of the Draft Permit. Part I.F.3.c of the Draft Permit states:

Discharges to the combined system of septage, holding tank wastes, or other material which may cause a visible oil sheen or containing floatable material are prohibited during wet weather when CSO discharges may be active (NMC # 3, 6, and 7).

This language prohibits three waste streams from being discharged to the wastewater collection system during periods of wet weather when CSO discharges may be active: (1) septage, (2) holding tank waste, and (3) other material which may cause a visible oil sheen or containing floatable material. The prohibition of septage is not dependent on certain instream impacts such as oil sheen.

Additionally, Part I.F.3.c. of the Draft Permit is the minimum implementation level for complying with NMCs #3 (review and modification of the pretreatment program to

assure CSO impacts are minimized), #6 (Control of solid and floatable materials in CSOs), and #7 (pollution prevention programs that focus on contaminant reduction activities), and as such, may be implemented through the Permittee's pretreatment program. The language in Part I.F.3.c. of the Draft Permit does not present a contradiction regarding the prohibition of adding septage to the waste stream of the treatment plant during activation of the secondary treatment bypass.

Comment 15

20 ug/L MDL for Residual Chlorine (Page 7)

The permit imposes an MDL of 20 ug/L for residual chlorine when our permit limit is 338 ug/L (daily max) and 196 ug/L (monthly average). Given the magnitude of our permit limits, there is no need to impose a 20 ug/L MDL. Instead, we request it be set at 100 ug/L or, at worst, 50 ug/L. Many states use 100 ug/L or 50 ug/L as their MDLs. We think these are more appropriate levels in light of analytical issues and the magnitude of the limits that we must meet.

Response 15

EPA agrees that the requirement to achieve a minimum level no greater than 20 µg/L for total residual chlorine (TRC) is not necessary in this case, for the reasons set forth in the comment. Therefore, this requirement has been removed from footnote 8 in the Final Permit. Monitoring for all pollutants, including TRC, must be sufficiently sensitive as described in footnote 2 of Part I.A.1 of the Final Permit.

Comment 16

General Water Quality Standards Compliance Language (Page 9)

It appears that the sections/numbering is off from page 8 to page 9. At the top of page 9, the following prohibition is imposed:

"2. The discharge shall not cause a violation of water quality standards of the receiving water."

This language is legally incorrect and fundamentally unfair. Legally, this provision deprives Lowell of its Clean Water Act permit shield in that Lowell will never know what it can or can't discharge at any given time. The provision deprives Lowell of its right to fair notice of what it must do to comply. More importantly, there is no opportunity for due process. In this context, due process is Lowell's (and all stakeholders') right to know what limits EPA/DEP believe are warranted, an opportunity to comment on the correctness of such limits and the right to appeal such determinations. Moreover, for a public body, the provision deprives us of a compliance schedule to come into compliance with a new or more stringent requirement.

There has been significant litigation over similar provisions in recent years and Lowell will be compelled to file a challenge should this language be retained. We note that the State of West Virginia recently removed similar language from its NPDES permits. EPA Region 3 treated that action as a change to WV's NPDES permit program which triggered EPA review and approval. EPA approved the change by letter dated March 27, 2019 (incorporated herein by reference). EPA concluded that such language is not a requirement of the NPDES Permit program.

Further the restrictions imposed in Paragraphs 3-7 are more than broad enough to protect the general standard.

For these reasons, Paragraph 2 language must be removed from Lowell's permit. It impermissibly undermines the CWA permit shield, deprives dischargers of fair notice of what they can discharge and due process (to comment on, seek compliance schedules, and appeal effluent limits). It is inconsistent with other EPA Regions as demonstrated by the EPA Region 3 March 27, 2019 formal finding that such a permit condition is not required under the CWA.

Response 16

EPA notes that the numbering is accurate. Page 8 ends with the final footnotes for the effluent tables under Part I.A.1 and then page 9 continues with Part I.A.2, and so forth.

EPA disagrees with the commenter's assertion that the following provision is unlawful, unfair, and undermines the permit shield provision of the CWA: "The discharge shall not cause a violation of water quality standards of the receiving water." Draft Permit, Part I.A.2.

EPA's authority is not as narrowly constrained as the commenter implies. To the opposite, Section 402 of the Act authorizes EPA to issue an NPDES permit with conditions that ensure that the discharge will meet, among other things, the requirements of § 301 of the CWA. That provision includes § 301(b)(1)(c), which requires that a discharge shall achieve "...any more stringent limitation, including those necessary to meet water quality standards...established pursuant to any State law or regulation...." (emphasis added). Nowhere does the statute specify that EPA may only impose specific numeric effluent limitations to meet state water quality standards. EPA's regulations at 40 C.F.R. § 122.44(d)(1) state that each permit shall include "any requirements in addition to or more stringent than promulgated effluent limitations guidelines.... necessary to achieve water quality standards...." While § 122.44(d) does require "effluent limits" to be established when EPA determines that a particular pollutant has the reasonable potential to cause or contribute to an in stream excursion above a water quality criterion, the regulations do not require that all "effluent limitations" necessary to meet water quality standards be expressed in terms of specific pollutant by pollutant numeric limitations. They may be narrative in form, including for example, when they are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes or intent of the CWA. As explained below, this requirement narratively tracks a key, and unambiguous, provision of the MA WQS.

The language included in Part I.A.2 is both lawful and consistent with EPA Region 1's past practice. Exactly the broad narrative language to which the commenter objects is included in all Massachusetts NPDES permits, and was included in the City's previous 2005 NPDES Permit (Part I.A.1.(1) of the 2005 Permit). EPA includes this provision to ensure full implementation of Sections 301(b)(1)(C) and 402 of the Clean Water Act. 33 U.S.C. §§ 1311(b)(1)(C), 1342. *Northwest Envtl. Advocates v. City of Portland*, 56 F.3d 979, 990 (9th Cir. 1995) (concluding that "the statutory language, legislative history, and case law authorize citizens to enforce permit conditions stated in terms of water quality

standards"). Moreover, this provision is also consistent with requirements under Massachusetts state law and regulations. Section 4.03(1)(a) of Massachusetts' water quality standards specifically states, "The Department will limit or prohibit discharges of pollutants to surface waters to assure that surface water quality standards of the receiving waters are protected and maintained or attained." 314 CMR 4.03(1)(a). EPA's Draft Permit is consistent with, and derived from, this state requirement.

While the commenter may feel that "the restrictions imposed in Paragraphs 3-7 are more than broad enough to protect the general standard," and that narrative prohibition is therefore duplicative, EPA sees merit in including a more general, narrative, preventative permit provision that restates the commands of Section 301 and the implementing regulations at 40 C.F.R. §§ 122.4 and .44 to "ensure" compliance with quality standards, and that similarly mirrors the Commonwealth's mandate at 314 CMR 4.03(1)(a). Doing so not only allows EPA to incorporate a legal assurance in the permit that water quality standards will be met, consistent with its obligations under sections 301 and 402 of the Act and MA WQS, but also will allow it to address, as necessary, water quality violations caused or contributed to by the Permittee due to such circumstances as unanticipated changes in or alterations to effluent quality that might otherwise meet permit conditions or the discharge of pollutants not identified in the City's permit application, for example. Again, this requirement narratively tracks a key provisions of the MA WQS, which EPA is not required to translate or express as a series individual numeric limitations, but that it may instead frame as a narrative prohibition in furtherance of its obligation to include in permits conditions that ensure compliance with water quality standards, as it is incontrovertibly entitled to do under law. The "[Clean Water] Act permits enforcement of broad, narrative criteria." *PUD No. 1 of Jefferson Cty. v. Washington Dep't of Ecology*, 511 U.S. 700, 700 (1994).

The commenter claims that this provision is unfair and violates the due process rights of the permittee and its stakeholders. Specifically, the commenter asserts that there is a lack of fair notice as to "what limits EPA/DEP believe are warranted, an opportunity to comment on the correctness of such limits and the right to appeal such determinations." However, the commenter, in this case the permittee, has been operating under a permit that contains this provision since at least 2005. *See Ohio Valley Envtl. Coal. v. Fola Coal Co., LLC,* 845 F.3d 133, 144 (4th Cir. 2017) (finding that a permittee had fair notice of narrative water quality standards included in its permit due in part to the amount of time the permittee was bound by that language). The language in the permit clearly states what is required of the permittee: that the permittee ensure no violation of Massachusetts water quality standards. This narrative standard is consistent with the CWA and adequately puts the permittee on notice of its obligations. *See Upper Blackstone Water Pollution Abatement Dist. v. E.P.A.*, 690 F.3d 9, 33 (1st Cir. 2012) ("EPA regulations [at 40 C.F.R. § 122.41(d)(1)(i)] require permitting authorities to include in NPDES permits conditions which 'control all pollutants or pollutant parameters ... [that] 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.'").

Moreover, the permittee has been aware of EPA's and MassDEP's application of such narrative water quality standards for over a decade. MassDEP's water quality standards are fully available to the public, as codified in 314 CMR 4.00 (latest revisions occurred in 2013). To the extent that the commenter states that the public is precluded from an opportunity to comment on or appeal such water quality standards, this is incorrect. In fact, the notice-and-comment procedures as well as the appeal procedures required pursuant to the CWA and its regulations provide just such opportunity (33 U.S.C. § 1369(b); 40 C.F.R. § 124.19), and in submitting the above concerns during the public comment period, the commenter has availed itself of that procedure.

The commenter generically mentions due process violations but fails to specify whether it refers to substantive or procedural violations and further fails to identify with particularity how EPA's action is inconsistent with the requirements for ensuring either type of due process in this particular setting. *See, e.g., Mathews v. Eldridge,* 424 U.S. 319 (1976) (identifying factors for assessing a procedural due process violation); *Collins v. City of Harker Heights, Tex.,* 503 U.S. 115 (1992) (outlining what constitutes a substantive due process claim). EPA is not required to develop arguments on behalf of a commenter.

As for the commenter's reference to the March 27, 2019, letter from EPA Region 3 to the State of West Virginia, this letter is specific to the State of West Virginia and its revisions to its authorized NPDES program. Changes to the authorized NPDES program and state water quality standards in West Virginia have no bearing on the EPA's implementation of the NPDES program in Massachusetts. As stated above, EPA's inclusion of Part I.A.2 is consistent with law and regulations and ensures that the permit is in compliance with Massachusetts' State Certification and water quality standards.

Finally, the commenter's assertion that this provision deprives it of its Clean Water Act permit shield is entirely without merit. Section 402(k) of the Clean Water Act, 33 U.S.C. § 1342(k), establishes the "permit shield" by stating "[c]ompliance with a permit issued pursuant to this section shall be deemed compliance" with section 301 (among other sections) of the CWA. In order to avail itself of the protections of section 402(k), a permittee must first be in compliance with all express terms of the permit. *See Ohio Valley Envtl. Coal. v. Fola Coal Co., LLC*, 845 F.3d 133, 142 (4th Cir. 2017) ("[A] permit shields its holder from liability as long as the permit holder complies with the express terms of the permit and with the Clean Water Act's disclosure requirements." (internal quotations omitted)). Courts have clearly held that narrative water quality standards are express terms when included in an NPDES permit. *Id.* at 144; *PUD No. 1 of Jefferson Cty. v. Washington Dep't of Ecology*, 511 U.S. 700, 700 (1994) (The "[Clean Water] Act permits enforcement of broad, narrative criteria."); *Nat. Res. Def. Council v. Metro. Water Reclamation Dist. of Greater Chicago*, 175 F. Supp. 3d 1041, 1053–54 (N.D. Ill. 2016) (The NPDES Permit "incorporates the WQS as substantive terms of the permit, compliance with which is required in order for the permit shield to apply. . . . [T]he permit shield defense can apply only if the three WRPs' effluent does not cause violations of the Illinois WQS."). Thus, when included in a permit, narrative water quality standards are enforceable conditions that must be met for the permittee to invoke

the permit shield provision of the CWA. Lowell Regional Wastewater Utility, the permittee, is not deprived of the protections afforded by section 402(k). Rather, the permittee is required, as is always the case, to comply with all its permit terms prior to invocation of the permit shield. The City's concern the narrative prohibition will deprive it of its ability to comply with a new or more stringent requirement according to a schedule is misplaced, as the permit limit together with schedule comprise the enforceable effluent limitation. So long as the City is complying with the terms of a compliance schedule for a given limit, it will not be subject to an enforcement action for failing to meet a final limit not yet in effect, and it can avail itself of the permit shield.

Comment 17

Pass Through and Interference (Page 9)

We ask that Part I.A.9 (Page 9) be removed because it is unnecessary and duplicative to suggest that it could be a violation of the permit for a non-domestic user to cause pass-through, when by definition pass-through already is predicated on a permit exceedance. See 40 C.F.R. §403.3(p) (pass-through is "a discharge that exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit") (emphasis added). Similarly, interference with plant operation or performance is an event that the owner must remedy, but such interference should not by itself constitute a permit violation.

Response 17

EPA disagrees that the requirement in Part I.A.9 is unnecessary and duplicative.

First, EPA would clarify that the definition cited by the commenter is incomplete. The full definition found at 40 C.F.R. §403.3(p) is "The term **Pass Through** means a Discharge which exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation)." (emphasis added)

Based upon this complete definition, a violation of Part I.A.9 would occur if pollutants introduced by a non-domestic user cause a violation of any requirement of the permit, or increases the magnitude or duration of a permit violation.

While the definition of "Pass through" is included in Part II of the Draft Permit, the requirement at Part I.A.9 is the only place where a pass through is expressly prohibited. Therefore, EPA has determined that the requirement is not unnecessary nor duplicative and will remain in the Final Permit.

Comment 18

Requirement to Identify All Potential and Actual Unauthorized Discharges (Page 10)

Part I.C.2 requires the permittee to develop a preventive maintenance program that includes a system-wide inspection program designed "to identify all potential and actual unauthorized

indirect discharges." This requirement should be restated, because no inspection program will identify all potential or even actual unauthorized discharges. For example, local residents may report unauthorized discharges to Lowell's collection system. The premise that Lowell staff should be responsible for identifying all potential and actual unauthorized indirect discharges is impracticable. The requirement should be modified to require an inspection program designed:

"To the extent practicable, to identify actual or potential collection system releases."

Response 18

The language in the permit states: "The program shall include an inspection program *designed* to identify all potential and actual unauthorized discharges." (emphasis added) EPA recognizes that identifying "all potential or even actual unauthorized discharges" is a challenge and will be an ongoing process. Nevertheless, the City shall design this program in an effort to identify all unauthorized discharges through this program. The original language remains in the Final Permit.

Comment 19

Collection System Inflow/Infiltration Requirements Should be Limited to Co-Permittees (Page 11)

Part I.C.3 requires the Permittee and co-permittees to address I/I into the sewer system to prevent high flow releases from the collection system and high-flow-related violations at the Permittee's treatment facility. The Permittee already address I/I as part of our NMC and CSO LTCP requirements. Accordingly, the reference to "Permittee" should be removed such that this section is limited to the Co-permittees.

Furthermore, Lowell's I/I control program, which is part of its LTCP, should be referenced within the permit. Lowell's implementation of I/I and CSO control should be guided by our written control plans, which should be incorporated by reference in the permit.

Response 19

EPA disagrees. Although Lowell may be under an obligation to address I/I under separate legal instruments and obligations, that does not obviate the need for an enforceable requirement in the NPDES permit, as the provision is intended to ensure compliance with Section 301 and is a necessary condition of the permit. Having all components of the POTW subject to similar requirements relative to I/I will assure that a comprehensive scheme is in place to address these issues, which can adversely affect treatment plant operation and lead to adverse impacts on water quality. This holistic approach to I/I abatement is one of the underlying functions of the co-permittee approach, so that the issue can be addressed through enforceable mechanisms in, rather than extrinsic to, the NPDES permits.

EPA recognizes that Lowell has an I/I program which is part of its LTCP. The permittee (and co-permittees) do not need to duplicate efforts to comply with the provisions of the permit. If, for example, the LRWU has already completed items which are required by the permit and submitted to EPA, they can be referenced for permit compliance.

Comment 20

Collection System Mapping (Page 11)

Part I.C.4 requires extensive collection system mapping work to be completed within 30 months of the permit effective date. Some of the mandated information is unlikely to be available. For example, we won't know with certainty where every sewer pipe in our system is, what it is made of, the diameter, date of installation, distance between manholes, etc. We are particularly concerned with the breadth and scope of Subsections 4.a, 4.c, and 4.k.

Accordingly, the requirement in this part should be qualified "to the extent practicable" by the Permittee. Also, a requirement to update the mapping each permit term to reflect new infrastructure or newly characterized infrastructure would be acceptable.

Response 20

EPA agrees that some of the information related to the collection system mapping requirement may not be available. In general, EPA's interpretation of this provision is that the permittee must take reasonable measures to fulfill it. Regarding the specific subsections listed in the comment, EPA offers the following responses:

Part I.C.4.a – The Permittee has not identified a specific reason why it is unable to obtain a map of all sewer lines and manholes, as other communities have done. The permit requirement does not mandate a specific level of "certainty" in the production of this information, as the commenter presumes. Where there are uncertainties that cannot be resolved, the Permittee may include that notation and explanation on the map.

Part I.C.4.c – The requirement only asks for "known or suspected" connections; therefore, it does not require the inclusion of any information that may not be available or practicable to obtain.

Part I.C.4.k – EPA agrees that some information may be infeasible to obtain. Therefore, this subpoint of the Final Permit has been updated to include "to the extent feasible." However, if certain information is determined to be infeasible to obtain, a justification must be included along with the map. If EPA disagrees with the assessment, it may require the map to be updated accordingly. EPA reserves the right to default to the original formulation in the next permit cycle if it determines that the City's justifications were inappropriate and/or inadequate.

Finally, the commenter requests a requirement to update the map each permit term. The Draft Permit currently requires that the map be kept up-to-date. EPA notes that proper operation and maintenance of the sewer system would likely require mapping to be updated more frequently than each permit term as the Permittee and Co-permittees make changes to the portion of the collection system they own. Therefore, the language from the Draft Permit is maintained in the Final Permit.

Comment 21

Preventing Unauthorized Discharges (Page 12)

All collection systems will experience releases from time-to-time due a wide range of operational and capacity-related issues. Consistent with this reality, please revise Part I.C.5.b(6) to require and I/I program for "minimizing" and not (the impossible of) "preventing" unauthorized discharges. Otherwise, we have double jeopardy for having an unauthorized discharge and then a separate violation for not preventing it pursuant to this requirement. Neither EPA nor the permittees can guarantee no overflows.

Response 21

While not all unauthorized discharges may be completely prevented, Part I.C.5.b(6) of the Draft Permit is in place to require the development of programs for "preventing I/I related effluent violations and all unauthorized discharges of wastewater…". The actual prevention of unauthorized discharges will be based on the level of success in implementing these programs. EPA notes that if the Permittee develops and implements programs in accordance with Part I.C.5.b(6) of the Draft Permit, yet an unauthorized discharge still occurred, the Permittee would only be in violation of Part I.B.1 regarding unauthorized discharges but would not be in violation of Part I.C.5.b(6) regarding the development and implementation of programs for preventing unauthorized discharges. Therefore, Part I.C.5.b(6) is maintained in the Final Permit.

Comment 22

Imposing Local Limits Guidance (Page 13)

We object to EPA requiring that we comply with EPA's Local Limit Development Guidance (July 2004). We are agreeable with a requirement that we use such guidance in developing local limits, but this guidance is not law and, accordingly, cannot be imposed as a mandatory requirement. The provision should require the Permittee to review its local limits in consultation with EPA's Local Limit Development Guidance (2004).

Response 22

The Draft Permit states "The Permittee shall carry out the local limits revisions in accordance with EPA's Local Limit Development Guidance (July 2004)." This document provides guidance for developing and implementing local limits in accordance with the Pretreatment Regulations found in 40 C.F.R. Part 403; EPA concurs that it is not binding, but referencing this guidance in the permit condition is reasonable, in EPA's view, as it provides some assurance to EPA that local limits are being developed consistent with the regulatory regime. EPA recognizes that the Permittee may have some flexibility in developing local limits so long as those limits are not contradictory to EPA's Local Limit Development Guidance (2004). EPA interprets the phrase "in accordance with" in this case to mean an application of local limits that is consistent with, but not necessarily exclusively based on, this guidance document. This interpretation of the use of such guidance seems to be amenable to the commenter. The language is maintained in the Final Permit.

Comment 23

Assuring Significant Industrial User Compliance (Page 14)

Part I.E.5 requires the Permittee to "assure" that applicable pretreatment standards are met by all categorical industrial users of the POTW. The Permittee is not a guarantor of SIU performance. This must be changed to require that the Permittee require that SIUs meet applicable categorical standards through the issuance of appropriate permits to such users. Otherwise, if an SIU violates a categorical standard – through no fault of the Permittee – the Permittee will be in non-compliance. That is a legally incorrect and unfair requirement.

Response 23

EPA agrees that the City is not affirmatively required by the terms of Part I.E.5 to do anything beyond developing and enforcing local limits. This represents EPA's binding interpretation of the permit.

Comment 24

CSO Authorization (Page 15)

Part I.F.1 should be revised as follows:

During wet weather and/or periods of snow melt, the Permittee is authorized to discharge wastewater from the CSO outfalls listed below:

This change is a common and necessary approach for CSO permits in the northern half of the country where sewer overflows can be triggered by both rainfall and/or snow melt.

Response 24

Consistent with the CSO Policy, 18688 Fed. Reg. at 18689, and 40 C.F.R. § 122.26(b)(13), EPA agrees to the suggested change to include snow melt as a source of wet weather. The Final Permit has been updated accordingly.

Comment 25

CSO Long-Term Control Plan Development Language (Page 15)

The permit is inconsistent with CWA Section 402(q), because it fails to address the development of our CSO Long-Term Control Plan (LTCP). We are still at the stage of a Phase 1 permit under EPA's CSO Policy. The Policy requires that a deadline for submittal of our CSO LTCP update be included in the permit. We request the opportunity to discuss the appropriate deadline with EPA.

Response 25

The CSO Policy states that "Permittees should develop and submit [the] long-term CSO control plan as soon as practicable, but generally within two years after the date of the NPDES permit provision, Section 308 information request, or enforcement action requiring the permittee to develop the plan." 18688 Fed. Reg. at 18691. EPA and the City of Lowell entered into an Order on Consent on September 27, 2017, which, in part,

requires the City to submit a LTCP. EPA understands that the LRWU is in the process of developing an Integrated Plan, which will incorporate their LTCP to include any updates. Requests for discussions regarding the deadlines for the development and submittal of these plans should be directed to EPA's Enforcement and Compliance Assurance Division ("ECAD").

Comment 26

High Flow Management/Secondary Bypass Authorization (Page 15)

As noted above, Part I.F should incorporate our current High Flow Management Procedures. These procedures ensure that we maximize flow at the treatment plant to the maximum extent practicable.

Response 26

See Response 13.

Comment 27

General Water Quality Standards Compliance Language for CSOs (Page 16)

Part I.F.2.b imposes the same WQS compliance language that we objected to above in relation to the POTW discharge. It is legally and factually wrong to apply these standards to the POTW discharge, and particularly egregious to apply the WQS to our CSO discharges – which are untreated. EPA cannot logically on one hand authorize our CSO discharges and then on the other hand require compliance with water quality standards at all times. It is physically impossible and legally inconsistent with CWA 402(q), which specifies the conditions for Phase I and Phase 2 CSO NPDES permits.

Response 27

EPA disagrees with the commenter's assertion that EPA cannot authorize CSO discharges and require compliance with water quality standards. See Response 16.

In addition to the reasons set forth in Response 16, inclusion of the narrative condition at issue is consistent with EPA's CSO Policy, which is incorporated by reference into CWA Section 402(q). *National CSO Control Policy,* 59 Fed. Reg. 18688, 18696 (1994) (requiring NPDES permits to include narrative limitation mandating compliance with applicable WQS no later than the date allowed under the State's WQS). Both the *NPDES Permit Writer's Manual* and the *Combined Sewer Overflows: Guidance for Permit Writers* ("*CSO Guidance")* underscore the importance of ensuring that CSO discharges achieve state water quality standards including those that are narrative. *NPDES Permit Writer's Manual,* EPA at 9-16 to 9-17 (Sept. 2010); *Combined Sewer Overflows: Guidance for Permit Writers*, EPA Office of Water, at 3-36 to 3-37, 4-27 (Sept. 1995). The *CSO Guidance* specifically states that "in addition to performance standards designed to meet WQS, the permit writer should include narrative permit language providing for the attainment of applicable WQS." *Combined Sewer Overflows: Guidance for Permit Writers*, EPA Office of Water, at 4-27 (Sept. 1995). These guidance documents are consistent with the CWA and its implementing regulations.

As such, Part I.F.2.b of the Draft Permit which requires compliance with State WQS, is both lawful and appropriate, and will remain in the Final Permit.

Comment 28

CSO Structures Set to Minimize Overflows (Page 16)

Part I.F.3.b should be revised as follows:

Each CSO structure/regulator, pumping station and/or tide gate shall be routinely inspected, at a minimum of once per month, to ensure that they are in good working condition and adjusted to minimize combined sewer discharges consistent with system operation (not causing upstream surcharges nor plant operational problems) and compliance with all effluent limitations and conditions in this permit (NMC #1, 2, and 4).

Response 28

The Draft Permit requires the permittee to properly operate and maintain its wastewater treatment facility and collection system, which includes CSO structures/regulators, pumping stations and/or tide gates, so as to prevent upstream surcharges and plant operational problems. The Draft Permit also requires compliance with all effluent limitations and conditions. Re-stating these requirements would be unnecessarily redundant. Therefore, Part I.F.3.b. of the Final Permit remains unchanged from the Draft Permit.

Comment 29

Prohibition on Acceptance of Septage into the Collection System During CSO Events (Page16)

Lowell agrees with Part I.F.3.c, which prohibits the acceptance of septage discharges into the collection system (as compared with the treatment facility prohibition on Page 7, which we objected to above). We think this prohibition makes sense.

Response 29

Comment noted. See Response 14.

Comment 30

Requiring Direct Measurement of CSO Discharge Information (Page 16)

Part I.F.3.e requires the "direct measurement" of duration and volume for each of the nine CSO outfalls. Lowell already complies with this requirement by calculating flow over a weir or flow through an orifice. In addition to actual weirs, Lowell uses the weir calculation for its downward-opening diversion gates, and the orifice calculation for its upward-opening diversion gates. Please confirm that our existing approach satisfies this requirement. If for any reason it does not, we ask that the requirement be refined to match our operational practice (which has been effective).

Response 30

Forms of direct measurement *may* include, but are not limited to, metering of flows at each CSO outfall. Alternate approaches could include, for example, extrapolating the flow volume discharged through a CSO outfall from measurements of water levels in the interceptor sewers (or some other measured metric of a known quantity from which the flow volume could be derived). Therefore, the approach described by the commenter is appropriate.

Comment 31

Requiring Record Retention for 6 Instead of 3 Years (Page 17)

Part I.F.3.e requires that Lowell retain records of CSO discharges for six years instead of the three years specified in EPA's regulations. This should be changed to three years from the creation of the record.

Response 31

EPA agrees that 40 C.F.R. § 122.41(j) stipulates a retention period of at least three years from date of the sample measurement, report, or application. Therefore, Part I.F.3.e of the Final Permit has been modified to specify three years from date of the sample measurement, report, or application.

Comment 32

Total Phosphorous Compliance Schedule (Page 21)

Lowell objects to the one-year compliance schedule for Total Phosphorous (Part I.H.1) for several reasons. First, we are still completing a major treatment facility upgrade that won't be fully in service for another 12 months. Second, we have not yet determined how we will comply with the total phosphorous limit. One year is indisputably inadequate for us to plan, design, permit, fund, and construct such an upgrade. Last, but by no means least, we are due to submit our integrated plan (pursuant to CWA 402(s)) to EPA by December 31, 2019. That plan will specifically balance a number of CWA and related capital needs and programs.

The compliance schedule for our new TP limit will be identified in that CWA 402(s) integrated plan. Upon EPA's approval of that plan, the compliance schedule associated with the total phosphorous limit should become a part of this permit. Accordingly, we request the following compliance schedule language for the new Total Phosphorous limit:

The Permittee is required to submit an integrated plan to EPA in accordance with CWA-AO-RO1—FY17-016 (October 2, 2017) on December 31, 2019. The plan will include a compliance schedule for Lowell to meet the new total phosphorous limit. Upon EPA's approval of the plan, the compliance schedule therein for Lowell to comply with the total phosphorous limit shall be incorporated into this permit as if set forth herein.

Response 32

EPA agrees that the one-year compliance schedule in the Draft Permit is inadequate based on recent levels of total phosphorus which consistently exceed the newly

established permit limit and the potential need for capital investment in the treatment plant. However, EPA disagrees with the approach of incorporating a compliance schedule into a future integrated plan, which would effectively render the phosphorus limit unenforceable and would not be consistent with the Act; a permit must either require immediate compliance, or where appropriate, may include, pursuant to 40 C.F.R. § 122.47(a)(1), a compliance schedule as an enforceable requirement of the permit itself. The Final Permit will contain a revised compliance schedule provided below which is consistent with schedules in other permits in Massachusetts containing new phosphorus limits and will also allow sufficient lead time for the Permittee to incorporate this work into its December 2019 integrated planning.

In order to comply with the permit limits, the Permittee shall take the following actions with regard to total phosphorus:

1. Within twelve (12) months of the effective date of the permit, the Permittee shall submit to EPA and MassDEP a status report relative to the planning and design of the facilities necessary to achieve the permit limit.
2. Within twenty-four (24) months of the effective date of the permit, the Permittee shall complete design of the Facility improvements required to achieve the total phosphorus limit.
3. Within thirty (30) months of the effective date of the permit, the Permittee shall initiate construction of the Facility improvements required to achieve the total phosphorus limit.
4. Within forty-two (42) months of the effective date of the permit, the Permittee shall submit to EPA and MassDEP a status report relative to construction of the Facility improvements required to achieve the total phosphorus limit.
5. Within fifty-four (54) months of the effective date of the permit, the Permittee shall complete construction of the Facility improvements required to achieve the total phosphorus limit and shall comply with the permit limit.

The commenter should be aware that there are also provisions under EPA's minor modification provisions that allow adjustment by letter of interim milestones of up to 120 days, which may provide additional flexibility. *See* 40 C.F.R. § 122.63(c).

Comment 33

Notice to Downstream Community Water Systems (Page 21)

Lowell objects to the wording of the requirement to notify downstream community water systems. Of course, virtually every water system is downstream of some upstream community. Accordingly, these facility operators make investments in their water systems that assume challenging source water conditions (not necessarily dumping of unusual chemicals in large quantities, but certainly upstream sources such as CSOs, urban stormwater, and background pollution). Accordingly, we believe Part I.H.2 is overly broad. Read literally, it would require us to notify downstream water systems about each and every SSO we have, regardless of volume. That serves no real purpose. We believe the provision should be replaced with the following:

"The Permittee shall notify the downstream community water systems listed below of any emergency condition, plant upset or bypass, collection system release into surface waters, or permit noncompliance, which could potentially adversely affect their ability to adequately treat drinking water. The Permittee may consult with such community water systems for the purpose of developing written agreements as to the type of events/releases by the Permittee that they want notice of. A copy of any such agreement shall be provided to EPA and DEP."

Response 33

Part I.H.2 of the Draft Permit requires the following: "The Permittee shall notify the downstream community water systems listed below of any emergency condition, plant upset, bypass, CSO discharges, SSO discharges or other system failure which has the potential to violate permit limits or affect the quality of the water to be withdrawn for drinking water purposes."

EPA agrees that the language may be overly broad in that it may be interpreted to apply to every SSO, regardless of volume. However, EPA does not agree with the proposed language provided by the commenter to only require notification if such discharges could "adversely affect their ability to adequately treat drinking water." EPA recognizes that downstream drinking water sources may need advanced notification in order to be prepared to adjust treatment and/or modify monitoring frequency to ensure such treatment meets all drinking water quality standards and to minimize the risk to public health. A downstream drinking water system may be capable of adequately treating drinking water during or in response to an SSO discharge event precisely because it received advanced notification and was able to take appropriate actions. Therefore, in lieu of adopting the commenter's language, EPA will modify the language as follows in the Final Permit.

"The Permittee shall notify the downstream community water systems listed below of any emergency condition, plant upset, bypass, CSO discharges, SSO discharges or other system failure <u>if any of those occurrences have</u> the potential to ~~violate permit limits or~~ affect the quality of the water to be withdrawn for drinking water purposes."

Based on this clarification to the Final Permit, the proposed language regarding the development of a written agreement between the City of Lowell and downstream community water systems is not included in the Final Permit.

Comment 34

<u>Notification to Massachusetts Division of Marine Fisheries (Page 21)</u>

We object to Part I.H.3, which requires us to notify Mass Department of Marine Fisheries (DMF) within 4 hours of "any emergency condition, plant upset, bypass, CSO discharges, SSO discharges or other system failure that has the potential to violate bacteria permit limits." This needs to be revised. This notification requirement is far too broad. Also, why are we notifying DMF rather than DEP regarding bacteria-related issues? We think this notice requirement should be deleted or revised to target meaningful events that warrant notice to DMF.

Response 34

EPA disagrees that the language is overly broad. Due to the lag time for the City to receive results of bacteria testing which would indicate a permit violation has occurred compared to more immediate impacts to shellfish resources, it is important to notify the Department of Marine Fisheries ("DMF") even of the "potential to violate bacteria permit limits." DMF is the appropriate department to notify based on their role with the Shellfishing Management Program and the implications of bacteria limits on shellfishing uses.

Comment 35

Definition of Waters of the United States (Page 19 of the Standard Conditions)

We question whether this definition needs to be in the permit. The vast majority of NPDES permits do not include this definition. Given the uncertainty and controversy over defining WOTUS, we ask that EPA remove this definition.

Response 35

Part II (general conditions) contains definitions from 40 C.F.R. § 122.2 and there is regulatory and legal activity around this provision. *See* https://www.epa.gov/wotus-rule/definition-waters-united-states-rule-status-and-litigation-update. EPA acknowledges that the referenced definition may change, as may any other definition in the statute or implementing regulations during the permit term. That by itself is not a sound basis for removing existing regulatory definitions from the permit, which can provide guidance to the regulated community on the interpretation and operation of the permit. The commenter does not specify any reason why it believes that the definition of the Waters of the United States ("WOTUS") would be in controversy or material given the circumstances of the discharge or receiving waters here, as there is no dispute that the Merrimack River is a water of the U.S. Rather than introduce uncertainty into the permit itself, EPA has determined that the more straightforward approach is to base the permit on those regulations in effect at the time of permit issuance.

B. Comments from Stephen E. Jahnle, Assistant Director, Town of Chelmsford Department of Public Works on July 23, 2019:

Comment 36

The Town of Chelmsford has reviewed the draft referenced NPDES permit issued to the Lowell Regional Wastewater Utility (LRWWU) and the four co-permittees (Chelmsford, Dracut, Tewksbury and Tyngsborough). The co-permittees will be required to comply with Part B-Unauthorized Discharges, Part C - Operation and Maintenance of the Sewer System and Part D-Alternate Power Source. Upon review of Parts B, C, & D, the Town of Chelmsford is in position to comply with the requirements within those sections and has mapped the sewer system and has an online GIS system, has a robust short and long term capital plan as well as daily operation, maintenance and inspections. The Town will accept the conditions as presented in the draft permit.

Response 36

Comment noted. EPA appreciates the work done by the Town of Chelmsford with respect to these permit requirements.

Comment 37

The Town of Chelmsford would like to comment on the effluent limit limitation of 32.0 million gallons per day (MGD) based upon an annual rolling average. The limit is based upon the limit contained in the 2005 final NPDES permit for the LRWWU Water Resource Recovery Facility ("facility"). The facility has been in compliance with that limitation for the vast majority of time during the period of 2014-2018. In addition, it is important to note that the facility has demonstrated that it has been in compliance with other effluent parameters the vast majority of the time. The Lowell facility is a regional facility treating flow from five (5) urban municipalities and their associated industrial sources. The Town requests that USEPA and MassDEP reconsider the effluent flow limit in this draft permit. The limit will likely hinder the facility's ability to serve the region and expand capacity to treat wastewater and CSO flows.

The Town would like to also note that NPDES permits issued to major communities upstream in New Hampshire (Concord, Manchester and Nashua- source: EPA Region 1 NPDES web page) did not include a flow limit and pollutant loads were controlled by allowing certain pollutant loads. This approach would have value and merit for the LRWU facility. EPA’s practice is to use design flow in evaluating "reasonable potential" and such flows can still be used in those calculations without a limit being placed in the final permit.

All of the Lowell Regional Wastewater Utility partners are members of the Middlesex 3 Coalition, which is fostering regional economic development, job growth and retention, as well as diversification of the tax base-all which require sewer infrastructure to support.

In addition to the Northern Middlesex Council of Governments Regional Planning Agency's drive for economic development, housing and jobs, which they deem reliant on water and sewer infrastructure, sewer infrastructure (flows and capacities) are all necessary to support Massachusetts' Sustainable Development Principles.

With all of these facets reliant on both water and sewer infrastructure, it does not make sense that the Lowell Draft Permit includes a flow limit of 32 MGD. Chelmsford is limited to 3.01 MGD and is approaching that flow. With expanding residential and commercial redevelopment in the community, additional capacity is a necessity. The facility is designed to handle much larger flows and this limit will severely restrict any of the regional partners from attaining the goals that are driven by the state.

The LRWWU facility is a valuable infrastructure resource for the region, has potential to treat additional wastewater from this region of economic growth and can continue to be a major element in the control of CSOs in the City of Lowell. The Town of Chelmsford respectfully request that the flow limit be eliminated from the Permit. The Town of Chelmsford suggests that USEPA and MassDEP remove the 32 MGD limit and select one of the following options (presented in order of preference): 1.) Put a "report only" for flow with pollutants controlled by mass limitations; 2) Revise the permitted flow to a higher amount that reflects real time capacity

based on current operating capacities as shown on all previous reports, or 3.) Put two flow limits in the permit- one based upon dry weather flow, a second based upon wet weather flow (which would be designated in the permit).

Response 37

The effluent flow limit of 32 MGD is not based on an arbitrary value. The NPDES permit application signed by Thomas E. Kawa, Operations Superintendent on May 25, 2010 lists the design flow of the treatment plant as 32 MGD. The effluent flow limit in the Final Permit is the design flow of the POTW which is the annual average flow of 32 MGD. The limit is expressed as an annual average, to be reported as a rolling average. The value is calculated as the arithmetic mean of the monthly average flow for the reporting month and the monthly average flow of the previous eleven (11) months. The Permit's approach to determining an effluent flow limit reasonably accounts for seasonal variations in the facility's effluent flow. EPA notes that the 2005 Permit contained the same limit as proposed in the 2019 Draft Permit. For the period January 2014 through December 2018 the permit has had 2 violations of the flow limit (November and December, 2018). The average rolling average flow during this period was 25 MGD.

40 C.F.R. §§ 122.41(d) and (e) require the permittee to (1) "take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment," and (2) "at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of the permit." The Region has determined that the design capacity-based effluent flow limit is appropriate in order to assure that LRWU operates its facility to comply with its permit's technology-and water quality-based effluent limitations.

The statement that EPA's practice is to use design flow in evaluating "reasonable potential" is correct; however, without a flow limit the assumptions in those reasonable potential calculations may not be valid. Further, 40 C.F.R. §122.45(b)(1) requires that "In the case of POTWs, permit effluent limitations, standards, or prohibitions shall be calculated based on design flow." Consequently, since options 2 and 3 presented by the commenter would base permit conditions on flows other than the design flow of 32 MGD they are not viable.

EPA does not agree with option 1 proposed by the commenter which proposes "report only" for flow with pollutants controlled by mass limitations. A mass-only effluent limit and "report only" condition for flow would not be protective of the assumptions used to evaluate reasonable potential and develop effluent limitations.

EPA Region 1 has been consistently issuing NPDES permits with flow limits to NH WWTPs since 2016 and will continue to do so.

EPA recognizes that the LRWU is a valuable asset to the region. It is therefore, critical that the facility be operated within its design parameters. The Town Chelmsford states that they are close to meeting their limit of 3.01 MGD and will need additional capacity.

It is assumed that these flows are daily flows and would fall within the 32 MGD design capacity of the Facility. Accommodating additional flows would need to be done through finding available capacity from other co-permittees, reducing I/I or increasing the design capacity of the wastewater treatment facility.

EPA also recognizes that LRWU has been subject to an administrative order for compliance, dated September 30, 2010, which states "[f]rom the effective date of this Order until the issuance of a new Permit or this Order is modified or superseded, the limitation for Annual Average Flow through the WWTF shall be monitor only." EPA encourages the Permittee to contact EPA's Enforcement and Compliance Assurance Division (ECAD) to discuss whether a new order is necessary and/or appropriate. Please see https://r1-gis-web.r1.epa.gov/ecad/enforcement_comp.html for relevant contacts.

See Response 4**Error! Reference source not found.** for additional discussion.

C. Comments from Town of Tyngsborough Sewer Commission on July 23, 2019:

Comment 38

The Town of Tyngsborough has reviewed the draft referenced NPDES permit issued to the Lowell Regional Wastewater Utility (LRWWU) and the four co-permittees (Chelmsford, Dracut, Tewksbury and Tyngsborough). The co-permittees will be required to comply with Part B-Unauthorized Discharges, Part C - Operation and Maintenance of the Sewer System and Part D-Alternate Power Source. Upon review of Parts B, C, & D, the Town of Tyngsborough feels that it is in a good position to comply with the requirements within those sections and has made significant progress to date on sewer system mapping and operation and maintenance planning and implementation. The Town will accept the conditions as presented in the draft permit.

Response 38

Comment noted. EPA appreciates the work done by the Town of Tyngsborough with respect to these permit requirements.

Comment 39

The Town would like to comment on the effluent limit limitation of 32.0 million gallons per day (MGD) based upon an annual rolling average. The limit is based upon the limit contained in the 2005 final NPDES permit for the LRWWU Water Resource Recovery Facility ("facility"). As shown in Appendix A (attached hereto) of the draft permit, the facility has been in compliance with that limitation for the vast majority of time during the period of 2014-2018. In addition, it is important to note that the facility has demonstrated that it has been in compliance with other effluent parameters the vast majority of the time. The Lowell facility is a regional facility treating flow from five (5) urban municipalities and their associated industrial sources. The facility is also an integral part of the City of Lowell' s control and treatment of combined sewer overflows (CSOs). The facility has successfully demonstrated that it can consistently treat volumes greater than the effluent limit of 32.0 MGD. The Town requests that USEPA and MassDEP reconsider the effluent flow limit in this draft permit. The limit will likely hinder the facility's ability to serve the region and expand capacity to treat wastewater and CSO flows. Flow is not a direct correlation to the ability to properly treat wastewater and should not be used

as a deterrent to solving regional wastewater needs and maximizing the capacity at this regional facility. It is understood that if a higher flow value is put into the permit that other pollutant loads (such as BOD and TSS) will not be increased and that the concentration values will be reduced while keeping the mass loading constant.

The Town would like to also note that NPDES permits issued to major communities upstream in New Hampshire (Concord, Manchester and Nashua- source: EPA Region 1 NPDES web page) did not include a flow limit and pollutant loads were controlled by allowing certain pollutant loads. This approach would have value and merit for the LRWU facility. As noted in the fact sheet (pages 8-9 attached hereto), EPA's practice is to use design flow in evaluating "reasonable potential" and such flows can still be used in those calculations without a limit being placed in the final permit.

The LRWWU facility is a valuable infrastructure resource for the region, has potential to treat additional wastewater from this region of economic growth and can continue to be a major element in the control of CSOs in the City of Lowell. The Town of Tyngsborough suggests that USEPA and MassDEP remove the 32 MGD limit and select one of the following options (presented in order of preference): 1.) Put a "report only" for flow with pollutants controlled by mass limitations; 2) Revise the permitted flow to a higher amount that reflects real time capacity based on current operating capacities as shown on all previous reports, or 3.) Put two flow limits in the permit- one based upon dry weather flow, a second based upon wet weather flow (which would be designated in the permit).

In addition to the comments above, the following comments impact the entire region that the Lowell Wastewater Treatment Facility services. The Town of Tyngsborough has been proactive in its wastewater planning, coordinating regional efforts, as well as completed sewer system buildouts to align with the state's housing and economic development goals. As a regional partner with Lowell, and noting the Merrimack River cuts the Town of Tyngsborough in half, this includes sewer buildouts conducted on three geographic areas where the Town maintains active Intermunicipal Agreements:

1. Chelmsford, MA - through the Worden and Middlesex Metering Stations on the west side of the Merrimack River with an IMA for 350,000 GPD. This IMA was initially set up in order for the federal/state mandate to service the Charles George Landfill. Infill sewer, as well as the Town's Phase 1 West Sewer (2018), now encapsulates the entire flow limit under the IMA. The west side of the River contains all of Tyngsborough's commercial and industrial parcels, as well as land targeted for mixed use zoning. The largest potential for economic development, as well as housing, is within this geographic area. Additional economic development and housing initiatives will not be able to correct to sewer due to flow limits in the IMA. Tyngsborough is working with the Town of Chelmsford in evaluating sewer infrastructure along the JMA route, as well as coordinating with Lowell. Both Tyngsborough and Chelmsford are deficient needed flows in this area. Tyngsborough projects it will need an additional 150,000 to 200,000 GPD over the next few years in this IMA location to meet housing and economic development projections.

2. Dracut, MA - through the Mascuppic and Farwell Metering Stations servicing the east side of the River with an JMA for l.0M MGD. This area is mainly residential parcels and schools, with some smaller commercial entities. There are two major bodies of water located on the east side of the River-Mascuppic Lake and Althea Lake. Soils and groundwater conditions are severe in this area adding to the need for offsite wastewater treatment. Tyngsborough IMA of l .0M will suffice to address sewering per the state-approved Comprehensive Wastewater Management Plan (CWMP).
3. Lowell, MA - through the Pawtucket Boulevard Metering Station servicing the lower region of Pawtucket Boulevard, most importantly the Greater Lowell Regional Vocation School with an JMA of 80,000 GOD. This JMA purpose was to service the Greater Lowell Regional Vocational School and any parcels along the route. The initial JMA was 20,000 GOD and was extended to 80,000. The current IMA is sufficient to service Tyngsborough' s needs from the CWMP in this area.

Tyngsborough is proactive in its approach to planning for not only the present, but the future as well. Tyngsborough was awarded the title "Housing Choice Community" from the state as part of the state's Community Compact Program's Best Management Program with both affordable housing and transportation. To attract and maintain the housing status requires sewer infrastructure as the area is riddled with severe soil and groundwater conditions, as well as a multitude of environmental concerns that are all addressed with municipal sewer.

All of the Lowell Regional Wastewater Utility partners are members of the Middlesex 3 Coalition, which is fostering regional economic development, job growth and retention, as well as diversification of the tax base-all which require sewer infrastructure to support.

In addition to the Northern Middlesex Council of Governments Regional Planning Agency's drive for economic development, housing and jobs, which they deem reliant on water and sewer infrastructure, sewer infra structure (flows and capacities) are all necessary to support Massachusetts' Sustainable Development Principles. These impact all of the Lowell regional partners with the following:

- Housing and Economic Development
- Transportation
- Job Growth and Retention
- PLANNING REGIONALLY

One more factor that impacts these regional partners in this geographic location of the state, is the fact that these communities border New Hampshire to the south. A state with no state tax. This provides a hardship in many areas attempting to diversify the tax base to relieve residential property owners, as well as any commercial entities within these towns. In looking to compete with New Hampshire and drive and retain business in Massachusetts, sewer is of utmost need! Restaurants, service industries, hotels and other large water users can compete with no sales tax in New Hampshire and actually grow in Massachusetts, but not without sewer service. Limiting Lowell's flow further exacerbates an already existing problem.

With all of these facets reliant on both water and sewer infrastructure, it does not make sense that the Lowell Draft Permit includes a flow limit of 32MGD. The facility is designed to handle much larger flows and this limit will severely restrict any of the regional partners from attaining the goals that are driven by the state.

Based on this supporting documentation, we respectfully request that the flow limit be eliminated from the Permit. The Town of Tyngsborough suggests that USEPA and MassDEP remove the 32 MGD limit and select one of the following options (presented in order of preference): 1.) Put a "report only" for flow with pollutants controlled by mass limitations; 2) Revise the permitted flow to a higher amount that reflects real time capacity based on current operating capacities as shown on all previous reports, or 3.) Put two flow limits in the permit- one based upon dry weather flow, a second based upon wet weather flow (which would be designated in the permit).

Response 39

See Responses 4 and 37.

D. Comments from Richard Montuori, Town Manager, Town of Tewksbury on July 23, 2019:

Comment 40

The intent of this letter is to request an additional 30 days of public comment for NPDES Permit No. MA0100633 for the Lowell Regional Wastewater Utility. As a co-permittee, the Town of Tewksbury did not have adequate notice or time to properly review the draft permit with appropriate departments, officials, and counsel. It is our understanding that only a paper copy of the draft permit was sent to the town, and unfortunately to an incorrect address. I respectfully request an extension on the public comment period to ensure the Town can perform a thorough and satisfactory review. I appreciate the consideration of the Environmental Protection Agency on this important matter.

Response 40

EPA mailed the public notice package via USPS Certified Mail to the Tewksbury Town Hall at 1009 Main Street, Tewksbury, MA 01876. According to the official USPS tracking records, this package was delivered to the appropriate address on June 6, 2019 and signed for by an individual at the Tewksbury Town Hall. The public notice period began on June 7, 2019 and was extended until July 23, 2019, a total of 47 days. EPA acknowledges that it may have taken the Town a short period of time to distribute the notice to the appropriate departments, officials and counsel within the Town, but does not agree that this would preclude the Town from having adequate time (at least 30 days pursuant to 40 C.F.R. § 124.10(b)(1)) to review and submit any necessary comments.

Further, EPA notes that the above comment letter submitted by the Town was mailed from the same Town Hall address that received the original Draft Permit package on June 6, 2019 and was dated July 23, 2019, the final day of the 47-day comment period. This indicates that the address which received the public notice package is the official business address for the Town and that the Town was aware of the public notice end date.

For these reasons, EPA has a basis to conclude that the Town had adequate notice and a further extension of the public comment period is not granted.

E. Comments from Betsy Reilley, Ph.D., Director, Environmental Quality Department, Massachusetts Water Resource Authority on July 23, 2019:

Comment 41

Comments on Co-Permittees

MWRA appreciates that the United States Environmental Protection Agency (EPA) has included language that provides clarity about responsibilities among the co-Permittees. However, MWRA continues to have reservations about the inclusion of municipal entities that have not applied for a permit and are not directly discharging to a water of the Commonwealth or the United States. MWRA remains concerned that the co-Permittee model is inconsistent with the intent of the Clean Water Act.

Response 41

EPA acknowledges the comment. For a discussion of the three aspects of EPA's co-permitting approach identified in the comment, please see *In re Charles River Pollution Control Dist*., 16 EAD 623 (EAB 2015). Those specific rationales, as well as the bases identified by the Board in upholding EPA co-permittee approach, are incorporated here.

Comment 42

Comments on BOD and TSS Percent Removal

The draft permit includes a requirement to achieve 85 percent removal of BOD5 and TSS. Pursuant to 40 C.F.R. 133.103(a), this requirement should be applied only "during dry weather" because the treatment plant serves a combined sewer system and thus may not be able to meet the percentage removal requirements established under §§133.102(a)(3) and 133.102(b)(3), or §§133.105(a)(3) and 133.105(b). During wet weather the Nine Minimum Controls requirement to maximize flow to the treatment facility, conflicts with a percent removal requirement. MWRA recommends adding a footnote such as the following:

> The permittee's treatment facility will maintain a minimum of 85 percent removal of both total suspended solids and biochemical oxygen demand during dry weather. Dry weather is defined as any calendar day on which there is less than 0.1 inch of rain and no snow melt. The percent removal shall be calculated as a monthly average using the influent and effluent BOD5 and TSS values collected during dry weather days.

Response 42

See Response 6.

Comment 43

Comments on Phosphorus

The draft permit includes a seasonal limit for phosphorus, subject to a compliance schedule whereby the limit takes effect one year from the effective date of the permit. However, MWRA disagrees with EPA's "reasonable potential" analysis in the Fact Sheet, relating to phosphorus.

Massachusetts Water Quality Standards include a narrative standard for nutrients. There is no Gold Book criterion for phosphorus in freshwater. In fact, the Gold Book outlines, "No national criterion is presented for phosphate phosphorus for the control of eutrophication." Nor has Massachusetts established either a loading allocation such as an approved TMDL, or site-specific criteria, for the Merrimack River for phosphorus.

The Gold Book, as noted above, explicitly does not recommend a criterion for phosphorus in fresh water. However, the following statement in the Fact Sheet is used to support the phosphorus values used for the reasonable potential analysis:

> EPA's 1986 Quality Criteria for Water (the "Gold Book") recommends that in-stream phosphorus concentrations not exceed 0.05 mg/L in any stream entering a lake or reservoir. 0.1 mg/L for any stream not discharging directly to lakes or impoundments, and 0.025 mg/L within a lake or reservoir.

The Fact Sheet erroneously uses values mentioned in one (1973) literature citation in the Gold Book, ignoring the remainder of the text, and uses that those numbers as though they were approved water quality criteria or standards. Such use is inappropriate.

The Clean Water Act requires states to develop TMDLs where numeric criteria are not available or where required to restore impaired waters. EPA's web site on TMDLs notes:

> The TMDL process is important for improving water quality because it serves as a link in the chain between water quality standards and implementation of control actions designed to attain those standards.

Furthermore, once a TMDL is approved the state must allocate pollutant loads equitably to contributing point and nonpoint sources, before permit limits can be set based on the TMDL. Although the TMDL process is time-consuming, it requires public input and allows for scientific review. Therefore, EPA cannot apply arbitrary criteria that have not gone through a review and public participation process. The statement in the Fact Sheet "In the absence of numeric criteria for phosphorus, EPA uses nationally recommended criteria and other technical guidance to develop effluent limitations for the discharge of phosphorus" has no legal basis.

The draft permit further cites the *Ambient Water Quality Criteria Recommendations: Information Supporting the Development of State and Tribal Nutrient Criteria, Rivers and Streams in Ecoregion XIV* (EPA December 2000). MWRA notes that the Foreword to this document states:

> This document presents EPA's nutrient criteria for Rivers and Streams in Nutrient Ecoregion XIV. These criteria provide EPA's recommendations to States and authorized Tribes for use in establishing their water quality standards consistent with section 303(c) of CWA. Under section 303(c) of the CWA, States and authorized Tribes have the primary responsibility for adopting water quality standards as State or Tribal law or regulation. The standards must contain scientifically defensible water quality criteria that are protective of designated uses. **EPA's recommended section 304(a) criteria are not laws or regulations** – they are guidance that States and Tribes may use as a starting point for the criteria for their water quality standards. (emphasis added)

The receiving water for the Lowell municipal wastewater discharge has been classified as impaired due to phosphorus in the 2014 Integrated List of Waters. The next step must be development of a TMDL for phosphorus loading. The phosphorus limit should be removed from the draft permit.

Response 43

See Responses 2, 3, and 97.

Consistent with the guidance documents cited by the commenter, EPA relied on these values as information relevant to the translation of the Commonwealth's narrative nutrient and nutrient-related criteria. EPA evaluated these values and methodological approaches and included them in the total mix of information, from which it ultimately derived a protective instream target, which fell within a range of available targets, set against a backdrop of scientific uncertainty. EPA did not apply them as binding criteria and may refine the target in future permitting cycles based on all the information in the record before it at the time of permitting. EPA did not select the most stringent available instream target available to it from the peer-reviewed literature in the administrative record, which it was fully authorized to do, and instead opted as a policy matter to measure receiving water response during the permit term and fine-tune the limit, if necessary, in future permitting cycles after assessing receiving water response. EPA reserves the right to revisit this judgment.

Neither the CWA nor EPA regulations require that a TMDL, or its equivalent, be completed before a water quality-based limit may be included in an NPDES permit.[13] Rather, water quality-based effluent limitations in NPDES permits must be "consistent with the assumptions and requirements of any *available* [emphasis added] wasteload allocation." 40 C.F.R. § 122.44(d)(1)(vii)(B). *Id*. Thus, an approved TMDL is not a precondition to the issuance of an NPDES permit for discharges to an impaired waterway. *Id*. This interpretation is consistent with the preamble to 40 C.F.R. § 122.44(d)(1), which expressly outlines the relationship between subsections 122.44(d)(1)(vi) (i.e., procedures for implementing narrative criteria), and (d)(1)(vii):

[13] *See*, e.g., 43 FR 60662, 60664 (December 28, 1978) ("EPA does not consider the establishment of TMDL's as essential to setting of water quality based effluent limits. Development of TMDL's pursuant to section 303(d) is not a necessary prerequisite to adoption or enforcement of water quality standards, and therefore, will not determine the validity of existing, revised or new water quality standards.")

> The final point about paragraph (vi) is that in the majority of cases where paragraph (vi) applies waste load allocations and total maximum daily loads will not be available for the pollutant of concern. Nonetheless, any effluent limit derived under paragraph (vi) must satisfy the requirements of paragraph (vii). Paragraph (vii) requires that all water quality-based effluent limitations comply with "appropriate water quality standards," and be consistent with "available" waste load allocations. Thus for the purposes of complying with paragraph (vii), where a wasteload allocation is unavailable, effluent limits derived under paragraph (vi) must comply with narrative water quality criteria and other applicable water quality standards.

See 54 Fed. Reg. 23,868, 23,876 (June 2, 1989). If a TMDL is completed and approved by EPA, the effluent limitation in any subsequently issued NPDES permit must be consistent with the wasteload allocation assigned to the facility. In the meantime, relevant regulations require that EPA develop water quality-based effluent limitations based on the existing applicable water quality standard in order to ensure that the permit complies with the EPA regulations requiring permits to include requirements "necessary to achieve water quality standards" (40 C.F.R. § 122.44(d)(1)) and limits "derived from, and [that comply] with" water quality standards (§ 122.44(d)(1)(vii)). These requirements implement Clean Water Act section 301(b)(1)(C), which mandates inclusion of "any more stringent limitation, including those necessary to meet water quality standards" in NPDES permits. *See In re Upper Blackstone Water Pollution Abatement Dist.*, 14 E.A.D. 577, 604-05 (EAB 2010) (expressly rejecting the idea that the permitting authority cannot proceed to determine permit effluent limits where a TMDL has yet to be established), *aff'd*. 690 F.3d 9 (1st Cir. 2012), *cert. denied*, 133 S. Ct. 2382 (2013).

Comment 44

Comments on Nitrogen

The draft permit requires monitoring of total nitrogen in the effluent. The Fact Sheet (section 5.1.9.1) asserts that estuarine portions of the Merrimack River have "elevated" nitrogen and chlorophyll 'a' levels, which can be related. The Fact Sheet goes on to describe observed levels of nitrogen and chlorophyll 'a' in the estuarine portion of the river, and then states "most of these results are outside the range typically found in healthy estuaries in Massachusetts". However, the citation given as a basis for that assertion is a study of southeastern Massachusetts estuaries, which are very different in their sensitivity to nitrogen loading from the colder, deeper, macrotidal, better-flushed estuaries north of Cape Cod. For example, Boston Harbor total nitrogen ranges from 0.15 to 0.99 mg/L while chlorophyll 'a' ranges from 0.13 to 68 µg/L (surface samples, collected biweekly year-round, throughout the estuary, 2014-2018). These ranges, from the now-healthy Boston Harbor, are similar to those cited for the brackish portions of the Merrimack River.

Although monitoring of effluent nitrogen is likely not onerous, MWRA cautions that the Fact Sheet does not adequately justify a concern about nitrogen loading to the Merrimack River. Establishing whether the receiving water, or the downstream estuary, is impaired because of nitrogen loading, is not the responsibility of NPDES permittees. In addition, as for phosphorus,

the appropriate next step for addressing any such impairment would be development of an approved TMDL.

Response 44

EPA concurs that more information is necessary to comprehensively assess the impact of nitrogen loadings in the Merrimack River watershed, because it will result in a more effective permitting regime, should limits prove to be necessary. EPA explains its approach to permitting for TN more fully in Response 64 below. Over the course of the next permit term, EPA expects to gather a variety of effluent and ambient data from various permittees and other entities. Although EPA agrees that the decision to impose an effluent limitation for a pollutant of concern upon finding reasonable potential is the obligation of EPA, the commenter's suggestion that wastewater dischargers may not be subject to monitoring or sampling requirements imposed for the purpose of determining the quality of the waters that receive their pollutant discharges, and the need to control those pollutant discharges, is without foundation in the Act. To the contrary, it is expressly contemplated by NPDES regulations and is supported by case law.

EPA frequently includes monitoring requirements in a permit with the objective of using the data to determine the need for a limit in a subsequent permit, and is authorized to do so under the Act and implementing regulations. The data collected during this permit cycle in conjunction with other water quality data will be used by EPA in the development of a subsequent permit.

See Response 43 regarding TMDL development.

Comment 45

Comments on Footnote 4

It is concerning that in Footnote 4 results are reported differently based on other results. Results should always stand on their own; their values should not depend on other results collected later. What is the rationale for the time period of 12 months? Why is the Permittee to use half the detection limit? It is also not clear that if a result in month 12 is a detect, then do all the non-detects in the previous 11 months get retroactive values of half the detection limit, or is it just any other non-detected result in month 12? There is no logical or scientific rationale for arbitrarily changing values of results.

As a practical matter, conditioning data values on whether all measurements in some past time period were non-detects, makes calculating the results and management of the data extremely complex. It would be difficult for the permittee to document how the monthly average is calculated in a straightforward way, if it changes from month to month. Automating the calculation procedure may become impossible. It also makes the reported results unusable for examining trends. MWRA also does not understand why Footnote 4 only applies to the average monthly effluent limits and not the average weekly or maximum daily limits. EPA should be consistent in how non-detects are treated, both within this footnote and between Footnotes 3 and 4.

MWRA recommends that non-detect results continue to be assigned a value of '0' as is the current practice according to the most recent available instructions for completing a discharge monitoring report (DMR) in EPA Region 1, the NPDES Permit Program Instructions For the Discharge Monitoring Report Forms (DMRs) Report Year 2010, (EPA January 2010). In this document, Permittees are instructed to substitute '0'for any non-detect results prior to averaging or reporting results on the DMR.

Response 45

See Response 12.

Comment 46

Comments on Footnote 6

MWRA recommends that EPA include the following bypass language in Lowell's draft NPDES permit as they did in Springfield's draft NPDES permit (MA0101613): "A bypass of secondary treatment is allowed when wet weather influent flow exceeds the wet weather capacity of the secondary treatment." Wastewater treatment plants are designed and constructed with the understanding that, at times, primary-treated-only wastewater will be blended with secondary treated flows and disinfected, provided that the final blended effluent meets secondary permit limits. This practice allows the POTW to maximize flow to the treatment plant from its combined collection system, which may be subject to large fluctuations in flow during wet weather, to minimize combined sewer overflows (CSOs), consistent with EPA policy and regulation.

Additionally, it is unclear why the permit states that a bypass of secondary treatment is subject to the requirements of Part II.B.4.c (prior notice/24-hour reporting). The permit should clarify that Part II.B.4.c applies only when flow bypasses secondary treatment at flows less than the secondary process limit. Thus, the permit should clarify that, for plant flows greater than the secondary process limit that do not cause violations of numerical permit limits or endanger health or the environment, 24-hour reporting of blending is not required.

EPA should also clarify that discharges from CSO outfalls during wet weather are not bypasses of secondary treatment.

Response 46

EPA's response to comments concerning footnote 5 (footnote 6 of the Draft Permit) and the conditions in the permit which relate to bypasses of secondary treatment are found in Responses 13 and 14.

EPA acknowledges language contained in the *draft* NPDES permit for the Springfield Regional Waste Water Treatment Facility. EPA continues to review comments and draft language on that permit, which has not yet been finalized.

The distinction between CSOs and bypasses of secondary treatment are clearly established in Part I.A. of the National CSO Control Policy, 59 Fed. Reg. 18688, which defines a CSO as "a discharge from a combined sewer system at a point prior to the

POTW Treatment Plant" and at 40 C.F.R. § 122.41(m) which defines a bypass as "the intentional diversion of waste streams from any portion of a treatment facility". *See also* 40 C.F.R § 403.3(r) (defining "POTW Treatment Plant" as "that portion of the POTW which is designed to provide treatment (including recycling and reclamation) of municipal sewage and industrial waste.").

Notice requirements in Part II.B.4.c incorporate required regulatory language at 40 C.F.R. § 122.41(m)(3). Regarding bypasses which do not require notice, Part II.B.4.c., pursuant to 40 C.F.R. § 122.41(m)(2), clearly states that bypasses which do not "cause effluent limitations to be exceeded" and are "essential for maintenance to assure efficient operation" are not subject to the sub-section (c) notice provisions.

Comment 47

Comments on Footnote 13

It is unclear whether EPA is eliminating the submittal of separate, quarterly DMRs for Whole Effluent Toxicity testing. Due to the time necessary to complete the toxicity test report, particularly for chronic tests, it will not usually be the case that results are available by the 15th of the following month. If EPA intends for the Permittee to submit quarterly toxicity DMRs, MWRA suggests that the language below be modified:

> The complete report for each toxicity test shall be submitted as an attachment to the monthly DMR submittal immediately following the completion of the test.

should be changed to:

> The complete report for each toxicity test shall be submitted by the last day of the month following the completion of the test. The results are due by February 28, May 31, August 31, and November 30.

If EPA intends for the quarterly toxicity results to be submitted on the same monthly DMR form as the other results for the reporting month, the permit should clarify what NODI code should be used for data not yet available, and that the permittee should resubmit the DMR with the toxicity data and report once they become available. It should also clarify that the updated DMR will not be considered late, provided that the non-toxicity results were submitted by the 15th of the month.

Response 47

First, EPA clarifies that the Draft Permit does not require the submittal of separate, quarterly Discharge Monitoring Reports ("DMRs") for WET tests.

Second, EPA agrees that the requirement to submit results with the "monthly DMR submittal immediately following completion of the test" could result in a report being due before it is available. However, EPA does not agree with the proposed alternative because of the technical challenges involving EPA's NetDMR and ICIS systems that may be associated with consistent submittal of late WET test data. Rather, to account for the

processing time of each WET test, EPA has revised the language to allow for the WET results to be reported on the "second monthly DMR submittal following the completion of the test."

Comment 48

Comments on Unauthorized Discharges

Part I.B.2 is not consistent with Part II.D.1.e.(1) (Standard Conditions, 24-hour reporting) of the draft permit, nor with 314 CMR 3.19 (20)(e). Part II.D.1.e.(1) requires verbal reporting of any noncompliance which may endanger health or the environment within 24 hours from the time the Permittee becomes aware of the circumstances. A written report containing discharge volumes is then required within five days of the time the Permittee becomes aware of the circumstances.

It is generally infeasible to provide accurate information on the timing and volume of unauthorized discharges such as sanitary sewer overflows within 24 hours. The Permittee should be given adequate time to analyze, process, and validate data to report accurate information. Specifically, the permit should allow five days to report the "description of the discharge; estimated volume; the period of noncompliance, including exact dates and times; and, if the noncompliance has not been corrected, the anticipated time it is expected to continue." If the 24-hour notification requirement is retained as written, the unauthorized discharge information is very likely to undergo some corrections between the 24-hour notification and the five-day report. It is not clear in the permit how the Permittee is to handle any discrepancies.

EPA should also clarify how long it intends for this information to be available on the Permittee's website.

Response 48

The two provisions cited by the commenter are distinct requirements in the Draft Permit, which were included to achieve different objectives.

Part I.B.2. requires public notification of an unauthorized discharge (*i.e.*, plant upset, sanitary sewer overflow (SSO), *etc*.), so that appropriate precautions can be taken to minimize exposure risks by the public associated with recreating on or near receiving waters where untreated wastewater may be present. Part I.B.2 is properly included, as stated in the Fact Sheet, to minimize the occurrence of permit violations that have a reasonable likelihood of adversely affecting human health or the environment pursuant to authority established in 40 C.F.R. § 122.41(d) ("*Duty to mitigate")*. The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment."). It is, in EPA's judgment, reasonable to expeditiously disclose these occurances, even subject to correction, given the potential risks to the public, so that it may be put on notice and assess the risks prior to utilizing the resource. Although EPA must strike a balance between notifying the public in a timely manner and ensuring the accuracy of the notification, a five-day delay would likely lead to members of the public recreating or otherwise utilizing the resource while unaware of potential risks. It is unclear to EPA why any discrepancies between an initial public notification

may not be addressed by simply providing updated information on the website. As for the commenter's concern about reporting "volumes," Part I.B.2. requires only reporting of the *estimated volume* of any unauthorized discharge, not an exact volume. The commenter does not specify why Part I.B.2 is inconsistent with 314 CMR 3.19(20)(e).

Part II.D.1.(e.), on the other hand, requires that notification be provided to the permitting authority(ies) of *any noncompliance* which may endanger health or the environment. Moreover, reporting of discharge volumes is generally not required by Part II.D.1(e) except for noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events.

Additionally, EPA has modified the language in Part I.B.2 of the Final Permit to require public notification within 24 hours of *becoming aware* of any unauthorized discharge impacting a surface water or the public, which is consistent with the language set forth in Part II.D.1.(e).

Finally, EPA agrees that clarification regarding the length of time notifications of unauthorized discharges are to remain on the permittee's website is needed, and therefore, Part I.B.2. of the Final Permit specifies that such notifications shall remain posted for a minimum of 12 months. This will provide a reasonable record and history that the public may consult when assessing the frequency of unauthorized discharges in particular water bodies in assessing whether to utilize them.

Comment 49

Comments on Combined Sewer Overflows

The permit should allow flexibility in choosing the most effective way to "characterize CSO impacts and the efficacy of CSO controls" (Nine Minimum Controls [NMC] #9), as EPA did in the Public Notification Requirements for Combined Sewer Overflows to the Great Lakes Basin final rule promulgated in the Federal Register on January 8, 2018. MWRA's experience is that due to the complexity of CSO regulator structures, and the difficulty in maintaining sensors in the harsh environment of a combined sewer, it is usually impossible to accurately measure CSO discharges (i.e., "Duration (hours) of discharge; Volume (gallons) of discharge" for "each combined sewer outfall" [pg. 18; Part I.F.3.e]) over a short period of time. These measurements in the field -- as opposed to those at CSO treatment facilities -- require extensive, expensive metering at each outfall and regulator. Once the collected meter data are determined (through careful technical assessment) to be valid, the data must then undergo post-processing and expert interpretation, as well as validation against other information such as system performance records and model output, to determine reasonably accurate activation start and stop times and discharge volumes. MWRA has seen that, even with good meter "data," the discharge durations and volumes determined from the data are often suspect or unreliable.

CSO discharge estimates can change between an immediate or short-term notification, and annual reporting. To avoid concern about "discrepancies," the permit should state that discharge estimates in initial notifications are "preliminary and subject to change with new information or additional evaluation."

As an alternative to direct measurement, MWRA encourages EPA to also allow modeling, precipitation-based estimates and other analytical tools to estimate CSO discharge duration and volume as EPA does in the Public Notification Plan section of the draft permit (Part I.F.3.g.(2)). Under the right conditions, modeling can be an effective method for determining the occurrence and characteristics of CSOs.

MWRA is providing rapid public notification of CSO discharges at CSO treatment facilities. These facilities are typically the most active CSOs in their respective receiving waters, and can be accurately measured and verified compared to stand-alone CSO regulator structures.

Public notification plan

The draft permit provides 180 days to develop a public notification plan (CSO Nine Minimum Controls #8). Because the infrastructure to provide notification needs to be put in place, MWRA recommends that additional time, an additional 36 months from the effective date of the permit, be allowed for implementation of the plan.

MWRA also recommends that EPA include a schedule for implementation and a listing of potentially affected entities in the plan. EPA should also provide guidance to the Permittee on how to determine which downstream communities might be potentially affected entities.

Initial notification

MWRA supports the draft permit language that allows the use of "monitoring, modeling, or other means" to determine that a CSO discharge has occurred.

It is important to keep in mind that notifying the public of CSO discharges into a receiving water body that is affected by many wet weather (and possibly dry weather) sources of pathogens is likely to give the false impression that the water is safe for contact recreation when CSOs are not discharging; or, that the water is safe if there has not been a CSO activation in a storm or a series of wet weather events. The risk to public health is influenced by a number of factors, not just CSO discharges. A requirement for rapid public notification of CSO discharges may give the erroneous impression that the receiving waters are safe during and immediately after storms in the absence of CSO discharges.

More helpful to the public and protective of public health would be a much more general short-term notification of the potential for one or more CSO discharges to a receiving water segments (along with stormwater and other discharges). The risk to public health is best determined and communicated by public health authorities rather than wastewater Permittees. MWRA recommends that the language be changed to provide a general notification that because large storms can trigger CSOs, public health officials recommend avoiding contact with water bodies during rainstorms and for 48 hours afterwards, as there may be increased health risks due to bacteria or other pollutants associated with urban stormwater runoff and CSO discharges.

Follow-up notification

The draft permit requires a supplemental notification within 24 hours after becoming aware of the end of a CSO discharge. This supplemental notification would confirm whether the CSO did indeed discharge and provide the start and stop times. MWRA believes it is infeasible to provide accurate information on the timing of each activation within 24 hours at any CSO outfall other than those from CSO treatment facilities. As discussed above, the Permittee should be given adequate time to analyze, process and validate data (or model results) to report accurate information. Furthermore, it is not clear what public health benefit would be obtained by such a notification. The potential benefit of these notifications is not immediate public health protection but as input to longer term CSO public policy and control efforts, adequately provided for with the other CSO discharge reporting requirements in the draft permit.

MWRA recommends that the follow-up notification requirement be eliminated.

Response 49

The Final Rule Public Notification for CSOs to the Great Lakes implements Section 425 of the Consolidated Appropriations Act of 2016, which requires EPA to work with the Great Lakes States to establish public notification requirements for combined sewer discharges to the Great Lakes. It does not apply to dischargers outside of the area.

EPA maintains its position that the objective of the monitoring required under the nine minimum controls is to provide data that can be used to evaluate compliance with the technology-based effluent limitations for CSOs that are set forth in the permit (i.e., the nine minimum controls), the efficacy of the CSO controls that have been implemented and to validate the assumptions set forth in the permittee's LTCP, as well as to facilitate the CSO notification program. It has been EPA and MassDEP's experience that direct measurement provides the most accurate indication of CSO activations. Therefore, the collection of data through direct measurement is essential for the regulatory agencies to conduct these evaluations. Forms of direct measurement *may* include, but are not limited to, metering of flows at each CSO outfall. Alternate approaches could include, for example, extrapolating the flow volume discharged through a CSO outfall from measurements of water levels in the interceptor sewers (or some other measured metric of a known quantity from which the flow volume could be derived). The requirement to monitor CSO discharges through direct measurement remains unchanged in the Final Permit.

EPA understands that additional time may be needed to validate and refine CSO data that is collected each month through direct measurement, and as such, the permit requires CSO discharge data to be submitted with the Annual Report that is submitted in accordance with Part I.F.4. of the permit.

EPA agrees that CSO discharge estimates may change between the time the initial and supplemental notifications are provided. This understanding is reflected in Part I.F.3.e.(2) (initial notification) of the Draft Permit, which states that "Initial notification of a *probable* CSO activation shall be provided…". This language has been maintained in the Final Permit.

Public notification plan

With respect to the commenter's request that the deadline for the submittal and implementation of the public notification plan be extended to 36 months, the deadline for complying with this requirement remains unchanged in the Final Permit. Neither the commenter nor the permittee have identified any specific impediments to meeting this requirement within the time frame established in the permit.

With respect to the commenter's request for guidance on determining "potentially affected parties", upon further consideration, EPA has determined that the notification requirements in the Draft Permit, including the requirements in Part I.F.3.g. to provide the general public with notification of CSO discharges and the requirements in Part I.H.2. and Part I.H.3. to notify downstream community water systems and the Massachusetts Division of Marine Fisheries of any emergency condition, plant upset, bypass, CSO discharges, SSO discharges or other system failure that has the potential to violate permit limits or affect the quality of the water to be withdrawn for drinking water purposes, are inclusive of all categories of the public, and the references to "affected entities" and "affected parties" have been removed from Part I.F.3.g. of the Final Permit.

Initial Notification

EPA disagrees with the commenter's statement that notifying the public of the cessation of a CSO discharge will provide a false sense of security that the water is safe. While water quality may be negatively impacted by non-CSO sources, including stormwater runoff, providing timely notice of CSO discharges may allow the public to take steps to reduce potential exposure to pathogens associated with untreated wastewater. EPA does, however, encourage the permittee to provide the public with information relative to the impacts of wet weather, including those due to stormwater and other non-CSO sources, on the quality of the receiving water as well as to public health. Additionally, EPA supports the collaboration between the permittee and public health entities in communicating the health risks presented by untreated discharges of combined stormwater and wastewater.

Follow-up Notification

EPA disagrees with the commenter's suggestion that confirmation of a CSO discharge can only be made if the discharge is from a CSO treatment facility. The concerns expressed by the commenter regarding the time needed to analyze, process and validate data (or model results) to report accurate information appear to be more appropriately directed towards the collection and reporting of flow volumes, as opposed to confirming whether a CSO discharge occurred.

The intent of the supplemental notification, in conjunction with the initial notification, is to provide the public with timely information relative to CSO discharges so that appropriate precautions can be taken to minimize exposure risks associated with

recreating on or near receiving waters into which CSO discharges occur. These public notification requirements are reasonable given the uses of the receiving water and remain unchanged in the Final Permit.

Comment 50

Condition I.H.4 requires monitoring of phosphorus (see also Footnote 11.) There is no justification for this requirement provided in the Fact Sheet. It is not clear what the purpose is or how the proposed study design is going to meet that purpose. The classic reference for designing marine pollution monitoring programs, Managing Troubled Waters, emphasizes the importance of starting with clear monitoring questions in order to assure that the study design will generate data that will answer those questions.

If there were a rationale provided for the study, reviewers could make more relevant comments on the appropriateness of the study design. What is the reason for sampling in dry weather? How will tidal aliasing be avoided?

Furthermore, the requirement to collect monthly samples in dry weather is infeasible. The permittee may schedule sampling during an expected dry day, only to have the weather change. If there are no dry days during a month, how should the lack of data be reported on the DMR?

If this ambient monitoring condition is retained, EPA should clarify that Part I.H.4 refers to monitoring for total phosphorus only.

Response 50

EPA clarifies that the purpose of the ambient monitoring requirement for phosphorus is to track background conditions over the life of the permit. This data can be used in the next permit reissuance to ensure that appropriate limits are in place to protect water quality standards.

The comment questions the condition of dry weather and tidal aliasing. Monitoring during dry weather is required because the critical condition for the impact of phosphorus loading from the Lowell discharge is during periods of low flow. If it is raining, then the conditions of the river are likely impacted by stormwater and are not representative of critical dry weather conditions.

EPA does not expect tidal aliasing to impact the upstream monitoring because the monitoring will be conducted above the head of tide dam on the Merrimack River.

EPA disagrees that monitoring during dry weather is infeasible. However, if there are no dry days during a month, the Permittee may report a No Data Indicator ("NODI") code "V" (Weather Related) for that month.

Part I.H.4 applies to total phosphorus monitoring only.

Comment 51

Typographic errors

Page 31 of the Fact Sheet, section 5.5

"Specific permit conditions have also been included in Part I.C. and I.D. of the Draft Permit."

The reference here should be to Part I.B and I.C.

Fact Sheet page 37

- The Draft Permit proposed to limit CBOD, TSS, pH, total residual chlorine, E. coli, total aluminum, total lead, and total phosphorus

should say

- The Draft Permit proposed to limit CBOD, TSS, pH, total residual chlorine, E. coli, and total phosphorus

Also

- Acute toxicity tests will be continued four times a year. Present toxicity test results are in compliance with the permit limits

should say

- Acute and chronic toxicity tests will be continued four times a year. Present toxicity test results are in compliance with the permit limits

Response 51

EPA agrees with these typographical edits and they are noted here for the record.

F. Comments from Heather McMann, Executive Director, Groundwork Lawrence on July 23, 2019:

Comment 52

We strongly support the inclusion of a total phosphorous average monthly limit of 1.08 mg/L. The MassDEP's Massachusetts Year 2014 Integrated List of Waters (2014 Integrated List), the 303(d) list, includes the Merrimack River, Segment MA84A-04 and the Spicket River, Segment MA84A-10 as Massachusetts Category 5 Waters, with the Merrimack River impaired for total phosphorous. Given these significant impairments, we were pleased to see the inclusion of a total phosphorous limit in this permit.

Response 52

Comment noted. See Responses 2 and 3.

Comment 53

We support the addition of total Kjeldahl nitrogen, total nitrate/nitrite, and total nitrogen weekly (April - October) and monthly (November - March) monitoring and reporting, but we recommend that EPA proposes a total nitrogen average monthly limit for the permit. As noted in the Fact Sheet, nitrogen levels in the Merrimack River estuary are higher than is acceptable for a healthy nearshore coastal system. Recent nitrogen data collected by CDM Smith in 2014 and 2016 in the estuarine portions of the Merrimack River indicates elevated total nitrogen and chlorophyll 'a' levels. In addition, in 2012, the Gulf of Maine Council on the Marine Environment reported that the Merrimack was the second greatest contributor of nitrogen and phosphorus to the Gulf of Maine. We disagree that any additional reasonable potential analyses need to be conducted for this criterion. EPA should move forward with establishing a limit total nitrogen, but at a minimum should include in the current permit that a future permit may require nitrogen limits and/or process optimization at the facility.

Response 53

See Response 64.

The commenter suggests that EPA "at a minimum should include in the current permit that a future permit may require nitrogen limits and/or process optimization at the facility." EPA agrees with this comment and has already indicated in the Fact Sheet (at 22) that "The Agencies recommend the Permittee factor in treatment methods to reduce nitrogen in the effluent for any planned upgrades at the treatment plant, as nitrogen limits may be included in subsequent permits."

Comment 54

We support the inclusion of additional characteristics beyond LC50 and C-NOEC for Whole Effluent Toxicity (WET) testing in the permit, but recommend that EPA includes specific time frames for quarterly monitoring to occur, similar to the schedule established in the Springfield Waste Water Treatment Facility and CSO draft NPDES permit (MA0101613).

Response 54

EPA agrees with this comment and notes that footnote 13 of the Lowell Draft Permit states: "Toxicity test samples shall be collected, and tests completed, during the same weeks in January, April, July and October." This level of specificity in the timing of the WET tests is already consistent with the Draft Permit for the Springfield WWTF referenced in the comment. Therefore, no change has been made to the Final Permit.

Comment 55

We support the inclusion of public notifications for unauthorized discharges on a publicly available website, but we recommend that notices be made to the public within two hours rather than within 24 hours. These discharges can pose significant risks to public health ranging from hepatitis to gastrointestinal illnesses. Unless a timely notification is shared broadly, the public cannot take the necessary precautions to protect their health. 24 hours is not sufficient notice for individuals who choose to

recreate in or near the Merrimack River.

Response 55

Requiring the permittee to provide notification within 24 hours of becoming aware of an unauthorized discharge is appropriate given the nature of such discharges, specifically, because they are unpredictable and not amenable to modeling, as are, for example, discharges from CSOs, which would provide information for providing notifications on a shorter timeframe. EPA must balance the need to notify the public in a timely way while also accounting for administrative, staffing and logistical constraints with which a permittee may be confronted. EPA also needs to ensure that there is sufficient time for a permittee to preliminarily assess any data and ensure that the information disclosed is reasonably accurate. Finally, EPA observes that the condition mandates disclosure *within* 24 hours; it is likely as a practical matter that, in many if not most cases, notification will occur before that time, given that elected officials and municipal employees have an interest in providing timely information to protect the health and welfare of the City's citizens.

Comment 56

We support the inclusion of a collection system mapping and collection system operation and maintenance plan to ensure that the most accurate data is utilized in system review.

Response 56

Comment noted.

Comment 57

We support the inclusion of inspections and reporting for CSO structures in the permit, but we recommend that the frequency of inspections be increased from once per month to twice per month to ensure that adequate assessments are occurring and fix and address problems as they arise.

Response 57

The inspection frequency of one per month that was included in Part I.F.2.b. of the Draft Permit was carried forward form the permit that was issued in 2005. EPA does not have any specific basis to conclude that the existing inspection frequency is inadequate, or that more frequent inspections would materially impact the operational integrity of the CSO structures. The Permittee is required to document any necessary maintenance, the date the necessary maintenance was performed, and whether the observed problem was corrected. EPA is unaware of any issues that have occurred with this frequency. Should EPA become aware of specific facts relating to this issue, it may revisit its determination. Part I.F.2.b. of the Final Permit remains unchanged from the Draft Permit.

Comment 58

We support the inclusion of additional signage at CSO locations, but recommend that the permit makes signage in additional languages a requirement rather than a suggestion. We recommend that signage be posted in both English, Spanish and

Cambodian, as according to the most recent U.S. Census data from July 1, 2018, 21% of the population of Lawrence identifies as Hispanic or Latino, 20% identify as Asian and according to Data USA, 15% of the population speaks Spanish or Spanish Creole as their first-language and 15% of the population speaks Cambodian as their first-language.

Response 58

EPA agrees with this comment and has updated Part I.F.3.f. of the Final Permit to require signage in English, Spanish and Khmer, or the addition of a universal wet weather sewage discharge symbol to existing signs.

Comment 59

We support the inclusion of initial notifications for CSO discharges, but we recommend that the notice is required within two hours rather than four hours. These discharges can pose significant risks to public health ranging from hepatitis to gastrointestinal illnesses. Unless a timely notification is shared broadly, the public cannot take the necessary precautions to protect their health. Four hours is not sufficient notice for individuals who choose to recreate in or near the Merrimack River. In addition, the most recent Springfield Waste Water Treatment Facility and CSO draft NPDES permit (MA0101613) includes a requirement that initial notifications are made by no later than two hours. Despite the fact that discharges across multiple treatment facilities to the Merrimack River collectively number in the hundreds and total more than 800 million gallons of sewage annually, the Merrimack River is still used heavily for recreation. From kayak and boat clubs to spin-rod and fly fishermen, the River supports a substantial recreation community. To provide these individuals with adequate notice and maintain consistency across CSO permits, we strongly recommend that this requirement is corrected to two hours.

Response 59

The 2-hour initial notification requirement that was proposed in the Draft Permit for the Springfield Wastewater Treatment Facility, which has not yet been finalized, was based, in part, on existing requirements in the State of Connecticut, including EPA's obligation to consider and protect the water quality of a downstream state, the proximity of the discharges to the downstream State of Connecticut and the time of travel from the Springfield Water and Sewer Commission's CSOs to the state border (approximately 2 hours). *See* 33 U.S.C. § 1341(a)(2). Again, EPA must balance the need to notify the public in a timely way while also accounting for administrative, staffing and logistical constraints with which a permittee may be confronted. EPA also must ensure that there is sufficient time for a permittee to preliminarily assess any data and ensure that the information disclosed is reasonably accurate. EPA will evaluate the protectiveness of this condition over the course of the permit term, and based on that information, will make a record-based judgment on whether more rapid dissemination of this information is warranted. Therefore, the Final Permit has not been changed.

Comment 60

We support the inclusion of supplemental notifications for CSO discharges, but we recommend that the notifications also include total volume discharged from the CSO.

The most recent Springfield Waste Water Treatment Facility and CSO draft NPDES permit (MA0101613) includes this information as a requirement for reported information. In the interest of maintaining consistency across CSO permits and ensuring accurate data is presented to the public, we strongly recommend that the total volume discharged from the CSO is included in the notifications as well.

Response 60

EPA acknowledges language contained in the *draft* NPDES permit for the Springfield Regional Waste Water Treatment Facility. EPA continues to review comments and draft language on that permit. That permit has not yet been finalized and remains subject to change.

In consideration of the time needed for the validation, post-processing and interpretation of CSO data, EPA has determined that requiring the reporting of CSO discharge volumes in the annual notification is more appropriate than the supplemental notification. See also Response 49 regarding the time needed to verify and process CSO data to ensure the reporting of accurate information. The annual notification requirements in the Final Permit remain unchanged.

Comment 61

We ask that the permit Fact Sheet be updated to include the following information: (1) the most recent annual volume reports for CSO discharges at each outfall, (2) the most recent version of GLSD's Long Term Control Plan and the status of improvements made in accordance with the plan thus far, and (3) summaries of reductions or eliminations of CSO's that have been made in accordance with the plan. It is extremely difficult to evaluate the impacts on receiving waters without complete information on the discharges.

Response 61

Fact sheets are not modified following the public comment period; however, an annual CSO discharge summary from 2014-2018 (as submitted by the permittee with their Annual CSO Reports) is provided in **Attachment A** to this document and is hereby incorporated into the administrative record. Inquiries into Long Term Control Plans may be directed to EPA's Enforcement and Compliance Assurance Division (ECAD). Please see https://r1-gis-web.r1.epa.gov/ecad/enforcement_comp.html for relevant contacts.

Comment 62

We ask that the LRWF take steps to reduce the amount of Per- and polyfluoroalkyl substances (PFAS) discharged from the facility. Significant amounts of landfill leachate from the Turnkey landfill in Rochester, NH that contains PFAS are discharged to the Merrimack River at the Lowell Wastewater Treatment Plant (Lowell Regional Wastewater Utility). Waste Management, Inc., the owner of the Turnkey landfill, has an Industrial Discharge Permit with Lowell to accept the leachate from its Turnkey landfill, which allows Waste Management to truck up to 100,000 gallons per day to the Lowell WWTP. Leachate from Turnkey has been tested for PFAS at very high levels, including: PFOA 8200 ppt, PFOS 430 ppt, PFNA 330 ppt, and PFHxS 810 ppt. The waste trucked

from Turnkey to Lowell includes leachate collected from water permeating the landfill and other liquid and solid wastes produced at the landfill. Turnkey has a reverse osmosis system to remove PFAS from its leachate, but has historically sent untreated wastes to Lowell. Some of these wastes sent to Lowell contain very high amounts of PFAS because they include "reject" water that does not go through Turnkey's reverse osmosis system, as well as the solids that are trapped by the reverse osmosis system. These liquid and solid wastes are not tested for PFAS before being trucked to Lowell.

Response 62

EPA encourages LRWU to take steps to reduce per and polyfluoroalkyl substances from industrial users that are discharging directly to the treatment plant and monitor these compounds in their effluent. There are no specific water quality criteria for the perfluorinated compounds; however, EPA reserves broad discretion to ask for additional information pursuant to Section 308 of the CWA and may utilize this authority during the permit term if facts are brought to its attention that would warrant that course of action, including work on the development of per and polyfluoroalkyl criteria.

In February 2019, EPA published an action plan, "EPA's Per-and Polyfluoroalkyl Substances ("PFAS") Action Plan (the Action Plan)"[14]. The PFAS Action Plan identifies EPA short-term actions, longer-term research, and potential regulatory approaches designed to reduce the risks associated with PFAS in the environment[15]. The EPA Action Plan identifies wastewater effluent as a common source of PFAS and drinking water as a common source of exposure to the population.

As part of the EPA's statutorily-required Effluent Guidelines planning process, the EPA has reviewed readily-available information about PFAS surface water discharges to identify industrial sources that may warrant further study for potential regulation through national Effluent Limitation Guidelines and Standards ("ELGs").

In 2016, EPA issued a drinking water health advisory of 70 part per trillion (0.070 µg/L) for PFOA and PFAS. The 1996 Safe Drinking Water Act amendments requires EPA to sample up to 30 unregulated contaminants in public water systems once every five years. The Third Unregulated Contaminant Monitoring Requirement ("UCMR 3") rule for Public Water Systems required public water supply systems to submit data on 6 perfluorinated compounds (PFOS, PFOA, PFNA, PFHxS, PFHpA and PFBS) from 2013 to 2015. PWS were required to sample at the entry point to the distribution system and at a frequency of 4 consecutive quarters for surface water systems or groundwater under the direct influence of surface water. The minimum reporting levels range for these compounds were from 0.01 µg/L to 0.090 µg/L. The perfluorinated compounds were not detected in any of the water treatment plants downstream of the LRWU.

In light of the above data, the Final Permit does not require monitoring for these pollutants during this permit cycle but EPA may require monitoring in a subsequent permit.

[14] https://www.epa.gov/sites/production/files/2019-02/documents/pfas_action_plan_021319_508compliant_1.pdf
[15] EPA's Per-and Polyfluroalkyl Substances (PFAS) Action Plan, page 8.

EPA recommends the LRWU work with dischargers in their industrial pretreatment program to reduce per-polyfluorinated compounds in process wastewater discharged to the treatment plant.

G. Comments from Julia Blatt, Executive Director, Massachusetts Rivers Alliance and Caitlin Peale Sloan, Senior Attorney, Conservation Law Foundation on July 23, 2019:

Comment 63

We strongly support the inclusion of a total phosphorous average monthly limit of 1.08 mg/L. The MassDEP's Massachusetts Year 2014 Integrated List of Waters (2014 Integrated List), the 303(d) list, includes the Merrimack River, Segment MA84A-04 and the Spicket River, Segment MA84A-10 as Massachusetts Category 5 Waters, with the Merrimack River impaired for total phosphorous. Given these significant impairments, we were pleased to see the inclusion of a total phosphorous limit in this permit.

Response 63

Comment noted.

Comment 64

We support the addition of total Kjeldahl nitrogen, total nitrate/nitrite, and total nitrogen weekly (April - October) and monthly (November - March) monitoring and reporting, but we recommend that EPA proposes a total nitrogen average monthly limit for the permit. As noted in the Fact Sheet, nitrogen levels in the Merrimack River estuary are higher than is acceptable for a healthy nearshore coastal system. Recent nitrogen data collected by CDM Smith in 2014 and 2016 in the estuarine portions of the Merrimack River indicates elevated total nitrogen and chlorophyll 'a' levels. In addition, in 2012, the Gulf of Maine Council on the Marine Environment reported that the Merrimack was the second greatest contributor of nitrogen and phosphorus to the Gulf of Maine. We disagree that any additional reasonable potential analyses need to be conducted for this criterion. Delaying reductions in nutrients is not a viable strategy as noted by the EAB: "Due to the tendency of nutrients to recycle once released into the system and contribute to future impairment, delay in addressing point source nutrient contributions will only compound the challenges in restoring receiving waters" (Upper Blackstone Water Pollution Abatement District, Determination on Remand, EAB, 7/7/2010, p. 3). EPA should move forward with establishing a total nitrogen limit. In addition, as EPA moves forward with other CSO NPDES permits on the Merrimack, we remind EPA that discharge permitting on the Merrimack River in both Massachusetts and New Hampshire should be consistent and ensure that the concentrations and loads of nutrients discharged in the river system as whole will prevent the creation of eutrophic conditions both in the river and in the lower Merrimack estuary.

Response 64

As EPA evaluated both phosphorus and nitrogen impacts from this discharge, it notes that there is an inherent distinction in the approach to ensure the attainment of water quality standards and evaluate eutrophic impacts from each nutrient. Typically, phosphorus is the limiting nutrient in freshwaters, such as the Merrimack River immediately downstream of this discharge. Nitrogen is the limiting nutrient in downstream estuarine segments, such

as near the mouth of the Merrimack River. This distinction plays an important role in EPA's evaluation of whether the discharge has the reasonable potential to cause or contribute to an excursion of water quality standards with respect to each nutrient specifically.

For phosphorus, the impacted waterbody is immediately downstream and impacts can be measured or predicted with relative ease using all available site-specific ambient and effluent data. For nitrogen, on the other hand, impacts to segments much farther downstream may be impacted by a variety of sources including over 40 POTWs in the Merrimack River watershed as well as significant non-point source loads. The evaluation of watershed-wide nitrogen loading and far-field impacts of such nitrogen loading lends itself to a much larger-scale evaluation and approach to establishing reasonable potential and setting permit limits to ensure water quality standards are met.

EPA has the discretion to apply a site-specific analysis and establish nitrogen permit limits for any individual discharger based on information available at the time of permit reissuance; it need not base that decision on the collection of a comprehensive watershed-wide data set. The reasonable potential standard governing the imposition of effluent limitations in NPDES requires, after all, certainty only beyond a "mere possibility" of a water quality impact. However, the Agency has chosen at this juncture to evaluate nitrogen impacts, including those from this discharger, on a watershed-wide basis. This permit cycle will be focused on gathering information to characterize watershed loading and evaluate far-field impacts so that the next permitting cycle can more definitively determine whether such loadings have the reasonable potential to cause or contribute to a violation of water quality standards and, if necessary, establish appropriate nitrogen limits throughout the watershed to ensure that water quality standards are met. EPA concurs with the commenter's view that permitting should follow a consistent approach in both New Hampshire and Massachusetts, which it believes counsels as a matter of policy, in favor of collecting a more comprehensive dataset on which to base limits, in order to lay the groundwork for consensus between upstream and downstream states, which will generate more sustainable and impactful water quality-based solutions to any problems that are found. Again, should EPA's preferred approach fail to cohere prior to the next permit cycle, EPA is authorized to move forward on a more disaggregated, individualized basis with information that is reasonably available at the time concerning a particular discharge.

EPA fully agrees with the comment that delaying nutrient reductions is not a viable strategy when confronted with a waterbody impaired for nitrogen such as in the Upper Blackstone permit. However, more data are necessary at this time to better understand the impact of nitrogen loading in the Merrimack River and the Gulf of Maine. A model, sophisticated statistical analyses and years of water quality information were available for Blackstone and Upper Narragansett Bay; although EPA requires a far lower quantum of proof prior to making a permitting decision, EPA remains cognizant of the fact that, at this time, the Merrimack River is not well characterized for nitrogen impacts. *See, e.g.*, "National Estuarine Eutrophication Assessment, Effects of Nutrient Enrichment in the Nation's Estuaries" (National Oceanic and Atmospheric Administration) at 18

https://ian.umces.edu/neea/pdfs/eutro_report.pdf. Although this report is dated, EPA is not aware of any comprehensive assessment that has been conducted and made available since its publication. It is in the interests of the watershed and all stakeholders for EPA to make as informed a decision as possible on this critically important issue, in order for EPA to select an appropriate permit regime (*i.e.*, one that will be effective on a watershed-wide basis should EPA find permit limits to be necessary and that will entail an efficient expenditure of federal, state and municipal resources toward that end).

Comment 65

We support the inclusion of additional characteristics beyond LC50 and C-NOEC for Whole Effluent Toxicity (WET) testing in the permit, but recommend that EPA includes specific time frames for quarterly monitoring, similar to the schedule established in the Springfield Waste Water Treatment Facility and CSO draft NPDES permit (MA0101613).

Response 65

See Response 54.

Comment 66

We support the inclusion of public notifications for unauthorized discharges on a publicly available website, but we strongly recommend that notices be made to the public within two hours rather than within 24 hours. These discharges can pose significant risks to public health ranging from hepatitis to gastrointestinal illnesses. Unless a timely notification is shared broadly, the public cannot take the necessary precautions to protect their health. A twenty-four hour delay in notifying the public after a CSO event exposes individuals who choose to recreate in or near the Merrimack River to significant health risk.

Response 66

See Response 55.

Comment 67

We support the inclusion of a collection system mapping and collection system operation and maintenance plan to ensure that the most accurate data is used in system review.

Response 67

Comment noted.

Comment 68

We support the inclusion of inspections and reporting for CSO structures in the permit, but we recommend that the frequency of inspections be increased from once per month to twice per month to ensure that adequate assessments are occurring and that operators can fix and address problems as they arise.

Response 68

See Response 57.

Comment 69

We support the inclusion of additional signage at CSO locations, but recommend that the permit make signage in additional languages a requirement rather than a suggestion. We recommend that signage be posted in both English, Spanish and Cambodian, as according to the most recent U.S. Census data from July 1, 2018, 21% of the population of Lowell identifies as Hispanic or Latino, 20% identify as Asian and according to Data USA, 15% of the population speaks Spanish or Spanish Creole as their first-language and 15% of the population speaks Cambodian as their first-language.

Response 69

See Response 58.

Comment 70

We support the inclusion of initial notifications for CSO discharges, but we recommend that the notice be required within two hours rather than four hours. These discharges can pose significant risks to public health ranging from hepatitis to gastrointestinal illnesses. Unless a timely notification is shared broadly, the public cannot take the necessary precautions to protect their health. Four hours is not sufficient notice for individuals who choose to recreate in or near the Merrimack River. We note that the most recent Springfield Waste Water Treatment Facility and CSO draft NPDES permit (MA0101613) includes a requirement that initial notifications are made by no later than two hours. Despite the fact that discharges across multiple treatment facilities to the Merrimack River collectively number in the hundreds and total more than 800 million gallons of sewage annually, the Merrimack River is still used heavily for recreation. From kayak and boat clubs to spin-rod and fly fishermen, the River supports a substantial recreation community. To provide these individuals with adequate notice and maintain consistency across CSO permits, we strongly recommend that this requirement is corrected to two hours.

Response 70

See Response 59.

Comment 71

We support the inclusion of supplemental notifications for CSO discharges, but we recommend that the notifications also include total volume discharged from the CSO. The most recent Springfield Waste Water Treatment Facility and CSO draft NPDES permit (MA0101613) includes this information as a requirement for reported information. In the interest of maintaining consistency across CSO permits and ensuring accurate data is presented to the public, we strongly recommend that the total volume discharged from the CSO is included in the notifications as well.

Response 71

See Response 60.

Comment 72

We ask that the permit Fact Sheet be updated to include the following information: (1) the most recent annual volume reports for CSO discharges at each outfall, (2) the most recent version of

LWRF's Long Term Control Plan and the status of improvements made in accordance with the plan thus far, and (3) summaries of reductions or eliminations of CSO's that have been made in accordance with the plan. It is extremely difficult to evaluate the impacts on receiving waters without complete information on the discharges.

Response 72

See Response 61.

Comment 73

We ask that the LRWF take steps to reduce the amount of Per- and polyfluoroalkyl substances (PFAS) discharged from the facility. Significant amounts of landfill leachate from the Turnkey landfill in Rochester, NH that contains PFAS are discharged to the Merrimack River at the Lowell Wastewater Treatment Plant (Lowell Regional Wastewater Utility). Waste Management, Inc., the owner of the Turnkey landfill, has an Industrial Discharge Permit with Lowell to accept the leachate from its Turnkey landfill, which allows Waste Management to truck up to 100,000 gallons per day to the Lowell WWTP.(1) Leachate from Turnkey has been tested for PFAS at very high levels, including: PFOA 8200 ppt, PFOS 430 ppt, PFNA 330 ppt, and PFHxS 810 ppt.(2) The waste trucked from Turnkey to Lowell includes leachate collected from water permeating the landfill and other liquid and solid wastes produced at the landfill. Turnkey has a reverse osmosis system to remove PFAS from its leachate, but has historically sent untreated wastes to Lowell.(3) Some of these wastes sent to Lowell contain very high amounts of PFAS because they include "reject" water that does not go through Turnkey's reverse osmosis system, as well as the solids that are trapped by the reverse osmosis system.(4) These liquid and solid wastes are not tested for PFAS before being trucked to Lowell.

Response 73

See Response 62.

H. Comments from Alison Field-Juma, Executive Director, OARS for the Assabet Sudbury & Concord on July 23, 2019:

Comment 74

Nitrogen: We urge the EPA to include a total nitrogen average monthly limit in the permit. We support the requirement for monitoring of total Kjeldahl nitrogen, total nitrate/nitrite, and total nitrogen weekly (April - October) and monthly (November - March). As noted in the Fact Sheet, nitrogen levels in the Merrimack River estuary are higher than is acceptable for a healthy nearshore coastal system. Recent nitrogen data collected by CDM Smith in 2014 and 2016 in the estuarine portions of the Merrimack River indicate elevated total nitrogen and chlorophyll-a levels. EPA research on the impacts of nitrogen in the estuary are ongoing and, as noted in the Fact Sheet, "EPA is concerned about the impacts that these nitrogen levels may be having on aquatic life in the estuary as most of these results are outside the range typically found in healthy estuaries in Massachusetts" (p. 22). In addition, Gulf of Maine Council on the Marine Environment reported that the Merrimack was the second greatest contributor of nitrogen and phosphorus to the Gulf of Maine ("Eutrophication, State of the Gulf of Maine Report," 2012). We disagree that additional reasonable potential analyses needs to be conducted for this criterion. EPA should move forward with establishing a limit for total nitrogen.

Response 74

See Response 53 and Response 64.

Comment 75

Ammonia-Nitrogen: In addition to being a nutrient as a component of total nitrogen, nitrogen in the form of ammonia can reduce the receiving stream's dissolved oxygen concentration through nitrification and can be toxic to aquatic life, particularly at elevated temperatures. The toxicity level of ammonia depends on the temperature and pH of the receiving water (USEPA 1999). It is important to continue monitoring this pollutant to continue an accurate reasonable potential analysis.

Response 75

EPA agrees with this comment and notes that effluent and ambient monitoring for ammonia will continue to be required in the quarterly WET tests. This data will allow EPA to perform a reasonable potential analysis for ammonia in the next permit reissuance.

Comment 76

Total Phosphorus: We support the inclusion of a Total Phosphorous average monthly discharge limit of 1.08 mg/L and support the use of an "effects based" approach for deriving the limit—it is the effects that ultimately determine whether the discharge will "cause or contribute to impairment of the existing or designated uses" (Fact Sheet p. 23). The MassDEP's Massachusetts Year 2014 Integrated List of Waters (303d List) includes the Concord River (Rogers St. to confluence with Merrimack, Segment MA82A-09) and the Merrimack River (upstream of the LRWWU outfall to confluence with Little River, Haverhill, Segments MA84A-02 to -04) as Massachusetts Category 5 Waters impaired for Total Phosphorous. The proposed Year 2016 List includes the Concord River for "excess algal growth" and the Merrimack River sections as above for Total Phosphorus. Given these significant impairments, we believe that a total phosphorous limit is in this permit is appropriate and we encourage EPA Region 1 to ensure that upstream discharges are likewise reduced. Biomass monitoring should be undertaken by some party or parties to provide up-to-date data on this impairment.

Response 76

Comment noted. EPA agrees that upstream dischargers may also receive phosphorus limits if justified based on reasonable potential analyses in their future permit reissuances.

EPA agrees with the need to monitor the impaired reaches of the Merrimack River in this area for parameters related to phosphorus and cultural eutrophication. MassDEP plans to conduct monitoring and coordinate with other entities monitoring these stretches of river to provide updated information concerning water quality impairments.

Comment 77

PFAS: We ask that the permit require the LRWWU reduce the amount of Per- and polyfluoroalkyl substances (PFAS) discharged from the facility. This may require review and amendment of the Industrial Discharge Permit for the Waste Management, Inc. Turnkey landfill in Rochester, NH. Documentation and monitoring of influent and effluent concentrations of the relevant members of the PFAS family of chemicals should be required. The landfill leachate and other solids from the Turnkey landfill contain a significant concentration of PFAS chemicals that enter the Lowell Wastewater Treatment Plant. Unless removed by the treatment process, which is difficult for these extremely persistent and non-reactive chemicals, they will be discharged to the Merrimack River. Waste Management, Inc., the owner of the Turnkey landfill, has an Industrial Discharge Permit with Lowell to accept the leachate from its Turnkey landfill. The permit allows Waste Management to truck up to 100,000 gallons per day to the Lowell treatment plant. We understand that leachate from Turnkey has been tested and very high levels of PFAS have been identified, including: PFOA at 8200 ppt, PFOS at 30 ppt, PFNA at 30 ppt, and PFHxS at 810 ppt. The waste trucked from Turnkey to Lowell includes leachate collected from water permeating the landfill and other liquid and solid wastes produced at the landfill. Apparently these liquid and solid wastes are not tested for PFAS before being trucked to Lowell (Industrial Sewer User Permit HW001, Waste Management of New Hampshire, 8/12/17).

The current EPA health advisory level for PFOA and PFOS is 70 ppt. Leachate containing 8,200 ppt PFOA is over 100 times the EPA level for PFOA. MassDEP is proposing a cleanup standard for groundwater of 20 ppt for the sum of 6 PFAS chemicals under the Massachusetts Contingency Plan. These are chemicals that are known mutagens, carcinogens and/or endocrine disruptors that don't degrade, that bioaccumulate in fish tissue, and presumably will be consumed by people fishing in the river or estuary or ocean. This water is also consumed directly by people supplied by water supply systems drawing directly from the Merrimack River downstream of the LRWWU discharge and the research shows that it is difficult and costly to remove PFAS chemicals from drinking water. Ensuring conformity with current federal regulations may not be adequate to deal with the PFAS problem; the effluent discharge will also need to meet state water quality limits currently under revision. Dilution calculations will indicate a suitable level, but releasing this volume of PFAS into a river is completely unjustified given what we know and where the regulations and standards are headed.

Response 77

See Response 62.

Comment 78

WET Test: We support the inclusion of additional characteristics beyond LC50 and C-NOEC for Whole Effluent Toxicity (WET) testing in the permit, but recommend that EPA includes specific time frames for quarterly monitoring to occur, similar to the schedule established in the Springfield Waste Water Treatment Facility and CSO draft NPDES permit (MA0101613).

Response 78

See Response 54.

Comment 79

Collection system mapping and O&M: We support the inclusion of a collection system mapping and collection system operation and maintenance plan to ensure that the most accurate data is utilized in system review.

Response 79

Comment noted.

Comment 80

CSO inspections: We recommend that the frequency of inspections be increased from once per month to twice per month to ensure that adequate assessments are occurring and fix and address problems as they arise.

Response 80

See Response 57.

Comment 81

CSO signage: We support the inclusion of additional signage at CSO locations, but ask that the permit require signage in additional languages. We recommend that signage be posted in English, Spanish and Cambodian. According to the most recent U.S. Census data from July 1, 2018, 21% of the population of Lawrence identifies as Hispanic or Latino, 20% identify as Asian and according to Data USA, 15% of the population speaks Spanish or Spanish Creole as their first-language and 15% of the population speaks Cambodian as their first-language.

Response 81

See Response 58.

Comment 82

Notification of unauthorized discharges
We ask that the Fact Sheet be updated to include: (1) the most recent annual volume reports for CSO discharges at each outfall, (2) the most recent version of LRWWU's Long Term Control Plan and the status of improvements made in accordance with the plan thus far, and (3) summaries of reductions or eliminations of CSOs that have been made in accordance with the plan. It is difficult to evaluate the impacts on receiving waters without complete information on the discharges. We support the permit's requirements for CSO discharges with the following revisions:

a. **Timing**: We recommend that the notice is required within two hours rather than four hours. These discharges can pose significant risks to public health ranging from hepatitis to gastrointestinal illnesses. Unless a timely notification is shared broadly, the public cannot take the necessary precautions to protect their health. Four hours is not sufficient notice for individuals who choose to recreate in or near the Lower Concord or the Merrimack River. The notification requirement should be consistent with that of the most recent Springfield Waste Water Treatment Facility and CSO draft NPDES permit (MA0101613) requirement that initial notifications are made no later than two hours. Discharges across multiple treatment facilities to the Merrimack River collectively

number in the hundreds and total more than 800 million gallons of sewage annually. At the same time the Merrimack River is still heavily used for recreation. From kayak and boat clubs to spin-rod and fly fishermen, the River supports a substantial recreation community. To provide these individuals with adequate notice to protect public health as required in the CSO Policy's Nine Minimum controls (#8) and maintain consistency across CSO permits, we strongly recommend that this requirement is revised to two hours. We support the provision of notification "provided electronically to any interested party" so that the public can receive notification rather than be expected to go to a website.

b. **Volume**: We recommend that the notifications also include total volume discharged from the CSO. The most recent Springfield Waste Water Treatment Facility and CSO draft NPDES permit (MA0101613) includes this information as a requirement for reported information. This is needed in order to adequately quantify the impact of the CSO, maintain consistency across CSO permits, and ensure that adequate and accurate data are presented to the public.

Response 82

See Response 59, Response 60 and Response 61.

I. Comments from Gene Porter, Chair, Lower Merrimack River Local Advisory Committee on July 20, 2019:

Comment 83

I am the Chair of New Hampshire's Lower Merrimack River Local Advisory Committee (LMRLAC) and have a vested interest in the EPA's efforts to upgrade the permits for all wastewater treatment facilities that discharge untreated effluent to the River. Although the two major permits in New Hampshire are not scheduled for review until next year, the precedent set by the Massachusetts permits will be important.

The more people who feel confident in using the River for recreational purposes, the more people who will have a vested interest in helping ensure that environmental safeguards are observed and strengthened. To that end, greater transparency of the limits of any pollution threats will increase public confidence in the safety of the River's waters.

My major comment applies to all three Massachusetts permits. I trust you will transmit these comments to the appropriate officials before the 7/23 deadline.

CSO discharges pose a significant public health risk to the recreational users of the River. It is therefore gratifying to see that the draft EPA permits specifically call out the threat to recreational use as a major reason for strengthening the CSO reporting requirements from only downstream drinking water suppliers but to now include the general public. Nevertheless, the draft language requiring such reporting is needlessly vague and needs to be strengthened to at least reflect more explicitly current "best practices" for the notification of potentially affected parties of the emergence of an imminent public health hazard.

To that end, the existing draft public notification language:

- **Public Notification of CSO discharges:** within 4 hours of becoming aware of a probable CSO discharge, notice shall be provided to the public and downstream communities; supplemental notification confirming the occurrence of a CSO discharge, the CSO outfall number, and the start and stop times of the discharge shall be provided within 24 hours of the termination of any CSO discharge; an annual report shall be posted, summarizing annual CSO activation information.

should be strengthened, not just by allowing electronic notification, but by **mandating** that each municipality that employs CSOs establish an internet-based public alerting system that allows interested downstream individuals and recreation oriented entities, such as marinas, to subscribe to a free alerting service that conveys the foregoing information in a timely fashion. Such "list-serve" systems have already been established in many municipalities for disseminating similar time-sensitive information and would not pose an undue burden if CSO reports were to be added to the menu.

Response 83

EPA sought to strike a balance in fashioning the draft permit requirements for the minimum implementation level for NMC #8 (Public notification to ensure that the public receives adequate notification of CSO occurrences and impacts). As contemplated by NMC #8, the public notification plan affords the permittee reasonable flexibility in implementing the plan to account for facility-specific concerns (e.g., logistics in obtaining and disseminating information in a timely and efficient manner given funding and staffing resources), while at the same time ensuring that important health and safety information is disseminated to the public in a timely manner. *Combined Sewer Overflow, Guidance For Nine Minimum Controls*, at 9-1 (EPA 1995) ("The measure selected should be the most cost-effective measure that provides reasonable assurance that the affected public is informed in a timely manner."). The communication strategy described in the above comment is one approach that may be employed to satisfy the Public Notification requirement, and the permittee is encouraged to consider this as it develops its public notification plan in accordance with Part I.F.g.3. of the Final Permit.

Comment 84

There is also a larger issue involving the need for at least rudimentary predictions of the geographic and temporal boundaries of the likely plume of contaminated water under various river flow conditions. The absence of a rigorous river sampling program immediately after major CSO events in each location precludes the establishment of reliable models that permit prediction of the limits of the public health threat. The resulting general advice to "stay away from the river for 48 hours" may be excessively conservative. It would seem to me appropriate that the EPA include such sampling and modeling requirements in the emerging NPDES permits. Users of the River would benefit greatly.

Response 84

EPA encourages collaboration between stakeholders, including community-based organizations, MassDEP and the Permittee to develop and implement an extensive ambient monitoring program, such as the one suggested in the comment.

J. Comments from Christina Eckert, Co-Executive Director and John Macone, Co-Executive Director, Merrimack River Watershed Council on July 22, 2019:

Comment 85

We strongly support the inclusion of notification requirements for CSOs, but we encourage the DES to require notifications within 2 hours. Further, we ask that the information reported be consistent between the Lowell, GLSD and Haverhill wastewater treatment plants.

Because these discharges pose a health risk to those fishing, swimming or using the river for recreation, it's imperative to notify the public in a timely manner so they can avoid contact with the water. Currently Lowell sends out notifications almost as soon as CSOs begin, with follow-up notifications when they end. Within 24 hours, they follow up with notifications estimating the volume of effluent released. MRWC appreciates these notifications; we believe they should be a required part of the permit, and that the other wastewater treatment facilities on the Merrimack should be held to the same standard.

Response 85

See Response 59 regarding 2-hour notification.

To address the commenter's concerns regarding consistency between Lowell, GLSD, and Haverhill wastewater treatment plants, the information reported relating to CSOs in the Draft and Final NPDES Permits for all three permittees is consistent. The requirement in the Draft Permit for CSO discharge volumes to be included in the Annual Notification and Annual Report is appropriate given the additional time that may be needed to validate and refine data that is collected for each discharge event.

Comment 86

MRWC supports the EPA's inclusion of a total phosphorous average monthly limit of 1.08 mg/L.

The MassDEP's Integrated List of Waters in 2014 listed the Merrimack as impaired for total phosphorous. Five years later, it is time to address this issue.

Response 86

EPA agrees with this comment and acknowledges the support for the total phosphorus limit.

Comment 87

MRWC recommends that the EPA/Mass DES require an average monthly limit for total nitrate/nitrite, total nitrogen, and total Kjeldahl nitrogen.

Recent studies have shown that the Merrimack's nitrogen levels are increasing. As stated above, the Merrimack is the second greatest contributor of nitrogen to the Gulf of Maine. As difficult as

it is, our region must find a way to limit or eliminate these pollutants threatening priceless wildlife, not only within the Merrimack, but in the Gulf.

Response 87

See Response 53 and Response 64.

Comment 88

MRWC asks that the LRWF take steps to reduce the amount of Per- and polyfluoroalkyl substances (PFAS) discharged from the facility.
Significant amounts of landfill leachate from the Turnkey landfill in Rochester, NH that contains PFAS is discharged to the Merrimack River at the Lowell Regional Wastewater Facility. Waste Management, Inc., the owner of the Turnkey landfill, has an Industrial Discharge Permit with Lowell to accept the leachate from its Turnkey landfill. The permit allows WMI to truck up to 100,000 gallons per day to the Lowell RWF. Leachate from Turnkey has been tested for PFAS at very high levels. Turnkey has a reverse osmosis system to remove PFAS from its leachate, but has historically sent untreated wastes to Lowell. Some of these wastes contain very high amounts of PFAS because they include waste that does not go through Turnkey's reverse osmosis system. For the health of the Merrimack, it's imperative that Turnkey removes PFAS before sending leachate to Lowell, or that Lowell removes PFAS before allowing it to reach the river. We implore the EPA to look at PFAS limits for discharges at this plant in the future.

Response 88

See Response 62.

Comment 89

In conclusion, we commend Lowell Regional Wastewater Facility for their current notifications and for their efforts in seeking out solutions to the CSO issue. We understand that these stringent requirements are costly. Our preference is that resources first be allocated to reducing CSOs; but that the mitigation of phosphorous and nitrogen needs to begin now, and efforts increase in the next 2-3 years. The mitigation of PFAS should begin immediately.

Response 89

Comment noted. EPA acknowledges the comment regarding the allocation of resources towards CSOs and nutrient removal.

See Response 62 regarding PFAS.

K. Comments from Philip D. Guerin, President & Chairman, Massachusetts Coalition for Water Resources Stewardship on July 22, 2019:

Comment 90

The Massachusetts Coalition for Water Resources Stewardship (MCWRS) is a nonprofit organization committed to promoting watershed-based policies and regulations that effectively manage and conserve water resources. Members include municipalities; public agencies that transport and treat drinking water, wastewater and storm water; quasi-government agencies; and

private organizations whose members are committed to the principles of stewardship and sustainability in protecting the environment and public health. Find us at mcwrs.org.

MCWRS offers these comments on the Lowell Regional Wastewater Utility (Lowell Wastewater Utility) draft NPDES Permit because the City of Lowell is a long-standing member of our organization. We also find that many of the conditions contained in the permit have implications for other communities in the Merrimack Valley and throughout Massachusetts.

On June 24, 2019, MCWRS had requested from EPA Region 1 a 90-day extension of the comment period for this draft permit. That request was denied and instead a 15-day extension was granted. Given the complexities and far-reaching impacts of this permit, MCWRS again suggests that a comment period extension of an additional 90 days would best serve the agencies and stakeholders. The additional time would allow further discussion of many issues and perhaps resolution of most. In lieu of an extension, EPA will have to reissue the draft permit as it needs to be substantially modified to remain fair, accurate and consistent.

Response 90

Comment noted. See Response 1.

Comment 91

MCWRS fully supports the comments submitted by Lowell Wastewater Utility. In particular, their request for reconsideration of a total phosphorus limit is warranted given ongoing facility upgrades including phosphorus reduction improvements. Also, as noted in Lowell Wastewater Utility's July 22, 2019 comment letter, the draft permit includes numerous examples where permit conditions conflict with the goal of maximizing wet weather flow through the facility and thereby diminishing combined sewer overflows. Further discussion between Lowell Wastewater Utility and regulatory agencies and/or a revised draft permit are necessary to resolve these issues.

Response 91

EPA has responded to the comments submitted by the Lowell Wastewater Utility in the relevant sections above. *See* Responses 1 through 35. Although EPA disagrees with the request to remove the total phosphorus limit (See Responses 2 and 3), EPA has agreed to revise the requirements from the Draft Permit to specifically address maximizing wet weather flow through the facility (See Responses 5 and 6).

Comment 92

In addition to Lowell Wastewater Utility's comments, MCWRS also suggests that EPA Region 1 is missing a wonderful opportunity to advance watershed–based permitting by handling permits for Lowell, Greater Lawrence Sanitary District and Haverhill in an isolated fashion. These three large communities are each situated on the Merrimack River within a relatively short stretch of river. They all share the same issues of wastewater treatment, CSOs and aging water infrastructure. Through new language in a revised draft permit, EPA could allow and encourage collaboration between these communities in a way that advances river improvement while minimizing fiscal impacts and duplicative work. Some form of pollution trading or similar actions which allow a community to utilize its strengths and work with a neighboring system to

share costs and implement beneficial improvements would be a great step forward in NPDES permitting in New England.

Response 92

EPA appreciates the suggestion to encourage more collaboration between Permittees within the Merrimack River watershed and notes that the concurrent development of the Draft Permits for these three Permittees has certainly resulted in an increase in collaboration, efficiency and consistency. EPA welcomes more specific suggestions for how environmental benefits can be achieved in a more collaborative fashion in the future. Note that collaborative efforts are not precluded by the issuance of the permit and EPA can revisit the structure of permits, including the introduction of general permits, in future permitting cycles should collaborative efforts coalesce.

L. Comments from Peter Severance, River Merrimack on July 22, 2019:

Comment 93

I. Ambient Monitoring.

a. I would suggest that Chlorophyll-a be added to the list of parameters for ambient monitoring. This will add valuable information concerning response to / need for additional nutrient controls.

b. I would further suggest that ambient monitoring (all monitoring?) be conducted with sufficient quality and controls so as to be useful and acceptable per the quality standards of the the MassDEP Watershed Planning Program. This would entail a couple of additional things:

1. Writing of a detailed QAPP per the Watershed Planning Program standards.
2. Having all testing of grab samples be conducted by labs which hold current Massachusetts certification for the analytical methods specified in the QAPP

Response 93

EPA anticipates that water quality monitoring for chlorophyll-a and other nutrient response variables will be conducted in the coming years by EPA, MassDEP and other stakeholders. EPA has been contacted by Massachusetts Coastal Zone Management and the Mass Bays Program about monitoring needs in the lower Merrimack. This has been a poorly monitored area for a long time but it is now receiving more attention from local watershed groups and the state related to increased monitoring needs. Therefore, EPA has not added additional parameters to the ambient monitoring requirement in the Final Permit but notes that such parameters may be required in a future permit.

EPA recommends that any sampling and analysis performed should be conducted consistent with a state-approved quality assurance project plan ("QAPP") developed for the monitoring work to ensure inclusion in MassDEP's assessment program. Additionally, EPA approved analytical methods found in 40 C.F.R. Part 136 must be employed by any state-certified lab.

Comment 94

II. Nitrogen controls.

You probably would be implementing controls on Total Nitrogen if MassDEP had a finding that the lower Merrimack was IMPAIRED for nutrients according to their current standards. Unfortunately, they have never looked at the estuary.

I believe that the monitoring the USACE and EPA has done for the past 5 or 6 years shows clear need for this, taking into consideration several things we know about the estuary.

a. As outlined in the draft permits, the levels of Total nitrogen in the lower Merrimack are clearly very high.
b. Taking a look at the 45 observations from USACE (2014-2016) and EPA (2017) data for Chlorophyll-a -- for stations downstream from Rivermile 7 (the estuary proper). Consider them non-parametric perspective, in light of the 2018 Massachusetts CALM guidance:

    51% exceeded the 10 mg/L “impaired” standard
    22% met the <= 5 mg/L “healthy” standard
    27% fell in between the “impaired” and “healthy” standards
    78% exceeded the “healthy” standard.

c. Historical records make the case for long-standing nutrient impairment of the estuary:

    1. NOAA and the EPA have known for decades that nitrogen in the Merrimack estuary is among the worst in all of Massachusetts. For example, in 1994, NOAA published data from 1989 and 1990 for the 14 estuarine systems from Cape Cod and Massachusetts Bay to Passamaquoddy Bay in Maine -- the Merrimack estuary was far and away the worst for nitrogen pollution:

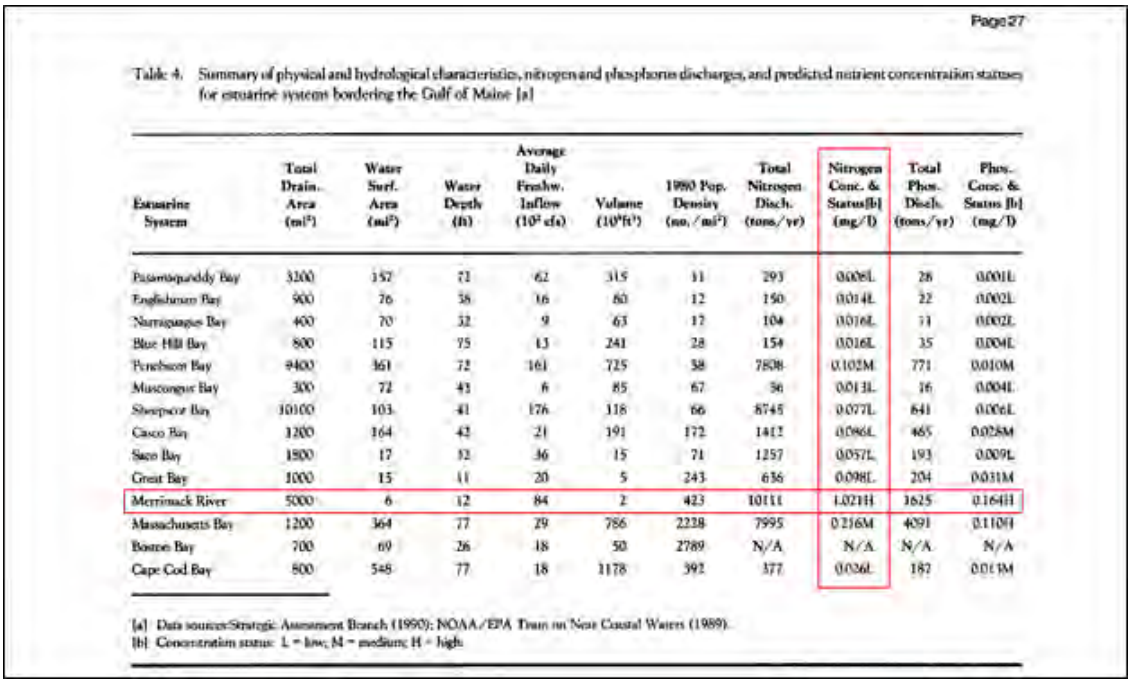

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Table 4. Summary of physical and hydrological characteristics, nitrogen and phosphorus discharges, and predicted nutrient concentration statuses for estuarine systems bordering the Gulf of Maine [a]

Estuarine System	Total Drain. Area (mi^2)	Water Surf. Area (mi^2)	Water Depth (ft)	Average Daily Freshw. Inflow (10^3 cfs)	Volume ($10^9 ft^3$)	1980 Pop. Density (no. / mi^2)	Total Nitrogen Disch. (tons/yr)	Nitrogen Conc. & Status[b] (mg/l)	Total Phos. Disch. (tons/yr)	Phos. Conc. & Status [b] (mg/l)
Passamaquoddy Bay	3200	152	72	62	315	11	293	0.008L	28	0.001L
Englishmen Bay	900	76	38	16	80	12	150	0.014L	22	0.002L
Narraguagus Bay	400	70	32	9	63	17	104	0.016L	11	0.002L
Blue Hill Bay	800	115	75	13	241	28	154	0.016L	35	0.004L
Penobscot Bay	9400	361	72	161	725	38	7808	0.102M	771	0.010M
Muscongus Bay	300	72	43	6	85	67	56	0.013L	16	0.004L
Sheepscot Bay	10100	103	41	176	318	66	8745	0.077L	841	0.006L
Casco Bay	1200	164	42	21	191	172	1412	0.086L	465	0.028M
Saco Bay	1800	17	32	36	15	71	1257	0.057L	193	0.009L
Great Bay	1000	15	11	20	5	243	636	0.098L	204	0.031M
Merrimack River	5000	6	12	84	2	423	10111	1.021H	3625	0.164H
Massachusetts Bay	1200	364	77	29	786	2228	7995	0.216M	4091	0.110H
Boston Bay	700	69	26	18	50	2789	N/A	N/A	N/A	N/A
Cape Cod Bay	800	548	77	18	1178	392	377	0.026L	182	0.013M

[a] Data source: Strategic Assessment Branch (1990); NOAA/EPA Team on Near Coastal Waters (1989).
[b] Concentration status: L = low; M = medium; H = high.

2. Decades ago, specialists on the vascular plants and algae of estuaries were studying New England estuaries and concluded that pollution was having a dramatic impact on the Merrimack. Miller (1971) included this analysis:

"Pollution is often an important limiting factor in algal distribution and abundance. A comparison of species composition of seaweeds from the Merrimack River Estuary with that of the Hampton-Seabrook Estuary (Mathieson and Fralick, In Press) and the Great Bay Estuary Systems {Mathieson, Reynolds, and Hehre, In Press) of New Hampshire indicates a paucity of species in the Merrimack."

- Hampton-Seabrook Estuary: 118 species
- Great Bay: 150 species
- Merrimack: 28 species

"The abundance of many Ulotrichalean green algae (e.g., Enteromorpha spp., Ulva lactuca, Ulva flexuosa subsp. paradoxa, and Monostroma sp.) typifies a polluted estuarine habitat. The latter species are not only tolerant of extremes in pollution, but to gross fluctuations in hydrographic factors."

c. Consider the following historical notes concerning the state of eelgrass in the estuary. While it is currently present, it used to be thriving, but is likely to be impaired at present:

1. Jerome (1965) made note of a 1903 Newburyport Daily News article on clammers digging back "abundant" beds of eelgrass from Plum Island to what is now known as Ring's Island (Salisbury).

2. "Abundant growth" of eelgrass was observed in the lower Merrimack River, Plum Island Sound and the Ipswich River (Addy and Aylward, 1944).
3. By 2010 there was no eelgrass recorded in Plum Island Sound (Novak, 2012).
4. Fred Short (personal communication) observed beds of eelgrass in the Merrimack in the 1980s; however, it had disappeared in the 1990s.
5. Within the last decade, the eelgrass beds of the Merrimack were surveyed and catalogued in the Massachusetts NHESP Natural Communities inventory (MassGIS, 2016), and described as follows:

COMMUN_NAM Seagrass Community
COMMUN_RAN S3
Acres 849.231
COMMUN_DES Seagrass Communities occur on estuarine or marine flats with sand or mud substrates that are submerged by, usually, less than 2m of water at high tide.
SPECIFIC_D This example of Marine Subtidal Flats is **extremely sparsely vegetated** but has a rich diversity of invertebrate fauna that provide forage for many species of birds. [emphasis added]

6. Four of the nine EFH species have eelgrass mentioned in association with habitat of one or more of their life stages.

I would suggest that if there is any hope of restoring the richness of the eelgrass beds to this ~850 acres of EFH (which by the way is used by an additional 38 economically and ecologically important marine species - ELMR) the high levels of TN and resulting Chlorophyll-a in the estuary are probably the key impediment to success of that effort.

d. Macroalgae growth on the shorelines of Deer Island appears to be significant, per the photos sent with the email I forwarded to you from Dr. Mathiesson.

Response 94

EPA appreciates the detailed information regarding the history of nitrogen loading and eelgrass health within the lower Merrimack River estuary. EPA agrees that this information may be useful in determining the impairment status of the estuary. MassDEP will consider this information in its next assessment of the lower Merrimack River.

As explained above, EPA plans to require nitrogen monitoring in NPDES permits throughout the Merrimack River watershed and expects monitoring for other response variable (*e.g.*, chlorophyll-a, dissolved oxygen, eelgrass) to be collected by EPA, MassDEP and other stakeholders, which will result in a comprehensive dataset on which to make systematic regulatory decisions. This approach will ensure EPA has sufficiently representative effluent and ambient data to make effective permitting decisions on a watershed level, as it has done in Upper Narragansett Bay and more recently in the Taunton River Estuary/Mount Hope Bay.

Comment 95

III. The most abundant species of fish using the Merrimack estuary are forage fish (Jerome, 1965; ELMR) -- the prey species that feed the cod, the seabirds, the dolphins and whales of the Gulf of Maine and Massachusetts bay. The populations of many of the fish using the Merrimack as a nursery – the river herring, Atlantic herring, mackerel and others – are not doing well. The list of ELMR species utilizing the estuary and their life stages is found in this shared directory.

The Atlantic States Marine Fisheries Commission is considering designating important shad and river herring spawning and nursery habitat as HAPC (January, 2019).

Response 95

Comment noted.

Comment 96

IV. Additional Economic considerations for taking steps to restore the estuary:

a. Jerome (1965) estimated that the estuary would support the harvest of 30,000 bushels of soft-shell clams, worth $4,500,000 - $6,000,000 at today's wholesale prices.
b. Ipswich Shellfish Group is interested in farming oysters in the estuary, but not until it's cleaned up.

Response 96

Comment noted.

Comment 97

V. LRWU is discharging into a reservoir, and the TP concentrations in the effluent should be adjusted accordingly.

Controls on Total Phosphorus is a welcome improvement to the operation of these plants. However, for Lowell, we suggest that the EPA re-examine the "Gold Book" criteria which they are using to determine the criteria. To cite the language from the draft permit:

> "EPA's 1986 Quality Criteria for Water (the "Gold Book") recommends that in-stream phosphorus concentrations not exceed 0.05 mg/L in any stream entering a lake or reservoir. 0.1 mg/L for any stream not discharging directly to lakes or impoundments, and 0.025 mg/L within a lake or reservoir. For this segment of the Merrimack River, the 0.1 mg/L would apply downstream of the discharge."

However, **the river segment that the Lowell plant discharges into is a reservoir** that was built as part of the Lawrence Project's Essex Dam (FERC Project No. 2800), as described in that facility's current federal license:

(ii) Project works consisting of: (l) the existing 33-foot high and 900-foot-long dam of rubble masonry construction; (2) an existing 9.8-mile-long reservoir having a surface area of 655 acres at normal high water elevation 44.17 msl and a maximum storage capacity of approximately 19,900 acre-feet; (3)…

Issuance 19781204-4000. Order issuing major license and authorizing negotiations for sale of securities (Issued December 4, 1978). Pg. 13.

(Water levels of this reservoir are managed in conjunction with water levels maintained at other major dams on the Merrimack. Because of its potential impact on adjacent landowners, rules concerning the management of this component of the project's works are an integral part of the license.)

Mile 9.8 of this reservoir is positioned approximately at Bridge Street in Lowell. The LRWU facility is situated 8.7 miles above the dam, so LRWU is discharging directly into this reservoir, which has a residence time of > 2 days (?).

In light of this information, the appropriate Gold Book Standard applies for in-stream phosphorus concentration is 0.025 mg/L.

Response 97

EPA acknowledges the commenter's information on the hydrology of this stretch of the river, but also notes the uncertainty around certain important facts relevant to the determination whether the receiving water is a river or reservoir; most notably residence time. At this time, based on the information currently before it, EPA disagrees that it is obliged to apply the Gold Book target is 0.025 mg/L for this stretch of the Merrimack River. Pursuant to 310 CMR 10.58(2)(a)(1) "A river is any natural flowing body of water that empties to any ocean, lake, pond, or other river and which flows throughout the year." Further, 310 CMR 10.58(2)(a)(1) rivers include the entire length and width to the mean annual high-water line of the major rivers (Assabet, Blackstone, Charles, Chicopee, Concord, Connecticut, Deerfield, Farmington, French, Hoosic, Housatonic, Ipswich, **Merrimack**, Millers, Nashua, Neponset, Parker (Essex County), Quinebaug, Shawsheen, Sudbury, Taunton, Ten Mile, and Westfield) (emphasis added).

Since the receiving water is classified as a river in the MassDEP regulations cited above, EPA has determined that the Gold Book target of 0.1 mg/L for instream total phosphorus is a reasonable target in this case. Should future monitoring of the Merrimack River downstream of LRWU's discharge show that further reductions of phosphorus are needed at the facility to achieve water quality standards, or if other information is presented to EPA relating to the appropriate hydrological classification of this body of water, EPA will reassess this conclusion.

Attachment A – Combined Sewer Overflows Background and Annual CSO Discharge Summary 2014-2018
Lowell Regional Wastewater Utility (NPDES Permit No. MA0100633)

This Attachment provides background on the statutory and regulatory framework that applies to combined sewer overflows (CSOs). It briefly describes the Region's approach to key permitting and enforcement issues. Finally, it provides data documenting the trends in CSO discharges at the Lowell Regional Wastewater Utility.

A combined sewer system ("CSS") is a wastewater collection system owned by a state or municipality (as defined by section 502(4) of the Clean Water Act ("CWA")) which conveys sanitary wastewaters (domestic, commercial and industrial wastewaters) and storm water through a single-pipe system to a Publicly Owned Treatment Works ("POTW") Treatment Plant (as defined in 40 C.F.R. § 403.3(p)). A CSO is the discharge from a CSS at a point prior to the POTW Treatment Plant. CSO discharges occur when the volume of wastewater exceeds the capacity of the CSS or treatment plant (e.g., during heavy rainfall events or snowmelt). When this occurs, untreated stormwater and wastewater, discharges directly to nearby streams, rivers, and other water bodies.

Like all point sources, CSOs are subject to sections 301 and 402 of the CWA. CSOs require National Pollutant Discharge Elimination System ("NPDES") permits, which may include technology-based and water quality-based requirements of the CWA. Additionally, where EPA is the permitting authority it must ensure that the state or authorized tribe where the CSO discharge may originate either issues a section 401 water quality certification finding compliance with existing water quality requirements or waives the certification requirement.

Further, Section 402(q) of the CWA states that: "[e]ach permit, order, or decree issued pursuant to this chapter after December 21, 2000 for a discharge from a municipal combined storm and sanitary sewer shall conform to the Combined Sewer Overflow Control Policy signed by the Administrator on April 11, 1994." The Combined Sewer Overflow Control Policy ("CSO Policy"), 59 Fed. Reg. 18688 (April 19, 1994), provides a national strategy for the control of CSOs through the NPDES program at 40 C.F.R. Part 122. The CSO Policy "presents a uniform, nationally consistent permitting approach that should … result in the establishment of both technology-based and water quality-based requirements for all CSOs."[16]

Under the CSO Policy, permittees must undertake a process to accurately characterize their CSS and CSO discharges, demonstrate implementation of the nine-minimum technology-based controls ("NMCs"), and develop long-term CSO controls plans ("LTCPs") which evaluate alternatives for attaining compliance with the CWA, including compliance with water quality standards and protection of designated uses. All CSO permittees are required to implement the Best Available Technology Economically Achievable / Best Conventional Pollutant Control Technology ("BAT/BCT"), which at a minimum includes the NMCs, as determined on a best

[16] "Combined Sewer Overflows Guidance for Permit Writers," at 2-1 (September 1995), available at https://www.epa.gov/sites/production/files/2015-10/documents/csopermitwriters_full.pdf ("CSO Guidance for Permit Writers")

professional judgment basis ("BPJ") by the permitting authority. Implementation of the NMCs is achieved through specific control measures deemed most appropriate for a specific permit and necessary to satisfy the BAT/BCT requirement based on BPJ of the permit writer, considering the factors presented in 40 C.F.R. § 125.3(d).[17]

The CSO Policy sets out a phased approach to CSO permitting. The immediate requirement for CSO permits are: (1) immediately implement the BAT/BCT, which includes at a minimum the NMCs; (2) submit a report documenting such implementation; (3) comply with applicable WQS, no later than the date allows under the State's WQS, "expressed in the form of a narrative limitation;" and (4) develop and submit a LTCP.[18] Once a permittee has developed a LTCP and selected controls necessary to achieve WQS, the CSO Policy articulates the following, among other elements, for inclusion in CSO permits: (1) requirements to implement the NMCs and (2) water quality-based effluent limits under 40 C.F.R. § 122.44(d)(1) and 122.44(k), requiring, at a minimum, numeric performance standards for the selected CSO controls.[19]

For CSO permits on the Merrimack River, EPA has and continues to require implementation of the NMCs. Development of LTCPs, on the other hand, has been and continues to be addressed as part of enforcement actions taken by Region 1's Enforcement and Compliance Assurance Division.

EPA or the relevant state has worked with virtually every CSO community in New England to develop CSO abatement schedules to be memorialized in administrative or judicial enforcement mechanisms. As necessary, such schedules are adjusted to reflect new information and evolving financial conditions.

[17] *Id*. at 3-6.
[18] 59 Fed. Reg. at 18696.
[19] *Id.*

Lowell CSO Discharges - Activations and Volume by Year

EPA notes that the data on activations and volume discharged are significantly influenced by the number and intensity of rainfall events in a given year and/or by improvements made by the permittee in measuring and reporting CSO events and volumes. This permit requires, for the first time, direct measurement of CSO flows. EPA and MassDEP have also taken various enforcement actions against WWTF permittees on the Merrimack River similarly requiring improvements in CSO monitoring and reporting. Accordingly, EPA expects the quality and accuracy of this data to continue to improve.

Outfall	YEAR Activations	2014 Volume (MG)	YEAR Activations	2015 Volume (MG)	YEAR Activations	2016 Volume (MG)	YEAR Activations	2017 Volume (MG)	YEAR Activations	2018 Volume (MG)
002 - Walker Street	5	1.97	2	0.73	5	4.77	6	4.35	12.00	10.96
007 - Beaver Brook	13	4.41	7	1.44	6	4.01	10	0.00	16.00	12.07
008 - West Street	14	74.37	13	27.79	10	26.93	13	24.18	22.00	73.00
011 - Read Street	0	0.00	3	0.07	4	0.12	4	0.14	5.00	0.18
012 - First Street	0	0	0	0	0	0	0	0	0	0
020 - Warren Street	22	40.18	19	31.53	16	28.78	24	30.34	31.00	100.83
027 - Tilden Street	17	17.29	10	9.06	14	8.90	17	8.93	24.00	16.33
030-1 - Barasford Avenue	15	26.80	8	8.71	9	10.16	7	7.83	14.00	16.17
030-2 - Merrimack Station	19	113.45	14	33.54	13	34.75	14	25.31	29.00	62.82
TOTAL	105	278.47	76	112.87	77	118.42	95	101.08	153	292.36

ATTACHMENT 5

Permit No. DC0021199

Effective Date: August 26, 2018

Expiration Date: August 25, 2023

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act, as amended, 33 U.S.C. # 1251 et seq. (the "Act"),

The District of Columbia Water and Sewer Authority

is authorized to discharge from the wastewater system and the facility located at

5000 Overlook Avenue, SW
Washington, D.C. 20032

to receiving waters named Potomac and Anacostia Rivers, Rock Creek, and tributary waters in accordance with effluent limitations, monitoring requirements, and other conditions set forth in Parts I, II, III, and IV herein.

Signed this day of July 26, 2018

Dominique Lueckenhoff
Acting Director
Water Protection Division
U.S. Environmental Protection Agency
Region III

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Part I. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

SECTION A. DEFINITIONS

When used in this permit, unless otherwise indicated, the following terms shall mean the following:

1. "**Blue Plains Advanced Wastewater Treatment Plant**" or "**BPAWWTP**" means the District of Columbia advanced wastewater treatment plant Publicly Owned Treatment Works (POTW) located at 5000 Overlook Avenue, S.W., Washington, DC, 20032. The site is commonly known as Blue Plains.

2. "**Blue Plains Tunnel**" or "**BPT**" means the tunnel that is part of the Combined Sewer System (CSS) which is included in the Long Term Control Plan (LTCP) and which terminates at the Blue Plains facility.

3. "**Design Capacity**" means the sum of the annual average flow capacity allocations in the BPAWWTP, represented as flow under Annual Average Hydrologic Conditions, as provided to each user jurisdiction in the Blue Plains Intermunicipal Agreement (IMA) and Captured Stormwater Flows (CSF) from the District of Columbia (District), which are not part of the District's IMA flow capacity allocation. The sum of the IMA flow capacity allocations, which is 370 MGD, and CSF, which is 14 MGD, equals the Design Capacity of 384 MGD. Flows comprising the design capacity receive advanced wastewater treatment in the BPAWWTP and are discharged from Outfall 002.

4. "**Combined Sewer System**" or "**CSS**" means the pipelines, pumping stations, treatment facilities, and appurtenances in the District of Columbia which are designed to convey wastewater and storm water through a single pipe system to combined sewer overflow outfalls and/or the POTW. The system also includes the selected Combined Sewer Overflow (CSO) controls included in the LTCP and all supplements thereto, which are being implemented under the Consent Decree in Consolidated Civil Action No. 1:00CV00183TFH and all amendments thereto.

5. "**Combined Sewer System Flow**" or "**CSSF**" means the conditions that begin where the Influent Flow rate to receive treatment in the BPAWWTP is greater than 511 MGD. CSSF conditions shall be deemed to cease 4 hours after the Influent Flow rate drops to a rate less than 511 MGD or a period of 4 hours has lapsed since the start of the CSSF conditions, whichever occurs later.

6. "**Complete Treatment**" means passage of all flows through any combination of conveyance and treatment downstream of primary sedimentation that ultimately discharges effluent from Outfall 002, in accordance with the limitations set forth for Outfall 002 found at Part I.B. of this permit.

7. "**Captured Stormwater Flows**" or "**CSF**" means stormwater flow in the District's combined sewer system that is captured within the collection system and conveyed

for treatment in the BPAWWTP prior to discharge from Outfall 002. The average annual CSF to be treated in the BPAWWTP under the IMA is 14 MGD. This rate is the quantity predicted by DC Water for the average year from the LTCP wet weather CSS model.

8. "**Director**" means the EPA Regional Administrator or an authorized representative.

9. "**Disinfection**" means treatment to reduce E. coli. Disinfection by chlorination shall be followed by dechlorination.

10. "**Dry Weather Flow**" or "**DWF**" means the conditions when the Influent Flow rate through Complete Treatment is less than a rate of 511 MGD.

11. "**Excess Flow Treatment**" or "**EFT**" means treatment of Influent Flow during CSSF conditions, in East Primary Sedimentation in Blue Plains, followed by disinfection and dechlorination, for flow rates that exceed the rates required to receive Complete Treatment, up to a maximum rate of 336 MGD. As part of placing the Wet Weather Treatment Facility (WWTF) in operation, the EFT facilities shall be permanently disconnected from Outfall 001.

12. "**5000 Overlook Avenue, SW, Washington DC, 20032**" means the site in southwest Washington, DC where the BPAWWTP and the WWTF are located which is commonly known as Blue Plains.

13. "**Green Infrastructure**" or "**GI**" means techniques that store, infiltrate, evaporate, or detain runoff, including, but not limited to, practices that mimic predevelopment site hydrology as identified in the District's stormwater management regulations and guidebook and in "*Greening CSO Plans: Planning and Modeling Green Infrastructure for Combined Sewer Overflow (CSO) Control*", U.S. Environmental Protection Agency, March 2014, Publication # 832-R-14-001.

14. "**Influent Flow**" means the following:

    a. Influent Flow conveyed through Complete Treatment means the sum of metered flows from sewers that convey collection system flow to Blue Plains and flow emptied from the BPT that is conveyed to Complete Treatment.

    b. Prior to placing the WWTF in operation, the Influent Flow discharged from Outfall 001 means the component of metered flow from sewers that convey collection system flow to Blue Plains and receives EFT.

    c. After the WWTF is placed in operation, the Influent Flow discharged from Outfall 001 means the component of flow emptied from the BPT that receives treatment in the WWTF.

15. "**Intermunicipal Agreement**" or "**IMA**" also known as "the 2012 IMA" means the agreement among the District of Columbia, DC Water (DCW), Fairfax County,

Virginia, Montgomery County, Maryland, Prince George's County, Maryland and the Washington Suburban Sanitary Commission (WSSC) for the management and operation of Blue Plains and LTCP facilities together with dry weather flow capacity allocations, CSF allocation to the District, and related requirements.

16. "**Long Term Control Plan**" or "**LTCP**" means the recommended plan for the CSS included in the Combined Sewer System Long Term Control Plan, Final Report, July 2002 prepared by the permittee pursuant to the 1994 CSO Policy and Section 402(q) of the CWA and any supplements thereto. The LTCP Final Report, July 2002, was submitted to Environmental Protection Agency (EPA) and the DC Department of Health, later District Department of the Environment.

17. "**Measured Flow Rates**" means flows measured to determine rates to be treated and discharged under CSSF conditions. Flow rates shall be metered and rates recorded at intervals not to exceed one (1) hour. An average rate shall be calculated from the metered rate. An average rate means the rate calculated, for the total time that CSSF conditions are in effect, by dividing the sum of the metered rates by the number of rates recorded. Average rates shall be calculated or recorded directly from metered rates. The permittee shall be in compliance with the treatment and discharge requirements for CSSF conditions when average rates are within the following:

    a. Not less than 0.90 times the rate required to receive Complete Treatment;

    b. Not greater than 1.1 times the maximum rate permitted to be discharged from Outfall 001.

18. **"Place in Operation"** means to achieve steady state operation and to operate consistently in such a way as to accomplish the intended function, even though all construction close-out activities (such as completion of a punch list and resolution of contract disputes or close-outs) may not yet be complete.

19. **"Wet Weather Flow" or ("WWF")** means the flow that occurs as a result of storm water runoff, including snowmelt, entering or being conveyed in the CSS.

20. **"Wet Weather Treatment Facility" or "WWTF"** refers to the facility located on the Blue Plains site designed to empty the BPT and transfer treated effluent to Complete Treatment facilities and/or discharge treated effluent from Outfall 001 after disinfection during CSSF conditions. The WWTF comprises initial screening and grit removal for pumps protection, pumping to empty the BPT, fine screening and grit removal, enhanced clarification, and disinfection.

21. **"Grab Sample"** means an individual sample collected in less than 15 minutes.

22. **"At Outfall XXX"** means a sample location before the effluent joins or is diluted by any other waste stream, body of water, or substance, or as otherwise specified.

23. **"Estimate"** means to be based on a technical evaluation of the sources contributing to

the discharge including, but not limited to, pump capabilities, water meters, and batch discharge volumes.

24. **"i-s"** (immersion stabilization) means a calibrated device that is immersed in the effluent stream until the reading is stabilized.

25. **"The 1.2" Retention Standard**" means the volume of water runoff produced by 1.2 inches of rain falling on an impervious surface.

26. **"Wet Weather Event" or ("WWE")** means a period when WWF is occurring. The period starts when WWF is measured as entering the tunnel system and ends when no flow is measured as entering the tunnel system.

27. **"WWTF Discharge Event" ("WWTF-DE") or "Discharge in connection with WWTF sampling"** means the period when treated effluent is being discharged from Outfall 001. A Discharge period ends when at least 24 hours has elapsed since the last measured occurrence of treated effluent being discharged out Outfall 001.

SECTION B. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS OUTFALL 002

Effluent limitations are based upon the design capacity of 384 MGD for full treatment at the Blue Plains Advanced Wastewater Treatment Plant. During the period beginning on the effective date of the permit and lasting through the expiration date, the permittee is authorized to discharge from Outfall 002 to the Potomac River, subject to the following conditions, discharge limitations and monitoring requirements:

Effluent Characteristics	Discharge Limitations				Monitoring Requirements	
	(lbs/day)		Other Units (specify)		Measurement Frequency	Sample Type
	Ave. Monthly	Ave. Weekly	Ave. Monthly	Ave. Weekly		
Flow/day (MGD) (1, 1a)	N/A (2)	N/A	N/L (3)	N/L	Continuous	Measured
Carbonaceous Biological	16,013	24,019	5.0 mg/1	7.5 mg/1	Daily	24-hour Composite
Total Suspended Solids (TSS)	19,603	29,404	6.1 mg/1	N/L	Daily	24-hour composite
Total Phosphorus (4)	530 (4)	1,080	0.17 mg/1 (4)	0.34 mg/1	Daily	24-hour composite
Ammonia Nitrogen: Summer (5/1-10/31)	13,130	19,536	4.1 mg/1	6.1 mg/1	Daily	24-hour composite
Winter I (11/1 - 2/14)	40,993	61,809	12.8 mg/1	19.3 mg/1	Daily	24-hour composite
Winter 2 (2/l5 - 4/30)	32,986	49,319	10.3 mg/	15.4 mg/1	Daily	24-hour composite
Dissolved Oxygen	5.0 mg/1 minimum daily average. Not less than 4.0 mg/L at any time				Every 2 hours	
Total Residual Chlorine (mg/l) (6)	Non-detectable		Non-detectable		Every 2 hours	Grab
pH (S.U.) (7)	Within limits of 6.0 to 8.5 standard units				Continuous in-situ monitoring and recording	
Total Ortho-phosphate (mg/1)	N/A	N/A	N/L	N/L	Daily	24-hour composite

Effluent Characteristics	Discharge Limitations				Monitoring Requirements	
	(lbs/day)		Other Units (specify)		Measurement Frequency	Sample Type
	Ave. Monthly	Ave. Weekly	Ave. Monthly	Ave. Weekly		
Alkalinity, total (CaC03) (mg/1)	N/A	N/A	N/L	N/L	Daily	24-hour composite
Hardness, total (CaC03) (mg/1)	N/A	N/A	N/L	N/L	Daily	24-hour composite
Nitrite (N02) (mg/1)	N/A	N/A	N/L	N/L	Daily	24-hour composite
Nitrate (N03) Total Kjeldahl	N/A	N/A	N/L	N/L	Daily	24-hour composite
Total Nitrogen (mg/l) (10)	N/A	N/A	N/L	N/L	Daily	24-hour composite
Cadmium (dissolved) (9)	N/A	N/A	N/L	N/L	Bimonthly	4 grabs/24-hours
Copper (dissolved) (9)	N/A	N/A	N/L	N/L	Bimonthly	4 grabs/24-hours
Iron (dissolved) (9)	N/A	N/A	N/L	N/L	Bimonthly	4 grabs/24 hours
Mercury (total recoverable) (8)	N/A	N/A	N/L	N/L	Bimonthly	4 grabs/24 hours
Lead (dissolved) (9)	N/A	N/A	N/L	N/L	Bimonthly	4 grabs/24 hours
Nickel (dissolved) (9)	N/A	N/A	N/L	N/L	Bimonthly	4 grabs/24 hours
Zinc (dissolved) (9)	N/A	N/A	N/L	N/L	Bimonthly	4 grabs/24 hours
PCBs (12)	N/A	N/A	N/L	N/L	2 wet and 2 dry weather samples quarterly	24-hour composite
E. coli (maximum 30 – day geometric mean for 5 samples minimum) (13)	N/A	N/A	126 cfu/100 ml Geometric	N/L	1 /day	Grab

(1) Conditions and limitations for flows discharged from Outfall 002 shall be as follows:

Flow Condition and Period	**Times**	**Measured Influent Flow Rates to Receive Complete Treatment**
A. DWF, through permit expiration date	All times	Up to and including 511 MGD
B. CSSF		
1. From effective date of permit unless otherwise authorized or approved by EPA	First 4 hours After 4 hours	Up to and including 555 MGD Up to and including 511 MGD
2. During construction of the WWTF and tie-ins to the existing facilities and WWTF start-up and testing. Periods to be determined by permittee and EPA from completion of design and construction schedules.	First 4 hours After 4 hours	Up to and including 511 MGD Up to and including 450 MGD

(1a) Flows reported for locations required under this permit are based on flows metered by the Blue Plains metering system. This system produces information to report flows by direct metering or through calculations using the results from multiple meters.

(2) N/A means Not Applicable

(3) N/L means No Limit, monitoring only

(4) The phosphorus limitation is based on a design flow of 384 MGD with a concentration of 0.17 mg/1The monthly average is expressed as a 12-month rolling average. In any 12-month period no one month may exceed a mass of 1080 lbs/day and 0.34 mg/1. The 12-month rolling average mass for a month shall be the total mass for the month plus the total mass for the previous 11 months divided by the total number of days in the 12-month period. The 12-month rolling average concentration for a month shall be the total mass for the 12-month period divided by the average daily flow (in MGD) for the 12-month period times 8.34. No single month in any 12-month period used to calculate a 12-month rolling average shall exceed a monthly average limit of 490 kg/day (1080 lbs/day) and 0.34 mg/1.

(5) Continuous in situ monitoring and recording of dissolved oxygen shall continue. The monitoring requirements shall be understood to require 12 readings from the continuous recording per day.

(6) When the total residual chlorine (TRC) analysis of the final effluent at Outfall 002 results in a detectable measurement, the permittee shall take steps to achieve a non-detectable TRC concentration. See Special Condition Part IV Section C.

(7) The permittee is required to be in compliance with the pH limitations specified above for 99% of the time for any calendar month. The total excursion time allowed for any calendar month is 7 hours, 26 minutes and no individual excursion shall exceed 60 minutes.

(8) The permittee shall sample the effluent for mercury using the most sensitive test Method 1631 E. The method detection limit, and the method used to perform the mercury analysis shall be submitted with the discharge monitoring reports.

(9) The permittee shall monitor the effluent at Outfall 002 for the metals listed above in accordance with the conditions set forth below. Report results in micrograms per liter.

a. The permittee shall test for additional metals, and priority pollutants (Appendix A to 40 C.F.R. Part 423) twice in five (5) years during the term of this permit. One such testing shall be in the third year of the permit and the second shall be in the last year of the permit.

b. All analytical methods will be EPA approved methodologies found in 40 C.F.R. Part 136.

c. The quantification level (QL) shall be the lowest concentration used for the calibration of a measurement system when the calibration is in accordance with the procedures published for the required method. Usually, units for the QL are in micrograms per liter.

d. Permittee shall analyze each grab sample and report the average of the four samples. Alternatively, the permittee may prepare a composite of the grab samples in the laboratory by proportioning to flow and analyze the laboratory composite sample.

(10) The permittee shall operate the BPAWWTP, including the nitrogen removal process to meet the total nitrogen effluent limit of not more than 4,370,078 pounds per year which is assigned to Outfall 002.

Total nitrogen concentration shall be the sum of organic nitrogen, ammonia nitrogen and ($N0_2$ +$N0_3$)- N concentrations (e.g., Total Nitrogen= Total Kjeldahl nitrogen + NO_2 as N + NO_3 as N).

The total nitrogen effluent for Outfall 002 shall be calculated on a daily basis as the mass load in pounds per day derived from the daily total nitrogen concentration from Outfall 002, times the associated daily flow. The daily total nitrogen mass load shall be summed during each calendar year to determine the annual mass load.

(11) The Permittee shall report any substantial changes in the volume or character of pollutants being introduced into the POTW.

(12) See Part IV.F, Special Conditions for additional PCB monitoring requirements.

(13) E. coli limitation based on the revised TMDL, December 2014.

SECTION C. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS OUTFALL 001

Discharge from Outfall 001 to the Potomac River is approved as a CSO-related bypass, provided the permittee is in compliance with the LTCP implementation schedule requirements of the March 23, 2005 Consent Decree and the January 14, 2016 CD Amendment entered into in United States v. DCWASA, et al, Consolidated Civil Action No. 1: CVOO183TFH and any supplements or modifications thereto and subject to the following conditions, discharge limitations, and monitoring requirements.

Effluent Characteristics	**Discharge Limitations (11)**				**Monitoring Requirements**	
	Kg/day (lbs/day)		**Other Units (specify)**		**Measurement Frequency**	**Sample Type (6)**
	Ave Monthly	**Ave Weekly**	**Ave Monthly**	**Ave Weekly**		
Flow/discharge (MGD) (l) (1a)	N/A	N/A (2)	N/L (3)	N/L	Continuous	Measured
Carbonaceous Biochemical Oxygen Demand (5-day)	N/A	N/A	N/L	N/L	Per discharge	Composite (4)
Total Suspended Solids (TSS) (10)	N/A	N/A	N/L	N/L	Per discharge	Composite (4)
pH (S.U.)	N/A	N/A	N/L	N/L	Per discharge	Composite (4)
PCBs (9)			N/L	N/L	2 wet weather per quarter	Grab
E. coli (cfu/100 ml) (11)	N/A	N/A	N/L	N/L	Every 8 hours, not less than one sample per discharge	Grab
Total Residual Chlorine (mg/1) (5)	Non-detectable		Non-detectable		Every 2 hours, not less than one sample per discharge	Grab
Total Nitrogen (10)	N/A	N/A	N/L	N/L	Per discharge	Composite (4)
Total Phosphorus (10)	N/A	N/A	N/L	N/L	Per discharge	Composite (4)

(1) Conditions and limitations for Influent Flow discharged from Outfall 001 shall be as follows:

FLOW CONDITION AND PERIOD	TIMES	MEASURED FLOW RATES FOR OUFALL 001
A. DWF	All times	No discharge permitted
B. CSSF		
1. From effective date of permit and lasting until the WWTF is placed in operation.	All times	Up to and including 336 MGD above rates to receive complete treatment under Part I.B for Outfall 002
2. Following the WWTF being placed in operation, for emptying the BPT under an operating routine that provides for: a. Conveying flow from the BPT through the WWTF or transfer to Complete Treatment; b. Regulating the discharge of WWTF effluent to maintain a rate of 511 MGD through complete treatment while optimizing conditions for maintaining the availability of the storage volume in the BPT such that the occurrence of CSOs is minimized; c. No discharge of flow from the BPT from Outfall 001 when DWF conditions exist; and d. Limiting discharge of WWTF effluent from Outfall 001 to a maximum rate of 225 MGD; provided that any discharge of WWTF effluent from Outfall 001 shall not occur except for the purpose of maintaining the availability of storage volume in the BPT to the extent that the occurrence of CSOs is minimized (11).	All times	Up to a maximum of 225 MGD

(1a) Flows reported for locations required under this permit are based on flows metered by the Blue Plains metering system. This system produces information to report flows by direct metering or through calculations using the results from multiple meters.

(2) N/A means Not Applicable.

(3) N/L means No Limit, monitoring only.

(4) Collect one grab sample every two (2) hours and flow composite samples during each calendar day discharge. Analyze and obtain the concentration of the composited sample obtained each calendar day. Determine the mass load discharged for each day using the

daily concentration and the average flow rate recorded for that calendar day. Sum the daily mass loads obtained each calendar year to obtain the total mass load discharged in the calendar year.

(5) See Part IV, Section C for additional Chlorination/Dechlorination monitoring requirements.

(6) All pollutant sampling shall commence no later than two (2) hours after a discharge has begun to occur at Outfall 001. Samples are not required for discharges lasting less than two (2) hours. The two-hour delay does not apply to flow monitoring.

(7) Authorization of CSO-related bypasses under this provision may be modified or terminated when there is a substantial increase in the volume or character of pollutants being introduced into the POTW.

(8) Permittee shall provide notice to the permitting authority of the discharges for Outfall 001 within 24 hours of the commencement of the discharge.

(9) See Part IV, Section F for additional PCB monitoring and reduction requirements.

(10) After the WWTF is placed in operation, the permittee shall monitor and evaluate performance in accordance with Part III.D.2. A performance assessment for Outfall 001 shall be submitted with each application for permit reissuance.

(11) The E. coli samples should be separated in a time sequence format or composited during the discharge event to replicate the event mean concentration assumptions that were used to formulate the LTCP model to determine post construction monitoring compliance with the LTCP.

PART II. STANDARD CONDITIONS FOR NPDES PERMITS

SECTION A. GENERAL CONDITIONS

1. Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and may result in an enforcement action; permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

2. Water Quality Standards Compliance

Consistent with the Clean Water Act, Section 301(b)(1)(C), the permittee may not discharge in excess of any limitation necessary to meet applicable water quality standards including those of the District of Columbia set forth in Chapter 21 of the District of Columbia Municipal Regulations, Chapter 11 (2006).

The limitations and conditions in this permit for the discharges from Blue Plains and the CSS are limitations that are necessary to meet the applicable water quality standards, including those of the District of Columbia referenced above.

3. Penalties for Violations of Permit

Conditions

a. Criminal Penalties

i. Negligent Violations. Section 309(c) (1) of the Clean Water Act (CWA), 33
U.S.C. § 1319(c) (1), provides that any person who negligently violates any permit, condition or limitation implementing Sections 301, 302, 306, 307, 308, 318 or 405 of the CWA, is subject to a fine of not less than $2,500 nor more than $25,000 per day of violation, or by imprisonment for not more than 1 year or both.

ii. Knowing Violations. Section 309(c) (2) of the CWA, 33 U.S.C. § 1319(c) (2), provides that any person who knowingly violates permit conditions implementing
Sections 301,302, 306,307,308, 318 or 405 of the CWA is subject to a fine of not less than $5,000 nor more than $50,000 per day of violation, or by imprisonment for not more than 3 years or both.

iii. Knowing Endangerment. Section 309(c)(3) of the CWA, 33 U.S.C. § 1319(c)(3), provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318 or 405 of the CWA, and knows at the time that he is placing another person in imminent danger of death or

serious bodily injury is subject to a fine of not more than $250,000, or by imprisonment for not more than 15 years or both.

iv. False Statement. Section 309(c)(4) of the CWA, 33 U.S.C. § 1319(c)(4), provides that any person who knowingly makes any false material statement, representation or certification in any application, record, report, plan or other document filed or required to be maintained under the Act or who knowingly falsifies, tampers with, or renders inaccurate, any monitoring device or method required to be maintained under the Act, shall upon conviction, be punished by a fine of not more than $10,000 or by imprisonment for not more than 2 years, or by both. If a conviction is for a violation committed after a first conviction of such person under this paragraph, punishment shall be by a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years or by both. False statements concerning matters with the jurisdiction of a federal agency are also punishable pursuant to 18 U.S.C. § 1001 by a prison term of up to five years, a fine imposed under Title 18, Crimes and Criminal Procedure, of the United States Code, or both.

b. Civil Penalties

i. The CWA provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 318 or 405 of the Act is subject to a civil judicial penalty not to exceed $52, 414 per day for each violation.

c. Administrative Penalties.

i. The CWA provides that any person who violates a permit condition implementing Sections 301,302, 306, 307, 308, 318 or 405 of the Act is subject to an administrative penalty as follows:

(a) Class I Penalty. Section 309(g)(2)(A) provides that a civil penalty shall not exceed $20,965 per violation nor shall the maximum amount exceed $52,414.

(b) Class II Penalty. Section 1319(g)(2)(A) provides that a civil penalty shall not exceed $20,965 per violation nor shall the maximum amount exceed $262,066.

4. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

5. Permit Actions

In accordance with 40 C.F.R. § 122.62, this permit may be modified, revoked and reissued, or terminated for cause including, but not limited to, the following:

a. Violation of any terms or conditions of this permit;

b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;

c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge;

d. Information newly acquired by the Agency, and which was unavailable at the time of reissuance, and would have justified the application of different permit conditions at the time of issuance, including but not limited to the results of the studies, planning, or monitoring described and/or required by this permit;

e. Facility modifications, additions, and/or expansions;

f. Any anticipated change in the facility discharge, including any new significant industrial discharge or changes in the quantity or quality of existing industrial discharges that will result in new or increased discharges of pollutants; or

g. A determination that the permitted activity endangers human health or the environment and can only is regulated to acceptable levels by permit modification or termination.

The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition. When a permit is modified, only conditions subject to modification are reopened.

6. Toxic Pollutants

Notwithstanding Section A.4 above, if a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under section 307(a) of the Act for a toxic pollutant which is present in the discharge and such standard or prohibition is more stringent than any limitation for such pollutant in this permit, this permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition and the permittee so notified.

The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

7. Civil and Criminal Liability

Except as provided in permit conditions on "Bypassing" (Section B.2) and "Upsets" (Section B.3), nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

8. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Act.

9. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Act.

10. Property Rights

The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State, or local laws or regulations.

11. Severability

The provisions of this permit are severable, and if any provisions of this permit, or the application of any provision of this permit to any circumstances, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

12. Transfer of Permit

In the event of any change in ownership or control of facilities from which the authorized discharge emanates, the permit may be transferred to another person if:

a. The current permittee notifies the EPA, in writing, of the proposed transfer at least 30 days in advance of the proposed transfer date;

b. The notice includes a written agreement, between the existing and new permittee, containing a specific date for transfer of permit responsibility, coverage, and liability between them; and

c. The EPA does not notify the current permittee and the new permittee of intent to modify, revoke and reissue, or terminate the permit and require that a new application be submitted.

13. Construction Authorizations

This permit does not authorize or approve the construction of any onshore or offshore physical structures or facilities or the undertaking of any work in any navigable waters.

14. Reopener Provision

This permit may be modified or revoked and reissued as provided pursuant to 40 C.F.R. §122.62 and § 124.5 to:

a. include new or revised conditions developed to comply with any State or Federal law or regulation that addresses CSOs that is adopted or promulgated subsequent to the effective date of this permit. This includes, but is not limited to: WQS and TMDLs;

b. to include new or revised conditions if new information, not available at the time of permit issuance, indicates that CSO controls imposed under the permit have failed to ensure the attainment of State WQS;

c. include new or revised conditions based on new information resulting from implementation of the LTCP referenced at Part III.C of this permit.

d. include new or revised conditions based on the results of Endangered Species Act Section 7 consultation with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service (collectively, the "Services").

In addition, this permit may be modified or revoked and reissued for any reason specified in 40 C.F.R. §122.62.

15. Endangered Species

The U.S. Fish and Wildlife Service (FWS) has indicated that Hay's Spring Amphipod, a Federally listed endangered species, occurs at several locations in the District of Columbia. The National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries) has indicated that the endangered shortnose sturgeon and the Atlantic sturgeon occur in the Potomac River drainage and may occur within the District of Columbia. Discharges, construction, or any other activity that adversely affects a Federally-listed endangered or threatened species are not authorized under the terms and conditions of this permit.

The permit limits and monitoring required by this permit will allow further evaluation of potential effects on the threatened and endangered species. EPA requires that the permittee submit to NMFS an annual compilation of the Discharge Monitoring Reports (DMRs), which may be used by NMFS to further assess effects on endangered or threatened species. If these data indicate it is appropriate, requirements of this NPDES permit may be modified to prevent adverse impacts on

habitats or endangered and threatened species.

The set of DMRs for the calendar year are to be submitted by February 15 of the following year to:

The National Marine Fisheries Service
Protected Resource Division 1
Blackburn Drive
Gloucester, MA 01930
Attention: Christine Vaccaro

Department of Energy and Environment
Fisheries and Wildlife Division
1200 First, N.E. 5th floor
Washington, DC 20002
Attention: Associate Director

16. National Historic Preservation Act of 1966, 54 U.S.C. §§ 300101 *et seq.*

Under 40 CFR 122.49 (b), EPA is required to assess the impact of the discharge authorized by the permit on any properties listed or eligible for listing in the National Register of Historic Places (NRHP) and mitigate any adverse effects when necessary in accordance with National Historic Preservation Act, 16 U.S.C. 470 et seq. EPA's analysis indicates that no soil disturbing or construction-related activities are being authorized by approval of this permit; accordingly, adverse effects to resources on or eligible for inclusion in the NHRP are not anticipated as part of this action.

SECTION B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

The permittee shall at all times properly operate, inspect and maintain all facilities and systems of treatment and control (and related appurtenances, including but not limited to, sewers, intercepting chambers, interceptors, combined sewer overflows, pumping stations, and emergency bypasses) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation and maintenance of back-up or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit.

2. Bypass of Treatment Facilities

a. Definitions

i. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.

ii. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass.

b. Bypass not exceeding limitations

i. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it is also for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs c. and d. of this section.

c. Notice

i. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible, at least ten days before the date of the bypass.

ii. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Section D.6 (24-hour notice).

d. Prohibition of bypass.

i. Bypass is prohibited and the EPA may take enforcement action against a permittee for bypass, unless:

(a) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

(b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if the permittee could have installed adequate backup equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

(c) The permittee submitted notices as required under Paragraph 2.c of this section.

ii. The EPA may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in paragraphs (a), (b), and (c) of this section.

3. Upset Conditions

a. Definition: "Upset" means an exceptional incident in which there is

unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

b. Effect of an upset: An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of Paragraph 3.c of this section are met. Administrative determination by the Agency on upset claims of the permittee, made before commencement of an action for noncompliance, are not final administrative actions and therefore subject to judicial review.

c. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed contemporaneous operating logs, or other relevant evidence that:

i. An upset occurred and that the permittee can identify the cause(s) of the upset;

ii.. The permitted facility was at the time being properly operated;

iii.. The permittee submitted notice of the upset as required in Section D.6; and

iv. The permittee complied with any remedial measures required under Section A.3.

d. Burden of proof: In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

SECTION C. MONITORING AND RECORDS

1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring points as defined at Part II, Section C.II of this permit. Monitoring points shall not be changed without notification to and the approval of the EPA.

2. Flow Measurements

Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated, and maintained to insure that the accuracy of the measurements is consistent with the accepted capability of that type of device.

3. Monitoring Procedures

Monitoring must be conducted according to test procedures approved under 40 C.F.R. Part 136, unless other test procedures have been specified in this permit. Monitoring data required by this permit shall be summarized on an average monthly or 7 consecutive day basis or as indicated for Mercury in Part I.B. Calculations shall be based on the average daily flow.

4. Reporting of Monitoring Results

a. Reporting Requirements

The permittee must electronically submit DMRs using EPA's NetDMR electronic reporting tool. Starting on December 21, 2016, the permittee must electronically report their Biosolids/Sewage Sludge Reports using EPA's NPDES Electronic Reporting Tool ("NeT"). Prior to 21 December 2020, the permittee may elect to use the NeT to electronically submit Pretreatment Program Reports and Sewer Overflow/Bypass Event Reports instead of mailing paper forms. Starting on December 21, 2020, the permittee must electronically report compliance monitoring data and reports using NeT – including CSO quarterly and annual Progress Reports. No later than December 21, 2020, the permittee must start electronically reporting the above compliance monitoring data and reports using EPA's NeT electronic reporting tool (see "Electronic Submissions" section below).

b. Electronic Submissions

Electronic submissions must start by the dates listed in the "Reporting Requirements" section above. Electronic submissions by permittees must be sent to EPA Region III no later than the 28th of the month following the completed reporting period. The permittee must sign and certify all electronic submissions in accordance with the requirements of Part II Section D.10 of this permit ("Signatory Requirements"). The permittee must use NetDMR and NeT. NetDMR is accessed from the internet at https://netdmr.zendesk.com/hc/en-us and NeT is accessed from the internet at https://epanet.zendesk.com/hc/en-us. Copies of all other reports required by Part II, Section D, Reporting Requirements, shall be submitted to the EPA and to the District of Columbia Department of Energy and the Environment (DC DOEE) at the following addresses:

U.S. Environmental Protection Agency, Region III
NPDES Discharge Monitoring Reports (3WP42)
1650 Arch Street
Philadelphia, Pennsylvania 19103

and

Department of Energy and Environment
Inspection and Enforcement Division1200 First Street NE, 5th floor

Washington D.C. 20002
Attn.: Associate Director

In addition, in accordance with Part II.A.14 above, by February 15 of the subsequent year, all DMRs for the previous year shall be sent to the NMFS.

5. Monitoring and Analytical Equipment Maintenance

The permittee shall calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals frequent enough to insure accuracy of measurements and shall insure that both calibration and maintenance activities will be conducted.

6. Analytical Quality Control

An adequate analytical quality control program, including the analyses of sufficient standards, spikes, and duplicate samples to ensure the accuracy of all required analytical results, shall be maintained by the permittee or designated commercial laboratory.

7. Additional Monitoring by the Permittee

If the permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 C.F.R. 136, or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR form. Such frequency shall also be indicated.

8. Retention of Records

The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. Records for sewage sludge monitoring shall be retained in accordance with Part IV, Section B of this permit. These periods may be extended by request of the EPA at any time.

9. Record Contents

Records of monitoring information shall include:

a. The date, exact place, time and methods of sampling or measurements;

b. The individual(s) who performed the sampling or measurements;

c. The date(s) analyses were performed;

d. The individual(s) who performed the analyses;

e. The analytical techniques or methods used; and

f. The results of such analyses

10. Inspection and Entry

The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

a. Enter upon the permittee's premises where a regulated facility activity is located or conducted, or where records must be kept under the conditions of this permit.

b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit;

d. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

SECTION D. REPORTING REQUIREMENTS

1. Planned Changes

The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. The permittee may submit to the permitting authority requests for modification of this provision in accordance with future promulgated regulations.

2. Anticipated Noncompliance

The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

3. Transfers

This permit is not transferable to any person except after notice to EPA as specified in Part II, Section A, Paragraph 11. EPA may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Clean Water Act. Any

transfer must otherwise be in accordance with 40 C.F.R. §122.61.

4. Monitoring Reports

Monitoring results shall be reported at the intervals and in the form specified in Part II, Section C, Paragraph 4 (Reporting of Monitoring Results)

Information as described by the Chesapeake Bay Grant Guidance shall be submitted to the EPA Chesapeake Bay Program according to the specified schedule and format detailed in that guidance. Calendar year information for the period January 1 through December 31 shall be submitted by January 31 of the following year.

The EPA Chesapeake Bay Program shall receive yearly reports describing the overall flow discharged by the plant for that year, projected growth of plant flows that could potentially be received for treatment, overall plant treatment capacity, and reductions in plant flow attributed to green infrastructure projects.

5. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date. Any reports of noncompliance must include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

6. Twenty-Four Hour Reporting

The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the noncompliance. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the noncompliance. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; the steps taken or planned to reduce, eliminate, prevent recurrence of the noncompliance, and the steps taken to minimize any adverse impact to navigable waters. The following shall be included as information which must be reported within 24 hours:

a. Any unanticipated bypass which exceeds any effluent limitation in the permit.

b. Any upset which exceeds any effluent limitation in the permit.

c. Violation of a maximum daily discharge limitation for any of the pollutants listed by EPA in the permit, to be reported to EPA within 24 hours.

The EPA may waive the written report on a case-by-case basis if the oral report has been received within 24 hours and the EPA determines that the noncompliance does not endanger health or the environment. The permittee shall submit the written submission to the EPA and to the District of Columbia Department of Energy and the Environment (DC DOEE) at the following addresses:

U.S. Environmental Protection Agency, Region III
NPDES Discharge Monitoring Reports (3WP42)
1650 Arch Street
Philadelphia, Pennsylvania 19103

and

Department of Energy and Environment
Inspection and Enforcement Division
1200 First Street NE, 5th floor
Washington D.C. 20002
Attn.: Associate Director

7. Other Noncompliance

The permittee shall report all instances of noncompliance not reported under Section D, Paragraphs 1, 4, 5, and 6 at the time monitoring reports are submitted. The reports shall contain the information listed in Paragraph 6.

8. Duty to Provide Information

The permittee shall furnish to the EPA, within a reasonable time, any information which the EPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the EPA, upon request, copies of records required to be kept by this permit.

9. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. 40 C.F.R. §122.21(d). The application shall be submitted at least 180 days before the expiration date of this permit. The Director may grant permission to submit an application less than 180 days in advance but no later than the permit expiration date. In the event that a timely and complete reapplication has been submitted and the Director is unable, through no fault of the permittee, to issue a new permit before the expiration date of this permit, the terms and conditions of this permit are automatically continued and remain fully effective and enforceable.

10. Signatory Requirements

All applications, reports or information submitted to the Director shall be signed and certified as required by 40 C.F.R. §122.22. Knowingly making false statements, representations, or certifications is subject to penalty.

11. Availability of Reports

Unless a confidentiality claim is asserted pursuant to 40 C.F.R. Part 2, all reports submitted in accordance with the terms of this permit shall be available for public inspection at the offices of the Director. If a confidentiality claim is asserted, the report will be disclosed only in accordance with the procedures in 40 C.F.R. Part 2. As required by the Act, permit applications, permits and effluent data shall not be considered confidential.

12. Penalties for Falsification of Reports

The Clean Water Act at Section 309 (6)(4), provides that any person who knowingly makes any false representation or certification in any record or other document filed or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance, shall, upon a first conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or by both. For a conviction of a person for a violation committed after a first conviction of such person, punishment shall be by fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both.

13. Correction of Reports

If the permittee becomes aware that it submitted incorrect information in any report to the Director, it shall promptly submit the correct information.

SECTION E. PUBLIC ACCOUNTABILITY

The permittee shall undertake an overall program of public accountability, including quarterly summary reports to inform all users of the sanitary system and local government officials and the general public of the extent of actual compliance with permit requirements and conditions. To facilitate public information, the permittee shall use available means such as posting quarterly summary reports on its website, inserts with water and sewer bills or other means to distribute this information to the public. In addition, the permittee shall include in this report information on the efficacy of all (on and off site) operations used in the disposal of sludge from the Blue Plains WWTP. Reports shall be provided to at least the following:

Secretary, Maryland Department of the Environment Executive
Director, Virginia Department of Environmental Quality
Director, District Department of Energy and Environment
Chief of Maintenance, National Park Service
Director, Interstate Commission of the Potomac River Basin

Director, Metropolitan Washington Council of Governments
Director, Water Protection Division, US EPA, Region III

Part III. COMBINED SEWER SYSTEM

SECTION A. GENERAL

The permittee operates a Combined Sewer System (CSS). The CSS includes the combined sewer overflow (CSO) and other Outfalls listed below as indicated by footnotes. During the period beginning with the permit effective date and lasting until the permit expiration date, the permittee is authorized to discharge from the CSOs listed below, as specified in the following paragraphs and sections.

Outfall (1)	**Overflow Structure Location**	**Receiving Stream**	**Latitude and Longitude (approximate)**
003	Joint Base Anacostia –Bolling (JBAB) near Chanuet Place, SW (ABANDONED)	Potomac River, East Side	N 38° 49' 51" W 77° 01' 32"
003a	Overflow on Blue Plains Tunnel Joint Base Anacostia - Bolling (JBAB) near MacDill Blvd., SE	Potomac River, East Side	N 38° 50' 55" W 77° 01' 12"
004 (2)	Emergency relief for Poplar Point Sewage Pumping Station, SE. (to be disconnected from CSS after new Poplar Point Pumping Station is placed in operation remains storm sewer outfall after disconnection)	Anacostia River, East Side	N 38° 51' 57" W 77° 00' 18"
005	Chicago Street and Railroad Station, SE	Anacostia. River, East Side	N 38° 52' 08" W 76° 59' 36"
006	Good Hope Road, West of Nichols Ave., SE (SEPARATED)	Anacostia River, East Side	N 38° 52' 16" W 76° 59' 28"
007	13th Street and Ridge Place, SE	Anacostia River, East Side	N 38° 52' 16" W 76° 59' 19"
008 (2)	Anacostia Ave. west of Blaine St. NE-relief for Anacostia Main Interceptor	Anacostia River, East Side	N 38° 53' 29" W 76° 57' 46"
009	2nd Street, 300 feet North of N Place, SE	Anacostia River, West Side	N 38° 52' 21" W 77° 00' 15"
010	O Street Sewage Pumping Station, SE	Anacostia River, West Side	N 38° 52' 23" W 77° 00' 14"
011	South of Main Sewage Pumping Station, SE (pumped overflow)	Anacostia River, West Side	N 38° 52' 22" W 77° 00' 17"
011a	South of Main Sewage Pumping Station, SE (gravity overflow)	Anacostia River, West Side	N 38° 52' 22" W 77° 00' 17"
012	North of Main Sewage Pumping Station, SE	Anacostia River, West Side	N 38° 52' 22" W 77° 00' 09"
013	4th and N Streets, SE	Anacostia River, West Side	N 38° 52' 22" W 77° 00' 09"
014	6th and M Streets, SE	Anacostia River, West Side	N 38° 52' 23" W 76° 59' 09"
015	9th and M Streets, SE	Anacostia River	N 38° 52' 18" W 76° 59' 38"

016	l2th and M Streets, SE	Anacostia River, West Side	N 38° 52' 20" W 76° 59' 28"
017	14th and M Streets, SE	Anacostia River, West Side	N 38° 52' 31" W 76° 59' 28"
018	Barney Circle and Pennsylvania Ave, SE	Anacostia River, West Side	N 38° 52' 39" W 76° 58' 57"
019	NE Boundary Trunk, Vic. Of 25th and E Sts., SE	Anacostia River, West Side	N 38° 52' 21" W 77° 00' 09"
019a	Overflow on Anacostia River Tunnel adjacent to CSO 019	Anacostia River, West Side	N 38° 53' 00" W 76° 58' 16"
020	23rd Street, North of Constitution Ave, NW	Potomac River, East Side	N 38° 53' 10" W 77° 03' 03"
021	Northeast of Roosevelt Bridge, NW	Potomac River, East Side	N 38° 53' 19" W 77° 03' 11"
022	27th and K Streets, NW	Potomac River, East Side	N 38° 53' 52" W 77° 03' 27"
023	Abandoned (Formerly 291 And K Streets, NW)	Potomac River, East Side	Not Available
024	30th and K Streets, NW	Potomac River, East Side	N 38° 54' 05" W 77° 03' 31"
025	31st and K Streets, NW	Potomac River, East Side	N 38° 54' 03" W 77° 03' 44"
026	Wisconsin Avenue and K St., NW	Potomac River, East Side	N 38° 54' 06" W 77° 03' 47"
027	Water Street West of Street, NW	Potomac River, East Side	N 38° 54' 13" W 77° 03' 57"
028	36th and M Streets, NW	Potomac River, East Side	N 38° 54' 13" W 77° 04' 18"
029	Canal Road 1000 feet east of Rock Creek, NW	Potomac River, East Side	N 38° 49' 00" W 77° 01' 40"
030	Abandoned (Formerly Foxhall and Canal Roads, NW)	Potomac River, East Side	Not Available
031	Pennsylvania Avenue, East Rock Creek, NW (SEPARATED)	Rock Creek, East Side	N 38° 54' 23" W 77° 03' 22"
032	26th and M Streets, NW	Rock Creek, East Side	N 38° 54' 22" W 77° 03' 17"
033	N Street extended West of 25th Street, NW	Rock Creek, East Side	N 38° 54' 26" W 77° 03' 18"
034	23rd and 0 Streets, SW	Rock Creek, East Side	N 38° 54' 36" W 77° 03' 05"
035	22nd Street south of Q Street, NW	Rock Creek, East Side	N 38° 54' 33" W 77° 03' 00"
036	22nd Street South of Q Street, NW	Rock Creek, East Side	N 38° 54' 38" W 77° 03' 06"
037	Northwest of Belmont and Rock Creek and Potomac Parkway (SEPARATED)	Rock Creek, East Side	N 38° 55' 02" W 77° 03' 04"
038	North of Belmont Road, east of Kalorama Circle, NW	Rock Creek, East Side	N 38° 55' 08" W 77° 03' 05"

039	Connecticut Avenue East of Creek, NW	Rock Creek, East Side	N 38° 55' 18" W 77° 02' 56"
040	Biltmore Street extended east of Rock Creek, NW	Rock Creek, East Side	N 38° 55' 40" W 77° 02' 43"
041	Ontario extended and Rock Creek Parkway	Rock Creek, East Side	N 38° 55' 40" W 77° 02' 43"
042	Harvard Street and Rock Creek Parkway, NW	Rock Creek	N 38° 55' 42" W 77° 02' 43"
043	Adams Mill Road South of Irving Street, NW	Rock Creek, East Side	N 38° 55' 42" W 77° 02' 42"
044	Kenyon Street and Adams Mill Road, NW	Rock Creek East Side	N 38° 55' 44" W 77° 02' 44"
045	Adams Mill Road and Lamont Street, NW	Rock Creek, East Side	N 38° 55' 50" W 77° 02' 49"
046	Park Road south of Piney Branch Parkway, NW	Rock Creek, East Side	N 38° 56' 06" W 77° 02' 45"
047	Ingleside Terrace extended and Piney Branch Parkway	Rock Creek, East Side	N 38° 56' 10" W 77° 02' 36"
048	Mt. Pleasant Street extended and Piney Branch Parkway	Rock Creek, East Side	N 38° 56' 15" W 77° 02' 23"
049	Piney Branch and Lamont Street, NW	Rock Creek, East Side	N 38° 56' 12" W 77° 02' 19"
050	28th Street west of 16th Street, NW	Rock Creek, East Side	N 38° 54' 14" W 77° 03' 23"
051	Olive Street extended and Rock Creek Parkway, NW	Rock Creek, East Side	N 38° 54' 32" W 77° 03' 11"
052	O Street extended and Rock Creek Parkway, NW	Rock Creek, West Side	N 38° 54' 31" W 77° 03' 16"
053	0 Street west of Rock Creek Parkway, NW (SEPARATED)	Rock Creek, West Side	N 38° 55' 18" W 77° 01' 40"
054	West Side of Rock Creek 300 ft. south of Mass. Ave, NW	Rock Creek, West Side	N 38° 54' 34" W 77° 03' 02"
055	Abandoned		
056	Normanstone Drive extended west of Rock Creek, NW	Rock Creek, West Side	N 38° 55' 02" W 77° 03' 04"
057	28th Street extended West of Rock Creek, NW (SEPARATED)	Rock Creek, West Side	N 38° 55' 18" W 77° 03' 09"
058	Connecticut Avenue and Rock Creek Parkway, NW (SEPARATED)	Rock Creek, West Side	N 38° 55' 16" W 77° 03' 02"
059	Luzon Valley [SEPARATED]	Rock Creek, West Side	N 38° 57' 54" W 77° 02' 13"
060	P St and 26th St, NW	Rock Creek, West Side	Not Available
061 (2)	Hayes St. & Anacostia Ave NE-Emergency relief for Upper Anacostia Sewage Pumping Station	Tributary to Anacostia-East Side	Not Available
062 (2)	Earl Place, NE - Emergency relief for Earl Place Sewage Pumping Station	Tributary to Anacostia-West Side	Not Available

(1) All outfalls are CSO outfalls unless noted otherwise.

(2) These outfalls are recognized in the permit as emergency relief locations; they are not CSO Outfalls. Discharges are prohibited under Part III.B.l.e(i) and are reportable under Part III.B.l.e (iii) and Part II.D.2 and 7.

SECTION B. TECHNOLOGY-BASED CSS REQUIREMENTS

The permittee is required to control combined sewer overflows in accordance with the CSO Policy (April 1994). The permittee shall comply with the nine minimum technology-based conditions set forth below.

1. Nine Minimum Controls (NMC) Program

a. Operation and Maintenance - The permittee shall implement proper operation and maintenance programs for the sewer system and all CSO outfalls, in accordance with the program set forth below, with consideration given to the following: regular sewer inspections, sewer, catch basin and regulator cleaning; equipment and sewer collection system repair or replacement, where necessary; and disconnection of illegal connections.

i. Maintain a CSS inventory. Prepare an inspection plan and submit updated inventory information with each annual report as follows:

(a) List of CSO outfalls and emergency relief locations from Part III, Section A, COMBINED SEWER SYSTEM - GENERAL of this permit.

(b) Combined Sewer Overflow Structures. Include designation, location, description of operation, capacity and diagram or drawing of each structure. Include similar information for each inflatable dam.

(c) Outfall Structures. Include designation, location and description of each structure Include a diagram or drawing and a picture as available and practicable. Describe outfalls characteristic at high and low tide (e.g., submerged, partially submerged, not submerged). Identify whether or not each structure is equipped with a tide gate.

(d) Supervisory Control and Data Acquisition (SCADA) System. Include a functional description, and list of information provided by the SCADA system for the CSS.

(e) Rain Gages. List location and description of rain gauges installed within the CSS.

(f) List of green infrastructure practices in the CSO 027, 028, 029 and 049 sewersheds designed to provide control of these CSOs.

ii. Inspect CSS control structures (regulator structures and tide gates) at least once per month.

iii Inspect pumping stations at least once per month.

iv. Inspect Northeast Boundary Swirl Facility at least once per month.

v. Inspect inflatable dams and CSS SCADA system at least once per month.

vi. Inspect major combined sewers on a rotating schedule of sufficient frequency to maintain capacity requirements.

vii. Inspect all outfall structures which have not been abandoned or separated annually.

viii. Operate and maintain the Main, "O" Street, Potomac and Poplar Point and Eastside Pumping stations to provide firm pumping capacities of 240 MGD, 45 MGD, 460 MGD, 45 MGD, and 45 MGD, respectively.

ix. Inspect green infrastructure practices in the CSO 027, 028, 029 and 049 sewersheds in accordance with the EPA-approved Operation and Maintenance Plan. The plan includes initial frequencies and scopes for inspecting and maintaining the facilities and a plan for modifying inspection and maintenance frequencies and scopes based on experience operating the facilities. The plan addresses both surface maintenance such as plantings, cleaning of the practices, structural upkeep and repairs as well as subsurface maintenance such as inspecting, cleaning and repairing buried piping and underdrains. The Operation and Maintenance Plan includes the response times required to complete repairs and correct deficiencies.

b. Use Collection System for Storage

i. Operate and maintain inflatable dams to optimize storage in the CSS. The Permittee may demolish the Structure 24 inflatable dams at CSO 019 after the permittee certifies that the Blue Plains Tunnel and Anacostia River Tunnel have been placed in operation.

c. Pretreatment Program

i. Comply with pretreatment regulations to control any industrial discharges that may be identified as impacting CSOs.

ii. Comply with pretreatment regulations to require permitted significant industrial users (SIUs) discharging directly to the CSS to establish management practices to limit (e.g., use of control, detention or prohibition) batch discharges during wet weather conditions to the maximum extent feasible. Conduct an annual inspection of the above users to identify the existence of any batch discharges. Evaluate batch discharges identified to determine whether and to what extent limitations are appropriate during wet weather, taking into consideration volume,

frequency, characteristics, and the need to protect life and property.

d. Maximize Flow to Blue Plains

i. During wet weather, operate the pumping stations and collection system to deliver the maximum flow possible to Blue Plains within the constraints of the pumping stations, configuration and capacity of the collection system, and the capacity of the treatment plant. Maintain a reporting system showing that operation of the pumping stations has been maximized during wet weather and that the maximum flow possible is being delivered to Blue Plains for treatment within the constraints of the pumping stations, collection system and treatment plant. Report such operations for each wet weather event.

ii. Maintain pumps to maximize flow to Blue Plains.

iii. The permittee shall ensure that the collection system has the capacity to convey flows at a rate totaling at least 1076 MGD to Blue Plains for treatment.

e. Eliminate Dry Weather Overflows (DWOs)

i. Dry weather overflows from CSO outfalls are prohibited. When the permittee detects a dry weather overflow, the permittee shall begin corrective action immediately. The permittee shall inspect the dry weather overflow each subsequent day until the overflow has been eliminated.

ii. Maintain a program to enlist public support for reporting DWOs.

iii. Receive reports of DWOs on a 24-hour basis. Each dry weather overflow confirmed by the Permittee shall be reported to DDOE and EPA Region III within 24 hours.

f. Control Solid and Floatable Materials in CSOs

i. Screen pumped overflows at the Main and O Street Pumping Stations.

ii. Screen flow into the Northeast Boundary Swirl Facility.

iii. Operate and maintain end of pipe solid and floatable BMP demonstration controls until termination of the demonstrations at locations as follows:

(a) End of pipe netting system at CSO Outfall 018. Bar rack at CSO Outfall 041 at Structure Number 62.
(b) Bar rack at CSO Outfall 040 at Structure 61.
(c) Inspect BMP demonstration controls at least once per month. Clean BMPs following wet weather events on a schedule that maintains capture functions.

The Permittee may terminate the demonstration project for the end of pipe netting system at CSO Outfall 018 after the permittee certifies that the Anacostia River Tunnel has been placed in operation.

iv. Clean 85 percent of the 8,200 catch basins in the combined sewer area at least annually. Inspect catch basins in CSO areas tributary to the Anacostia River at least 2 times per year and clean more frequently as identified by inspections.

The Anacostia River CSO areas inspection schedule is an interim schedule until permanent solids and floatable control facilities are placed in operation as part of the Long Term Control Plan. The Permittee may reduce the cleaning frequency for CSO areas tributary to CSO 005, 007, 009, 010, 011, 011a, 012, 013, 014, 015, 016, 017 and 018 to annually after the permittee certifies the Blue Plains and Anacostia River Tunnels have been placed in operation. The Permittee may reduce the cleaning frequency for CSO areas tributary to CSO 019 to annually after the Permittee certifies the Northeast Boundary Tunnel has been placed in operation.

v. Operate the Anacostia River Floatable Debris Removal Program. This program comprises pick up of debris by skimmer and support boats on a regular weekly schedule, weather and river conditions permitting.

vi. Advise the D.C. Department of Public Works (DPW) and the National Park Service (NPS) in writing at least once per year on methods and systems to maximize litter control in the CSS, targeting neighborhoods that contribute disproportionate amounts of trash to the CSS. Document these efforts in quarterly CSO reports.

vii. Implement an ongoing, appropriate bi-lingual (English and Spanish) public education program aimed at reducing litter in the CSO sewershed, including public service announcements, public school presentations, and stenciling programs.

viii. Prepare lesson plan materials to educate school children on the ways and means for citizens to assist in reducing the amount of solid and floatable materials in CSOs. Make the materials available to D.C. Public elementary schools for their use. Offer to make presentations to schools on the lesson plan and the CSO program at up to 6 occasions per year.

g. Pollution Prevention

i. Conduct regular public education programs to advise citizens of proper disposal of substances (e.g., household wastes, plastics, paper products, oils, leaves and the use of fertilizer).

ii. Conduct tours of Blue Plains to educate public on aspects of CSO control that can be enhanced with public assistance.

iii. Comply with the pretreatment program to encourage industrial waste reduction through recycling and improved housekeeping.

iv. Notify responsible agencies to enforce regulations that prohibit entrance into the CSS of any substance that may impair or damage the function and performance of collection and treatment systems.

v. Coordinate where feasible and practicable DC Water's pollution prevention programs with those of D.C. government agencies such as the following partial list of pollutant prevention programs conducted by District of Columbia government agencies:

(a) Department of Public Works Programs
- (i) Curbside recycling
- (ii) Leaf pickup
- (iii) Public trash receptacles
- (iv) Household hazardous waste collection
- (v) Residential bulk refuse collection and self-service disposal
- (vi) Campaign against rats
- (vii) Support of community cleanup programs ("Helping Hand")
- (viii) Enforcement of illegal dumping operations
- (ix) Street cleaning and sweeping
- (x) Public education for DPW Solid Waste Education and Enforcement Program ("SWEEP")

(b) Department of Environment Programs

- (i) Public education and assistance
- (ii) Enforcement of storm water and erosion/sedimentation control regulations

h. Public Notification

i. Operate a light on the Anacostia River and a light on the Potomac River to notify river users of CSO events. Lights will be operated by a signal from a representative CSO outfall on each river. A light (color A) will be illuminated during a CSO occurrence and a second light (color B) will be illuminated for 24 hours after a CSO has stopped.

ii. Maintain a website with information on: (a) nature of CSO discharges; (b) locations of CSOs; (c) potential health threats of CSOs; (d) record of CSO events by outfall with number, average duration and volume for the prior three month calendar quarter based on modeled results; (e) description of light system on the Anacostia River and Potomac River that advises river users of times that CSOs are actually occurring; and (f) nature and duration of conditions potentially harmful to users of receiving waters during and after a CSO event.

iii. Prepare and distribute semi-annually in sewer bills an informational pamphlet with information similar to that listed under h.ii above.

iv. Distribute a pamphlet semi-annually to locations (e.g., boathouses, marinas, water sports shops) frequented by receiving water users. The pamphlet shall include information similar to that listed under h.i above. Distribution will be to the extent permitted by owners of the locations.

v. Prepare and maintain an information bulletin to distribute to callers requesting information on the CSS and CSOs.

vi. Include updates and status of CSS and CSO plans and programs in information distributed under h.i, ii, iii, and iv above.

vii. Maintain warning signs at all CSOs.

i. Monitoring

i. Operate and maintain the SCADA system that monitors activation of selected CSO outfalls.

ii. Monitor and record the condition of the bar racks at the Main and 0 Street Pumping Stations storm/CSO pumps to assess their ability to trap floatables.

iii. Monitor and record debris removed by the Anacostia River Floatable Debris Removal Program.

iv. Monitor and record flow, screenings removal and disinfection and dechlorination at the Northeast Boundary (NEB) Swirl Facility.

v. Monitor and record demonstration floatables removal; (a) at the end of pipe netting system at Outfall 018; (b) at bar rack at Outfall 041; and c) at the bar rack at Outfall 040 for the duration of the demonstration project.

vi. Monitor and record rainfall at a minimum of four (4) locations in the CSS. Locate rain gages at sites which are different from those used in the development of the LTCP. Report the number, volume, and average duration of overflows for each active CSO outfall. The information shall be prepared using the latest model of the CSS, based on the measured storm event data and the operation of the inflatable dams for the previous calendar year.

SECTION C. Water Quality Based Combined Sewer System (CSS) Requirements

1. The LTCP for the District of Columbia CSS including supplements thereto, provide for the control of CSO discharges to comply with the District of Columbia water quality standards in the Potomac and Anacostia Rivers, Rock Creek, and its Piney Branch tributary.

2. The permittee shall implement and effectively operate and maintain the CSO controls identified in the LTCP and any supplements thereto.

3. The LTCP for the District of Columbia CSS provides for the control of CSO discharges to the Potomac and Anacostia Rivers, Rock Creek, and its Piney Branch tributary. The LTCP facilities for controlling discharges to the above-named receiving waters include, among other things, diversion structures, a system of underground storage tunnels, pumping stations, outfall and overflow structures, and green infrastructure. The facilities shall, within the capacities provided, divert combined sewer flows to the storage tunnels, store combined sewer flow and convey stored combined sewer flow to Blue Plains for treatment. The permittee shall effectively operate and maintain the LTCP CSO control facilities in accordance with the limitations and conditions set forth below.

4. Discharges from CSO Outfalls controlled by the tunnel system and overflow structures are prohibited except during wet weather events when one or more of the following conditions exist:

   a. The associated tunnels serving individual CSO outfalls and tunnel overflow structures are filled to their design capacities.

   b. Combined sewer flow is being transferred from individual CSO outfalls to the associated storage tunnel or diversion sewer at not less than minimum diversion rates listed below.

5. Solids and floatables capture shall be provided for all overflows prior to discharge to receiving waters.

6. All combined sewer flow stored in the CSO storage tunnels shall be emptied in such a manner as to maximize treatment of the stored flows through complete treatment at Blue Plains and to optimize conditions for maintaining the availability of storage volume in the tunnels system.

7. Storage tunnels shall have minimum design capacities as follows:

   a. Anacostia River and Northeast Boundary Tunnels - 157 million gallons

   b. Potomac River Tunnel - 30 million gallons

8. The permittee shall operate and maintain green infrastructure controls sufficient to control 133 acres to the 1.2" Retention Standard in the CSO 027, 028 and 029 sewersheds or DC Water shall operate a Potomac River Storage/Conveyance Tunnel with a total storage volume of not less than 40 million gallons.

9. The permittee shall operate and maintain green infrastructure controls sufficient to control 365 acres to the 1.2" Retention Standard in the CSO 049 sewershed or DC Water shall operate a Rock Creek Storage Facility for the Piney Brach Outfall with a storage capacity of not less than nine and one-half (9.5) million gallons

10. Minimum diversion capacities from CSO outfalls to storage tunnels or interceptors and monitoring of diversions shall be as follows:

a. Anacostia CSO Control Systems

CSO Outfall	Drainage Area	Minimum Diversion Capacity for CSO Control (MGD)	Diversion to Tunnel or Diversion Sewer	Monitoring
005	Fort Stanton	22	Tunnel	(2)
006	Fort Stanton	SEPARATED	n/a	n/a
007	Fort Stanton	44	Tunnel	(3)
009	Canal Street	21	Tunnel	(2)
010 and 011	B St/NJ Ave	180	Tunnel	(3)
012	Tiber Creek	221	Tunnel	(3)
013	Canal Street Sewer	17	Tunnel	(2)
014	Navy Yard/M St.; 6th St-7th St	61	Tunnel	(2)
015	Navy Yard/M St.; 9th St	22	Tunnel	(2)
016(1)	Navy Yard/M St.; 12th St-9th St.	86	Tunnel	(2)
017 (1)	Navy Yard/M St.; 14th St to Penn Ave	65	Tunnel	(2)
018(1)	Barney Circle	57	Tunnel	(2)
019	Northeast Boundary	1,160	Tunnel	(3)

b. Potomac CSO Control Systems

CSO Outfall	Drainage Area	Minimum Diversion Capacity for CSO Control (MGD)	Diversion to Tunnel or Diversion Sewer	Monitoring
020	Easby Point	297	Tunnel	(3)
021	Slash Run	530	Tunnel	(3)
022	I St - 22nd St. NW	333	Tunnel	(3)
024	West of Rock Creek Diversion Sewer	66	Tunnel	(2)
025	3151 & K St NW	To be separated	n/a	n/a
026	Water St, NW	To be separated	n/a	n/a
027	Georgetown	To be controlled by green infrastructure	n/a	n/a
028	37th St. Georgetown	To be controlled by green infrastructure	n/a	n/a
029	College Pond	To be controlled by green infrastructure	n/a	n/a

c. Rock Creek CSO Control Systems

CSO Outfall	Drainage Area	Minimum Diversion Capacity for CSO Control (MGD)	Diversion to Tunnel or Diversion Sewer	Monitoring
031	Penn Ave	Separated	n/a	n/a
032	26th St- M St	6	Interceptor	(4)
033	N St- 25th	5	Interceptor	(3)
034	Slash Run	6	Interceptor	(4)
035	NW Boundary	290	Interceptor	(4)
036	Mass Ave & 24th St	29	Interceptor	(3)
037	Kalamora Circle West	Separated	n/a	n/a
038	Kalamora Circle East	5	Interceptor	(4)
039	Belmont Rd	28	Interceptor	(4)
040	Biltmore Rd	12	interceptor	(4)
041	Ontario Rd	14	Interceptor	(4)
042	Quarry Rd	19	Interceptor	(4)
043	Irving St	35	Interceptor	(4)
044	Kenyon St	4	interceptor	(4)
045	Lamont St	8	Interceptor	(4)
046	Park Rd	9	Interceptor	(4)
047	Ingleside Terr	10	Interceptor	(3)
048	Oak St/Mt Pleasant	11	Interceptor	(4)
049	Piney Branch	To be controlled by green infrastructure	n/a	n/a
050	M St- 27th St	21	interceptor	(4)
051	Olive-29th St	4	Interceptor	(4)
052	0 St- 31"1 St	56	Interceptor	(4)
053	0 St	Separated	n/a	n/a
054	West Rock Cr Diversion	(5)	Interceptor	(4)
055	Abandoned	n/a	n/a	n/a
056	Nonnanstone Dr	(5)	Interceptor	(4)
057	Cleveland - 28th St & Conn	Separated	n/a	n/a
058	Conn Ave	Separated	n/a	n/a
059	16th and Rittenhouse Sts,	Separated	n/a	(4)

(1) These outfalls have been consolidated. Diversion capacity listed is that required for CSO control.

(2) Diversion capacity validated by construction performance test, no additional monitoring required.

(3) Continuous flow measurement of diversion and outfall. Provision for temporary sampling on diversion and outfalls.

(4) Diversion capacities from the referenced outfalls have been estimated based on computer modeling.

(5) These CSOs are emergency reliefs for the West Rock Creek Diversion sewer. There is no tributary drainage area, and flow diversion does not occur at these CSOs. The performance of these CSOs will be validated by computer modeling, no additional permittee monitoring is required.

11. With each DMR, report operations of the monitored CSO control facilities by systems as follows:

a. Volume into and out of storage tunnels;
b. Diversion rates into storage tunnels;
c. Discharge rates from outfalls;
d. Start and end time of wet weather event;
e. Time when storage tunnel became filled to minimum required capacity;
f. All discharges from outfalls occurring prior to storage tunnel being filled to minimum required capacity and at less than minimum required diversion rates;
g. Volume of overflows from outfalls; and
h. Results of any overflow or diversion sampling.

SECTION D. POST CONSTRUCTION MONITORING

The permittee shall implement a phased post-construction monitoring program to obtain information on rainfall, the volume and character of overflows and receiving waters characteristics. The monitoring phases shall be as follows:

Phase	**Post-Construction Condition**
1	Following the placement in operation of the inflatable dams and pumping stations rehabilitation. Phase I has been completed and was submitted to EPA on August 12, 2016.
2	Following the placement in operation of the WWTF and the Storage/Conveyance Tunnel from Blue Plains to CSO 019.
3	Following the placement in operation of all Anacostia River CSO Controls.
4	Following the placement in operation of the complete Long Term Control Plan

1. Phase I monitoring shall be in accordance with the following: CSO Systems

Monitoring Type	Anacostia River	Potomac River	Frequency (3)
Rainfall Monitoring (1)	1 gauge in Northeast Boundary 1 gauge in Tiber Creek	1 gauge in Slash Run	Continuous
CSO Overflow (flow and volume) (1)	Northeast Boundary CSO 019 B ST/NJ Ave pumped overflow CSO 010	Potomac Pumping Station CSO 021 College Pond CS0024	Continuous
CSO Overflow Sampling (2)	1 sampling station at Northeast Boundary	n/a	4 storms minimum approximately 1-hour sample interval for each storm.
Receiving Water Monitoring - Dissolved Oxygen (4)	Continuous DO Monitors	Continuous DO Monitors	approximately 30 minute intervals
Receiving Water Monitoring - Bacteria, Field Parameters (2)(4)	Bacteria Samples	Bacteria Samples	4 storms minimum

(1) Temporary gauges, meters and samplers to be installed.
(2) Samples shall be analyzed for E. coli, CBOD, and TSS.
(3) Monitoring shall be conducted for a continuous period of 12 months.
(4) The permittee is responsible for submitting all data, however, it is acceptable to use data developed by other sources.

2. Phase 2 monitoring shall be in accordance with the following:

(1) The permittee has submitted and EPA has approved a monitoring plan to 1) demonstrate that the WWTF is meeting the assumptions of the LTCP regarding appropriate level of control and 2) the development of parametric limits for the WWTF process units to ensure compliance with the applicable TMDLs and the protection of water quality. The plan requires monitoring of WWTF influent and effluent for pollutants of concern and characterization, critical process unit operating parameters, final effluent quality and process measurements and flow management routines for wet weather. The characteristics include: e coli, total nitrogen, total phosphorus, TSS, NTU, flow rate, additive addition, disinfection addition, residence time, residual chlorine, and

other relevant process parameters.

(2) The permittee shall conduct monitoring for eighteen (18) months, subsequent to the place in operation date for the WWTF according to the approved monitoring plan for the duration of each WWE and WWTF-DE.

(3) The permittee shall submit for EPA review and approval a performance assessment within 180 days of completion of the monitoring. The permittee shall correlate process operational parameters including flow management routines to effluent quality and propose process unit operational parameters to be continuously monitored to ensure compliance with water quality requirements for EPA review and approval.

(4) Based upon the results of the assessments and proposals by the permittee, EPA may re-open this permit to establish parametric operation requirements as effluent limitations.

(5) The provisions at Part III. Section D, paragraph 5 do not apply to Phase 2 monitoring.

3. Phase 3 Monitoring shall be in accordance with the following:

CSO Systems

Monitoring	**Anacostia**	**Potomac**	**Rock Creek**	**Frequency**
Rainfall Monitoring (1)	1 gauge in Northeast Boundary 1gauge in Tiber Creek	1 gauge in Slash Run 1gauge in College Pond	1 gauge in Piney Branch	Continuous
CSO Overflow Monitoring and Diversion to Storage Monitoring (2)	Northeast Boundary CSO 019 Fort Stanton CSO 007 B ST/NJ Ave Pumped Overflow	Potomac Pumping Station CSO 021 College Pond CSO 029	Piney Branch CSO 049	Continuous
Tunnel Storage Level Monitoring (2)	1 sensor in Tunnel	1 sensor in tunnel	1 sensor in tunnel	Continuous
CSO Overflow Sampling (2) (3)	Sampling stations at Northeast Boundary CSO 019 and CSO	Sampling stations at CSO 020 arid CSO 021	1 sampling station at CSO 049	4 storms minimum approx. 1-hour sample interval for each storm

Receiving Water Monitoring - Dissolved Oxygen (5)	Continuous DO monitors (5)	Continuous DO monitors (5)	n/a	approx. 30 minute intervals (5)
Receiving Water Monitoring - Bacteria, Field Parameters (3)	Use data from existing monitors and establish at least 6 other locations	Use data from existing monitors and establish at least 3 other locations	Use data from existing monitors and establish at least 7 other locations	once per week for bacteria and once per quarter for all other substances

(1) Temporary gauges to be installed.
(2) Shall use facilities and equipment installed as part of CSO control systems.
(3) Sampling shall be analyzed for E. coli, mercury, arsenic, cadmium, total chromium, copper, lead, nickel, selenium, silver, zinc, chromium VI, hardness, cyanide, pesticides, PCBs, volatiles and semi-volatiles, DO, ammonia as N, TKN, total phosphorus, and ortho-phosphorus. Metals shall be analyzed as dissolved and total recoverable.
(4) Monitoring shall be conducted for a continuous period of 12 months, in each CSO System after appropriate facilities are placed in operation.
(5) Permittee is responsible for submitting all data, however, it is acceptable to submit data provided by other sources.

4. Phase 4 monitoring shall be in accordance with the following:

Monitoring Type	**Anacostia River**	**Potomac River**	**Rock Creek**	**Frequency (4)**
Rainfall Monitoring (1)	1 gauge in Northeast Boundary 1 gauge in Tiber Creek	1 gauge in Slash Run 1 gauge in College Pond	1 gauge in Piney Branch	Continuous
CSO Monitoring and Diversion to Storage Monitoring (2)	Northeast Boundary CSO 019 Fort Stanton CSO 007	Potomac Pumping Station CSO 021 College Pond CSO 029	Piney Branch CSO 049	Continuous
Tunnel Storage Level Monitoring	1 sensor in Tunnel	1 sensor in Tunnel	1 sensor in tunnel	Continuous
CSO Overflow Sampling (2) (3)	Sampling stations at CSO 019 and CSO 010	Sampling stations at CSO 021 and CSO 020	1 sampling station at CSO 049	4 storms maximum approx. 1-hour sample interval for each storm
Receiving water Monitoring - Dissolved Oxygen	continuous DO monitors	continuous DO monitors	n/a	approx. 30 minute intervals

Monitoring Type	Anacostia River	Potomac River	Rock Creek	Frequency (4)
Receiving water monitoring-bacteria, field parameters (3) (5)	establish at least 6 locations	Establish at least 6 locations	7 other locations	once per week for bacteria and once per quarter for all other parameters

(1) Temporary gauges will be installed.
(2) Shall use facilities and equipment installed as part of CSO control systems.
(3) Sampling shall be analyzed for E. coli, CBOD5, TSS, the 126 priority pollutants, mercury, arsenic, cadmium, total chromium, copper, lead, nickel, selenium, silver, zinc, chromium VI, hardness, cyanide, pesticides, PCBs, volatiles, semi-volatiles, DO, ammonia as N, TKN, total phosphorus and ortho-phosphorus. Metals shall be analyzed as dissolved and total recoverable.
(4) Monitoring shall be conducted for a continuous period of 12 months.
(5) The permittee is responsible for submitting all monitoring data.

5. Results from the monitoring phases shall be used to assess the performance of CSO controls against predictions established as part of LTCP development and its supplements. Performance assessments shall be prepared by the permittee and submitted to EPA within 180 days of completion of a monitoring phase. In general, the assessments shall include:

a. Comparison of monitored overflow magnitude and duration with the LTCP predictions;
b. Comparison of monitored water quality in receiving waters with LTCP Predictions;
c. Comparison of monitored CSO reductions with LTCP reductions;
d. Comparison of performance to TMDLs and allocations established for CSOs and approved bypasses in the receiving waters; and
e. Overall evaluation as to whether CSO controls are providing degree of control predicted for LTCP conditions and whether modifications or additions to the LTCP are required.

SECTION E. CSO STATUS REPORTS AND SCHEDULES

1. Progress reports are to be provided to EPA for all activities scheduled or completed in accordance with the terms of this permit. Such reports shall be submitted in quarterly and annual reports which summarize actions and activities undertaken to comply with Part III, Section B. 1 . and Part III, Section C of this permit (Nine Minimum Controls Program and the LTCP). Reports shall be submitted to EPA and DDOE as follows:

a. Submit quarterly reports on the 28th day of April, the 28th day of July, the 28th day of October and the 28th day of January. Reports shall summarize information through the last day of the month prior to the month in which the

report is due. The first quarterly report shall be submitted for the first full quarter following the effective date of the permit.

b. Submit annual reports by March 31 of each year summarizing information for the previous calendar year. The first annual report shall be submitted for the first full year following the effective date of the permit.

2. Information submitted in reports shall, in general, be prepared in a tabular format giving dates, times, and locations as applicable. The information to be reported for the Nine Minimum Controls Program shall include the following:

a. CSS Control Structures – Number of inspections conducted, conditions observed (e.g., function normal, blockages, malfunctions, repairs needed) and maintenance and repairs performed. For blockages observed provide: the location of blockage, date and time that the blockage was discovered, date and time blockage was corrected, and whether a discharge from the outfall to the receiving water was observed. If a discharge was observed, provide an estimate of discharge volume.

b. Pumping Stations – Number of inspections conducted, numbers of screens and pumps installed and numbers available for service; and preventative maintenance performed. For pumps found not to be available for service, permittee shall report the cause of unavailability, schedule for and status of repairs. For the Main and O Street pumping stations, report the results of visual wet weather surveys and record of overflow screenings.

c. Inflatable Dams and SCADA System – Number of inspections conducted, number of dams installed, and number of dams operational. Occurrence of an overflow and approximate duration of overflow based on dams inflation status.

d. Major Combined Sewers – Upon development of inspection program. Inspections planned, inspections conducted, results of inspections and description and schedule for maintenance and repairs planned and performed.

e. Wet Weather Overflows – Report the modeled results of the number, volume and average duration of overflows for each active CSO outfall due to wet weather events.

f. Dry Weather Overflows – Are prohibited, however, in the event that they do occur, report their location, cause, date and time discovered, action taken, date and time discharge confirmed, ceased and actions taken to prevent reoccurrence of the condition causing the overflow. Include an estimate of the overflow volume.

g. Catch Basin Cleaning- Number and location of catch basins required to be cleaned plus the number and location of catch basins actually cleaned.

h. Anacostia River Floatable Debris Removal Program – Number of boats available for service, number of cleaning trips, record of amount and nature of material removed.

i. BMP Demonstration for Solid and Floatable Control – Number of inspections conducted and conditions observed, and records of material removed at CSO outfalls 018, 040, and 041.

j. Other – Summarize actions and activities under programs for Pollution Prevention, Public Notification, and Pretreatment.

k. Wet Weather Flows to Blue Plains – Upon development of a reporting system, report operations for each wet weather event.

l. CSS Litter Control – Number of meetings or conferences with DPW and NPS. Summary of topics discussed and actions adopted.

3. Report on the following quarterly:

a. Dry Weather Overflows
b. CSS Control Structures
c. Pumping Stations
d. Wet Weather Flows to Blue Plains
e. Wet Weather Overflows
f. CSS Litter Control

4. Report on the following annually:

a. CSS Inventory
b. Major Combined Sewers
c. Catch Basin Cleaning
d. BMP Demonstration for Solid and Floatable Control
e. Anacostia River Floatable Debris Removal Program
f. Other

PART IV. SPECIAL CONDITIONS

SECTION A. PRETREATMENT

Pretreatment Conditions for Program Implementation

1. General Requirements - The permittee shall operate and implement an industrial pretreatment program in accordance with the federal Clean Water Act and the federal General Pretreatment Regulations at 40 C.F.R. Part 403. The program shall also be implemented in accordance with the permittee's pretreatment program and any modifications thereto submitted by the permittee and approved by the EPA.

2. Annual Report- In accordance with 40 C.F.R. § 403.12(i), the permittee shall submit an Annual Report by March 31 of each year to EPA that describes the permittee's pretreatment activities for the previous calendar year. The Annual Report shall include a description of pretreatment activities in all municipalities from which wastewater is received at the permittee's POTW. At a minimum, the Annual Report shall include the following:

a. Industrial Listing - The Annual Report shall contain an updated industrial listing showing the name and address of all current Significant Industrial Users (SIUs) and Nonsignificant Categorical Industrial Users (NSCIUs) as defined by 40 C.F.R. § 403.3 and the categorical standard, if any, applicable to each. The listing must: (1) identify any users that are subject to reduced reporting requirements under 40 C.F.R. § 403.12(e)(3); (2) identify which users are NSCIUs; (3) identify any users that have been granted a monitoring waiver in accordance with 40 C.F.R. § 403.12(e)(2) as well as the pollutants for which the waiver was granted and the date of the last POTW sampling event for each of those pollutants; and (4) identify any categorical industrial users that have been given mass-based limits in place of concentration-based categorical limits in accordance with 40 C.F.R. § 403.6(c)(5) or concentration-based limits in place of mass-based categorical limits in accordance with 40 C.F.R. § 403.6(c)(6). In addition, the report shall contain a summary of any trucked or hauled wastewater accepted into the POTW including the source of the wastewater (domestic, commercial, or industrial) and the discharge point(s) designated by the POTW for acceptance of such wastewater. For each industrial source, the report shall indicate the name and address of the industrial source, the average amount of wastewater received per discharge day, a brief description of the type of process operations conducted at the industrial facility, whether the source facility is a categorical industrial user (including NSCIUs), significant industrial user, or nonsignificant industrial user, and any controls imposed on the user;

b. Control Mechanism Issuance - The Annual Report shall contain a summary of SIU control mechanism issuance, including a list of issuance and expiration dates for each SIU. For each general control mechanism issued, provide the names of all SIUs covered by the general control mechanism and an explanation of how the users meet the criteria under 40 C.F.R. § 403.8(f)(1)(iii)(A) for issuance of a general control mechanism.

c. Sampling and Inspection - The Annual Report shall contain a summary of the number and type of inspections and samplings of SIUs by the permittee, including a list of all SIUs either not sampled or not inspected, and the reason that the sampling and/or inspection was not conducted. For any user subject to reduced reporting under 40 C.F.R. § 403.12(e)(3), the list shall include the date of the last POTW sampling and the date of the last POTW inspection of the user. In addition, the report shall include a summary of the number of self-monitoring events conducted by each SIU and the number required to be conducted, including a list of all SIUs that did not submit the required number of reports and the reason why the reports were not submitted. For NSCIUs, the report shall provide the date of the compliance certification required under 40 C.F.R. § 403.12(q);

d. Industrial User (IU) Compliance and POTW Enforcement - The Annual Report shall contain a summary of the number and type of violations of pretreatment standards and requirements, including local limits, and the actions taken by the permittee to obtain compliance, including compliance schedules, penalty assessments, and actions for injunctive relief. The report shall state whether each SIU was in significant

noncompliance, as that term is defined in 40 C.F.R. § 403.8(f)(2)(viii), including the parameter(s) in violation, the period of violation, the actions taken by the POTW in response to the violations, and the compliance status at the end of the reporting period. A copy of the publication of users meeting the significant noncompliance criteria shall be included. In addition, the report shall provide a list of users previously designated as NSCIUs that have violated (to any extent) any pretreatment standard or requirement during the year and the date and description of the violation(s);

e. Summary of POTW Operations - The Annual Report shall contain a summary of any interference, pass-through, or permit violations by the POTW and indicate the following: (1) which (if any) NPDES violations may be attributed to industrial users; (2) which IU(s) are responsible for such violations; and (3) actions taken to address these events. The report shall also include all sampling and analysis of POTW treatment plant influent, effluent, and sludge for local limits and priority pollutants identified pursuant to section 303(d)of the Clean Water Act, 33 U.S.C. § 1313(d), and conducted during the year;

f. Pretreatment Program Changes - The Annual Report shall contain a summary of any changes made or proposed to the approved program during the period covered by the report and the date of submission to EPA;

g. Signatory Requirements - The Annual Report shall be signed by a principal executive officer, ranking elected official or other duly authorized employee in accordance with 40 C.F.R. § 403.12(m). Any such authorization must be made in writing and identify an individual or position having responsibility for the overall operation of the POTW or pretreatment program.

3. Pretreatment Monitoring - The permittee shall conduct monitoring at its treatment plant that, at a minimum, includes quarterly influent, effluent, and sludge analysis for all pollutants for which local limits have been established, and an annual priority pollutant scan for influent and sludge.

4. Notification of Pass-Through or Interference - The permittee shall notify EPA, in writing, of any instance of pass-through or interference, as defined at 40 C.F.R. § 403.3(p) and (k), respectively, known or suspected to be related to an industrial discharge from an IU into the POTW. The notification shall be attached to the Discharge Monitoring Report submitted to EPA and shall describe the incident, including the date, time, length, cause (including the responsible user if known), and the steps taken by the permittee and the IU (if identified) to address the incident. A copy of the notification shall also be sent to the EPA Pretreatment Coordinator at the address provided below.

5. Headworks Analysis - The permittee shall submit to EPA a reevaluation of its local limits based on a headworks analysis of its treatment plant within 1 (one) year of permit issuance. In order to ensure that the permittee's discharge complies with water quality standards, the reevaluation of the local limits shall be conducted using, among other things, any water quality standards applicable to the pollutants included in the reevaluation unless the permit includes a limit for that pollutant. The list of pollutants to be evaluated, as well as a sampling plan for collection of necessary data, shall be submitted to EPA within 3 (three) months of permit issuance. Within 6 (six) months of acceptance of the headworks

analysis by the EPA, the permittee shall adopt the revised local limits and notify all contributing municipalities of the need to adopt the revised local limits.

6. Changes to Pretreatment Program - EPA or the permittee may initiate program modification at any time to reflect changing conditions at the POTW, which may include (but are not limited to) the following reasons:

   a. The program is not implemented in accordance with 40 C.F.R. Part 403;

   b. Problems such as interference, pass-through, or sludge contamination develop or continue;

   c. Federal, State, or local requirements change;

   d. Changes are needed to assure protection of waters of the United States. Program modification is necessary whenever there is a significant change in the operation of the Pretreatment Program that differs from the information in the permittee's submission, as approved under 40 C.F.R. § 403.11.

7. Procedure for Pretreatment Program Changes - Upon submittal by the permittee, and written notice of approval by EPA to the permittee of any changes to the permittee's approved pretreatment program, such changes are effective and binding upon the permittee unless the permittee objects within 30 days of receipt of the written notice of approval. Any such objection must be submitted in writing to EPA at the address shown below.

8. Correspondence- Pretreatment correspondence shall be submitted to EPA at the following address:

   Pretreatment Coordinator (3WP41)
   U.S. Environmental Protection Agency
   1650 Arch Street
   Philadelphia, PA 19103-2029

SECTION B. STANDARD SLUDGE CONDITIONS

1. The permittee shall comply with all existing federal and state laws and regulations that apply to sewage sludge use and disposal practices, including 40 C.F.R. 503 and 40 C.F.R. 258 which are hereby incorporated as part of the permit by reference, and the Clean Water Act (CWA) Part 405(d) technical standards.

   If an applicable management or practice or numerical limitation for pollutants in sewage sludge more stringent than existing federal and state regulations is promulgated under Part 405(d) of the CWA, this permit shall be modified to conform to the promulgated regulations.

2. The permittee shall give notice to the Director of any change(s) planned or in the permittee's sludge use or disposal practice.

3. A change in the permittee's sludge use or disposal practice is a cause for modification of the permit. It is a cause for revocation and reissuance of the permit if the permittee requests or agrees.

4. The permittee shall submit an annual sludge report containing the information required in 40 C.F.R. 503 by February 19 each year. The report shall cover the previous calendar year. The sludge report shall be submitted to EPA and DOEE to the following addresses:

   U.S. EPA, Region III
   Water Protection Division
   Office of NPDES Permitting and Enforcement
   (3WP42)
   1650 Arch Street
   Philadelphia, PA 19103-2029

   Department of Energy and Environment
   Inspection and Enforcement Division
   1200 First Street NE, 5th Floor
   Washington, DC 20002

SECTION C. CHLORINATION/DECHLORINATION

1. Outfall 001: The permittee shall report chlorine dosage (on a pound basis) per discharge event on Outfall 001. Dosage figures shall be submitted with the DMR for the month of the discharge event.

2. Outfalls 001 and 002: The concentration of Total Residual Chlorine (TRC) in the final effluent after dechlorination shall not exceed not-detectable. The permittee is required to achieve non-detectable for TRC as measured by 0.10 mg/1.

   When the TRC concentration in the final effluent results in a detectable measurement (above 0.10 m/1) the permittee shall take immediate steps to achieve a non-detectable concentration.

The permittee shall resample TRC within one hour after the original grab sample measurement. If this grab sample shows a non-detectable amount as measured by 0.10 mg/1 or less, then the original sample shall be considered in compliance. If this grab sample shows a detectable amount, above 0.10 mg/1, then the permittee shall retest in the second hour after the original non-compliance. If this grab sample in the second hour after the original non-compliance shows a not detectable amount as measured by 0.10 mg/1 or less, then the sample shall be considered in compliance. If this grab sample shows a detectable amount, above 0.10 mg/1, then the permittee shall retest in the third hour after the original non-compliance. If this grab sample in the third hour after the original non-compliance shows a not detectable amount as measured by 0.10 mg/1 or less, then the sample shall be considered in compliance, but if the grab sample is above 0.10 mg/1 then it will be considered a violation and recorded on the DMR. Each subsequent hourly sample above 0.10 mg/1 shall be enumerated on the DMR until the effluent returns to compliance.

Whenever there is an initial detectable TRC concentration, all subsequent sampling results shall be tabulated and reported with the DMRs and the time required to achieve the TRC of 0.10 mg/1. The analytical method used and the detection limit for each sample should be included on the data tabulation.

For purposes of reporting on the DMR form, a non-detectable result shall be reported as zero. For a violation(s) of the limit, the maximum chlorine residual for the month and the total number of excursions in that month should be recorded in the appropriate column on the DMR form. The permittee shall operate the dechlorination facilities in a manner which will ensure continuous compliance with the TRC non-detectable limit.

3. Outfalls 001, 002 and 019: All analytical testing for TRC shall be in accordance with 40 C.F.R. Part 136.

SECTION D. STORM WATER MANAGEMENT

1. Storm Water Pollution Prevention Plan

a. General

A Storm Water Pollution Prevention Plan (SWPPP) was developed for this facility and the sewer system facilities in accordance with the factors outlined in 40 C.F.R. §125.3 (d)(2) or (3), as appropriate. The plan identifies potential sources of pollution which may reasonably be expected to affect the quality of stormwater discharge associated with sludge handling operations or other portions of the waste water treatment plant as appropriate.

b. Plan Review

The plan shall be retained on site at the facility. The permittee shall make plans available upon request to the EPA. The EPA may notify the permittee at the time that the plan does not meet one or more of the requirements of this Part. Such notification shall identify those provisions of the permit that are not being met by the plan, and identify which provisions of the plan require modification in order to meet

the minimum requirements of this Part. Within 30 days of such notification, the permittee shall make the required changes to the plan and shall submit to EPA a written certification that the requested changes have been made.

c. Plan Modification

The permittee shall amend the plan whenever;

1. There is a change in design, construction, operation, or maintenance which has a significant effect on the potential for the discharge of pollutants to the waters of the United States; or

2. EPA notifies the permittee of its finding that the SWPPP is inadequate in eliminating or minimizing pollutants from identified sources, or that the SWPPP is inadequate to prevent the facility or sewer system facilities from causing, or having a reasonable potential to cause or contribute to a violation of the D.C. Water Quality Standards.

SECTION E. PCB MONITORING AND REDUCTION

1. The permittee shall monitor quarterly for PCBs at Outfalls 001 and 002 during the term of this permit using composite or grab samples as specified for these outfalls at Part I of this permit. The samples for Outfall 002 shall represent 2 dry weather and 2 wet weather samples quarterly-during the term of this permit. Samples from Outfall 001 shall represent 2 wet weather samples quarterly during the term of this permit. During the first year of the permit, the permittee shall also monitor plant influent during one of the corresponding wet weather and one of the corresponding dry weather sampling events.

For the purpose of obtaining samples, dry weather means no measurable rain at Ronald Reagan National Airport in the prior 72 hours and wet weather means a condition when the average daily plant influent flow is greater than 511 MGD.

Samples shall be analyzed using Method 1668B. After the permittee has collected four quarterly samples from Outfall 002 and 001, the permittee may request a waiver from EPA for the remaining samples. Documentation shall be submitted with the waiver request to demonstrate why other sampling is not necessary. If the results of the monitoring indicate actual or potential exceedance of the Waste Load Allocation, and upon notification by EPA, the permittee shall within 120 days submit to EPA for comment a work plan and schedule for preparation and implementation of a Pollution Minimization Plan (PMP) and other submittals or analyses of PCB data. Such submittals may include an assessment of PCBs in the initial source intake water to determine the net contributions of PCBs introduced to the treatment works and an analysis of the net reductions provided by treatment.

4. The PMP developed from the work plan shall include, but not necessarily be limited to:

a. The name and contact information for an individual who will serve as the permittee's contact for information concerning the PMP.

b. A narrative discussion together with necessary supporting data, charts, maps, diagrams and similar material of the permittee's CSO service area (CSO Area) including the location of all outfalls.

c. A time schedule with milestone dates.

d. Description of all known materials, equipment, processes, soil areas or facilities within the CSO area from which PCBs are known or suspected to be released, directly or indirectly into a CSO, including a description of the entry pathway if that is known. Pollutant concentrations, if known shall be reported.

e. Description of all known materials, processes, soil area or facilities within the CSO Area that are known to contain PCBs, but are not known to be releasing PCBs within the District's CSO Area.

f. During the term of this permit, the permittee shall collect and analyze at least twelve (12) in-stream samples for PCBs. Samples shall be taken simultaneously upstream and downstream of CSO outfalls and the PMP shall include planned locations for the monitoring.

g. The permittee shall develop a report of all known PCB sources within the CSO system that the permittee believes or has reason to believe may require some control measure to reduce its discharge of PCBs. The permittee shall work with the Interstate Commission on the Potomac River Basin (ICPRB), and other appropriate agencies, to develop a plan of action to control the discharge of PCBs from these sources.

h. The permittee shall develop and implement a program to identify whether industrial users have the potential to contribute to PCBs. Because PCBs may be contributed from many industrial processes, principally through oils which are contaminated by PCBs and may be rinsed and discharged into the sewer system, the permittee shall include PCBs as a sampling requirement for facilities with known or suspected sources of PCBs. In addition, the permittee shall conduct period reviews of its industrial database, including analytical scans of suspected sources to determine whether PCBs are being discharged in detectable concentrations.

i. The permittee shall demonstrate its compliance with the PMP by reporting the number of known sites, the number of sites referred for action and the results of the in-stream sampling activity and any other actions taken to further the goals of the PMP. The permittee shall report on PMP implementation annually by February 15 and the report shall cover the preceding calendar year.

SECTION F. WHOLE EFFLUENT TOXICITY (WET) TESTING

1. In accordance with 40 C.F.R.§ 122.21(j)(5), the permittee must conduct and provide the results of WET tests for chronic toxicity for Outfall 002 and acute toxicity for Outfall 001.

2. Testing Frequency

a. Pursuant to 40 C.F.R. §122.21(j)(5)(iv)(A), the permittee shall submit the results of four quarterly tests for Outfalls 001 and 002 for the 12-month period immediately preceding the next permit application as part of its application for permit reissuance. Tests shall be conducted on 24-hour composite effluent samples for Outfall 002 and grab samples for Outfall 001. The permittee shall conduct the toxicity tests, using a minimum of two species, using the fish fathead minnow (*Pimephales promelas)* and the invertebrate species (*Ceriodaphnia dubia).*

3. Monitoring

a. *Outfall 001.* Acute toxicity testing is required. Species and toxicity test methods for estimating the acute toxicity of NPDES effluents are found in the fifth edition of *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (EPN821/R-02/012, 2002; Table 1A, 40 C.P.R. Part 136). The permittee shall conduct definitive 96-hour static renewal toxicity tests using a vertebrate species, the fathead minnow (*Pimaphales promelas),* and definitive 48-hour static renewal toxicity tests using the invertebrate species, (*Ceriodaphnia dubia)* for Outfall 001. Each test will include a control and the permitted acute concentration IWC of 29% effluent in order to quantify any measurable acute toxicity. These renewal tests will need to have sufficient volume collected by grab during the storm event to use for the start of the test, the additional test renewals, and a preliminary TIE test on a confirmatory sample, if necessary.

b. *Outfall 002.* Chronic toxicity testing is required. Species and toxicity test methods for estimating the chronic toxicity of NPDES effluents are found in the fourth edition of *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (EPA/821/R-02/013, 2002; Table 1A, 40 C.F.R. Part
136)(Chronic Test Methods Manual). The permittee shall conduct static renewal toxicity tests with a vertebrate species, the fathead minnow (*Pimephales promelas),* and the invertebrate species (*Ceriodaphnia dubia)* for Outfall 002.

4. WET Requirements

a. *For Outfall 001,* the acute WET requirement for this discharge is a "Pass" for any one test result. For this permit, the determination of Pass or Fail from a single-effluent-concentration (paired) acute toxicity test is determined using EPA's (2010) Test of Significant Toxicity (TST) statistical method. The resulting in-stream waste concentration (IWC) for Outfall 001 is 29%. The objective of a Pass or Fail test is to determine if survival in the single treatment (29% effluent) is significantly different from survival in the control (0% effluent) and whether that difference would have a measured detrimental effect on the ability of aquatic organisms to thrive and survive as outlined in EPA's TST statistical method (EPA 2010). If a failure is determined using the EPA's TST method, then a confirmatory acute test must be performed on the next qualifying wet weather discharge. This permit requires a preliminary Phase I TIE to be conducted simultaneously on the confirmatory sample if the original acute WET test is reported as "Fail".

b. *For Outfall 002*, the stipulated chronic WET tests require the laboratory to prepare a series of effluent dilutions which are specific to the permittee's discharge. The permittee must inform the laboratory of the proper dilution series for computing IC25 values. The dilution series must include at least one dilution below the IWC of 41% effluent. Based upon the calculated IWC, the recommended laboratory dilution series for the chronic tests is 100, 65, 41, 28, and 18 percent effluent.

5. Reporting Results

All information reported must be based on data collected through analysis conducted using 40 C.F.R. Section 136 Table 1A methods. In addition, all data must comply with QA/QC requirements of 40 C.F.R. Part 136 and other appropriate QA/QC requirements for standard methods not addressed by 40 C.F.R. Part 136.

The permittee shall provide the results of all WET tests conducted as part of the application for permit reissuance.

6. Accelerated Toxicity Testing and Toxicity Reduction Evaluation (TRE) Toxicity Identification Evaluation (TIE) Process

a. *For Outfall 001.* The acute permit trigger is defined as the IWC. If an acute permit trigger is exceeded, then the permittee shall begin TIE testing using the excess of the original sample collected. This test shall begin immediately upon receipt of test results exceeding the acute WET trigger. If an acute trigger is exceeded, the permittee shall conduct two additional toxicity tests using the same species and test method as soon as additional Outfall 001 discharges occur. If the additional toxicity tests do not exceed the specified acute WET permit trigger, then the permittee may return to their regular testing frequency.

If a toxicant(s) is identified in the TIE process, the permittee shall develop a detailed TRE Workplan which shall include, at a minimum, the additional actions the permittee shall take to investigate, identify and correct the problem.

b. *For Outfall 002.* The chronic permit trigger is defined as the IWC for Outfall 002 (IWC = 41% effluent). If the chronic permit trigger is exceeded, then the permittee shall conduct two additional chronic toxicity tests using the same species and test method. The tests shall begin within 14 days of receipt of test results exceeding the chronic WET trigger. If one of the additional toxicity tests exceeds a chronic WET permit trigger, then, within 30 days of the receipt of this confirmation test result, the permittee shall initiate a TRE program using the *U.S.EPA Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants* (EPA/833/B-99/002) *(August 1999).* The TRE Workplan shall include, at a minimum, additional actions to be taken by the permittee to investigate, identify, and correct the causes of toxicity; actions the permittee will take to mitigate the impact of the discharge and prevent the recurrence of the toxicity; and a schedule to implement required remedial actions.

c. During the pendency of the TRE/TIE process, the permittee shall continue quarterly acute and/or chronic WET testing.

d. In the event that a toxicant is identified and a remedy can be quickly implemented (e.g., lowering concentrations of chlorine or ammonia), such remedy should be implemented as quickly as possible and prior to the development and submission of a TRE Workplan.

ATTACHMENT 6

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

MAR 27 2019

Austin Caperton, Secretary
West Virginia Department of Environmental Protection
601 57th Street, Southeast
Charleston, West Virginia 25304

Dear Mr. Caperton:

Consistent with 40 C.F.R. § 123.62, the State of West Virginia, through the West Virginia Department of Environmental Protection (WVDEP), submitted revisions to its authorized National Pollutant Discharge Elimination System (NPDES) program to the U.S. Environmental Protection Agency Region III's (EPA). These revisions consisted of amendments to the West Virginia Water Pollution Control Act codified in Senate Bill 357 (SB 357) and to West Virginia's Code of State Regulations codified as House Bill 2283 (HB 2283). For the reasons set forth in the accompanying Decision Rationale, EPA approves these revisions because West Virginia's NPDES program addressed by the revisions remains consistent with the applicable requirements in 40 C.F.R. part 123.

EPA's regulations at 40 C.F.R. § 123.62 establish procedures for revision of authorized state NPDES programs. Under § 123.62(a) a state may initiate a program revision and must keep EPA informed of proposed modifications to its regulatory authority. EPA's regulations require EPA to issue a public notice and to provide at least a 30-day public comment period whenever EPA determines that a state program revision is substantial. 40 C.F.R. § 123.62(b)(2). EPA determined that HB 2283 and SB357 constitute substantial revisions to West Virginia's NPDES program and published a request for comment in the Federal Register on September 17, 2018. In response, EPA has received comments from the public and has prepared a response to comment document, which also is enclosed.

EPA looks forward to working with WVDEP on continued implementation of West Virginia's authorized NPDES program. If you have any questions, please do not hesitate to contact Mr. Brian Trulear at 215-814-5723.

Sincerely,

Cosmo Servidio
Regional Administrator

Enclosures

DECISION RATIONALE – SB 357 AND HB 2283

Consistent with 40 C.F.R. § 123.62, the State of West Virginia submitted revisions to its authorized National Pollutant Discharge Elimination System (NPDES) program for the U.S. Environmental Protection Agency Region III's (EPA) review. These revisions consisted of amendments to the West Virginia Water Pollution Control Act codified in Senate Bill 357 (SB 357) and to West Virginia's Code of State Regulations codified as House Bill 2283 (HB 2283). For the reasons set forth herein, EPA finds that SB 357 and HB 2283 do not prevent the West Virginia Department of Environmental Protection (WVDEP) from issuing NPDES permits consistent with the requirements of the Clean Water Act (CWA) and its implementing regulations. Accordingly, EPA approves these revisions because West Virginia's NPDES program as revised remains consistent with the applicable requirements in 40 C.F.R. part 123 and the Clean Water Act. 40 CFR § 123.62(b)(3).

Background and proposed NPDES program revision

By letters dated May 13, 2015 and June 15, 2015, the West Virginia Department of Environmental Protection (WVDEP) notified EPA of enactment of HB 2283. On July 10, 2015, West Virginia submitted SB 357 for formal review by EPA.

These WV NPDES Program revisions are comprised of the following:

- SB 357 amends West Virginia Code § 22-11-6(2) as follows[1]:

~~Notwithstanding any rule or permit condition to the contrary, and except for any standard imposed under section 307 of the federal Water Pollution Control Act for a toxic pollutant injurious to human health,~~ For purposes of both this article and sections 309 and

[1]SB 357 also adds West Virginia Code §22-11-22a to establish a mining industry-specific procedure to collect civil or administrative penalties and to enjoin violations of the West Virginia Water Pollution Control Act. That aspect of SB 357 also is being approved with this action.

505 of the federal Water Pollution Control Act, compliance with a permit issued pursuant to this article shall be deemed compliance for purposes of both this article and sections 301, 302, 303, 306, 307 and 403 of the federal Water Pollution Control Act and with all applicable state and federal water quality standards, except for any such standard imposed under section 307 of the federal Water Pollution Control Act for a toxic pollutant injurious to human health. Notwithstanding any provision of this code or rule or permit condition to the contrary, water quality standards themselves shall not be considered "effluent standards or limitations" for the purposes of both this article and sections 309 and 505 of the federal Water Pollution Control Act and shall not be independently or directly enforced or implemented except through the development of terms and conditions of a permit issued pursuant to this article. Nothing in this section, however, prevents the secretary from modifying, reissuing, or revoking a permit during its term. The provisions of this section addressing compliance with a permit are intended to apply to all existing and future discharges and permits without the need for permit modifications. ~~However, should any such modification be necessary under the terms of this article, the secretary shall immediately commence the process to effect such modifications;~~

- SB 357 amends West Virginia Code § 22-11-8(a) as follows:

  The secretary may, after public notice and opportunity for public hearing, issue a permit for the discharge or disposition of any pollutant or combination of pollutants into waters of this state upon condition that the discharge or disposition meets or will meet all applicable state and federal water quality standards and effluent limitations and all other requirements of this article and article three, chapter twenty-two-b of this code. While permits shall contain conditions that are designed to meet all applicable state and federal water quality standards and effluent limitations, water quality standards themselves shall not be incorporated wholesale either expressly or by reference as effluent standards or limitations in a permit issued pursuant to this article.

- HB 2283 revises W. Va. Code R. § 47-30-5.1.f to delete the following language: "The discharge or discharges covered by a WV/NPDES permit are to be of such quality so as not to cause a violation of applicable water quality standards promulgated by 47 C.S.R. 2."

On April 13, 2016, EPA Region III's then-Director, Water Protection Division, sent a letter to WVDEP's then-Director, Division of Water and Waste Management and then-Acting Director, Division of Mining and Reclamation, posing several questions regarding the anticipated effect of SB 357 and HB 2283 on future NPDES permits issued or re-issued by WVDEP. WVDEP sent a response to that letter on August 5, 2016. WVDEP's letter stated that

"West Virginia NPDES permitting is not affected by these laws [SB 357 and HB 2283]."

WVDEP's letter further states:

- [A]ppropriate permit conditions and numeric effluent limitations will continue to be included in permits based upon the permitted activity's potential to impact water quality;
- [P]ermit conditions 40 C.F.R. § 122.41 required to be included in state NPDES permits will continue to be included in West Virginia's permits;
- [O]ur permits will never authorize violations of water quality standards;
- [T]his agency will retain authority to reopen or modify permits as necessary to assure compliance with water quality standards; and
- West Virginia will interpret its permit shield consistent with federal law on this subject.

EPA's regulations at 40 C.F.R. § 123.62 establish procedures for revision of authorized state NPDES programs. Under § 123.62(a) a state may initiate a program revision and must keep EPA informed of proposed modifications to its regulatory authority. EPA's regulations require EPA to issue a public notice and to provide at least a 30-day public comment period whenever EPA determines that a state program revision is substantial. 40 C.F.R. § 123.62(b)(2). Because of the significant public interest in this matter, EPA determined that HB 2283 and SB357 constitute substantial revisions to West Virginia's NPDES program and published a request for comment in the Federal Register on September 17, 2018. In response, EPA has received comments from the public and has prepared a response to comment document. EPA's response to comment document accompanies this Decision Rationale.

SB 357 and HB 2283 are not inconsistent with the Clean Water Act or its implementing regulations

The CWA requires that, in addition to technology-based effluent limitations, NPDES permits must include "any more stringent limitation, including those necessary to meet water quality standards, treatment standards, or schedules of compliance, established pursuant to any State law or regulations (under authority preserved by section 1370 of this title) or any other Federal law or regulation, or required to implement any applicable water quality standard

established pursuant to this chapter." CWA Section 301(b)(1)(C), 33 U.S.C. 1311(b)(1)(C). *See also* 40 C.F.R. § 122.44(d).[2] *See also* W. Va. Code R. § 47-10-6.1; W. Va. Code R. § 47-10-6.3.d ("Each permit shall include conditions meeting the following requirements when applicable: .... Any more stringent requirements necessary to achieve water quality standards ...."); W. Va. Code R. §§ 47-30-6.1 & 6.2.c.

Nothing in SB 357 or HB 2283 relieves WVDEP of the obligation to include in NPDES permits, consistent with federal and state regulations, water quality-based effluent limitations and/or other terms and conditions necessary to ensure compliance with water quality standards. SB 357 states in part that "permits shall contain conditions that are designed to meet all applicable state and federal water quality standards and effluent limitations." WVDEP has indicated that it does not interpret the legislation in such a way as to constrain its ability to protect water quality. As noted above, WVDEP has informed EPA that "appropriate permit conditions and numeric effluent limitations will continue to be included in permits based upon the permitted activity's potential to impact water quality" and that West Virginia's NPDES permits "will never authorize violations of water quality standards."

Following SB 357 and HB 2283, it is not mandatory that West Virginia NPDES permits for coal mining discharges include a narrative condition generally requiring attainment of water quality standards.[3] Because nothing in the CWA or its implementing regulations requires inclusion of such a narrative condition, SB 357 and HB 2283 do not prevent WVDEP from

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[2] In the case of discharges from municipal separate storm sewer systems (MS4's), CWA Section 402(p)(3)(B)(iii) requires inclusion of "such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." 33 U.S.C. § 1342(p)(3)(B)(iii). EPA's implementing regulations direct that permits for discharges from MS4s must include terms and conditions to protect water quality as appropriate. 40 C.F.R. §§ 122.34(a), 122.34(a)(2) & 122.34(c).

[3] EPA does not find it necessary for purposes of this action to determine whether, as a matter of state law, SB 357 and HB 2283 allow WVDEP to continue to include such a provision because such authority is not a requirement in part 123 or the Clean Water Act.

issuing NPDES permits consistent with the requirements of the Clean Water Act (CWA) and its implementing regulations. Although EPA and WVDEP have included narrative conditions in NPDES permits authorizing discharges from both mining and non-mining facilities, inclusion of a such narrative conditions generally requiring attainment of water quality standards is only one way that a permit-issuing authority can ensure that an NPDES permit is consistent with CWA Section 301(b)(1)(C) and EPA's regulations. Such a narrative condition is not the exclusive or required method for ensuring that NPDES permits include effluent limitations and other terms and conditions necessary to meet water quality standards. Indeed, neither EPA's implementing regulations (40 C.F.R. § 122.44) nor West Virginia's NPDES regulations for non-mining discharges (W. Va. Code R. § 47-10) require inclusion of such a narrative condition.

There are procedures available to WVDEP to ensure that NPDES permits include effluent limitations and other terms and conditions necessary to meet water quality standards. EPA's regulations at 40 C.F.R. § 122.21 provide specific requirements for the submission of information by owners or operators seeking an individual NPDES permit. *See also* W. Va. Code R. § 47-10-4.4; W. Va. Code. R. § 47-30-4.5. Under EPA's regulations at 40 C.F.R. § 122.44(d)(1)(i), NPDES permits must contain effluent limitations for all pollutants that the permitting authority determines "are or may be discharged at a level [that] will cause, have the reasonable potential to cause, or contribute to an excursion above any [applicable] water quality standard, including State narrative criteria for water quality." *See also* W. Va. Code R. §§ 47-10-6.1 & 6.3.d; W. Va. Code R. §§ 47-30-6.1 & 6.2.c.

Where a discharge is found to have reasonable potential to cause or contribute to an excursion above a numeric criterion within a State's water quality standards, EPA's regulations generally require that NPDES permits include water quality-based effluent limits based on the

approved numeric water quality criteria. 40 C.F.R. § 122.44(d)(1)(iii). Developing appropriate effluent limitations and/or other terms and conditions when a discharge has a reasonable potential to cause or contribute to an in-stream excursion from an applicable narrative water quality criterion often presents a more difficult technical challenge. Nevertheless, "[n]arrative water quality criteria have the same force of law as other water quality criteria, and NPDES permits must contain effluent limits necessary to attain and maintain all applicable water quality criteria, including narrative criteria." 54 Fed. Reg. 23868, 23875 (June 2, 1989); *see also* 40 C.F.R. §§ 122.44(d)(1)(v) & (vi). There are numerous tools that the permitting authority may use to determine whether a discharge will cause or has a reasonable potential to cause or contribute to an in-stream excursion from an applicable narrative water quality criterion, consistent with 40 C.F.R. § 122.44(d)(1)(ii) and EPA's Technical Support Document (TSD) for Water Quality-based Toxics Control. Water quality-based effluent limitations generally are expressed as chemical-specific numeric limitations on the quantity or concentration of the pollutant or pollutant parameter that may be discharged. They also may be expressed in narrative form, such as a narrative permit condition, or as best management practices or pollutant minimization measures when appropriate. 40 C.F.R. § 122.44(k).[4]

While SB 357 states "water quality standards themselves shall not be incorporated wholesale either expressly or by reference as effluent standards or limitations in a permit issued pursuant to this article," WVDEP's August 5, 2016 letter indicates that it does not interpret this

[4] Implementation of SB 357 and HB 2283 may present a challenge in the context of permit reissuance where the previously issued permit contained or incorporated by reference a general narrative condition requiring that the discharge comply with all water quality standards. In order to ensure that the re-issued permit does not run afoul of the Clean Water Act's anti-backsliding provisions (33 U.S.C. § 1342(o)), WVDEP should include in its record documentation that it has performed a rigorous reasonable potential analysis for numeric and narrative water quality criteria and that the terms and conditions of the permit, including any WQBELs (numeric or narrative), will be protective of designated uses and numeric and narrative water quality criteria, and are thus not "less stringent" than the general narrative condition in the previous permit.

language as preventing WVDEP from including in an NPDES permit effluent limitations that are set at a pollutant concentration equal to the concentration in the corresponding numeric water quality standard or availing itself of other means of expressing an effluent limitation, including a narrative condition, best management practices, or pollutant minimization procedures where appropriate.

EPA is aware that SB 357 and HB 2283 have sometimes been referred to as "permit as a shield" provisions. The CWA's permit as a shield provision is set forth at CWA Section 402(k) and states in relevant part: "Compliance with a permit issued pursuant to this section shall be deemed compliance, for purposes of sections 1319 and 1365 of this title, with sections 1311, 1312, 1316, 1317, and 1343 of this title, except any standard imposed under section 1317 of this title for a toxic pollutant injurious to human health." 33 U.S.C. § 1342(k). W. Va. Code § 22-11-6(2) incorporated the relevant language of CWA Section 402(k) prior to enactment of SB 357. SB 357 appears to amend this language somewhat by adding a reference to CWA Section 303 (33 U.S.C. § 1313), presumably to clarify that compliance with a WVDEP-issued NPDES permit is considered compliance with water quality standards.[5] Under the federal CWA, water quality standards promulgated pursuant to CWA Section 303(c) are not self-implementing. They are implemented as WQBELs in NPDES permits, among other actions. Since water quality standards are not self-implementing under federal law, EPA does not view this aspect of SB 357 as inconsistent with CWA Section 402(k).[6]

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[5] To the extent that W. Va. Code § 22-11-6(2) as amended by SB 357 refers to compliance with sections 309 and 505 of the Federal Water Pollution Control Act, EPA recognizes that is likely the result of incorporating directly the language of CWA Section 402(k), and EPA does not interpret W. Va. Code § 22-11-6(2) as asserting an interpretation of federal law. EPA does not construe W. Va. Code § 22-11-6(2) as seeking to exercise authority over EPA's or other states' implementation of the CWA.

[6] EPA notes that both W. Va. Code § 22-11-6(2) as amended by SB 357 and CWA Section 402(k) refer to compliance "with a *permit*." (emphasis added). The terms "permit" and "effluent limitation" are not coextensive. Accordingly, to avail itself of the shield, the permittee must comply with all terms and conditions of the permit. The

Finally, SB 357 does not appear to modify, amend, or affect the enforceability of any permit provision or condition in an NPDES permit issued prior to today's action.[7] EPA's regulations and West Virginia's approved NPDES program provide a specific process for modification of permit terms and conditions. 40 C.F.R. §§ 122.62; W. Va. Code R. § 47-10-9; W. Va. Code. R. § 47-30-8. Those provisions are unchanged. Although SB 357 includes a statement providing that "[n]otwithstanding any ...permit condition to the contrary," that language does not provide an explicit exception from the state's existing modification requirements for permits issued prior to the statute. Therefore, this provision is not inconsistent with applicable requirements and as a result, this aspect of SB 357 does not constitute an amendment or modification to any previously issued permit for purposes of federal law.

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term "permit" is not limited to effluent limitations included in the permit, and includes all permit terms and conditions. *See* 40 C.F.R. §122.2; 122.44; *See also* 47 C.S.R. 10 §§ 2.17 & 2.36 and 47 C.S.R. 30 § 2.19.

[7] *See* footnote 4, *supra.*

RESPONSE TO PUBLIC COMMENT

The U.S. Environmental Protection Agency's (EPA) regulations at 40 C.F.R. § 123.62 establish procedures for revision of authorized state National Pollutant Discharge Elimination System (NPDES) programs. Pursuant to 40 C.F.R. § 123.62(b)(2), and due to the significant public interest in this matter, EPA determined that West Virginia House Bill 2283 (HB 2283) and West Virginia Senate Bill 357 (SB 357) constitute substantial revisions to West Virginia's NPDES program, and accordingly published a request for comment in the Federal Register on September 17, 2018. The public comment period ran from September 17, 2018 to October 17, 2018. In response, EPA received comments from the following:

F. Paul Calamita, on behalf of West Virginia Municipal Water Quality Municipal Association
Joseph A. Peterman, on behalf of Village of Barboursville
Daniel P. Villani, on behalf of Wheeling Water Pollution Control
David C. Sago, on behalf of City of Fairmont
Lori Siburt, on behalf of City of Wheeling Water Department
Jeremiah Johnson, on behalf of Beckley Sanitary Board
Tim G. Haapala, on behalf of The Sanitary Board of the City of Charleston
A. Brock Castilow, on behalf of The City of Wheeling
Eric Bennett, on behalf of Parkersburg Utility Board
Randall C. Rapp, Mayor, City of Vienna
Randall D. Bailey, Jr., on behalf of Princeton Sanitary Board
Jason D. Bostic on behalf of the West Virginia Coal Association

Comments received from Messrs. Calamita, Peterman, Villani, Sago, Johnson, Happala, Castilow, Rapp, Bailey and Bennett and Ms. Siburt

The comments submitted by Messrs. Calamita, Peterman, Villani, Sago, Johnson, Happala, Castilow, Rapp, Bailey, and Bennett and Ms. Siburt were substantially similar, and responses to these comments are provided below. At the outset, the commenters appear to interpret SB 357 and HB 2283 as removing the West Virginia Department of Environmental Protection's (WVDEP) discretion under appropriate circumstances to include in an NPDES permit narrative permit conditions requiring that a discharge comply with water quality

standards. Because nothing in the Clean Water Act (CWA) or its implementing regulations require inclusion of such a narrative condition, EPA does not find it necessary for purposes of this action to determine for WVDEP as a matter of state law whether the commenters' interpretation is accurate. EPA responds to the specific comments as posed.

1. **The commenters support EPA's approval of SB357.**

Response: EPA is approving this change to the West Virginia program; no further response to this comment is necessary..

2. **Inclusion in NPDES permits of a narrative condition generally requiring compliance with water quality standards denies permittees the critical constitutional safeguards of fair notice and due process.**

Response: EPA disagrees that inclusion of a narrative provision generally requiring compliance with water quality standards necessarily violates concepts of fair notice and due process. Indeed, Courts have routinely enforced narrative water quality-based limits in State-issued NPDES permits. *See, e,g, Ohio Valley Envt'l Coal. v. Fola Coal Co., LLC,* 845 F.3d 133, 136 (4th Cir, 2017) (finding that narrative condition requiring discharges "to be of such quality so as not to cause violation of applicable water quality standards" was an enforceable permit term); *Natural Res. Def. Council v. Cty. of Los Angeles,* 725 F.3d 1194, 1205-06 (9th Cir. 2013), *cert. denied,* 572 U.S. 1100 (2014) (enforcing California permit requirement prohibiting "discharges… that cause or contribute to the violation of the Water Quality Standards or water quality objectives"); *Northwest Envir. Advocates v. City of Portland,* 56 F.3d 979, 985-87 (9th Cir. 1995), *cert. denied,* 518 U.S. 1018 (1996) (enforcing Oregon permit condition that "no wastes shall be discharged and no activities shall be conducted which will violate water quality standards.")

Nevertheless, while EPA disagrees with the commenter's assertion that inclusion of a narrative permit condition requiring compliance with water quality standards would necessarily run afoul of Constitutional precepts of fair notice and due process, EPA agrees that this NPDES program revision can be approved. As set forth in EPA's Decision Rationale, inclusion of such provisions is not required by the CWA, so long as the permit includes effluent limitations or other terms and conditions that are adequately protective of water quality standards.

3. **Inclusion in NPDES permits of a narrative condition generally requiring compliance with water quality standards denies local governments the right to know how much of a pollutant they can discharge and if they can't meet it, the right to a compliance schedule – which is expressly allowed under State law.**

Response: The CWA and its implementing regulations require that all NPDES permits contain effluent limitations or other conditions that will protect water quality. CWA Section 301(b)(1)(C), 33 U.S.C. 1311(b)(1)(C). *See also* 40 C.F.R. § 122.44(d).[1] *See also* W. Va. Code R. §§ 47-10-6.1 & 6.3.d; W. Va. Code R. §§ 47-30-6.1 & 6.2.c; *see also* 40 C.F.R. § 122.44(d)(1)(i). EPA and states have frequently implemented these requirements by including narrative permit conditions requiring compliance with water quality standards. EPA disagrees that such narrative permit conditions necessarily deny local governments of the "right to know how much of a pollutant they can discharge," and notes that courts have routinely found such narrative permit conditions to be enforceable, as discussed in Response 2 above.

While both the CWA and West Virginia regulations authorize inclusion of a compliance schedule in an NPDES permit under certain circumstances (40 C.F.R. § 122.47; W. Va. Code R. § 47-10-8; W. Va. Code R. § 47-30-6.2.o), EPA disagrees with the commenters' assertion that

[1] In the case of discharges from municipal separate storm sewer systems (MS4's), CWA Section 402(p)(3)(B)(iii) allows inclusion of "such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." 33 U.S.C. § 1342(p)(3)(B)(iii). EPA's implementing regulations direct that permits for discharges from MS4s should include terms and conditions to protect water quality as appropriate. 40 C.F.R. §§ 122.34(a), 122.34(a)(2) & 122.34(c).

the availability of a compliance schedule under certain circumstances creates a "right" to inclusion of such a schedule in any particular permit. Nevertheless, EPA agrees that a permit applicant may seek inclusion of a compliance schedule if it meets the conditions set forth in State and federal regulations.

4. **Inclusion in NPDES permits of a narrative condition generally requiring compliance with water quality standards is not a federal requirement. We know this because most states do not impose such conditions.**

Response: The CWA and its implementing regulations require that all NPDES permits contain effluent limitations or other conditions that will protect water quality. 33 U.S.C. § 1311(b)(1)(C); *see also* 40 C.F.R. § 122.44(d)(1)(i). [2] EPA agrees with the commenters' assertion that inclusion in NPDES permits of a narrative condition generally requiring attainment of water quality standards is not required to comply with the CWA, and the permitting authority may establish effluent limitations for individual parameters based upon reasonable potential to cause or contribute or an exceedance of water quality standards, or include other terms and conditions necessary to meet water quality standards. That being said, nothing in federal law prohibits inclusion of a narrative condition generally requiring attainment of water quality standards, and such conditions frequently are included in NPDES permits by EPA and the states.

5. **Because inclusion in NPDES permits of a narrative condition generally requiring compliance with water quality standards is not required by federal law, under principles of cooperative federalism EPA should defer to West Virginia's decision as to how to implement its delegated NPDES permit program.**

Response: EPA's role with respect to authorized State programs is one of oversight. An authorized State program must continue to meet the CWA and EPA's regulations. *See, e.g.,* 33 U.S.C. § 1342(c)(2); 40 C.F.R. §§ 123.1(f) & (i). WVDEP's August 5, 2016 letter indicates that it does not interpret SB 357 or HB 2283 as precluding WVDEP from including in NPDES

[2] *See* footnote 1, *supra.*

permits water quality-based effluent limitations or other terms and conditions necessary to meet water quality standards. Therefore, these changes to the State program are not inconsistent with the requirements of the CWA or EPA's regulations.

Comments received from Jason D. Bostic on behalf of the West Virginia Coal Association

6. **The equivalent of the language being deleted by HB 2283 does not appear in either West Virginia's NPDES regulations for dischargers other than coal mines or the federal regulations implementing the NPDES program.**

Response: EPA agrees that language identical or substantially similar to that being deleted by HB 2283 is not part of the CWA's implementing regulations (40 C.F.R. § 122.44) or West Virginia's NPDES regulations for non-mining discharges (W. Va. Code R. § 47-10). As set forth above and in EPA's Decision Rationale, EPA further agrees that the CWA does not require inclusion of a narrative condition generally requiring attainment of water quality standards, and the permitting authority may establish effluent limitations for individual parameters based upon reasonable potential to cause or contribute or an exceedance of water quality standards, or include other terms and conditions necessary to meet water quality standards. EPA is approving the revisions because West Virginia's NPDES program addressed by the revisions remains consistent with the applicable requirements in 40 C.F.R. part 123 and the Clean Water Act. That being said, nothing in federal law prohibits inclusion in NPDES permits of a narrative condition generally requiring attainment of water quality standards, and such conditions frequently are included by EPA and states.

7. **The language being deleted by HB 2283 was improperly enacted by the West Virginia legislature and approved by EPA in 1984 because it created obligations for mining discharges that were not required of non-mining discharges.**

Response: To the extent the commenter asserts that EPA's 1984 approval was unlawful, EPA disagrees. As set forth above and in EPA's Decision Rationale, EPA agrees that the CWA does not require inclusion in NPDES permits of a narrative condition generally requiring

attainment of water quality standards, and the permitting authority may establish effluent limitations for individual parameters based upon reasonable potential to cause or contribute or an exceedance of water quality standards, or include other terms and conditions necessary to meet water quality standards. That being said, nothing in federal law prohibits inclusion of a narrative condition generally requiring attainment of water quality standards, and such conditions frequently are included by EPA and states.

8. Commenter supports EPA's approval of SB357 NPDES Regulation revision

Response: EPA is approving this change to the West Virginia program; no further response to this comment is necessary.

Comments received outside the public notice and comment process

Prior to initiation of the public comment period, EPA received a number of communications from the public regarding these NPDES program revisions. Those communications were not re-submitted during the public comment period; however, EPA is providing responses here for completeness.

Letter dated February 27, 2015 from Jim Hecker (on behalf of Public Justice), Peter Morgan (on behalf of Sierra Club), Joe Lovett (on behalf of Appalachian Mountain Advocates), Jennifer Chavez (on behalf of Earthjustice), and Jon Devine (on behalf of Natural Resources Defense Council)

9. The proposed SB357 would relieve coal mining operators of any obligation to address ionic pollution.

Response: SB 357 or HB 2283 do not conflict with those provisions in the CWA and its implementing regulations requiring that all NPDES permits contain effluent limitations or other conditions that will protect water quality. 33 U.S.C. § 1311(b)(1)(C); *see also* 40 C.F.R.

§ 122.44(d)(1)(i).[3] In response to EPA's inquiry regarding SB 357 and HB 2283, WVDEP asserted that WVDEP would include in NPDES permits WQBELs consistent with 40 C.F.R. § 122.44(d) and that NPDES permits issued by WVDEP would not authorize discharges that violate water quality standards. Nothing in SB 357 or HB 2283 prevents WVDEP from carrying out its responsibilities under the CWA. While West Virginia does not have a numeric water quality criterion for ionic pollution, West Virginia has adopted narrative water quality criteria. As set forth in the Decision Rationale, "Narrative water quality criteria have the same force of law as other water quality criteria, and NPDES permits must contain effluent limits necessary to attain and maintain all applicable water quality criteria, including narrative criteria." 54 Fed. Reg. 23868, 23875 (June 2, 1989); *see also* 40 C.F.R. §§ 122.44(d)(1)(v) & (vi). WVDEP's interpretation and implementation of its narrative water quality criteria as that criteria applies to ionic toxicity is beyond the scope of this action.

10. WV DEP ignores the EPA Benchmark ionic end point and instead relies on their interpretation of the Narrative Water Quality criteria guidance which recommend ineffective BMPs.

Response: This approval concerns the consistency of the new West Virginia legislation with the CWA and EPA's regulations. WVDEP's interpretation and implementation of its narrative water quality criteria as that criteria applies to ionic toxicity is beyond the scope of this action.

11. Discharge below the valley fills will lead to violations of West Virginia narrative water quality standards.

Response: This approval concerns the consistency of the new West Virginia legislation with the CWA and EPA's regulations. Water quality impacts associated with specific types of discharges are not within the scope of this action.

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[3] *See* footnote 1, *supra.*

12. Federal Court twice held in citizen litigation that coal mines have violated the narrative permit conditions in their NPDES permits by discharging high levels of ionic chemicals., OVEC vs Elk Run Coal Co. 2014; OVEC vs Fola Coal Co, 2015.

Response: The cases cited in the letter interpret two NPDES permits. As noted in the Decision Rationale, there are established processes for modification of NPDES permits, and this action does not modify or amend for purposes of federal law conditions included in permits issued prior to this action. EPA acknowledges that the language deleted by HB 2283 would not be automatically incorporated by reference in permits issued in the future. While inclusion of that language is one way that states can assure an NPDES permit satisfies requirements in the CWA and its implementing regulations that NPDES permits be protective of water quality, it is not the exclusive or required manner of compliance. Nothing in SB 357 or HB 2283 prevents WVDEP from conducting a rigorous reasonable potential analysis and including numeric water quality-based effluent limitations and other permit terms and conditions necessary to protect all designated uses and numeric and narrative water quality criteria.

13. WV DEP cannot backslide from existing requirements.

Response: Section 402(o) of the Clean Water Act, 33 U.S.C. § 1342(o), generally prohibits, with certain exceptions, the renewal or reissuance of an NPDES permit containing less stringent water quality-based effluent limitations than the comparable effluent limitations in the previous permit. 40 CFR 122.44(l)(1) (providing that effluent limitations, standards, or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit, unless certain exceptions apply). *See* 40 C.F.R. 123.44(c)(1), (4), (7) & (8). EPA does not view SB 357 or HB 2283 as authorizing backsliding. As set forth in the Decision Rationale and in response to Comment 12, *supra,* the legislation does not modify any previously-issued permit. Implementation of SB 357 and HB 2283 may present a challenge in the context of

permit reissuance where the previously issued permit contained or incorporated by reference a general narrative condition requiring that the discharge comply with all water quality standards. In order to ensure that the re-issued permit does not run afoul of the Clean Water Act's anti-backsliding provisions (33 U.S.C. § 1342(o)), WVDEP should include in its record documentation that it has performed a rigorous reasonable potential analysis for numeric and narrative water quality criteria and that the terms and conditions of the permit, including any WQBELs (numeric or narrative), will be protective of designated uses and numeric and narrative water quality criteria, and are thus not "less stringent" than the general narrative condition in the previous permit.

Letter dated December 22, 2015 from Derek Teaney (on behalf of Appalachian Mountain Advocates), Jim Hecker (on behalf of Public Justice), Peter Morgan (on behalf of Sierra Club), Jennifer Chavez (on behalf of Earthjustice), Cindy Rank (on behalf of West Virginia Highlands Conservancy), Angie Rosser (on behalf of West Virginia River Coalition), and Jon Devine (on behalf of Natural Resources Defense Council)

14. Commenter requests that EPA treat the SB357 revisions as substantial revisions to the State program under 40 CFR 123.62(b)(1) and disapprove the proposed revisions.

Response: Pursuant to 40 C.F.R. § 123.62(b)(2), EPA determined that West Virginia House Bill 2283 (HB 2283) and West Virginia Senate Bill 357 (SB357) constitute substantial revisions to West Virginia's NPDES program, and accordingly published a request for comment in the Federal Register on September 17, 2018. The public comment period ran from September 17, 2018 to October 17, 2018. For the reasons described in the Decision Rationale and elsewhere in these responses to comments, EPA finds that SB 357 and HB 2283 are consistent with the requirements of the Clean Water Act (CWA) and EPA's regulations, and therefore disagrees with the commenter's assertion that they should be disapproved.

15. The proposed regulation revisions will not require compliance with the narrative water quality criteria, that would be inconsistent with 40 CFR 122.44(d)(1).

Response: EPA disagrees. Nothing in SB 357 or HB 2283 prevents WVDEP from carrying out its responsibilities under the CWA, nor do these provisions conflict with the Clean Water Act and its implementing regulations requiring that all NPDES permits contain effluent limitations or other conditions necessary to meet water quality standards. 33 U.S.C. § 1311(b)(1)(C); *see also* 40 C.F.R. § 122.44(d)(1)(i).[4] WVDEP's August 5, 2016 letter indicated that it does not interpret SB 357 or HB 2283 as precluding WVDEP from including in NPDES permits WQBELs consistent with 40 C.F.R. § 122.44(d). WVDEP further stated it would not issue NPDES permits that would authorize discharges that violate water quality standards. As set forth in the Decision Rationale, "Narrative water quality criteria have the same force of law as other water quality criteria, and NPDES permits must contain effluent limits necessary to attain and maintain all applicable water quality criteria, including narrative criteria." 54 Fed. Reg. 23868, 23875 (June 2, 1989). *See also* 40 C.F.R. §§ 122.44(d)(1)(v) & (vi).

16. The proposed revisions will allow discharges with high levels of ionic pollution and will allow noncompliance with the narrative standard.

Response: See responses to comments Nos. 9 and 10.

17. A large -scale surface mine with valley fills will lead to biological impairment and narrative water quality standards violations.

Response: See response to comment No. 11.

18. WV cannot backslide existing requirements.

Response: See response to comment No. 13.

[4] *See* footnote 1, *supra.*

Letter dated March 23, 2016 from M. Shane Harvey on behalf of the West Virginia Coal Association

19. The provision to comply with all the WV water quality standards, both numeric and narrative are not in the non-mining permits, and federal regulations do not contain similar provision.

Response: See response to comment No. 6.

20. EPA failed to reply to WVDEP's requests to take action on the SB357 NPDES permits provisions: March 13, 2015, June 15, 2015, March 9, 2016.

Response: On April 13, 2016, EPA Region III's Director, Water Protection Division, sent a letter to WVDEP's then-Director, Division of Water and Waste Management and then-Acting Director, Division of Mining and Reclamation, inquiring as to the anticipated effect of SB 357 and HB 2283 on future NPDES permits issued or re-issued by WVDEP. WVDEP responded on August 5, 2016. EPA is taking action on SB 357.

21. WV Coal Association request approval of the SB357 NPDES regulations revisions.

Response: EPA is approving this change to the West Virginia program; no further response to this comment is necessary..