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),

Massachusetts Water Resources Authority (MWRA)

is authorized to discharge from a facility located at

John J. Carroll Water Treatment Plant
84 D'Angelo Drive
Marlborough, MA 01752

to receiving water named

Sudbury Reservoir (MA82106)
Concord River Watershed

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

This permit shall become effective on the first day of the calendar month immediately following 60 days after signature.[1]

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 January 15, 2013.

This permit consists of this **cover page**, **Part I**, and **Part II** (NPDES Part II Standard Conditions).

Signed this day of

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

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

[1] Pursuant to 40 Code of Federal Regulations (C.F.R.) § 124.15(b)(3), if no comments requesting a change to the Draft Permit are received, the permit will become effective upon the date of signature. Procedures for appealing EPA's Final Permit decision may be found at 40 C.F.R. § 124.19.

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 dewatering wastewater[1] through Outfall Serial Number 001 to Sudbury Reservoir, via the Wachusett Aqueduct Open Canal. The discharge shall be limited and monitored as specified below; the receiving water shall be monitored as specified below.

Effluent Characteristic	Effluent Limitation		Monitoring Requirements[2,3,4]	
	Average Monthly	Maximum Daily	Measurement Frequency[5]	Sample Type[6]
Effluent Flow[7]	Report MGD	25 MGD	1/day	Meter or Estimate
Total Suspended Solids (TSS)	30 mg/L	50 mg/L	1/event	Grab
pH[8]	6.5 - 8.3 S.U.		1/event	Grab
Temperature[9]	Report °F	Report °F	1/event	Grab
Total Residual Chlorine (TRC)[10]	110 µg/L	190 µg/L	1/event	Grab
Total Ammonia[11]	---	Report mg/L	1/event	Grab
Total Copper[12]	---	Report µg/L	1/year	Grab
Total Lead[13]	---	Report µg/L	1/year	Grab
Hardness[14]	---	Report mg/L	1/year	Grab

Ambient Characteristic	Reporting Requirement		Monitoring Requirements[15]	
	Average Monthly	Maximum Daily	Measurement Frequency[5]	Sample Type[6]
Temperature[9]	---	Report °F	1/event	Grab
Total Ammonia[11]	---	Report mg/L	1/event	Grab
Total Copper[12]	---	Report µg/L	1/year	Grab
Total Lead[13]	---	Report µg/L	1/year	Grab
Hardness[14]	---	Report mg/L	1/year	Grab

2. During the period beginning on the effective date and lasting through the expiration date, the Permittee is authorized to discharge remediation wastewater[1] through Outfall Serial Number 001 to Sudbury Reservoir, via the Wachusett Aqueduct Open Canal. The discharge shall be limited and monitored as specified below; the receiving water shall be monitored as specified below.

Effluent Characteristic	**Effluent Limitation**		**Monitoring Requirements[2,3,4]**	
	Average Monthly	**Maximum Daily**	**Measurement Frequency[5]**	**Sample Type[6]**
Effluent Flow[7]	Report MGD	25 MGD	1/day	Meter or Estimate
Total Suspended Solids (TSS)	30 mg/L	50 mg/L	1/event	Grab
pH[8]	6.5 - 8.3 S.U.		1/event	Grab
Temperature[9]	Report ºF	Report ºF	1/event	Grab
Total Residual Chlorine (TRC)[10]	110 µg/L	190 µg/L	1/event	Grab
Total Ammonia[11]	---	Report mg/L	1/event	Grab

Ambient Characteristic	**Reporting Requirement**		**Monitoring Requirements[15]**	
	Average Monthly	**Maximum Daily**	**Measurement Frequency[5]**	**Sample Type[6]**
Temperature[9]	---	Report ºF	1/event	Grab
Total Ammonia[11]	---	Report mg/L	1/event	Grab

Footnotes:

1. Discharges of dewatering and remediation wastewater from the Facility are limited to those necessary for operation, maintenance, repair, testing, construction, and emergency conditions at the Facility, which assure efficient operation and/or prevents loss of life, personal injury, or severe property damage. Dewatering wastewater is defined as drinking water held in the Facility's storage tanks or operational appurtenances (e.g., drawdown). Remediation wastewater is defined as water used for the purposes of maintenance, repair, testing, construction or emergency activities to which chemical(s), additive(s), and/or additional pollutants related to these activities have been added (e.g., disinfection).

2. Effluent samples shall yield data representative of the discharge. A routine sampling program shall be developed in which samples are taken at the manhole adjacent to Outfall 001. Changes in sampling location must be approved in writing by the Environmental Protection Agency Region 1 (EPA) and the Massachusetts Department of Environmental Protection (the State).. The Permittee shall report the results to EPA and the State of any additional testing above that required herein, if testing is done in accordance with 40 C.F.R. § 136.

3. 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.

4. When a parameter is not detected above the minimum level, if the minimum level for that parameter meets the sufficiently sensitive test method requirements in this permit, the Permittee shall report zero. If the minimum level for that parameter does not meet the sufficiently sensitive test method requirements, the Permittee shall report the minimum level (e.g., the sufficiently sensitive minimum level is 5 µg/L for a parameter; if the sample result is <10 µg/L, report 10 µg/L; if the sample result is <4 µg/L, report zero).

5. A discharge event is defined as any measurable discharge that follows any operation, maintenance, repair, testing, construction, or emergency condition. Measurement frequency of 1/day is defined as the recording of one measurement per each 24-hour period of a discharge event. Measurement frequency of 1/year is defined as the sampling of one discharge event during one calendar year. If no sample is collected during the minimum measurement frequencies, the Permittee must report an appropriate No Data Indicator Code.

6. A minimum of one grab sample shall be collected when the discharge is entering the Wachusett Aqueduct Open Canal after the start of the initiation of a discharge type, for each discharge event, in no case later than within the first hour of discharge. If the discharge event occurs intermittently, additional samples of the discharge event are not required.

7. Effluent flow shall be reported in million gallons per day (MGD). The maximum daily value represents the maximum instantaneous flow passing through the outfall for each 24-hour period that a discharge type occurs during a discharge event. Flow rate shall either be measured using a flow meter or estimated based on the volume passing through the effluent structure over the duration of the discharge.

8. The pH shall be within the specified range at all times. The minimum and maximum pH sample measurements shall be reported in standard units (S.U.) for each discharge event.

9. The effluent temperature measurement shall be reported in degrees Fahrenheit (^oF) for each discharge event.

10. Monitoring for total residual chlorine (TRC) is only required for discharges which have been previously chlorinated, or which contain residual chlorine.

11. The Permittee shall monitor total ammonia once per discharge event by grab samples. For the purposes of this permit, ammonia analysis must be completed using a test method in 40 C.F.R. § 136 that achieves a minimum level of 0.64 mg/L or less.

12. The Permittee shall monitor total recoverable copper once per dewatering discharge during annual, reoccurring maintenance. Monitoring for total recoverable copper is also required if a discharge event occurs within thirty (30) days following the application of copper sulfate to the Wachusett Reservoir. For the purposes of this permit, copper analysis must be completed using a test method in 40 C.F.R. § 136 that achieves a minimum level of 5.94 µg/L or less.

13. The Permittee shall monitor total recoverable lead once per dewatering discharge during annual, reoccurring maintenance. For the purposes of this permit, lead analysis must be completed using a test method in 40 C.F.R. § 136 that achieves a minimum level of 1.63 µg/L or less.

14. The Permittee shall monitor hardness in mg/L of $CaCO_3$ once per dewatering discharge during annual, reoccurring maintenance.

15. Grab samples collected for the Sudbury Reservoir shall be collected from a location representative of ambient conditions in the vicinity of the confluence with the Sudbury Reservoir, where the Wachusett Aqueduct Open Canal enters the Sudbury Reservoir at Deerfoot Road in Southborough.

Part I.A. continued.

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

4. 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.

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

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

7. 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.

8. The discharge shall be free from oil and grease, petrochemicals and other volatile or synthetic organic pollutants.

9. All existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Director as soon as they know or have reason to believe (40 C.F.R. § 122.42):

    a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

        (1) 100 micrograms per liter (µg/L);
        (2) 200 µg/L for acrolein and acrylonitrile; 500 µg/L for 2,4-dinitrophenol; and one milligram per liter (mg/L) for antimony;
        (3) Five times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 C.F.R. § 122.21(g)(7); or
        (4) Any other notification level established by the Director in accordance with 40 C.F.R. § 122.44(f) and State regulations.

    b. That any activity has occurred or will occur which would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

        (1) 500 µg/L;
        (2) One mg/L for antimony;
        (3) 10 times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 C.F.R. § 122.21(g)(7); or

(4) Any other notification level established by the Director in accordance with 40 C.F.R. § 122.44(f) and State regulations.

c. That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant which was not reported in the permit application.

B. UNAUTHORIZED DISCHARGES

1. This permit authorizes discharges only from the outfall(s) listed in Part I.A.1 and 2, in accordance with the terms and conditions of this permit. Discharges of wastewater from any other point sources 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). The Permittee shall provide notification to EPA and the State at least 10 days in advance, or as early as practicable, of the initiation of discharges resulting from any unanticipated discharge.

2. The discharge of sludge from any storage tank at the Facility to the receiving water is prohibited.

C. SPECIAL CONDITIONS

1. Best Management Practices Plan

   a. The Permittee shall develop, implement, and maintain a Best Management Practices (BMP) Plan designed to reduce or prevent the discharge of pollutants in wastewater to waters of the United States. The BMP Plan shall be a written document that is consistent with the terms of the permit and identifies and describes the BMPs employed by the Facility in operating wastewater controls. The BMP Plan must be developed at least once per permit term (i.e., five (5) years) and re-evaluated if any significant changes to the Facility's operations occurs.

   b. The BMP Plan shall be completed (or updated) and certified by the Permittee within 90 days after the effective date of this permit. The Permittee shall certify the BMP Plan has been prepared, that it meets the requirements of this permit, and that it reduces the pollutants discharged in wastewater to the extent practicable. The BMP Plan and certification shall be signed in accordance with the requirements identified in 40 CFR §122.22. A copy of the BMP Plan and certification shall be maintained at the Facility and made available to EPA and the State upon request.

   c. The Permittee shall amend and update the BMP Plan within 14 days for any changes at the Facility affecting the BMP Plan. Such changes may include, but are not limited to changes in the design, construction, operation, or maintenance of the Facility, which have a significant effect on the potential for the discharge of pollutants to the waters of the United States. The amended BMP Plan also shall be signed in accordance with the requirements identified in 40 CFR §122.22.

d. The Permittee shall certify annually that the Facility is in compliance with the requirements of the BMP Plan. If the Facility is not in compliance with any aspect of the BMP Plan, the annual certification shall state the non-compliance and the remedies which are being undertaken. Such annual certifications also shall be signed in accordance with the requirements identified in 40 CFR §122.22. The Permittee shall keep a copy of the current BMP Plan and all BMP Plan certifications (the initial certification, re-certifications, and annual certifications) signed during the effective period of this permit at the Facility and shall make it available for inspection by EPA and MassDEP.

e. The BMP Plan shall include, at a minimum, the following items:

(1) Documentation of the selection, design, installation, implementation and maintenance of control measures necessary to meet the effluent limitations in this permit, including non-numeric effluent limitations. Any control measures shall be used in accordance with good engineering practices and manufacturer's specifications.
(2) A description of the pollution control equipment and procedures used to minimize the discharge to surface waters of suspended solids, floating solids, foam, visible oil sheen, and settleable solids, in order to comply with the permit requirements.
(3) Preventative maintenance procedures for the pollution control equipment to ensure that equipment failures are avoided.
(4) A characterization of tank bottom residuals generated at the Facility, and how these residuals are generated, and controlled.
(5) Procedures for handling Facility wastes, including: schedules for removal; handling and disposal of materials; a description of where solids removed from the pollution control equipment or appurtenances, including sludge, are stored and/or disposed of; and the control measures used to prevent the removed solids from entering the receiving water. If Facility wastes are to be removed from the Facility, include a description of the destination and method of disposal and/or reuse.
(6) A record of the following information for all additives and chemicals, including, but not limited to algaecides/biocides, antifoams, coagulants, corrosion/scale inhibitors/coatings, disinfectants, flocculants, neutralizing agents, oxidants, oxygen scavengers, pH conditioners, and surfactants:

i. Product name, chemical formula, general description, and manufacturer of the chemical/additive;
ii. Purpose or use of the chemical/additive;
iii. Safety Data Sheet (SDS), Chemical Abstracts Service (CAS) Registry number, and EPA registration number, if applicable, for each chemical/additive;
iv. The frequency (e.g., daily), magnitude (i.e., maximum application concentration), duration (e.g., hours), and method of application for the chemical/additive;
v. The maximum discharge concentration; and
vi. The vendor's reported aquatic toxicity, if available (i.e., NOAEL and/or LC_{50} in percent for aquatic organism(s)).

(7) A description of the training to be provided for employees to assure they understand the goals, objectives, and procedures of the BMP Plan, the requirements of the

NPDES Permit, and their individual responsibilities for complying with the goals and objectives of the BMP Plan and the NPDES permit. Training should be conducted on an annual basis. Certification of such training should be recorded and kept on site, along with the BMP Plan certifications.

(8) Minimum documentation requirements as follows:

i. Records of operational and preventive maintenance activities
ii. Records of the collection and analysis of samples, including, but not limited to sample location, any calculations done at the time of sampling, any sampling or analytical methods used for samples analyzed on site, and sample results so that an inspector may verify that the sampling was properly conducted.
iii. All documentation of BMP Plan activities shall be kept at the Facility for at least three years from the date the document was generated and provided to EPA or MassDEP upon request.

2. Discharges of Chemicals and Additives

The discharge of any chemical or additive, including chemical substitution, which was not reported in the application submitted to EPA and the State or provided through a subsequent written notification submitted to EPA and the State is prohibited. Upon the effective date of this permit, chemicals and/or additives which have been disclosed to EPA and the State may be discharged up to the frequency and level disclosed, provided that such discharge does not violate §§ 307 or 311 of the CWA or applicable State water quality standards. Discharges of a new chemical or additive are authorized under this permit 30 days following written notification to EPA and the State unless otherwise notified by EPA and/or the State. To request authorization to discharge a new chemical or additive, the Permittee must submit a written notification to EPA and the State in accordance with Part I.D.3 of this permit. The written notification must include the following information, at a minimum:

a. The information specified in Part I.C.1.e.(6), above, for each chemical and/or additive that will be discharged.

b. Written rationale which demonstrates that the discharge of such chemicals and/or additives as proposed will not: 1) will not add any pollutants in concentrations which exceed any permit effluent limitation; and 2) will not add any pollutants that would justify the application of permit conditions different from, or in addition to those currently in this permit.

D. 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

a. 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. 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 particular report due date specified in this permit.

3. Submittal of Requests and Reports to EPA Water Division (WD)

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

(1) Transfer of Permit notice;
(2) Request for changes in sampling location; and
(3) Request to discharge new chemicals or additives.

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
NPDES Applications Coordinator
5 Post Office Square - Suite 100 (06-03)
Boston, MA 02109-3912

4. Submittal of Reports in Hard Copy Form

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

(1) Prior to 21 December 2020, written notifications required under Part II. 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/.

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

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

5. State Reporting

   See Part I.D.2.

6. 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's Enforcement and Compliance Assurance Division at:

617-918-1510

E. 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.

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
NH_3-N	Ammonia nitrogen as nitrogen
NO_3-N	Nitrate as nitrogen
NO_2-N	Nitrite as nitrogen
NO_3-NO_2	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
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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: MA0040398

PUBLIC NOTICE START AND END DATES: August 12, 2019 – September 10, 2019

NAME AND MAILING ADDRESS OF APPLICANT:

Massachusetts Water Resources Authority (MWRA)
Charlestown Navy Yard
100 First Avenue, Building 39
Boston, MA 02129

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

John J. Carroll Water Treatment Plant
84 D'Angelo Drive
Marlborough, MA 01752

RECEIVING WATER AND CLASSIFICATION:

Sudbury Reservoir (MA82106)
Concord River Watershed
Class A

SIC CODE: 4941 (Water Supply)

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Appendices

1.0 Proposed Action

The Massachusetts Water Resources Authority (the "Permittee") has applied to the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP or the "State") for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit to discharge from the John J. Carroll Water Treatment Plant (the "Facility") into the Sudbury Reservoir.

The Facility was previously covered under two NPDES permits while it was under construction: 1) permit number MA0103373, issued July 15, 2002 and terminated September 21, 2004; and 2) MA0103381, issued June 28, 2004 and terminated August 11, 2005. The permit currently in effect was issued on January 15, 2013 with an effective date of April 1, 2013 and expired on March 31, 2018 (the "2013 Permit"). The Permittee filed an application for permit reissuance with EPA dated October 1, 2017, 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 August 31, 2018, the Facility's 2013 Permit has been administratively continued pursuant to 40 C.F.R. § 122.6 and § 122.21(d). Since the issuance of the 2013 Permit, the Permittee also obtained coverage under EPA's General Permit for Non-Contact Cooling Water Discharges (MAG250000) for discharges of non-contact cooling water related to the Wachusett Aqueduct Pumping Station. Non-contact cooling water is not discussed further in this Fact Sheet. EPA and the State conducted a site visit on December 13, 2018.

This NPDES Permit is issued jointly by EPA and MassDEP under separate 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.

2.0 Statutory and Regulatory Authority

Congress enacted the Federal Water Pollution Control Act, codified at 33 U.S.C. § 1251 - 1387 and commonly known as the Clean Water Act (CWA), "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 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 §§ 301(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. 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.

"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). *See also* 40 C.F.R. §§ 122.4(d), 122.44(d)(1), 122.44(d)(5). CWA §§ 301 and 306 provide 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 treatment requirements represent the minimum level of control that must be imposed under CWA §§ 301(b) and 402 to meet best practicable control technology currently available (BPT) for conventional pollutants and some metals, best conventional control technology (BCT) for conventional pollutants, and best available technology economically achievable (BAT) for toxic and non-conventional pollutants. *See* 40 C.F.R. § 125 Subpart A.

Subpart A of 40 C.F.R. Part 125 establishes criteria and standards for the imposition of technology-based treatment requirements in permits under § 301(b) of the CWA, including the application of EPA promulgated Effluent Limitation Guidelines (ELGs) and case-by-case determinations of effluent limitations under CWA § 402(a)(1). EPA promulgates NSPS under CWA § 306 and 40 C.F.R. § 401.12. *See also* 40 C.F.R. §§ 122.2 (definition of "new source") and 122.29.

In general, ELGs for non-POTW facilities must be complied with as expeditiously as practicable but in no case later than three years after the date such limitations are established and in no case later than March 31, 1989. *See* 40 C.F.R. § 125.3(a)(2). Compliance schedules and deadlines not in accordance with the statutory provisions of the CWA cannot be authorized by a NPDES permit. In the absence of published technology-based effluent guidelines, the permit writer is authorized under CWA § 402(a)(1)(B) to establish effluent limitations on a case-by-case basis using best professional judgment (BPJ).

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* CWA § 301(b)(1)(C) and 40 C.F.R. §§ 122.44(d)(1),122.44(d)(5), 125.84(e) and 125.94(i).

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) antidegradation requirements to ensure that once a use is attained it will not be degraded and to protect high quality and Outstanding 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).

As a matter of state law, state WQSs specify different water body classifications, each of which is associated with certain designated uses and numeric and narrative water quality criteria. When using chemical-specific numeric criteria to develop permit limitations, 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, therefore, are typically applicable to monthly average limits.

When permit effluent limitation(s) are necessary to ensure that the receiving water meets narrative water quality criteria, the permitting authority must establish effluent limits in one of the following three ways: 1) 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," 2) based on a "case-by-case basis" using CWA § 304(a) recommended water quality criteria, supplemented as necessary by other relevant information; or, 3) in certain circumstances, based on use of an indicator parameter. *See* 40 C.F.R. § 122.44(d)(1)(vi)(A-C).

2.2.2 Antidegradation

Federal regulations found at 40 C.F.R. § 131.12 require states to develop and adopt a statewide antidegradation 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 antidegradation policy ensures maintenance of high-quality waters which exceed levels necessary to support propagation of fish, shellfish, and wildlife and to support recreation in and on the water, 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 antidegradation 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 Procedures for the Anti-degradation Provisions of the Massachusetts Surface Water Quality Standards," dated October 21, 2009. According to the policy, no lowering of water quality is allowed, except in accordance with the antidegradation policy, and all existing in-stream uses, and the level of water quality necessary to protect the existing uses, of a receiving water body must be maintained and protected.

This permit is being reissued with effluent limitations sufficiently stringent to satisfy the State's antidegradation requirements, including the protection of the exiting 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, 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 or 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 essentially provides a pollution budget designed to restore the health of an impaired water body. A TMDL typically identifies the source(s) of the pollutant from point sources and non-point sources, determines the maximum load of the pollutant that the water body can tolerate while still attaining WQSs for the designated uses, and allocates that load among the various 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 (WLA) for a NPDES permitted discharge, the effluent limitation in the permit must be "consistent with the assumptions and requirements of any available WLA". 40 C.F.R. § 122.44(d)(1)(vii)(B).

2.2.4 Reasonable Potential

Pursuant to CWA § 301(b)(1)(C) and 40 C.F.R. § 122.44(d)(1), NPDES permits must contain any requirements in addition to TBELs that are necessary to achieve water quality standards established under § 303 of the CWA. *See also* 33 U.S.C. § 1311(b)(1)(C). In addition, limitations "must control any pollutant or pollutant parameter (conventional, non-conventional, or toxic) which the permitting authority 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." 40 C.F.R. § 122.44(d)(1)(i). To determine if the discharge causes, or has the reasonable potential to cause, or contribute to an excursion above any WQS, 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 by the receiving water. *See* 40 C.F.R. § 122.44(d)(1)(ii).

If the permitting authority determines that the discharge of a pollutant will cause, has the reasonable potential to cause, or contribute to an excursion above WQSs, the permit must contain WQBELs for that pollutant. *See* 40 C.F.R. § 122.44(d)(1)(i).

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, the State waives, or is deemed to have waived, its right to certify. *See* 33 U.S.C. § 1341(a)(1). 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 conditions more stringent than those contained in the Draft Permit are necessary to meet the requirements of either CWA §§ 208(e), 301, 302, 303, 306 and 307, or applicable requirements of State law, the State should include such conditions in its certification and, in each case, cite the CWA or State law provisions upon which that condition is based. Failure to provide such a citation waives the right to certify as to that condition. EPA includes properly supported State certification conditions in the NPDES permit. The only exception to this is that the permit conditions/requirements regulating sewage sludge management and implementing CWA § 405(d) are not subject to the 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 EPA permit appeal procedures of 40 C.F.R. Part 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 final 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.

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." 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 limitations based upon WQSs and State requirements are contained in 40 C.F.R. §§ 122.4(d) and 122.44(d).

2.3 Effluent Flow Requirements

Generally, EPA uses effluent flow both to determine whether a NPDES permit needs certain effluent limitations and to calculate the effluent limitations themselves. EPA practice is to use effluent flow as a reasonable and important worst-case condition in EPA's reasonable potential and WQBEL calculations to ensure compliance with WQSs under CWA § 301(b)(1)(C). Should the effluent flow exceed the flow assumed in these calculations, the in-stream dilution would be reduced and the calculated effluent limitations might not be sufficiently protective (i.e., might not meet WQSs). Further, pollutants that do not have the reasonable potential to exceed WQSs at a lower discharge flow may have reasonable potential at a higher flow due to the decreased

dilution. In order to ensure that the assumptions underlying EPA's reasonable potential analyses and permit effluent limitation derivations remain sound for the duration of the permit, EPA may ensure the validity of its "worst-case" effluent flow assumptions through imposition of permit conditions for effluent flow.[1] In this regard, the effluent flow limitation is a component of WQBELs because the WQBELs are premised on a maximum level flow. The effluent flow limit is also necessary to ensure that other pollutants remain at levels that do not have a reasonable potential to exceed WQSs.

The limitation on effluent flow is within EPA's authority to condition a permit to carry out the objectives and satisfy the requirements of the CWA. *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 ensure the validity of EPA's WQBELs and reasonable potential calculations that account for "worst case" conditions is encompassed by the references to "condition" and "limitations" in CWA §§402 and 301 and the implementing regulations, as WQBELs are designed to assure compliance with applicable water quality regulations, including antidegradation requirements. Regulating the quantity of pollutants in the discharge through a restriction on the quantity of effluent is also consistent with 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. Improper operation and maintenance may result in non-compliance with permit effluent limitations. 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), (e).

2.4 Monitoring and Reporting Requirements

2.4.1 Monitoring Requirements

Sections 308(a) and 402(a)(2) of the CWA and the implementing regulations at 40 C.F.R. Parts 122, 124, 125, and 136 authorize EPA to include monitoring and reporting requirements in NPDES permits.

The monitoring requirements included in this permit have been established to yield data representative of the Facility's discharges in accordance with CWA §§ 308(a) and 402(a)(2), and consistent with 40 C.F.R. §§ 122.41(j), 122.43(a), 122.44(i) and 122.48. The Draft Permit specifies routine sampling and analysis requirements to provide ongoing, representative information on the levels of regulated constituents in the wastewater discharges. The monitoring program is needed to enable EPA and the State to assess the characteristics of the Facility's

[1] EPA's regulations regarding "reasonable potential" require EPA to consider "where appropriate, the dilution of the effluent in the receiving water," *id.* 40 C.F.R. §122.44(d)(1)(ii). *Both* the effluent flow and receiving water flow may be considered when assessing reasonable potential. *In re Upper Blackstone Water Pollution Abatement Dist.*, 14 E.A.D. 577, 599 (EAB 2010). EPA guidance directs that this "reasonable potential" analysis be based on "worst-case" conditions. *See In re Washington Aqueduct Water Supply Sys., 11 E.A.D. 565, 584 (EAB 2004)*.

effluent, whether Facility discharges are complying with permit limits, and whether different permit conditions may be necessary in the future to ensure compliance with technology-based and water quality-based standards under the CWA. 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 CWA § 304(a)(1), 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. Part 122.

NPDES permits require that the approved analytical procedures found in 40 C.F.R. Part 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 effluent limitation established in the permit 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 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.

2.4.2 Reporting Requirements

The Draft Permit requires the Permittee to report monitoring results obtained during each calendar month to EPA and the State electronically using NetDMR. The Permittee must submit a Discharge Monitoring Report (DMR) for each calendar month no later than the 15th day of the month following the completed reporting period.

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[2] Fed. Reg. 49,001 (Aug. 19, 2014).

[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), 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. 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* Fed. Reg. 49,001 (Aug. 19, 2014).

NetDMR is a national web-based tool enabling regulated CWA permittees to submit DMRs electronically via a secure internet application to EPA through the Environmental Information Exchange Network. NetDMR has eliminated the need for participants to mail in paper forms to EPA under 40 C.F.R. §§ 122.41 and 403.12. NetDMR is accessible through EPA's Central Data Exchange at https://cdx.epa.gov/. Further information about NetDMR can be found on the EPA NetDMR support portal webpage.[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 Standard Conditions

The standard conditions, included as Part II of the Draft Permit, are based on applicable regulations found in the Code of Federal Regulations. *See generally* 40 C.F.R. Part 122.

2.6 Anti-backsliding

The CWA's anti-backsliding requirements prohibit a permit from being renewed, reissued or modified to include less stringent limitations or conditions than those contained in a previous permit except in compliance with one of the specified exceptions to those requirements. *See* CWA §§ 402(o) and 303(d)(4) and 40 C.F.R. § 122.44(l). Anti-backsliding provisions apply to effluent limits based on technology, water quality, and/or State certification requirements.

All proposed limitations in the Draft Permit are at least as stringent as limitations included in the 2013 Permit unless specific conditions exist to justify relaxation in accordance with CWA § 402(o) or § 303(d)(4). Discussion of any less stringent limitations and corresponding exceptions to anti-backsliding provisions is provided in the sections that follow.

3.0 Description of Facility and Discharge

3.1 Location and Type of Facility

The Facility is located along the southern edge of the Wachusett Aquaduct Open Canal and adjacent to Crane Swamp on D'Angelo Drive in Marlborough, Massachusetts. A location map is provided in Figure 1. The Facility was constructed between 1999 and 2005 and began operating on July 27, 2005. The Facility is designed to treat drinking water for over two million people in 45 Massachusetts communities. The Facility is supplied with water from the Wachusett Reservoir through the Cosgrove Intake and Tunnel. The water undergoes ozonation/ozone quenching, disinfection, chlorination, fluoridation, alkalinity adjustment, chloramination, and pH adjustment at the Facility. The treated drinking water is conveyed to communities in the greater Boston area through the MetroWest Water Supply Tunnel and the Hultman Aqueduct.

[4] https://netdmr.zendesk.com/hc/en-us

3.1.1 Effluent Limitation Guidelines

EPA has not promulgated technology-based effluent limitation guidelines (ELGs) for Water Supply (SIC 4941) in 40 C.F.R. Subchapter N Parts 405 through 471. Therefore, in accordance with CWA § 402(a)(1)(B) and 40 C.F.R. § 125.3(c)(2), EPA has established effluent limitations on a case-by-case basis using BPJ. To the extent applicable to the Facility, EPA has incorporated technology-based limitations and conditions from EPA Region 1's Remediation General Permit (MAG91000 and NHG91000) (RGP) and Potable Water Treatment Facility General Permit (MAG640000 and NHG640000) (PWTFGP) for consistency with requirements imposed upon the majority of facilities in Massachusetts and New Hampshire with discharges of treated drinking water and drinking water treatment facility process waters. EPA also considered technology-based limitations and conditions included in individual permits issued to facilities in Region 1 that discharge drinking water or drinking water treatment facility process water.

3.2 Location and Type of Discharge

The Permittee has requested authorization to discharge process water from the Facility through Outfall 001 to the Sudbury Reservoir via the Wachusett Aqueduct Open Canal. Outfall 001 is located at Latitude 42° 18' 44.7" Longitude 71° 34' 53.4" along the Wachusett Aqueduct Open Canal, which flows from northwest to southeast near the Facility, and below the Wachusett Aqueduct Forebay. The Wachusett Aqueduct Forebay is located upstream of the Wachusett Aqueduct Open Canal and is separated by a small dam. The Wachusett Aqueduct Open Canal continues for approximately three miles before reaching the confluence with the Sudbury Reservoir at the Lower Dam, Deerfoot Road in Southborough. The Wachusett Aqueduct Open Canal is 10 to 12 feet deep and has a design capacity of 320 million gallons per day (MGD). The Wachusett Aqueduct Open Canal also receives a small volume of runoff from the adjacent Crane Swamp and First (Road) Brook. The Wachusett Aqueduct Forebay and Wachusett Aqueduct Open Canal were constructed as part of the transmission system between the Wachusett Reservoir and the Sudbury Reservoir, which are part of MWRA's emergency backup water supply system.

The discharge primarily consists of dechlorinated drinking water that overflows or is pumped from the Facility, generally during annual, reoccurring maintenance. Annual, reoccurring maintenance occurs during the low-demand period for drinking water, which typically begins in November and ends in March. During annual, reoccurring maintenance, the drinking water is drained from the Facility storage tanks, the storage tanks are disinfected, and the disinfected storage tanks are flushed with treated drinking water. A typical discharge sequence includes 10 to 14 days to drain one of the two storage tanks at a time (i.e., drawdown), followed by several weeks of maintenance activity during which there are no discharges. When the maintenance activity is complete, the tank is filled with disinfection water, which is held for 24 hours. This process takes 2-3 days, during which there are no discharges until the disinfection water is released to the 120-inch overflow line within the storage tank effluent structure. As the disinfection water releases, drinking water is added simultaneously to flush the tanks. This portion of the process typically occurs over 2-3 days. The process is then repeated for the second storage tank. All discharges are dechlorinated prior to entering the Wachusett Aqueduct Open Canal and the fluoride feed is discontinued in advance of annual, reoccurring maintenance.

High total suspended solids from storage tank bottoms, as well as storage tank leakage and groundwater infiltration at the Facility are diverted to the Marlborough Westerly Sewage Treatment Plant. A schematic of water flow is provided in Figure 3.

The annual, reoccurring maintenance described above results in two distinct wastewater discharges from the Facility: drawdown water, consisting of dechlorinated drinking water, and tank disinfection and flush water, which consists of treated drinking water to which additional treatment chemicals and/or additives are typically added for disinfection. While the 2013 Permit treated the disinfection and flush water separately, because the process by which the disinfection and flush water is generated and discharged is continuous, EPA has determined that a sample collected at the beginning of the disinfection and flush discharge will be representative of the highest pollutant concentrations expected. Therefore, the Draft Permit contains monitoring requirements for two types of wastewater: 1) dewatering discharges, which includes any discharge of drinking water from Facility tanks or appurtenances; and 2) remediation discharges, which includes any discharge of water to which additional chemicals, additives and/or pollutants may have been added as a result of an operation, maintenance, repair, testing, construction, or emergency condition. Special conditions pertaining to the discharge of chemicals and additives are discussed in Section 5.2.3 of this Fact Sheet.

The 2013 Permit also authorized the discharge of water that overflows or is pumped from the Facility during non-reoccurring maintenance, repair, testing or construction activities, which assures efficient operation and/or prevents loss of life, personal injury, or severe property damage at the Facility. These activities are expected to occur intermittently, with low frequency, and with magnitude and duration equal to or less than discharges expected during annual, reoccurring maintenance. These discharges are further expected to be substantially identical in chemical characteristics and manner of discharge to those of annual, reoccurring maintenance. Therefore, the Draft Permit specifies that discharges from Outfall 001 to the Sudbury Reservoir include those necessary for operation, maintenance, repair, testing, construction, and emergency conditions at the Facility, which will continue to allow these intermittent activities to occur on an as-needed basis. The monitoring requirements that apply will depend upon whether the discharge consists of process water generated as a result of dewatering or remediation.

A quantitative description of these discharges in terms of effluent parameters, based on monitoring data submitted by the Permittee, including Discharge Monitoring Reports (DMRs), from April 2013 through April 2019, is provided in Appendix A of this Fact Sheet.

4.0 Description of Receiving Water and Dilution

4.1 Receiving Water

The Facility discharges through Outfall 001 via the Wachusett Aqueduct Open Canal to the Sudbury Reservoir (Segment MA82106), which consists of 1,181 acres in Southborough and Marlborough, Massachusetts. The Sudbury Reservoir is part of the Concord River Watershed. The Sudbury Reservoir is part of the Massachusetts Water Resources Authority's backup drinking water supply for the metropolitan Boston area.

Sudbury Reservoir is classified as Class A in Table 18 of the State WQSs, 314 Code of Massachusetts Regulations (CMR) 4.06[5]. Class A waters and their tributaries are designated in the Commonwealth of Massachusetts Water Quality Standards (314 CMR 4.05(3)(a)) as follows: "a source of public water supply…as excellent 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, even if not allowed. These waters shall have excellent aesthetic value. These waters are protected as Outstanding Resource Waters." 314 CMR 4.05(3)(a) includes the criteria that apply to Class A waters, including dissolved oxygen (DO), temperature, pH, bacteria, and solids. 314 CMR 4.06(1)(d)1 allows discharges to a public water supply when "conducted by a public water system under 310 CMR 22.00, conducted by a public agency or authority for the maintenance or repair of existing public roads or railways, or conducted by a person granted a variance pursuant to 314 CMR 9.08."

Sudbury Reservoir (MA82106) is listed in the *Massachusetts Year 2014 Integrated List of Waters* as Category 4a, "TMDL is completed". Sudbury Reservoir was included in the Northeast Regional Mercury TMDL, which was based on atmospheric deposition, and approved by EPA in December 2007. Sudbury Reservoir outlets to Stony Brook (MA82A-33), which is listed in the draft *Massachusetts Year 2016 Integrated List of Waters* as a Category 2 "Attaining some uses; other uses not assessed".[6] The status of each designated use is presented in Table 1.

Table 1: Summary of Designated Uses and Listing Status

Designated Use	**Status**
Aquatic Life	Not Assessed
Aesthetics	Support
Primary Contact Recreation	Support
Secondary Contact Recreation	Support
Fish Consumption	Not Assessed

4.2 Ambient Data

A summary of the ambient data collected in the receiving water in the vicinity of the Facility that is referenced in this Fact Sheet can be found in Appendix B of this Fact Sheet. These data consist of monitoring conducted by the Permittee for temperature, hardness and total recoverable copper and lead.

4.3 Available Dilution

To ensure that discharges do not cause or contribute to violations of WQSs under all expected conditions, WQBELs are derived assuming critical conditions for the receiving water.[7] The critical flow in lakes and ponds is determined on a case-by-case basis. State WQSs specify that, "*the Department will establish extreme hydrologic conditions at which aquatic life criteria must*

[5] https://www.mass.gov/regulations/314-CMR-4-the-massachusetts-surface-water-quality-standards
[6] *Massachusetts Year 2016 Integrated List of Waters*. MassDEP Division of Watershed Management Watershed Planning Program, Worcester, Massachusetts; June 2017.
[7] EPA Permit Writer's Manual, Section 6.2.4

be applied on a case-by-case basis. In all cases existing uses shall be protected and the selection shall not interfere with the attainment of designated uses". *See* 314 CMR 4.03(3)(c). The State determined that the dilution factor for the Facility is 10:1. EPA used this dilution factor (DF) in its quantitative derivation of WQBELs for pollutants in the Draft Permit.

5.0 Proposed Effluent Limitations and Conditions

The proposed effluent limitations and conditions derived under the CWA and State WQSs are described below. These proposed effluent limitations and conditions, the basis of which is discussed throughout this Fact Sheet, may be found in Part I of the Draft Permit.

In accordance with 40 CFR § 122.45(b)(2), EPA based the calculation of effluent limitations upon a reasonable measure of actual production of the Facility, or flow. EPA determined that the measure appropriate for this Facility is the maximum permitted effluent flow, 25 MGD. The maximum permitted effluent flow reflects the magnitude, frequency and duration of discharge generated during the routine maintenance activities at the Facility.

5.1 Effluent Limitations and Monitoring Requirements

The State and Federal regulations, data regarding discharge characteristics, and data regarding ambient characteristics described above, were used during the effluent limitations development process. Discharge and ambient data are included in Appendix A and B. EPA's Reasonable Potential Analysis is included in Appendix C and results are discussed in the sections below.

5.1.1 Effluent Flow

From April 2013 through April 2019 (Appendix A) effluent flow has ranged from 1.0 MGD to 3.4 MGD during drawdown discharges, 1.0 MGD to 22.6 MGD during disinfection discharges, and 21 MGD to 24.2 MGD during flush discharges. The Facility's 2013 Permit limits the discharge to a maximum flow of 25 MGD. EPA established this daily maximum flow based on values reported by the Permittee during the 2013 Permit issuance. During routine maintenance activities, and as indicated by monitoring data and information provided by the Permittee, the maximum flow has been no greater than 25 MGD. Therefore, the Draft Permit maintains a maximum daily flow limit of 25 MGD, which must be reported once per day, per discharge type, per discharge event, using a meter or estimate.

5.1.2 Total Suspended Solids

Solids could include inorganic (e.g., silt, sand, clay, and insoluble hydrated metal oxides) and organic matter (e.g., flocculated colloids and compounds that contribute to color). Solids can clog fish gills, resulting in an increase in susceptibility to infection or asphyxiation. Suspended solids can increase turbidity in receiving waters and reduce light penetration through the water column or settle to form bottom deposits in the receiving water. Suspended solids also provide a medium for the transport of other adsorbed pollutants, such as metals, which may accumulate in settled deposits that can have a long-term impact on the water column through cycles of re-suspension.

From April 2013 through April 2019 (Appendix A), daily maximum total suspended solids (TSS) concentrations have ranged from below detection to 5.5 mg/L during drawdown discharges, below detection to 5.0 mg/L during disinfection discharges, and below detection to 5.0 mg/L during flush discharges. The Facility's 2013 Permit limits the discharge to monthly average and maximum daily TSS concentrations of 30 mg/L and 50 mg/L, respectively. These limitations were established using BPJ pursuant to CWA § 402(a)(1). The limitations are based upon the TSS concentrations estimated to be achievable by potable water treatment facilities, consistent with EPA's RGP and PWTFGP. Performance data from the Facility indicate that these TBELs are routinely achievable and no material or substantial changes in operations at the Facility have occurred since these limitations were imposed.

Therefore, the Draft Permit contains monthly average and maximum daily TSS limitations of 30 mg/L and 50 mg/L, respectively, which must be monitored once per discharge type, per discharge event by grab samples. These limitations have been continued from the Facility's 2013 Permit in accordance with anti-backsliding requirements found in 40 C.F.R. § 122.44(1). Because high total suspended solids from storage tank bottoms are diverted, rather than discharged, the Draft Permit prohibits the discharge of sludge, and includes documentation requirements specific to sludge in the Best Management Practices Plan requirements, consistent with the 2013 Permit and EPA's RGP and PWTFGP. See Section 5.2.1., below, for a detailed discussion of Best Management Practices Plan requirements pertaining to sludge.

5.1.3 pH

The hydrogen-ion concentration in an aqueous solution is represented by the pH using a logarithmic scale of 0 to 14 standard units (S.U.). Solutions with pH 7.0 S.U. are neutral, while those with pH less than 7.0 S.U. are acidic and those with pH greater than 7.0 S.U. are basic. Discharges with pH values markedly different from the receiving water pH can have a detrimental effect on the environment. Sudden pH changes can kill aquatic life. pH can also have an indirect effect on the toxicity of other pollutants in the water. As aforementioned, the Permittee uses sodium carbonate and CO_2 to control pH. Sodium hydroxide may also be used to adjust pH. Chemicals and additives used at the Facility are described further in Section 5.2.3., below.

From April 2013 through April 2019 (Appendix A), pH has ranged from 6.65 S.U. to 7.77 S.U. during drawdown discharges, 6.51 S.U. to 7.43 during disinfection discharges, and 7.02 S.U. to 8.06 S.U. during flush discharges. The Draft Permit requires a pH range of 6.5 to 8.3 S.U., which must be monitored once per discharge type, per discharge event by grab samples. The pH limitations are based on the State WQSs for Inland Water, Class A at 314 CMR 4.05(3)(a)3, which require that the pH of the receiving water be in the range of 6.5 to 8.3 S.U. These limitations are based on CWA § 301(b)(1)(C) and 40 CFR § 122.44(d) and have been continued from the Facility's 2013 Permit in accordance with anti-backsliding requirements found in 40 C.F.R. § 122.44(1).

5.1.4 Temperature

Rapid increases or decreases in ambient water temperature can impact aquatic life, particularly fish. Section 502(6) of the Clean Water Act defines heat as a "pollutant." *See* 33 U.S.C. § 1362(6). 314 CMR 4.05(3)(a)(2)(a) contains numeric criteria for temperature, for Class A receiving waters, which state that temperature, "Shall not exceed 83ºF (28.3ºC) in warm water fisheries. The rise in temperature due to a discharge shall not exceed 1.5ºF (0.8ºC)." In addition, 314 CMR 4.05(3)(a)(2)(b) contains narrative criteria for temperature, for Class A receiving waters, which state, "Natural seasonal and daily variations that are necessary to protect existing and designated uses shall be maintained. There shall be no changes from natural background conditions that would impair any use assigned to this Class, including those conditions necessary to protect normal species diversity, successful migration, reproductive functions or growth of aquatic organisms." During development of the 2013 Permit, EPA and MassDEP, in consultation with Massachusetts Division of Fisheries and Wildlife (MassDFW) determined that a decrease in temperature less than 5ºF below ambient conditions is protective of aquatic life for the Sudbury Reservoir.

The 2013 Permit required ambient temperature monitoring requirements at two locations: 1) the confluence with the Sudbury Reservoir when the discharge is present; and 2) in the Sudbury Reservoir when the Facility is discharging. The 2013 Permit allowed for the possibility of eliminating the temperature testing if representative sampling indicates that the discharge is not likely to result in an increase of the ambient water temperature greater than 1.5ºF nor result in a decrease of the ambient water temperature greater than 5ºF. From April 2013 through April 2019, the temperature at the confluence with the Sudbury Reservoir has ranged from 33ºF to 72.9ºF during drawdown discharges, 32.7ºF to 81.2ºF during disinfection discharges, and 32.9ºF to 47ºF during flush discharges. From April 2013 through April 2019, the temperature in the Sudbury Reservoir has ranged from 33.3ºF to 82.5ºF. From April 2013 through April 2019, the temperature difference between these measurements has ranged from 0ºF to an increase of 1.6ºF and a decrease of 6.1ºF

While the monitoring data indicates a temperature increase in the Sudbury Reservoir greater than 1.5ºF occurred on two occasions and a temperature decrease in the Sudbury Reservoir greater than 5ºF occurred on one occasion, given new information regarding additional contributions of flow to the Wachusett Aqueduct Open Canal, which co-mingle with the effluent prior to entering the Sudbury Reservoir, EPA does not have enough information regarding temperature of the discharge to determine if discharges from the Facility to determine if numeric effluent limitations for temperature are necessary to meet State WQSs. In addition, because State WQSs may apply to discharges from this Facility, both effluent and ambient temperature will need to be evaluated to properly assess the potential for change in temperature. As a result, the Draft Permit requires monitoring for both effluent temperature at Outfall 001 and ambient temperature in the receiving water, which must be monitored once per discharge type, per discharge event by grab samples. These requirements are based on CWA §§ 308(a) and 402(a)(2) to determine if the discharge meets State WQSs during the next permit reissuance.

5.1.5 Total Residual Chlorine

Chlorine and chlorine compounds are toxic to aquatic life. Free chlorine is directly toxic to aquatic organisms and can react with naturally occurring organic compounds in receiving waters to form toxic compounds such as trihalomethane. Potable water sources are typically chlorinated to minimize or eliminate pathogens. 40 C.F.R. § 141.72 stipulates that a public water system's residual disinfectant concentration in the water entering the distribution system cannot be less than 0.2 mg/L for more than four hours. Discharges from the Facility have the potential to contain total residual chlorine (TRC) because the Facility discharges the finished drinking water after disinfection.

From April 2013 through April 2019 (Appendix A), daily maximum and monthly average TRC concentrations have ranged from below detection to 340 µg/L during drawdown discharges, below detection to 30 µg/L during disinfection discharges, and below detection to 40 µg/L during flush discharges. The Facility's 2013 Permit limits the discharge to monthly average and maximum daily TRC concentrations of 110 µg/L and 190 µg/L, respectively. Discharges from the Facility exceeded the daily maximum limit once during drawdown discharges.

These limitations were established based on State WQSs and EPA's 2002 *National Recommended Water Quality Criteria* for TRC. State WQSs *Implementation Policy for the Control of Toxic Pollutants in Surface Waters*, dated February 23, 1990, states that waters shall be protected from unnecessary discharges of excess chlorine. In addition, State WQSs contain minimum criteria applicable to all surface waters for toxic pollutants, which requires the use of EPA's *National Recommended Water Quality Criteria: 2002, EPA 822-R-02-047, November 2002* where a specific pollutant is not otherwise listed in 314 CMR 4.00. *See* 314 CMR 4.05(5)(e). The acute and chronic EPA *National Recommended Water Quality Criteria* for TRC are as follows:

Freshwater acute (Class A or B) = 19 µg/L
Freshwater chronic (Class A or B) = 11 µg/L

Effluent limitations were calculated using the water quality criteria above and the available dilution for the discharge, according to the following equation:

Effluent Limit = (Dilution Factor) x (Water Quality Criteria)

Since the dilution factor for discharges from the Facility is 10:1, the Draft Permit contains monthly average and maximum daily TSS limitations of 110 µg/L and 190 µg/L, respectively, which must be monitored once per discharge type, per discharge event by grab samples. These limitations have been continued from the Facility's 2013 Permit in accordance with anti-backsliding requirements found in 40 C.F.R. § 122.44(1).

5.1.6 Ammonia

Total ammonia is the sum of the un-ionized and ionized forms of ammonia ($NH_3 + NH_4^+$). Elevated levels of ammonia can be toxic to aquatic life. Temperature and pH affect the toxicity

of ammonia to aquatic life. The toxicity of ammonia increases as temperature increases and ammonia concentration and toxicity increase as pH increases. Ammonia can affect fish growth, gill condition, organ weights and hematocrit, and can result in excessive plant and algal growth, which can cause eutrophication. Ammonia can also affect dissolved oxygen through nitrification, in which oxygen is consumed as ammonia is oxidized. Low oxygen levels can then, in turn, increase ammonia by inhibiting nitrification. Total ammonia concentrations in surface waters tends to be lower during summer than during winter due to uptake by plants and decreased ammonia solubility at higher temperatures. Ammonia may be present in discharges from the Facility as a by-product of disinfection.

From April 2013 through April 2019 (Appendix A), daily maximum and monthly average ammonia concentrations have ranged from below detection to 0.631 mg/L during drawdown discharges, disinfection discharges, and flush discharges. The Facility's 2013 Permit required monitoring for ammonia. EPA completed an analysis to determine if these discharges cause, or have a reasonable potential to cause, or contribute to an excursion above State WQSs using EPA's 2002 *National Recommended Water Quality Criteria* for metals (Appendix C). State WQSs contain minimum criteria applicable to all surface waters for toxic pollutants, which requires the use of EPA's *National Recommended Water Quality Criteria: 2002, EPA 822-R-02-047, November 2002* where a specific pollutant is not otherwise listed in 314 CMR 4.00. *See* 314 CMR 4.05(5)(e). The acute and chronic EPA *National Recommended Water Quality Criteria* for ammonia, based on the maximum reported ambient temperature of 82.5ºF (28ºC) and the maximum permitted pH of 8.3 S.U.,[8] are as follows:

Freshwater acute (Class A or B) = 4.71 mg/L, salmonids absent
Freshwater chronic (Class A or B) = 0.639 mg/L, early life stages present

Based on available information, the results of EPA's analysis indicate discharges of ammonia do not cause, or have a reasonable potential to cause, or contribute to an excursion above WQSs. As a result, the Draft Permit does not include effluent limitations for ammonia. However, EPA does not have information regarding ambient concentrations of ammonia in the Sudbury Reservoir. In addition, the test method used to analyze ammonia samples achieved a minimum level of 1.0 mg/L whereas the chronic criterion is 0.639 and a sufficiently sensitive test method is available, which achieves a minimum level of 0.1 mg/L. Because discharge concentrations have occasionally been detected approximately equal to the chronic criterion, absent information regarding available capacity for ammonia in the receiving water and inconsistent use of sufficiently sensitive test methods, the Draft Permit requires monitoring for ammonia in the discharge and the receiving water, which must be monitored once per discharge type, per discharge event by grab samples. These requirements are based on CWA §§ 308(a) and 402(a)(2) to determine if the discharge meets State WQSs during the next permit reissuance.

[8] See *1999 Update of Ambient Water Quality Criteria for Ammonia*. U.S. Environmental Protection Agency, Office of Water, EPA-822-R-99-014: December 1999.

5.1.7 Metals

Metals are naturally occurring constituents in the environment and generally vary in concentration according to local geology. Metals are neither created nor destroyed by biological or chemical processes. However, metals can be transformed through processes including adsorption, precipitation, co-precipitation, and complexation. Some metals are essential nutrients at low levels for humans, animals, plants and microorganisms, but toxic at higher levels (e.g., copper and zinc). Other metals have no known biological function (e.g., lead). The environmental chemistry of metals strongly influences their fate and transport in the environment and their effects on human and ecological receptors. Toxicity results when metals are biologically available at toxic concentrations affecting the survival, reproduction and behavior of an organism.

The Permittee uses copper sulfate, a common algaecide, to control levels of nuisance algae in the Wachusett Reservoir (i.e., the water supply treated at the Plant) that may impart a taste or odor to the water supply. Application of copper sulfate often occurs in June, but not necessarily in consecutive years, to control *Anabaena* blooms, a blue-green algae that imparts a musty or septic taste to water. Other treatments are used on an as-needed basis to control golden-brown algae, particularly *Synura*, which imparts a fishy taste to water. Copper sulfate may be applied at the surface or at a depth of up to 24 feet. Discharges from annual, reoccurring maintenance at the Facility typically do not occur during the time of year copper sulfate application in the Wachusett Reservoir typically occurs.

The Permittee has obtained monitoring data for total recoverable copper and lead in the discharge and the receiving water when discharging. From April 2013 through April 2019 (Appendix A), daily maximum total recoverable copper ranged from 0.958 µg/L to 2 µg/L during drawdown discharges, 0.969 µg/L to 1.98 µg/L during disinfection discharges, 0.83 µg/L to 1.46 µg/L during flush discharges, and 0.704 µg/L to 2.45 µg/L in the receiving water. From April 2013 through April 2019 (Appendix A), total recoverable lead ranged from below detection to 0.24 µg/L during drawdown discharges, below detection to 0.227 µg/L during disinfection discharges, and below detection to 0.098 µg/L during flush discharges, and from 0.111 µg/L to 0.7 µg/L in the receiving water. EPA completed an analysis to determine if these discharges cause, or have a reasonable potential to cause, or contribute to an excursion above State WQSs using EPA's 2002 *National Recommended Water Quality Criteria* for metals (Appendix C). State WQSs contain minimum criteria applicable to all surface waters for toxic pollutants, which requires the use of EPA's *National Recommended Water Quality Criteria: 2002, EPA 822-R-02-047, November 2002* where a specific pollutant is not otherwise listed in 314 CMR 4.00. *See* 314 CMR 4.05(5)(e). The acute and chronic EPA *National Recommended Water Quality Criteria* for copper and lead are as follows:

Copper:
Freshwater acute (Class A or B) = 8.52 µg/L
Freshwater chronic (Class A or B) = 5.94 µg/L
Lead:
Freshwater acute (Class A or B) = 41.71 µg/L
Freshwater chronic (Class A or B) = 1.63 µg/L

The results of EPA's analysis indicate discharges of copper and lead do not cause, or have a reasonable potential to cause, or contribute to an excursion above WQSs. As a result, the Draft Permit does not include effluent limitations for these metals. The purpose of the monitoring requirements for copper, lead, and hardness included in the 2013 permit were to collect the information necessary for EPA to determine compliance with WQSs. The 2013 Permit allowed for the possibility of reducing the sampling frequency for lead provided the data demonstrates there is no reasonable potential to cause or contribute to an exceedance of the hardness-based water quality criteria. These data indicate that the applicable water quality criteria are higher than what EPA estimated during the 2013 Permit development, largely due to the information collected regarding ambient hardness concentrations. As a result, concentrations of copper and lead in the effluent are far below numeric WQSs prior to available dilution. Therefore, the Draft Permit proposes reducing the monitoring frequency for total recoverable copper and lead in the discharge and the receiving water to once per year, which must be monitored once per drawdown discharge during annual maintenance by grab samples, since the maximum concentrations of copper and lead were measured in the drawdown discharge. Monitoring for copper is also required if a discharge event occurs within thirty (30) days following the application of copper sulfate to the Wachusett Reservoir. These requirements are based on CWA §§ 308(a) and 402(a)(2) to determine if the discharge meets State WQSs during the next permit reissuance.

5.2 Special Conditions

5.2.1 Best Management Practices Plan

Best management practices (BMPs) may be expressly incorporated into a permit on a case-by-case basis where it is determined that they are necessary to achieve effluent limitations and standards or to carry out the purpose and intent of the CWA under § 402(a)(1). BMPs may be necessary to control or abate the discharge of pollutants when: 1) authorized under section 304(e) of the CWA for the control of toxic pollutants and hazardous substances from ancillary industrial activities; 2) authorized under section 402(p) of the CWA for the control of storm water discharges; 3) numeric effluent limitations are infeasible; or 4) the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA. *See* 40 C.F.R. 122.44(k). Pollutants may be present because they are generated during Facility maintenance, which could result in significant amounts of these pollutants reaching waters of the United States via discharges of wastewater.

In this case, the Draft Permit requires the Permittee to develop, implement, and maintain a Best Management Practices (BMP) Plan for wastewater discharges from the Facility. The purpose of the BMP Plan is to document how the effluent limitations and requirements are being met through the selection, design, installation, and implementation of control measures (including BMPs) that prevent or minimize the concentration of pollutants (biological, chemical and physical) in the wastewater discharged to surface waters. The BMP Plan will ensure that the wastewater discharged by the Facility is protective of the quality of the receiving water as a public water supply. These requirements are similar to those included in the Facility's 2013 Permit and, when appropriate for this Facility, are consistent with EPA's PWTFGP, effective March 6, 2017. The Draft Permit specifies that the BMP Plan must include the following, at a minimum:

- Documentation of the selection, design, installation, implementation and maintenance of control measures necessary to meet the effluent limitations in this permit, including non-numeric effluent limitations. Any control measures shall be used in accordance with good engineering practices and manufacturer's specifications.
- A description of the pollution control equipment and procedures used to minimize the discharge to surface waters of suspended solids, floating solids, foam, visible oil sheen, and settleable solids, in order to comply with the permit requirements.
- Preventative maintenance procedures for the pollution control equipment to ensure that equipment failures are avoided.
- A characterization of tank bottom residuals generated at the Facility, and how these residuals are generated, controlled.
- Procedures for handling Facility wastes, including schedules for removal, handling and disposal of materials, a description of where solids removed from the pollution control equipment or appurtenances, including sludge, are stored and/or disposed of, and the control measures used to prevent the removed solids from entering the receiving water. If Facility wastes are to be removed from the Facility, a description of the destination and method of disposal and/or reuse.
- A record of the following information for all additives and chemicals, (e.g., algaecides/biocides, antifoams, coagulants, corrosion/scale inhibitors/coatings, disinfectants, flocculants, neutralizing agents, oxidants, oxygen scavengers, pH conditioners, and surfactants):
    - Product name, chemical formula, and manufacturer of the additive/chemical
    - Purpose or use of the additive/chemical
    - Safety Data Sheet (SDS) and Chemical Abstracts Service (CAS) Registry number for each additive/chemical
    - The frequency (hourly, daily, etc.), duration (hours, days), quantity (maximum and average), and method of application for the additive/chemical
    - If available, the vendor's reported aquatic toxicity (NOAEL and/or LC_{50} in percent for aquatic organism(s)).
- A description of the training to be provided for employees to assure they understand the goals, objectives, and procedures of the BMP Plan, the requirements of the NPDES Permit, and their individual responsibilities for complying with the goals and objectives of the BMP Plan and the NPDES permit. Training should be conducted on an annual basis. Certification of such training should be recorded and kept on site, along with the BMP Plan certifications.
- Minimum documentation requirements as follows:
    - Records of operational and preventive maintenance activities
    - Records of the collection and analysis of samples, including, but not limited to sample location, any calculations done at the time of sampling, any sampling or analytical methods used for samples analyzed on site, and sample results so that an inspector may verify that the sampling was properly conducted.
    - All documentation of BMP Plan activities shall be kept at the Facility for at least three years from the date the document was generated and provided to EPA or MassDEP upon request.

The Draft Permit requires the Permittee to certify within ninety (90) days of the effective date of the permit that the BMP Plan has been completed, meets the requirements of the permit, and documents the control measures, including BMPs, that have been implemented to reduce or eliminate the discharge of pollutants from wastewater associated with Facility maintenance. The Permittee must certify at least annually that the Facility has complied with the BMPs described in the BMP Plan, including inspections, maintenance, and training activities. The Permittee is required to amend and update the BMP Plan if any change occurs at the Facility affecting the BMP Plan, such as changes in the design, construction, operation, or maintenance of the Facility.

These requirements support, and are equally enforceable as, the numeric effluent limitations included in the Draft Permit. They have been selected on a case-by-case basis based on those appropriate for this specific facility. *See* CWA §§ 304(e) and 402(a)(1) and 40 C.F.R. § 122.44(k). These requirements will also ensure that discharges from the Facility will meet State WQSs pursuant to CWA § 301(b)(1)(C) and 40 C.F.R. 122.44(d)(1). Unless otherwise stated, the Permittee may select, design, install, implement and maintain BMPs and the BMP Plan as the Permittee deems appropriate to meet the permit requirements.

5.2.2 Discharges of Chemicals and Additives

Chemicals and additives include, but are not limited to: algaecides/biocides, antifoams, coagulants, corrosion/scale inhibitors/coatings, disinfectants, flocculants, neutralizing agents, oxidants, oxygen scavengers, pH conditioners, and surfactants. The Draft Permit allows the discharge of only those chemicals and additives specifically disclosed by the Permittee to EPA and the State. The following chemicals and additives were disclosed to EPA:

- Dechlorination – sodium bisulfate
- Disinfectants – ozone, sodium hypochlorite, aqueous ammonia
- pH adjustment – sodium carbonate, sodium hydroxide
- Water additives – hydrofluorosilicic acid, sodium carbonate

However, EPA recognizes that chemicals and additives in use at a Facility may change during the term of the permit. As a result, the Draft Permit includes a provision that requires the Permittee to notify EPA and the State in writing of the discharge a new chemical or additive; allows for EPA and State review of the change; and provides the factors for consideration of such changes. The Draft Permit specifies that for each chemical or additive, the Permittee must submit the following information, at a minimum, in writing to EPA and the State:

- Product name, chemical formula, and manufacturer of the chemical/additive.
- Purpose or use of the chemical/additive.
- Safety Data Sheet (SDS) and Chemical Abstracts Service (CAS) Registry number for each chemical/additive.
- The frequency (e.g., hourly, daily), magnitude (e.g., maximum and average), duration (e.g., hours, days), and method of application for the chemical/additive.
- If available, the vendor's reported aquatic toxicity (i.e., NOAEL and/or LC_{50} in percent for aquatic organism(s)).

The Permittee must also provide an explanation which demonstrates that the discharge of such chemical or additive: 1) will not add any pollutants in concentrations which exceed any permit effluent limitation; and 2) will not add any pollutants that would justify the application of permit conditions different from, or in addition to those currently in this permit.

Assuming these requirements are met, discharges of a new chemical or additive is authorized under the permit upon notification to EPA and the State unless otherwise notified by EPA or the State.

6.0 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 Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries) 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 Facility's discharges of pollutants. The Draft Permit is intended to replace the 2013 Permit in governing the Facility. 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 action area to determine if EPA's proposed NPDES permit could potentially impact any such listed species. No federally listed threatened or endangered species have been identified for the action area.[9] However, one listed endangered species, the northern long-eared bat (*Myotis septentrionalis*), was identified is "statewide". 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. Therefore, the proposed permit action will have no direct or indirect effect on this listed species.

EPA has structured the proposed limitations to be sufficiently stringent to assure that State WQSs will be met, including for protection of aquatic life. The effluent limitations established in this permit ensure the protection of aquatic life and maintenance of the receiving water as an

[9] See https://ecos.fws.gov/ipac/

aquatic habitat. Therefore, EPA finds that adoption of the proposed permit will have no effect on any federally-listed threatened or endangered species or its critical habitat, and consultation with NOAA Fisheries or USFWS under Section 7 of the ESA is not required.

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 NOAA Fisheries if EPA's action or proposed actions that it funds, permits, or undertakes, "may adversely impact any essential fish habitat". 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". 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), or 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.[16] *See* 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. EPA has determined that the Sudbury Reservoir is not covered by the EFH designation for riverine systems at Latitude 42° 18' 44.7" Longitude 71° 34' 53.4" as determined by the NOAA EFH Mapper.[10] EPA's review of available EFH information indicated that the only EFH species that could possibly be present in the general vicinity of the Sudbury Reservoir is the Atlantic salmon *(Salmo salar)*. However, EPA received guidance from NOAA Fisheries that the Sudbury Reservoir for the Facility is not listed as EFH for Atlantic salmon.[11] Therefore, consultation with NOAA Fisheries under the Magnuson-Stevens Fishery Conservation and Management Act is not required.

7.0 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:

Shauna Little
EPA Region 1
5 Post Office Square, Suite 100 (06-1)
Boston, MA 02109-3912
Telephone: (617) 918-1989
Email: little.shauna@epa.gov

[10] NOAA EFH Mapper available at http://www.habitat.noaa.gov/protection/efh/efhmapper/
[11] Correspondence from Michael R. Johnson, NMFS, to John H. Nagle, EPA Region 1, June 4, 2012.

Cathy Vakalopoulos
MassDEP
Surface Water Discharge Permit Program
One Winter Street, 5th Floor
Boston, MA 02108
Telephone: (617) 348-4026
Email: catherine.vakalopoulos@mass.gov

Prior to the close of the public comment period, any person may submit a written request to EPA and the State Agency for a public hearing to consider the Draft Permit. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing 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 in a Response to Comments document attached to the Final Permit and make these responses available to the public at EPA's Boston office and on EPA's website.

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 submitted written comments or requested notice. The Final Permit is jointly issued by EPA and MassDEP under federal and state law, respectively, and constitutes two separate and independent permit authorizations: 1) a federal NPDES Permit issued by the EPA pursuant to the Federal Clean Water Act, 33 U.S.C. §§ 1251 *et seq.*; and 2) a state surface water discharge permit issued by MassDEP pursuant to the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53, and 314 C.M.R. 3.00. Within 30 days after EPA serves notice of the issuance of the Final Permit decision, an appeal of the federal NPDES permit may be commenced by filing a petition for review of the permit with the Clerk of EPA's Environmental Appeals Board in accordance with the procedures at 40 C.F.R. § 124.19. An appeal of the State permit may be commenced by submitting a request for an adjudicatory hearing to MassDEP's Office of Appeals and Dispute Resolution consistent with 310 CMR 1.00.

8.0 Administrative Record

The administrative record on which this Draft Permit is based may be accessed at EPA's Boston office between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays, from Shauna Little, EPA Region 1, Water Division, Industrial Permits Section, 5 Post Office Square, Suite 100, Boston, Massachusetts 02109-3912 or via email to little.shauna@epa.gov.

August 7, 2019

Ken Moraff, Director
Water Division
U.S. Environmental Protection Agency

Figure 1: Location Map

Figure 2: Site Plan

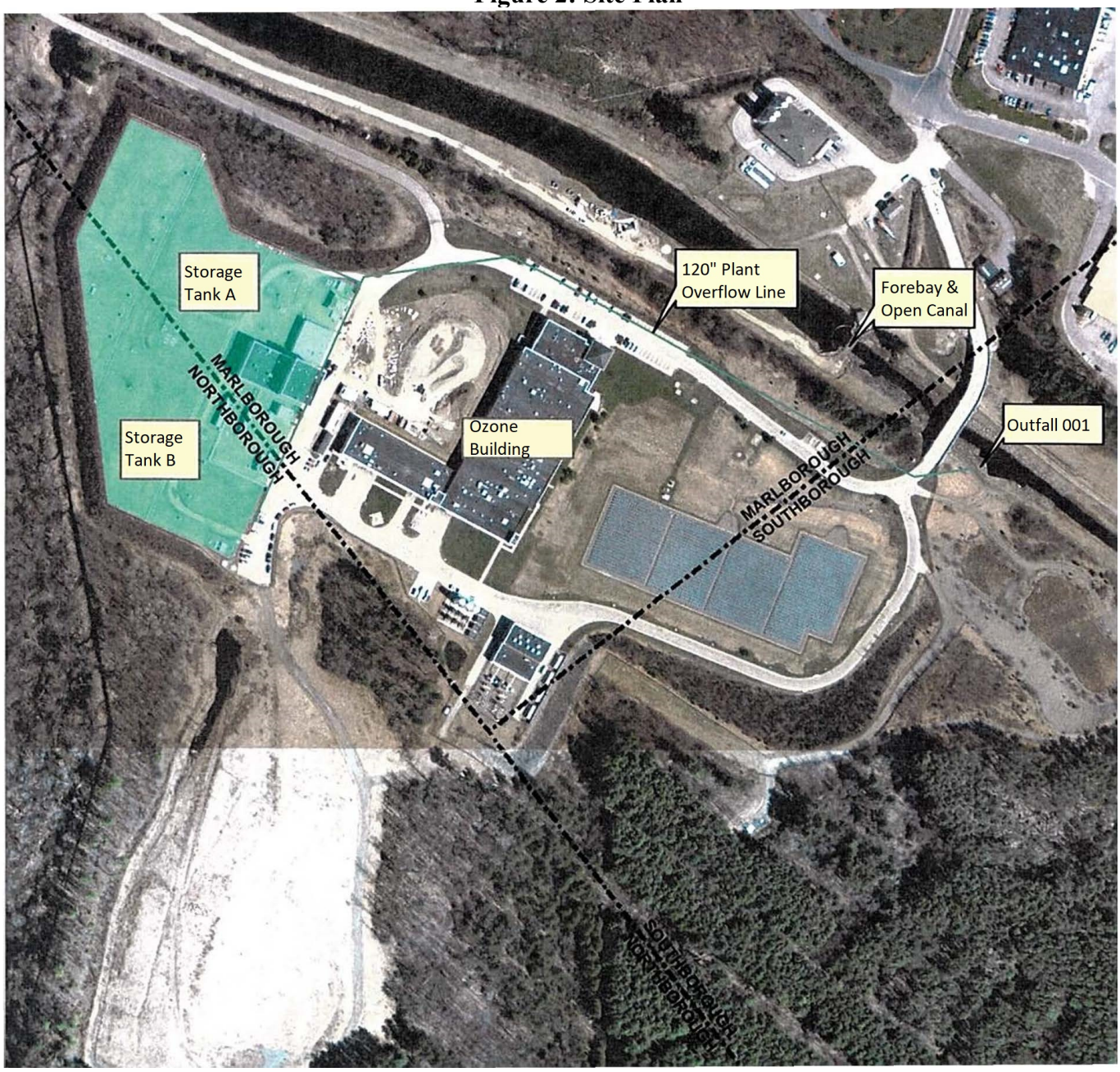
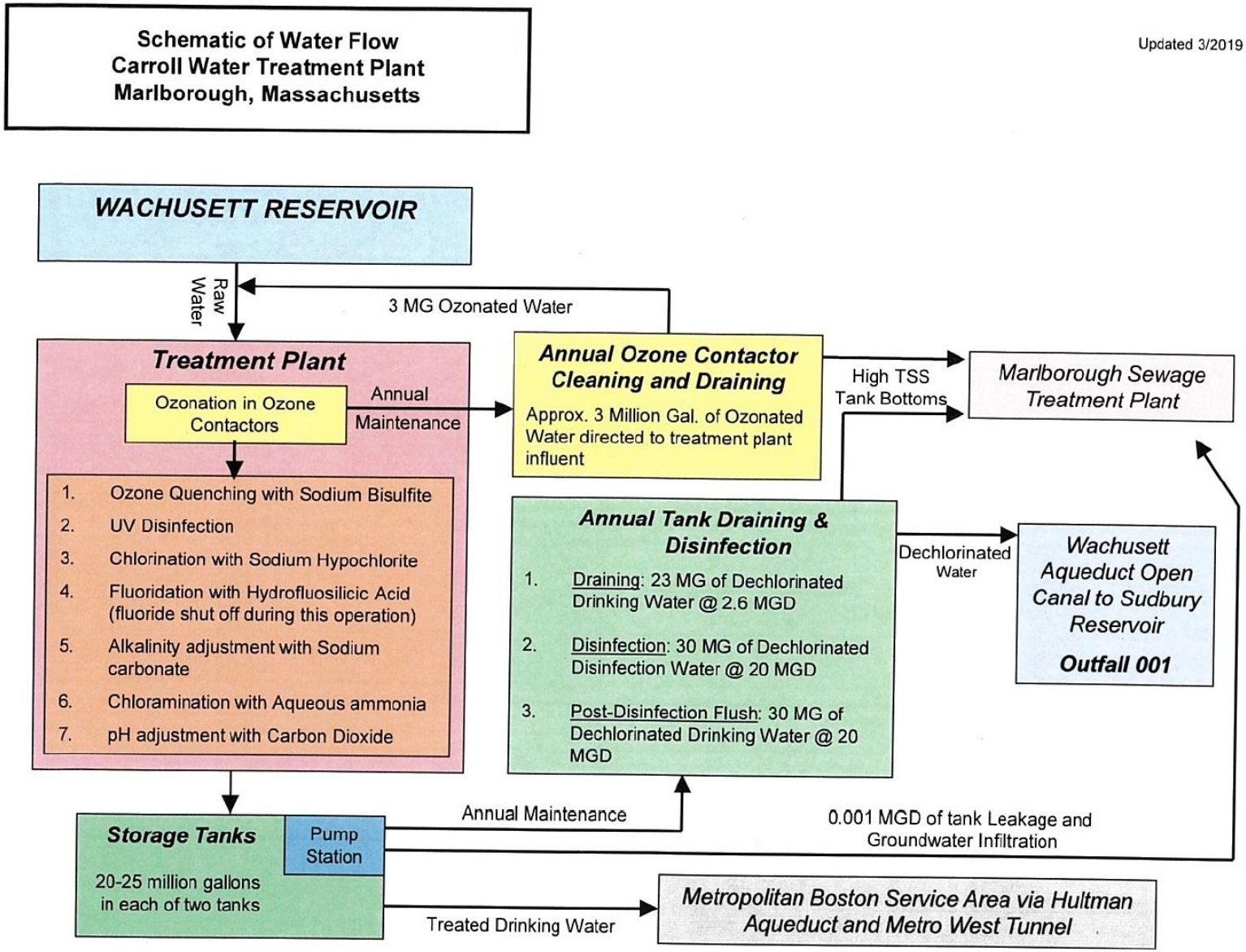


Figure 3: Schematic of Water Flow



Appendix A: Discharge Monitoring Data

John J. Carroll Water Treatment Plant
Outfall Serial Number 001: Effluent Monitoring: Drawdown Discharges

Parameter	Flow	TSS	TSS	pH	pH	TRC	TRC	Ammonia	Ammonia	Copper	Copper	Lead	Lead	Hardness	Temperature, water deg. fahrenheit
	Daily Max	Monthly Ave	Daily Max	Minimum	Maximum	Monthly Ave	Daily Max	Monthly Ave	Daily Max	Monthly Ave	Daily Max	Monthly Ave	Daily Max	Daily Max	Maximum
Units	**MGD**	**mg/L**	**mg/L**	**SU**	**SU**	**ug/L**	**ug/L**	**mg/L**	**mg/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**mg/L**	**deg F**
Effluent Limit	**25**	**30**	**50**	**6.5**	**8.3**	**110**	**190**	**Report**	**Report**	**Report**	**Report**	**Report**	**Report**	**Report**	**Report**
Minimum	**1**	**0**	**0**	**6.65**	**6.65**	**0**	**0**	**0**	**0**	**0.958**	**0.958**	**0**	**0**	**12.9**	**33.8**
Maximum	**3.4**	**5**	**5.5**	**7.76**	**7.77**	**340**	**340**	**0.57**	**0.631**	**2**	**2**	**0.189**	**0.24**	**20.9**	**72.9**
Average	**2.5**	**1.98**	**2.17**	**7.02**	**7.21**	**33**	**38**	**0.0757**	**0.0797**	**1.33**	**1.39**	**0.0931**	**0.11**	**16.1**	**43.9**
No. of Violations	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
6/30/2013	1	4	4	6.76	6.76	20	20	0	0	2	2	0.158	0.158	19	NODI: C
7/31/2013	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	72.9
11/30/2013	2	5	5	7.35	7.35	30	30	0	0	1.35	1.35	0.105	0.105	14.2	44.5
1/31/2014	3.3	4	4	6.86	6.86	20	20	0	0	1.28	1.28	0.112	0.112	12.9	34
4/30/2014	3.4	5	5	7.76	7.76	**340**	**340**	0	0	1.31	1.31	0.189	0.189	13.5	51
10/31/2014	3.19	4	4	7.73	7.73	20	20	0	0	1.87	1.87	0.0625	0.0625	13.6	NODI: C
11/30/2014	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	47.8
1/31/2015	3.12	5	5	7.01	7.77	10	30	0	0	1.7	1.7	0.12	0.12	13.3	34
11/30/2015	2.9	0	0	6.98	7.65	15	30	0	0	1.51	1.76	0.16	0.19	14.1	56.1
1/31/2016	3.3	0	0	7.01	7.01	0	0	0	0	1.05	1.05	0.07	0.07	14.6	36.9
11/30/2016	2.79	0	0	6.67	6.92	0	0	0	0	1.125	1.15	0.14	0.16	20.9	49.6
2/28/2017	2.5	0	0	7.32	7.32	0.02	0.02	0	0	0.958	0.958	0	0	14.8	NODI: C
3/31/2017	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	41.5
11/30/2017	2	0	0	6.87	7.55	0	0	0	0	1.18	1.18	0.08	0.08	17.8	47.1
1/31/2018	2	0	0	6.91	6.91	10	20	0	0	0.97	1	0.04	0.09	16.7	33.8
11/30/2018	2	0	0	6.75	7.08	30	60	0.57	0.631	1.31	1.63	0.04	0.08	18	39.1
12/31/2018	2	0	0	6.65	6.65	0	0	0.565	0.565	1.08	1.08	0	0	19	36.9
2/28/2019	2	2.75	5.5	6.7	6.87	0	0	0	0	1.325	1.54	0.12	0.24	18.7	33.8

John J. Carroll Water Treatment Plant **Outfall Serial Number 001: Effluent Monitoring: Disinfection Discharges**											
Parameter	**Flow**	**TSS**	**TSS**	**pH**	**pH**	**TRC**	**Ammonia**	**Copper**	**Lead**	**Hardness**	**Temperature, water deg. fahrenheit**
	Daily Max	**Monthly Ave**	**Daily Max**	**Minimum**	**Maximum**	**Daily Max**	**Daily Max**	**Daily Max**	**Daily Max**	**Daily Max**	**Daily Max**
Units	**MGD**	**mg/L**	**mg/L**	**SU**	**SU**	**ug/L**	**mg/L**	**ug/L**	**ug/L**	**mg/L**	**deg F**
Effluent Limit	**25**	**30**	**50**	**6.5**	**8.3**	**190**	**Report**	**Report**	**Report**	**Report**	**Report**
Minimum	**1**	**5**	**0**	**6.51**	**6.51**	**0**	**0**	**0.969**	**0**	**13**	**32.7**
Maximum	**22.6**	**5**	**5**	**7.43**	**7.43**	**30**	**0**	**1.98**	**0.227**	**21.2**	**81.2**
Average	**16.5**	**5**	**2.05**	**7**	**7.01**	**12.7**	**N/A**	**1.38**	**0.0924**	**16**	**42.7**
No. of Violations	**0**	**0**	**0**	**0**	**0**	**0**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
6/30/2013	1	5	5	6.61	6.61	20	0	1.98	0.107	16.4	NODI: C
7/31/2013	1	5	5	6.69	6.83	30	0	1.72	0.191	17.8	81.2
12/31/2013	21		5	7.43	7.43	20	0	1.6	0.099	13	35.9
3/31/2014	2		5	6.51	6.51	20	0	1.28	0.063	14.1	35.5
4/30/2014	3.4		3.8	7.2	7.2	20	0	1.74	0.227	15.2	NODI: C
5/31/2014	NODI: C		NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	65.1
12/31/2014	22		2	7.31	7.31	20	0	1.4	0.063	14.6	39.4
3/31/2015	21		5	7.42	7.42	20	0	1.28	0.0782	14.8	32.7
12/31/2015	21.7		0	6.93	6.93	0	0	1.22	0	14.3	45.8
2/29/2016	22.6		0	7.03	7.03	20	0	1.1	0.068	13.5	32.8
1/31/2017	22		0	6.94	6.94	0	0	0.969	0	14.6	36.9
4/30/2017	22		0	6.82	6.82	0	0	1.48	0.086	15.7	55.1
12/31/2017	22		0	6.93	6.93	20	0	1.43	0.069	16.7	33.8
3/31/2018	22		0	7.42	7.42	0	0	1.43	0.07	18.4	35.2
1/31/2019	22		0	7.22	7.22	0	0	1.04	0.111	19.3	34.8
3/31/2019	22		0	6.52	6.52	0	0	1.03	0.154	21.2	34.2

John J. Carroll Water Treatment Plant Outfall Serial Number 001: Effluent Monitoring: Flush Discharges										
Parameter	**Flow**	**TSS**	**pH**	**pH**	**TRC**	**Ammonia**	**Copper**	**Lead**	**Hardness**	**Temperature, water deg. fahrenheit**
	Daily Max	**Daily Max**	**Minimum**	**Maximum**	**Daily Max**	**Daily Max**	**Daily Max**	**Daily Max**	**Daily Max**	**Daily Max**
Units	**MGD**	**mg/L**	**SU**	**SU**	**ug/L**	**mg/L**	**ug/L**	**ug/L**	**mg/L**	**deg F**
Effluent Limit	**25**	**50**	**6.5**	**8.3**	**190**	**Report**	**Report**	**Report**	**Report**	**Report**
Minimum	**21**	**0**	**7.02**	**7.02**	**0**	**0**	**0.83**	**0**	**12.9**	**32.9**
Maximum	**24.2**	**5**	**8.06**	**8.06**	**40**	**0**	**1.46**	**0.098**	**18.9**	**47**
Average	**22.1**	**1.19**	**7.5**	**7.5**	**10**	**N/A**	**1.15**	**0.044**	**15.2**	**36.9**
No. of Violations	**0**	**0**	**0**	**0**	**0**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
12/31/2013	21	5	7.83	7.83	20	0	1.37	0.071	13.4	34.2
3/31/2014	22	2.22	8.03	8.03	20	0	1.46	0.063	13.1	NODI: C
4/30/2014	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	NODI: C	35.5
12/31/2014	22	2	7.77	7.77	20	0	1.33	0.079	13.6	38.8
3/31/2015	21	5	7.51	7.51	20	0	1.2	0.0625	14.6	32.9
12/31/2015	22.4	0	7.18	7.18	0	0	1.04	0	13.8	43.4
2/29/2016	24.2	0	7.21	7.21	0	0	0.929	0	12.9	32.9
1/31/2017	22	0	7.34	7.34	0	0	1.05	0.083	14.2	35.8
4/30/2017	22	0	7.13	7.13	0	0	0.892	0	15.3	47
12/31/2017	22	0	7.83	7.83	0	0	1.38	0	17	36.7
3/31/2018	22	0	8.06	8.06	0	0	0.83	0	17.7	38.5
1/31/2019	22	0	7.08	7.08	40	0	1.26	0.071	18.3	34.4
3/31/2019	22	0	7.02	7.02	0	0	1.02	0.098	18.9	32.9

Notes:

0 = parameter not detected
NODI: C = no discharge occurred during the monitoring period.

Appendix B: Ambient Data

John J. Carroll Water Treatment Plant
Sudbury Reservoir: Receiving Water Monitoring: Drawdown Discharges

Parameter	Copper	Lead	Hardness	Temperature, water deg. fahrenheit
	Daily Max	Daily Max	Daily Max	Maximum
Units	ug/L	ug/L	mg/L	deg F
Effluent Limit	Report	Report	Report	Report
Minimum	**0.72**	**0.14**	**27**	**34.9**
Maximum	**2.45**	**0.7**	**111**	**72.8**
Average	**1.43**	**0.356**	**65.2**	**44**
No. of Violations	**N/A**	**N/A**	**N/A**	**N/A**
7/31/2013	1.63	0.4	39	72.8
11/30/2013	1.34	0.509	27	43.5
1/31/2014	1.11	0.215	54.9	34.9
4/30/2014	0.97	0.275	57.6	50.1
11/30/2014	2.17	0.448	54.6	46.9
1/31/2015	2.45	0.278	81.8	35
11/30/2015	1.48	0.64	64.5	56.1
1/31/2016	1.1	0.3	81.3	38
11/30/2016	1.5	0.29	85	48.9
3/31/2017	1.03	0.175	70.5	40.6
11/30/2017	1.79	0.7	63	46.4
1/31/2018	1.66	0.31	111	35.8
11/30/2018	1.53	0.49	51.1	38.4
12/31/2018	0.72	0.14	73	37.2
2/28/2019	0.944	0.167	63.9	36.1

John J. Carroll Water Treatment Plant
Sudbury Reservoir: Receiving Water Monitoring: Disinfection Discharges

Parameter	**Copper**	**Lead**	**Hardness**	**Temperature, water deg. fahrenheit**
	Daily Max	**Daily Max**	**Daily Max**	**Daily Max**
Units	**ug/L**	**ug/L**	**mg/L**	**deg F**
Effluent Limit	**Report**	**Report**	**Report**	**Report**
Minimum	**0.704**	**0.145**	**27.5**	**34.3**
Maximum	**1.74**	**0.584**	**100**	**82.5**
Average	**1.18**	**0.307**	**66.3**	**43.3**
No. of Violations	**N/A**	**N/A**	**N/A**	**N/A**
7/31/2013	1.38	0.584	46.9	82.5
12/31/2013	1.19	0.203	35	37.1
3/31/2014	1.51	0.486	27.5	35.6
5/31/2014	1.38	0.431	66.1	65.7
12/31/2014	1.12	0.238	64.3	37.8
3/31/2015	1	0.271	100	34.3
12/31/2015	1.15	0.4	73.1	44.3
2/29/2016	1.07	0.287	76.3	34.7
1/31/2017	0.884	0.171	83.9	35.1
4/30/2017	1.31	0.244	57.6	56.3
12/31/2017	1.74	0.25	85.1	36.3
3/31/2018	1.29	0.39	61.8	35.6
1/31/2019	0.728	0.145	70.8	34.9
3/31/2019	0.704	0.197	79.7	35.9

John J. Carroll Water Treatment Plant Sudbury Reservoir: Receiving Water Monitoring: Flush Discharges				
Parameter	**Copper**	**Lead**	**Hardness**	**Temperature, water deg. fahrenheit**
	Daily Max	**Daily Max**	**Daily Max**	**Daily Max**
Units	**ug/L**	**ug/L**	**mg/L**	**deg F**
Effluent Limit	**Report**	**Report**	**Report**	**Report**
Minimum	**0.788**	**0.111**	**27.1**	**33.3**
Maximum	**1.81**	**0.365**	**93.3**	**53.1**
Average	**1.15**	**0.222**	**59**	**37.7**
No. of Violations	**N/A**	**N/A**	**N/A**	**N/A**
12/31/2013	1.28	0.256	55.4	37.1
4/30/2014	1.45	0.365	27.1	36.1
12/31/2014	1.04	0.192	57.8	37.6
3/31/2015	1.37	0.31	64.3	33.3
12/31/2015	1.1	0.27	56.6	42.9
2/29/2016	0.923	0.202	58.6	33.8
1/31/2017	1.01	0.173	67.9	35.8
4/30/2017	1.16	0.199	59.3	53.1
12/31/2017	1.81	0.268	93.3	37
3/31/2018	1.08	0.15	52.3	38.4
1/31/2019	0.826	0.111	44.1	33.7
3/31/2019	0.788	0.163	71.6	33.5

Notes:

NA = not applicable

Appendix C: Reasonable Potential Analysis

Methodology

A reasonable potential analysis is completed using a single set of critical conditions for flow and pollutant concentration that will ensure the protection of water quality standards. To determine the critical condition of the effluent, EPA projects an upper bound of the effluent concentration based on the observed monitoring data and a selected probability basis. EPA generally applies the quantitative approach found in Appendix E of the *Technical Support Document for Water Quality-based Toxics Control* (TSD)[1] to determine the upper bound of the effluent data. This methodology accounts for effluent variability based on the size of the dataset and the occurrence of non-detects (i.e., samples results in which a parameter is not detected above laboratory detection limits). For datasets of 10 or more samples, EPA used the upper bound effluent concentration at the 95th percentile of the dataset. For datasets that include one or more non-detect results, EPA used a delta-lognormal distribution to calculate the 95th percentile.

EPA typically uses the calculated upper bound of the effluent data, along with a concentration representative of the parameter in the receiving water, the critical effluent flow, and the critical upstream flow to project the downstream concentration after complete mixing using the following simple mass-balance equation:

$$Q_s C_s + Q_e C_e = Q_d C_d$$

Where:

C_d = downstream concentration
C_s = upstream concentration (median value of available ambient data)
C_e = effluent concentration (95th percentile of effluent concentrations)
Q_s = upstream flow
Q_e = effluent flow of the Facility (permitted maximum daily flow)
Q_d = downstream flow ($Q_s + Q_e$)

However, the ambient flow has not been measured for the receiving water, which is a reservoir. Therefore, to determine the concentration downstream of the discharge (C_d), a receiving water flow that would result in the dilution factor (DF) approved by the State was substituted for Q_s as follows:

$$C_d = \frac{C_s Q_s + C_e Q_e}{Q_d}$$

When this concentration (C) exceeds the applicable criterion, there is reasonable potential for the discharge to cause, or contribute to an excursion above WQSs. *See* 40 C.F.R. § 122.44(d). When EPA determines that a discharge causes, has the reasonable potential to cause, or contribute to such an excursion, the permit must contain WQBELs for the parameter. The limitation is calculated by rearranging the above mass balance equation to solve for the effluent concentration (C_e) using the applicable criterion as the downstream concentration (C_d). *See* 40 C.F.R. § 122.44(d)(1)(iii).

Determination of Applicable Criteria

State water quality criteria are derived from EPA's *National Recommended Water Quality Criteria: 2002*, which are incorporated into the state WQSs by reference at 315 CMR 4.05(5).

Freshwater aquatic life criteria for copper and lead are established in terms of dissolved metals and are converted to total recoverable using published conversion factors. Additionally, the criteria for copper, and lead are hardness-dependent. EPA calculated hardness-dependent chronic and acute criteria for copper and lead using the hardness values measured in the Facility's discharge (Appendix A), the median hardness value measured in the receiving water (Appendix B), and the mixing equation described above. Freshwater aquatic life criteria for ammonia are temperature and pH dependent. The applicable criteria are summarized in the table below.

Summary of Applicable Criteria

Parameter	Coefficients				Applicable Criteria[1,2,3,4,5]	
	m_a	b_a	m_c	b_c	Acute Criteria (CMC)	Chronic Criteria (CCC)
Units	—	—	—	—	**µg/L**	**µg/L**
Copper	0.9422	-1.7000	0.8545	-1.702	8.52	5.94
Lead	1.273	-1.46	1.273	-4.705	41.71	1.63
Ammonia	—	—	—	—	4.71	0.64

[1]Acute metals criteria (Criterion Maximum Concentration (CMC)) = $\exp\{m_a*\ln(\text{hardness})+b_a\}$ where:

m_a = pollutant-specific coefficient
b_a = pollutant-specific coefficient
ln = natural logarithm
h = hardness of the receiving water

[2]Chronic metals criteria (Criterion Continuous Concentration (CCC)) = $\exp\{m_c*\ln(\text{hardness})+b_c\}$ where:

m_c = pollutant-specific coefficient
b_c = pollutant-specific coefficient

ln = natural logarithm
h = hardness of the receiving water

[3]For hardness-dependent criteria, see *National Recommended Water Quality Criteria, Appendix B - Parameters for Calculating Freshwater Dissolved Metals Criteria That Are Hardness-Dependent*: http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm

[4]For dissolved to total recoverable metal conversion, see *Appendix A - Conversion Factors for Dissolved Metals:* http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm#appendxa; Required by 314 CMR 4.05(5)(e).

[5]For ammonia criteria, see *1999 Update of Ambient Water Quality Criteria for Ammonia*. U.S. Environmental Protection Agency, Office of Water, EPA-822-R-99-014: December 1999. Pages 86 and 87 are attached to this appendix, for reference.

Calculation of Reasonable Potential

EPA first calculated the upper bound of expected effluent concentrations for each parameter. EPA then used the calculated upper bound of expected effluent concentrations, the median value of the available ambient data, the permitted daily maximum effluent flow and the upstream 7Q10 flow to project the in-stream concentration downstream from the discharge. When this resultant in-stream concentration (C) exceed the applicable criterion, there is reasonable potential for the discharge to cause, or contribute to an excursion above water quality standards. The results are summarized in the table below.

Summary of Reasonable Potential Results

Parameter	Effluent Flow	Effluent Conc[1]	Ambient Flow[2]	Ambient Conc[3]	Downstream Flow[4]	Downstream Concentration	Acute Criterion	Chronic Criterion	Acute Reasonable Potential[5]	Chronic Reasonable Potential[5]
Units	**MGD**	**µg/L**	**MGD**	**µg/L**	**MGD**	**µg/L**	**µg/L**	**µg/L**	**—**	**—**
Copper	25	2.0081	225	1.48	250	1.53	8.52	5.94	N	N
Lead		0.2297		0.3		0.29	41.71	1.63	N	N
Ammonia		0.6054		0		0.0605	4.71	0.64	N	N

[1] Values represent the 95th percentile concentration calculated using the monitoring data reported by the Facility for drawdown discharges (*See* Appendix A).
[2] Value calculated as the ambient flow which would yield a dilution factor of 10:1 when the discharge flow is 25 MGD.
[3] Median upstream values calculated using monitoring data for the receiving water immediately upstream of the Facility's discharge reported by the Facility during drawdown discharges (see Appendix B).[4] "Y" is indicated if both effluent concentration and downstream concentration exceeds the acute criterion.
[4] Value is the sum of effluent flow and ambient flow.
[5] "Y" is indicated if the downstream concentration exceeds the applicable criterion. Otherwise, "N" is indicated.

No parameters have a reasonable potential to cause or contribute to an excursion above water quality standards.

Attachment to Appendix C

pH-Dependent Values of the CMC (Acute Criterion)

CMC, mg N/L		
pH	Salmonids Present	Salmonids Absent
6.5	32.6	48.8
6.6	31.3	46.8
6.7	29.8	44.6
6.8	28.1	42.0
6.9	26.2	39.1
7.0	24.1	36.1
7.1	22.0	32.8
7.2	19.7	29.5
7.3	17.5	26.2
7.4	15.4	23.0
7.5	13.3	19.9
7.6	11.4	17.0
7.7	9.65	14.4
7.8	8.11	12.1
7.9	6.77	10.1
8.0	5.62	8.40
8.1	4.64	6.95
8.2	3.83	5.72
8.3	3.15	4.71
8.4	2.59	3.88
8.5	2.14	3.20
8.6	1.77	2.65
8.7	1.47	2.20
8.8	1.23	1.84
8.9	1.04	1.56
9.0	0.885	1.32

Temperature and pH-Dependent Values of the CCC (Chronic Criterion) for Fish Early Life Stages Present

CCC for Fish Early Life Stages Present, mg N/L										
pH	Temperature, C									
	0	14	16	18	20	22	24	26	28	30
6.5	6.67	6.67	6.06	5.33	4.68	4.12	3.62	3.18	2.80	2.46
6.6	6.57	6.57	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	6.44	6.44	5.86	5.15	4.52	3.98	3.50	3.07	2.70	2.37
6.8	6.29	6.29	5.72	5.03	4.42	3.89	3.42	3.00	2.64	2.32
6.9	6.12	6.12	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25
7.0	5.91	5.91	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18
7.1	5.67	5.67	5.15	4.53	3.98	3.50	3.08	2.70	2.38	2.09
7.2	5.39	5.39	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99
7.3	5.08	5.08	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	4.73	4.73	4.30	3.78	3.32	2.92	2.57	2.26	1.98	1.74
7.5	4.36	4.36	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.98	3.98	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47
7.7	3.58	3.58	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32
7.8	3.18	3.18	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.80	2.80	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	2.43	2.43	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.897
8.1	2.10	2.10	1.91	1.68	1.47	1.29	1.14	1.00	0.879	0.773
8.2	1.79	1.79	1.63	1.43	1.26	1.11	0.973	0.855	0.752	0.661
8.3	1.52	1.52	1.39	1.22	1.07	0.941	0.827	0.727	0.639	0.562
8.4	1.29	1.29	1.17	1.03	0.906	0.796	0.700	0.615	0.541	0.475
8.5	1.09	1.09	0.990	0.870	0.765	0.672	0.591	0.520	0.457	0.401
8.6	0.920	0.920	0.836	0.735	0.646	0.568	0.499	0.439	0.386	0.339
8.7	0.778	0.778	0.707	0.622	0.547	0.480	0.422	0.371	0.326	0.287
8.8	0.661	0.661	0.601	0.528	0.464	0.408	0.359	0.315	0.277	0.244
8.9	0.565	0.565	0.513	0.451	0.397	0.349	0.306	0.269	0.237	0.208
9.0	0.486	0.486	0.442	0.389	0.342	0.300	0.264	0.232	0.204	0.179

MASSACHUSETTS DEPARTMENT
OF ENVIRONMENTAL PROTECTION
COMMONWEALTH OF MASSACHUSETTS
1 WINTER STREET
BOSTON, MASSACHUSETTS 02108

UNITED STATES ENVIRONMENTAL
PROTECTION AGENCY – REGION 1
WATER DIVISION
5 POST OFFICE SQUARE
BOSTON, MASSACHUSETTS 02109

JOINT PUBLIC NOTICE OF A DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE INTO WATERS OF THE UNITED STATES UNDER SECTIONS 301 AND 402 OF THE CLEAN WATER ACT, AS AMENDED, AND SECTIONS 27 AND 43 OF THE MASSACHUSETTS CLEAN WATERS ACT, AS AMENDED, AND REQUEST FOR STATE CERTIFICATION UNDER SECTION 401 OF THE CLEAN WATER ACT.

PUBLIC NOTICE PERIOD: August 12, 2019 – September 10, 2019

PERMIT NUMBER: **MA0040398**

PUBLIC NOTICE NUMBER: MA-020-19

NAME AND MAILING ADDRESS OF APPLICANT:

Massachusetts Water Resources Authority (MWRA)
Charlestown Navy Yard
100 First Avenue, Building 39
Boston, MA 02129

NAME AND ADDRESS OF THE FACILITY WHERE DISCHARGE OCCURS:

John J. Carroll Water Treatment Plant
84 D'Angelo Drive
Marlborough, MA 01752

RECEIVING WATER: Sudbury Reservoir (MA82106) (Class A)

The U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) have cooperated in the development of a draft permit for the John J. Carroll Water Treatment Plant, which discharges wastewater. The effluent limits and permit conditions imposed have been drafted to assure compliance with the Clean Water Act, 33 U.S.C. sections 1251 et seq., the Massachusetts Clean Waters Act, G.L. c. 21, §§ 26-53, 314 CMR 3.00, and State Surface Water Quality Standards at 314 CMR 4.00. EPA has requested that the State certify this draft permit pursuant to Section 401 of the Clean Water Act and expects that the draft permit will be certified.

INFORMATION ABOUT THE DRAFT PERMIT:

The draft permit and explanatory fact sheet may be obtained at no cost at http://www.epa.gov/region1/npdes/draft_permits_listing_ma.html or by contacting:

Shauna Little
U.S. Environmental Protection Agency – Region 1
5 Post Office Square, Suite 100 (06-4)
Boston, MA 02109-3912
Telephone: (617) 918-1989
little.shanua@epa.gov

The administrative record containing all documents relating to this draft permit including all data submitted by the applicant may be inspected at the EPA Boston office mentioned above between 9:00 a.m. and 5:00 p.m., Monday through Friday, except holidays.

PUBLIC COMMENT AND REQUEST FOR PUBLIC HEARING:

All persons, including applicants, who believe any condition of this draft permit is inappropriate, must raise all issues and submit all available arguments and all supporting material for their arguments in full by **September 10, 2019**, to the address or email address listed above. Any person, prior to such date, may submit a request in writing to EPA and MassDEP for a public hearing to consider this draft permit. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on this draft permit, the Regional Administrator will respond to all significant comments and make the responses available to the public at EPA's Boston office.

FINAL PERMIT DECISION:

Following the close of the comment period, and after a public hearing, if such hearing is held, the Regional Administrator will issue a final permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice.

LEALDON LANGLEY, DIRECTOR
DIVISION OF WATERSHED MANAGEMENT
MASSACHUSETTS DEPARTMENT OF
ENVIRONMENTAL PROTECTION

KEN MORAFF, DIRECTOR
WATER DIVISION
UNITED STATES ENVIRONMENTAL
PROTECTION AGENCY – REGION 1