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"),

L.S. Starrett Company

is authorized to discharge from a facility located at

L.S. Starrett Company
121 Crescent Street
Athol, MA 01331

to receiving water named

Millers River
Connecticut River Watershed

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

This permit shall become effective on [DATE].[1]

This permit expires at midnight on [DATE].

This permit supersedes the permit issued on February 6, 2009.

This permit consists of this **cover page**, **Part I**, **Attachment A** (Freshwater Acute Toxicity Test Procedure and Protocol, February 2011), **Attachment B** (Freshwater Chronic Toxicity Test Procedure and Protocol, March 2013), and **Part II** (NPDES Part II Standard Conditions, April 2018).

Signed this day of

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

[1] Pursuant to 40 Code of Federal Regulations (CFR) § 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 CFR § 124.19.

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PART I

A.EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date and lasting through the expiration date, the Permittee is authorized to discharge **treated electroplating process wastewater** through **Outfall Serial Number 002** to the Millers River. The discharge shall be limited and monitored as specified below; the receiving water shall be monitored as specified below.

Effluent Characteristic	Effluent Limitations		Monitoring Requirements[1,2,3]	
	Average Monthly	Maximum Daily	Measurement Frequency[4]	Sample Type[5]
Effluent Flow[6]	25,000 GPD	30,000 GPD	Continuous	Meter
pH[7]	6.5 - 8.3 S.U.		Continuous	Meter
Total Suspended Solids (TSS)	20 mg/L	30 mg/L	2/Month	Composite
Oil & Grease	15 mg/L	15 mg/L	2/Month	Grab
Cyanide, Total[8]	0.50 mg/L	1.0 mg/L	2/Month	Grab
Cyanide, Amenable[8]	0.05 mg/L	0.1 mg/L	2/Month	Grab
Aluminum, Total	1.0 mg/L	2.0 mg/L	2/Month	Composite
Chromium, Total	0.5 mg/L	1.0 mg/L	2/Month	Composite
Chromium, Hexavalent	0.05 mg/L	0.1 mg/L	2/Month	Composite
Copper, Total	0.79 mg/L	1.0 mg/L	2/Month	Composite
Nickel, Total	2.38 mg/L	3.0 mg/L	2/Month	Composite
Zinc, Total	1.48 mg/L	2.0 mg/L	2/Month	Composite
Cadmium, Total	0.068 mg/L	0.178 mg/L	1/Quarter	Composite
Lead, Total	0.119 mg/L	0.69 mg/L	1/Quarter	Composite
Silver, Total	0.026 mg/L	0.082 mg/L	1/Quarter	Composite
Total Residual Chlorine (TRC)[8]	0.7 mg/L	1.0 mg/L	1/Month	Grab
Total Toxic Organics (TTO)[9]	---	2.13 mg/L	1/Quarter	Grab
Trichloroethylene (TCE)	---	0.005 mg/L	1/Quarter	Grab

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Effluent Characteristic	Effluent Limitations		Monitoring Requirements[1,2,3]	
	Average Monthly	Maximum Daily	Measurement Frequency[4]	Sample Type[5]
Perfluorohexanesulfonic acid (PFHxS)[10,11]	---	Report ng/L	1/Quarter	Composite
Perfluoroheptanoic acid (PFHpA)[10,11]	---	Report ng/L	1/Quarter	Composite
Perfluorononanoic acid (PFNA)[10,11]	---	Report ng/L	1/Quarter	Composite
Perfluorooctanesulfonic acid (PFOS)[10,11]	---	Report ng/L	1/Quarter	Composite
Perfluorooctanoic acid (PFOA)[10,11]	---	Report ng/L	1/Quarter	Composite
Perfluorodecanoic acid (PFDA)[10,11]	---	Report ng/L	1/Quarter	Composite
Whole Effluent Toxicity (WET) Testing[12,13]				
LC_{50}	---	50 %	1/Year	Composite
C-NOEC	---	Report %	1/Year	Composite
Hardness	---	Report mg/L	1/Year	Composite
Ammonia Nitrogen	---	Report mg/L	1/Year	Composite
Total Aluminum	---	Report mg/L	1/Year	Composite
Total Cadmium	---	Report mg/L	1/Year	Composite
Total Copper	---	Report mg/L	1/Year	Composite
Total Nickel	---	Report mg/L	1/Year	Composite
Total Lead	---	Report mg/L	1/Year	Composite
Total Zinc	---	Report mg/L	1/Year	Composite

Ambient Characteristic[14]	Reporting Requirements		Monitoring Requirements[1,2,3]	
	Average Monthly	Maximum Daily	Measurement Frequency[4]	Sample Type[5]
Hardness	---	Report mg/L	1/quarter	Grab
Ammonia Nitrogen	---	Report mg/L	1/quarter	Grab
Total Aluminum	---	Report mg/L	1/quarter	Grab

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Total Cadmium	---	Report mg/L	1/quarter	Grab
Total Copper	---	Report mg/L	1/quarter	Grab
Total Nickel	---	Report mg/L	1/quarter	Grab
Total Lead	---	Report mg/L	1/quarter	Grab
Total Zinc	---	Report mg/L	1/quarter	Grab
pH[15]	---	Report S.U.	1/quarter	Grab
Temperature[15]	---	Report °C	1/quarter	Grab

Footnotes:

1. Effluent samples shall yield data representative of the discharge. A routine sampling program shall be developed in which samples are taken at the discharge point to the receiving water after all treatment has been completed, prior to co-mingling with any other waste stream. Changes in sampling location must be approved in writing by the Environmental Protection Agency Region 1 (EPA). 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 CFR Part 136.

2. In accordance with 40 CFR § 122.44(i)(1)(iv), the Permittee shall monitor according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR Part 136 or required under 40 CFR 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 CFR Part 136 or required under 40 CFR chapter I, subchapter N or O for the measured pollutant or pollutant parameter. The term "minimum level" refers to either the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit (MDL), whichever is higher. Minimum levels may be obtained in several ways: They may be published in a method; they may be based on the lowest acceptable calibration point used by a laboratory; or they may be calculated by multiplying the MDL in a method, or the MDL determined by a laboratory, by a factor.

3. When a parameter is not detected above the ML, the Permittee must report the data qualifier signifying less than the ML for that parameter (e.g., < 50 µg/L, if the ML for a parameter is 50 µg/L). For calculating and reporting the average monthly concentration when one or more values are not detected, assign a value of zero to all non-detects and report the average of all the results. The number of exceedances shall be enumerated for each parameter in the field provided on every Discharge Monitoring Report (DMR).

4. Measurement frequency of 1/Day is defined as the recording of one measurement for each 24-hour period. Measurement frequency of 2/Month is defined as the sampling of two discharge events in each calendar month. Measurement frequency of 1/Year is defined as the sampling of one discharge event during one calendar year. Calendar quarters are defined as January through March, inclusive, April through June, inclusive, July through September, inclusive and October through December, inclusive. If no sample is collected during the measurement frequencies defined above, the Permittee must report an appropriate No Data Indicator Code.

5. Each composite sample will consist of at least eight grab samples taken over the course of the workday (defined as 8:00am to 5:00pm), either collected at equal intervals and combined proportional to flow or continuously collected proportionally to flow.

6. Effluent flow shall be reported in gallons per day (GPD).

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

8. For the purposes of this permit, cyanide analysis must be completed using a test method in 40 CFR Part 136 that achieves a minimum level of detection no greater than 5 µg/L. The compliance level for cyanide shall be 5 µg/L.

9. Monitoring for total residual chlorine (TRC) is only required for discharges which have been previously chlorinated, or which contain residual chlorine. For the purposes of this permit, TRC analysis must be completed using a test method in 40 CFR Part 136 that achieves a minimum level of detection no greater than 30 µg/L.

10. A list of all the required organic compounds to be measured to calculate total toxic organics (TTO) is provided in Part I.B. In addition, see Part I.B. for an alternative option to sampling for TTO.

11. This reporting requirement for the listed PFAS parameters takes effect six months after EPA's multi-lab validated method for wastewater is made available to the public on EPA's CWA methods program website. *See* https://www.epa.gov/cwa-methods/other-clean-water-act-test-methods-chemical and https://www.epa.gov/cwa-methods.

12. After one year of monitoring, if all samples are non-detect for all six PFAS compounds, using EPA's multi-lab validated method for wastewater, the Permittee may request to remove the requirement for PFAS monitoring. *See* Special Condition in Part I.D.2

13. The Permittee shall conduct acute toxicity tests (LC_{50}) and chronic toxicity tests (C-NOEC) 1/year in October in accordance with test procedures and protocols specified in **Attachment A and B** of this permit. LC_{50} and C-NOEC are defined in Part II.E. of this permit. The Permittee shall test the daphnid, *Ceriodaphnia dubia*, and the fathead minnow, *Pimephales promelas*. The complete report for each toxicity test shall be submitted as an attachment to the DMR submittal which includes the results for that toxicity test.

14. For Part I.A.1., Whole Effluent Toxicity Testing, the Permittee shall conduct the analyses specified in **Attachment A and B**, Part VI. CHEMICAL ANALYSIS for the effluent sample. If toxicity test(s) using the receiving water as diluent show the receiving water to be toxic or unreliable, the Permittee shall follow procedures outlined in **Attachment A and B**, Section IV., DILUTION WATER. Even where alternate dilution water has been used, the results of the receiving water control (0% effluent) analyses must be reported. Minimum levels and test methods are specified in **Attachment A and B**, Part VI. CHEMICAL ANALYSIS.

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

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

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Part I.A. (continued)

2. During the period beginning on the effective date and lasting through the expiration date, the Permittee is authorized to discharge **electroplating process wastewater** treated via cyanide destruction through **Outfall Serial Number 003** to the Millers River through Outfall 002. The discharge shall be limited and monitored as specified below; the receiving water shall be monitored as specified below.

Effluent Characteristic	**Effluent Limitations**		**Monitoring Requirements[1]**	
	Average Monthly	**Maximum Daily**	**Measurement Frequency**	**Sample Type**
Effluent Flow	Report	Report	2/Month	Estimate
Cyanide, Total[2]	0.65 mg/L	1.2 mg/L	2/Month	Grab

Footnotes:

1. Effluent samples shall yield data representative of the discharge. A routine sampling program shall be developed in which samples are taken at the discharge point from the cyanide destruction treatment, prior to co-mingling with other process waste streams, pursuant to 40 CFR 433.12(c).

2. For the purposes of this permit, cyanide analysis must be completed using a test method in 40 CFR Part 136 that achieves a minimum level of detection no greater than 5 µg/L. The compliance level for cyanide shall be 5 µg/L.

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Part I.A. (continued)

3. During the period beginning on the effective date and lasting through the expiration date, the Permittee is authorized to discharge **once-through non-contact cooling water** through **Outfall Serial Number 004[1], 005[1], and 007** to the Millers River. The discharge shall be limited and monitored as specified below; the receiving water shall be monitored as specified below.

Effluent Characteristic	**Effluent Limitations**		**Monitoring Requirements**	
	Average Monthly	**Maximum Daily**	**Measurement Frequency**	**Sample Type**
Effluent Flow[2]				
Outfall 004	Report	7,200 GPD	1/Day	Estimate
Outfall 005	Report	20,000 GPD	1/Day	Estimate
Outfall 007	Report	98,200 GPD	Continuous	Meter
Total Flow[2]	Report	98,200 GPD	1/Month	Calculate
pH[3]				
Outfall 004	6.5 - 8.3 S.U.		1/Week	Grab
Outfall 005	6.5 - 8.3 S.U.		1/Week	Grab
Outfall 007	6.5 - 8.3 S.U.		1/Week	Grab
Temperature				
Outfall 004	---	83°F	1/Week	Grab
Outfall 005	---	83°F	1/Week	Grab
Outfall 007	---	83°F	1/Week	Grab

Footnotes:

1. Outfalls 004 and 005 are for emergency discharges only. Sampling is only required when these outfalls are in use. If no discharge event occurs, enter the No Data Indicator (NODI) code "9" for that month.

2. The Permittee shall report total flow as the sum of the flow from Outfalls 004, 005 and 007, which is not to exceed 98,200 GPD of NCCW.

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

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Part I.A. continued.

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

5. 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.

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

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

8. 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.

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

10. All existing manufacturing, commercial, mining, and silvicultural dischargers must notify EPA as soon as they know or have reason to believe (40 CFR § 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 for 2-methyl-4,6-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 CFR § 122.21(g)(7); or
       (4) Any other notification level established by EPA in accordance with 40 CFR § 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;

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(3) 10 times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR § 122.21(g)(7); or
(4) Any other notification level established by EPA in accordance with 40 CFR § 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. Total Toxic Organics (TTO)

The term "Total Toxic Organics" (TTO) is the summation of all quantifiable values greater than 0.01 milligrams per liter (mg/L) for the following toxic organics (40 CFR § 433.11):

Acenaphthene
Acrolein
Acrylonitrile
Benzene
Benzidine
Carbon tetrachloride (tetrachloromethane)
Chlorobenzene
1,2,4-Trichlorobenzene
Hexachlorobenzene
1,2,-Dichloroethane
1,1,1-Trichloroethane
Hexachloroethane
1,1-Dichloroethane
1,1,2-Trichloroethane
1,1,2,2-Tetrachloroethane
Chloroethane
Bis (2-chloroethyl) ether
2-Chloroethyl vinyl ether (mixed)
2-Chloronaphthalene
2,4,6-Trichlorophenol
Parachlorometa cresol
Chloroform (trichloromethane)
2-Chlorophenol
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
3,3-Dichlorobenzidine
1,1-Dichloroethylene
1,2-Trans-dichloroethylene
2,4-Dichlorophenol
1,2-Dichloropropane
1,3-Dichloropropylene (1,3-dichloropropene)
2,4-Dimethylphenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
1,2-Diphenylhydrazine
Ethylbenzene
Fluoranthene
4-Chlorophenyl phenyl ether
4-Bromophenyl phenyl ether
Bis (2-chloroisopropyl) ether
Bis (2-chloroethoxy) methane
Methylene chloride (dichloromethane)
Methyl chloride (chloromethane)
Methyl bromide (bromomethane)
Bromoform (tribromomethane)
Dichlorobromomethane
Chlorodibromomethane
Hexachlorobutadiene
Hexachlorocyclopentadiene
Isophorone
Naphthalene
Nitrobenzene
2-Nitrophenol
4-Nitrophenol
2,4-Dinitrophenol
4,6-Dinitro-o-cresol
N-nitrosodimethylamine
N-nitrosodiphenylamine
N-nitrosodi-n-propylamine
Pentachlorophenol
Phenol
Bis (2-ethylhexyl) phthalate
Butyl benzyl phthalate
Di-n-butyl phthalate
Di-n-octyl phthalate
Diethyl phthalate
Dimethyl phthalate
1,2-Benzanthracene (benzo(a)anthracene)
Benzo(a)pyrene (3,4-benzopyrene)
3,4-Benzofluoranthene (benzo(b)fluoranthene)
11,12-Benzofluoranthene (benzo(k)fluoranthene)
Chrysene
Acenaphthylene
Anthracene
1,12-Benzoperylene (benzo(ghi)perylene)
Fluorene
Phenanthrene
1,2,5,6-Dibenzanthracene (dibenzo(a,h)anthracene)
Indeno(1,2,3-cd) pyrene (2,3-ophenlene pyrene)

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Pyrene
Tetrachloroethylene
Toluene
Trichloroethylene
Vinyl chloride (chloroethylene)
Aldrin
Dieldrin
Chlordane (technical mixture and metabolites)
4,4-DDT
4,4-DDE (p,p-DDX)
4,4-DDD (p,p-TDE)
Alpha-endosulfan
Beta-endosulfan
Endosulfan sulfate
Endrin
Endrin aldehyde
Heptachlor
Heptachlor epoxide (BHC-hexachlorocyclohexane)
Alpha-BHC
Beta-BHC
Gamma-BHC
Delta-BHC (PCB-polychlorinated biphenyls)
PCB-1242 (Arochlor 1242)
PCB-1254 (Arochlor 1254)
PCB-1221 (Arochlor 1221)
PCB-1232 (Arochlor 1232)
PCB-1248 (Arochlor 1248)
PCB-1260 (Arochlor 1260)
PCB-1016 (Arochlor 1016)
Toxaphene
2,3,7,8-Tetrachlorodibenzo-pdioxin (TCDD) [sic]

Pursuant to 40 CFR § 433.12, in lieu of monitoring for TTO the Permittee may submit to EPA the following certification: "Based on my inquiry of the person or persons directly responsible for managing compliance with the permit limitation [or pretreatment standard] for total toxic organics (TTO), I certify that, to the best of my knowledge and belief, no dumping of concentrated toxic organics into the wastewaters has occurred since filing of the last discharge monitoring report. I further certify that this facility is implementing the toxic organic management plan submitted to the permitting authority."

If the permittee submits the certification described above, the Permittee must report the appropriate NODI code on the required DMRs. The Permittee must also submit to EPA a solvent management plan that specifies, to the satisfaction of the permitting authority, the toxic organic compounds used; the method of disposal used instead of dumping, such as reclamation, contract hauling, or incineration; and the procedures for ensuring that toxic organics do not routinely spill or leak into the wastewater. Pursuant to 40 CFR § 433.12, this plan shall become a part of and an enforceable provision of this permit.

C. UNAUTHORIZED DISCHARGES

1. This permit authorizes discharges only from the outfall(s) listed in Parts I.A.1, 2, and 3, 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).

D. SPECIAL CONDITIONS

1. 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 or provided through a subsequent written notification submitted to EPA is prohibited. Upon the effective date of this permit, chemicals and/or additives which have been disclosed to EPA 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 unless otherwise

notified by EPA. To request authorization to discharge a new chemical or additive, the Permittee must submit a written notification to EPA in accordance with Part I.D.3 of this permit. The written notification must include the following information, at a minimum:

a. The following information for each chemical and/or additive that will be discharged:

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

b. Written rationale which demonstrates that the discharge of such chemicals and/or additives as proposed: 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.

2. Per- and Polyfluoroalkyl Substances (PFAS)
After one year of monitoring, if all samples are non-detect for all six PFAS compounds, using EPA's multi-lab validated method for wastewater, the Permittee may request to remove the requirement for PFAS monitoring. Until written notice is received from EPA indicating that the monitoring requirements have been changed, the Permittee is required to continue the monitoring specified in this Permit. *See* Reporting Requirements in Part I.E.3.a.

E. REPORTING REQUIREMENTS

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

1. Submittal of DMRs Using NetDMR

The Permittee shall continue to submit its monthly monitoring data in discharge monitoring reports (DMRs) to EPA and the State electronically using NetDMR no later than the 15th day of the month following the monitoring period. 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

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Unless otherwise specified in this permit, the Permittee shall electronically submit all reports to EPA as NetDMR attachments rather than as hard copies. *See* Part I.E.5. for more information on State reporting. Because the due dates for reports described in this permit may not coincide with the due date for submitting DMRs (which is no later than the 15th day of the month following the monitoring period), 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 EPA WD:

      (1) Transfer of Permit notice;
      (2) Request for changes in sampling location;
      (3) Request to discharge new chemicals or additives;
      (4) Request for discontinuation of per- and polyfluoroalkyl substances (PFAS) sampling; and
      (5) Report on unacceptable dilution water/request for alternative dilution water for WET testing;

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

U.S. Environmental Protection Agency
Water Division
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) Written notifications required under Part II, Standard Conditions. Beginning December 21, 2025, 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

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5 Post Office Square, Suite 100 (04-SMR)
Boston, MA 02109-3912

5. State Reporting

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

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

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

   c. Verbal reports and verbal notifications shall be made to the State's Emergency Response at:

   888-304-1133

E. STATE 401 CERTIFICATION CONDITIONS

1. This permit is in the process of receiving state water quality certification issued by the State under § 401(a) of the CWA and 40 CFR § 124.53. EPA will incorporate by reference all state water quality certification requirements (if any) into the final permit.

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USEPA REGION 1 FRESHWATER ACUTE TOXICITY TEST PROCEDURE AND PROTOCOL

I. GENERAL REQUIREMENTS

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

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

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

II. METHODS

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

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

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

III. SAMPLE COLLECTION

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

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

All samples held overnight shall be refrigerated at 1- 6°C.

IV. DILUTION WATER

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

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

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

and

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

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

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

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

V. TEST CONDITIONS

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

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

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

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

Footnotes:

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

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

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

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

Footnotes:

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

VI. CHEMICAL ANALYSIS

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

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

Notes:

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

VII. TOXICITY TEST DATA ANALYSIS

LC50 Median Lethal Concentration (Determined at 48 Hours)

Methods of Estimation:

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

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

No Observed Acute Effect Level (NOAEL)

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

VIII. TOXICITY TEST REPORTING

A report of the results will include the following:

- Description of sample collection procedures, site description

- Names of individuals collecting and transporting samples, times and dates of sample collection and analysis on chain-of-custody

- General description of tests: age of test organisms, origin, dates and results of standard toxicant tests; light and temperature regime; other information on test conditions if different than procedures recommended. Reference toxicant test data should be included.

- All chemical/physical data generated. (Include minimum detection levels and minimum quantification levels.)

- Raw data and bench sheets.

- Provide a description of dechlorination procedures (as applicable).

- Any other observations or test conditions affecting test outcome.

FRESHWATER CHRONIC
TOXICITY TEST PROCEDURE AND PROTOCOL
USEPA Region 1

I. GENERAL REQUIREMENTS

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

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

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

II. METHODS

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

III. SAMPLE COLLECTION AND USE

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

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

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

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

IV. DILUTION WATER

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

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

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

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

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

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

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

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

and

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

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

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

V. TEST CONDITIONS AND TEST ACCEPTABILITY CRITERIA

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

V.1. Use of Reference Toxicity Testing

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

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

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

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

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

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

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

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

VI. CHEMICAL ANALYSIS

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

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

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

Notes:

1. Hardness may be determined by:

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

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

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

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

VII. TOXICITY TEST DATA ANALYSIS AND REVIEW

A. Test Review

1. Concentration / Response Relationship

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

2. Test Variability (Test Sensitivity)

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

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

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

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

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

B. Statistical Analysis

1. General - Recommended Statistical Analysis Method

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

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

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

2. *Pimephales promelas*

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

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

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

3. *Ceriodaphnia dubia*

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

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

VIII. TOXICITY TEST REPORTING

A report of results must include the following:

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

In addition to the summary sheets the report must include:

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

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

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

A. GENERAL REQUIREMENTS

1. Duty to Comply

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

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

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

(1) Criminal Penalties

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

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

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

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

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

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

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

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

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

2. Permit Actions

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

condition.

3. Duty to Provide Information

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

4. Oil and Hazardous Substance Liability

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

5. Property Rights

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

6. Confidentiality of Information

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

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

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

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

7. Duty to Reapply

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

8. State Authorities

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

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

9. Other Laws

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

B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

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

2. Need to Halt or Reduce Not a Defense

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

3. Duty to Mitigate

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

4. Bypass

a. Definitions

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

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

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

c. Notice

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

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

d. *Prohibition of bypass.*

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

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

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

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

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

5. <u>Upset</u>

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

improper operation.

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

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

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

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

C. MONITORING REQUIREMENTS

1. Monitoring and Records

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

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

c. Records of monitoring information shall include:

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

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

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

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

2. Inspection and Entry

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

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

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

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

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

D. REPORTING REQUIREMENTS

1. Reporting Requirements

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

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

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

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

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

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

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

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

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

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

e. *Twenty-four hour reporting.*

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

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

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

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

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

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

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

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

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

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

2. Signatory Requirement

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

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

3. Availability of Reports.

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

E. DEFINITIONS AND ABBREVIATIONS

1. General Definitions

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

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

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

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

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

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

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

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

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

Bypass see B.4.a.1 above.

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

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

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

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

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

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

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

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

Direct Discharge means the "discharge of a pollutant."

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

Discharge

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

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

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

Discharge of a pollutant means:

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

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

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

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

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

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

Agency.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Municipality

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

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

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

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

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

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

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

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

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

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

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

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

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

NPDES means "National Pollutant Discharge Elimination System."

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

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

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

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

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

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

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

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

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

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

(a) Sewage from vessels; or

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Upset see B.5.a. above.

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

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

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

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

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

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

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

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

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

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

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

(f) The territorial sea; and

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

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

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

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

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

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

2. Commonly Used Abbreviations

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

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

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

FACT SHEET

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

NPDES PERMIT NUMBER: MA0001350

PUBLIC NOTICE START AND END DATES: 1/19/2021 – 2/17/2021

NAME AND MAILING ADDRESS OF APPLICANT:

L.S. Starrett Company
121 Crescent Street
Athol, MA 01331

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

L.S. Starrett Company
121 Crescent Street
Athol, MA 01331

RECEIVING WATER AND CLASSIFICATION:

Millers River (MA35-04)
Connecticut River Watershed
Class B, Warm Water Fishery

SIC CODE: 3545 (Cutting Tools, Machine Tool Accessories, and Machinists' Precision Measuring Devices)

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1.0 Proposed Action

L.S. Starrett Company (the Permittee) has applied to the U.S. Environmental Protection Agency (EPA) for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit to discharge from the L.S. Starrett Company facility in Athol, Massachusetts (the Facility) into the Millers River.

The permit currently in effect was issued and became effective on February 6, 2009 and expired on January 31, 2014 (the 2009 Permit). The Permittee filed an application for permit reissuance with EPA dated July 26, 2013, as required by 40 Code of Federal Regulations (CFR) § 122.6, which was revised on April 2, 2014 in response to a Notice of Deficiency sent by EPA on March 7, 2014. Since the permit application was deemed timely and complete by EPA on April 10, 2014, the Facility's 2009 Permit has been administratively continued pursuant to 40 CFR § 122.6 and § 122.21(d). EPA and the State conducted a site visit on May 10, 2017.

EPA notes that process wastewater from the etching, penetrate, and tumbling processes receives treatment on-site before being discharged, along with sanitary waste, to the Athol wastewater treatment plant. Stormwater discharges from the Facility are discharged under EPA's Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (MSGP) (# MAR053642 under the 2015 MSGP). These discharges are not discussed further in this Fact Sheet.

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 CFR §§ 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 CFR §§ 122.4(d), 122.44(d)(1), and 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, and 304(b); 40 CFR §§ 122, 125, and 131. Section 402(p) of the CWA, 33 U.S.C. § 1342(p)requires stormwater discharges associated with industrial activity to be authorized by a NPDES permit. *See also* 40 C.F.R. § 122.26(a)(1)(ii).

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 CFR § 125 Subpart A.

Subpart A of 40 CFR 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 New Source Performance Standards (NSPS) under CWA § 306 and 40 CFR § 401.12. *See also* 40 CFR §§ 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 CFR § 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 CFR §§ 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 CFR §§ 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 National resource waters. *See* CWA § 303(c)(2)(A) and 40 CFR § 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 CFR § 122.44(d)(1)(vi)(A-C).

2.2.2 Antidegradation

Federal regulations found at 40 CFR § 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 regulations, entitled "Antidegradation Provisions," are found in the State's WQSs at 314 CMR 4.04. The Massachusetts policy for the implementation of these regulations is in an associated document entitled "Implementation Procedures for the Antidegradation Provisions of the Massachusetts Water Quality Standards, 314 CMR 4.00" dated October 21, 2009. According to the policy, no lowering of water quality is allowed, except in accordance with the antidegradation regulations. All existing in-stream designated uses of a receiving waterbody, and water quality necessary to protect the designated uses must be maintained and protected.

This permit is being reissued with effluent limitations sufficiently stringent to satisfy the State's antidegradation regulations, including the protection of the designated 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 CWA § 305(b) and § 303(d). 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 CFR § 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 CFR § 122.44(d)(1)(vii)(B).

2.2.4 Reasonable Potential

Pursuant to CWA § 301(b)(1)(C) and 40 CFR § 122.44(d)(1), NPDES permits must contain any requirements in addition to TBELs that are necessary to achieve water quality standards established under CWA § 303. *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 CFR § 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 CFR § 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 CFR § 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 CFR § 124.53 and § 124.55. EPA has requested permit certification by the State pursuant to 40 CFR § 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 EPA's permit appeal procedures of 40 CFR 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 CFR § 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 CFR §§ 122.4(d) and 122.44(d).

2.3 Effluent Flow Requirements

Generally, EPA uses effluent flow both to determine whether an 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 CFR §§ 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 CFR § 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 CFR §§ 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 CFR 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 CFR §§ 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 discharges. The monitoring program is needed to enable EPA and the State to assess the characteristics of the Facility's 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

[1] EPA's regulations regarding "reasonable potential" require EPA to consider "where appropriate, the dilution of the effluent in the receiving water," *id.* 40 CFR §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)*.

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 CFR Part 122.

NPDES permits require that the approved analytical procedures found in 40 CFR 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 CFR § 122.21(e)(3) (completeness), 40 CFR § 122.44(i)(1)(iv) (monitoring requirements) and/or as cross referenced at 40 CFR § 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 CFR Part 136 or required under 40 CFR 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.

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 CFR §§ 122.41 and 403.12. NetDMR is accessible through EPA's Central Data

[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).

Exchange at https://cdx.epa.gov/. Further information about NetDMR can be found on EPA's 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 CFR 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 CFR § 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 2014 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 banks of the Millers River on Crescent Street in Athol, Massachusetts. A location map is provided in Figure 1. The Facility consists of multiple buildings which are used for manufacturing, offices, and storage. A site plan is provided in Figure 2.

The L.S. Starrett Company, founded in 1880, manufactures more than 5,000 variations of precision tools, gauges, measuring instruments, and saw blades for industrial, professional and consumer markets worldwide. Precision tools, gauges and measuring instruments manufactured at the Facility include micrometers, calipers, dividers, steel rules, levels, dial indicators, electronic gauges, steel squares, and steel tapes. The processes employed at the Facility include material cutting, forming, milling, tool part coating and finishing, electroplating, heat treatment, and tool part assembly. All materials, final products, and processes are housed inside the Facility buildings. The Facility typically operates nine hours per day, five days per week.

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

3.1.1 Effluent Limitation Guidelines

EPA has promulgated technology-based ELGs for BPT in 40 CFR § 433.13 and for BAT in 40 CFR § 433.14 for wastewater in the Metal Finishing Point Source Category. The applicable process under these regulations for the Facility is electroplating. *See* 40 C.F.R. § 433.10(a).

For this process, the ELGs promulgated on July 15, 1983, include BPT ELGs for oil and grease, TSS and pH, and BAT ELGs equal to the BPT ELGs for total metals (cadmium, chromium, copper, lead, nickel, silver, and zinc), cyanide, and total toxic organics (TTO), which is the summation of all quantifiable values greater than 0.01 mg/L for the toxic organics listed at 40 CFR § 433.11(e). The ELGs are presented in Table 1, below.

Table 1: Metal Finishing Point Source Category (BPT/BAT)

Effluent limitations		
Pollutant or pollutant property	**30-day average (mg/L)**	**Maximum daily average (mg/L)**
Total Cadmium	0.26	0.69
Total Chromium	1.71	2.77
Total Copper	2.07	3.38
Total Lead	0.43	0.69
Total Nickel	2.38	3.98
Total Silver	0.24	0.43
Total Zinc	1.48	2.61
Total Cyanide	0.65	1.20
Amenable Cyanide[2]	0.32	0.86
TTO	2.13	---
Oil and grease	26	52
Total suspended solids	31	60
pH	([1])	([1])

[1]Within the range of 6.0 to 9.0 at all times.
[2]For facilities with cyanide treatment, the amenable cyanide limit may apply in place of the total cyanide limit.

While EPA also promulgated pretreatment standards for the Electroplating Point Source Category at 40 CFR §413, because Outfall 002 discharges to a surface water and not a publicly owned treatment works (POTW), these pretreatment standards are not directly applicable to this facility. Further, EPA has not promulgated technology-based ELGs at 40 CFR §413 for the discharge of certain individual pollutants identified in discharges from this facility, as well as other wastewater types at this facility (i.e., non-contact cooling water). Therefore, in accordance with CWA § 402(a)(1)(B) and 40 CFR § 125.3(c)(2), EPA may establish effluent limitations on a case-by-case basis using BPJ. The NPDES regulations in 40 CFR § 125.3(c)(2) state that permits developed on a case-by-case basis under CWA § 402 (a)(1) shall apply the appropriate factors listed in 40 CFR § 125.3(d) and must consider 1) the appropriate technology for the

category class of point sources of which the applicant is a member, based on available information, and 2) any unique factors relating to the applicant.

To the extent applicable to the Facility, EPA considered the following information from other ELGs and/or NPDES permits.

- EPA's *Preliminary Review of the Metal Finishing Category.*[5] In the *Final 2014 Effluent Guidelines Program Plan*, EPA announced plans to conduct a preliminary study of the Metal Finishing Category to assess the current state of the industry, including an updated industry profile, descriptions of new and traditional process technologies and techniques, potential new pollutants of concern, advances in wastewater treatment technologies, and strategies used to achieve zero liquid discharge (U.S. EPA, 2015a, 2015b). As part of this effort, EPA collected additional information to assess changes in process operations and wastewater characteristics, availability of improved technologies for pollution prevention and wastewater treatment, and challenges. EPA considered information regarding pollutants, numeric limitations and/or treatment technologies in its case-by-case evaluation of appropriate technology-based effluent limitations.

- EPA's *General Permit for Non-contact Cooling Water Discharges* (NCCWGP)[6] effective November 3, 2014, and EPA's *General Permit for Remediation Activity Discharges* (RGP)[7] effective April 8, 2017. EPA considered activity categories with similar discharges, pollutants, treatment technologies and/or effluent limitations in its case-by-case evaluation of technology-based effluent limitations.

3.2 Location and Type of Discharge

The Draft Permit authorizes discharges to the Millers River via: 1) Outfall 002 consisting of electroplating process wastewater, including chromium wastewater and treated wastewater from internal Outfall 003; 2) Outfall 003, an internal outfall, consisting of treated effluent from the cyanide destruction treatment process; and 3) Outfalls 004, 005, and 007, consisting of non-contact cooling water. The approximate latitude and longitude for the outfalls at the Facility are presented in Table 2.

Table 2: Outfall Locations

Outfall Number	Description of Discharge	Latitude (degrees, minutes, seconds)	Longitude (degrees, minutes, seconds)

[5] EPA Office of Science and Technology. *Preliminary Review of the Metal Finishing Category.* EPA-821-R-18-003: April 2018.
[6] EPA Region 1. *National Pollutant Discharge Elimination System (NPDES) General Permit for Non-contact Cooling Water Discharges* (NCCWGP), issued October 2, 2014, effective November 3, 2014, and expired November 4, 2019.
[7] EPA Region 1. *National Pollutant Discharge Elimination System (NPDES) General Permit for Remediation Activity Discharges* – the Remediation General Permit (RGP), issued March 9, 2017, effective April 8, 2017.

002	Electroplating process wastewater, including internal Outfall 003	42° 35’ 41” N	72° 13’ 40” W
003	Internal outfall for cyanide destruction treatment process wastewater	42° 35’ 42” N	72° 13’ 40” W
004	Emergency overflow for non-contact cooling water	42° 35’ 39” N	72° 13’ 38” W
005	Emergency overflow for non-contact cooling water	42° 35’ 39” N	72° 13’ 38” W
007	Non-contact cooling water	42° 35’ 41” N	72° 13’ 41” W

The following sections describe water flow and treatment, a schematic of which is provided in Figure 3.

3.2.1 Outfalls 002 and 003

Electroplating Process Wastewater
Outfall 002 discharges treated process wastewater from the electroplating processes, including chrome reduction and cyanide destruct wastewater (Figure 3). The source for all process water at the Facility is recycled non-contact cooling water from the Outfall 007 holding tank, which is described below. Waste streams containing chromium rinse water undergo reduction treatment with sulfuric acid and/or sodium bisulfite, and waste streams containing cyanide rinse water undergo destruct treatment with sodium hypochlorite and/or sodium hydroxide, before joining other waste streams for additional treatment. Outfall 003 is an internal outfall located directly after cyanide destruct treatment and before comingling with other waste streams. After commingling, the waste streams receive the following additional treatment: 1) pH adjustment with sodium hydroxide and/or sulfuric acid; 2) Flocculation with polymer flocculant; 3) Clarification by gravity settling and thickening with an inclined plate clarifier, sludge thickening tank and centrifuge; 4) Bag filtration; and 5) pH adjustment with sodium hydroxide and/or sulfuric acid before being discharged through Outfall 002 to the Millers River. Sludge that is removed during the treatment processes is regarded as class F006 RCRA waste. Outfall 002 is a v notch weir. The discharges from Outfall 002 consist of a maximum daily flow of approximately 17,800 gpd. Sampling occurs just prior to discharge.

3.2.2 Outfalls 004, 005, and 007

Non-Contact Cooling Water
Outfalls 004, 005, and 007 discharge non-contact cooling water (NCCW) to the Millers River. The sources of the NCCW are two industrial wells and municipal water. NCCW is used for cooling of degreasing processes. Once used, NCCW is sent to one of two individual holding tanks before being pumped to a larger 20,000-gallon holding tank, equipped with a continuous flow meter, inline flume, and ultrasonic reader. The Permittee installed Outfall 007 in 2007 for discharges of non-contact cooling water that overflows from the 20,000-gallon holding tank, which is reused as process feed water. The temperature in this tank varies from approximately

60ºF to 85ºF due to ambient air. Outfall 007 discharges overflow from this tank to the Millers, via a 6-inch PVC pipe located approximately 30 feet downriver of Outfall 002.

Outfall 004 and 005 act as emergency overflow outfalls for when the two smaller holding tanks have reached their capacity. However, under normal conditions, the NCCW from these outfalls combine in the larger 20,000-gallon tank (i.e., there were no discharges through Outfall 004 and 005 over the last five years). From the larger tank, NCCW is either re-used as process water or the overflow is discharged through Outfall 007 into the Millers River. Outfalls 004 and 005 are permitted as emergency back-up outfalls for use during a system shutdown. In this scenario, overflow water would be directly discharged from Outfalls 004 and 005 and no NCCW would be pumped to the 20,000-gallon tank. Outfall 004 also may contain water from the sprinkler system at L.S. Starrett.

The typical discharges are approximately as follow: 1) Outfall 004 maximum daily flow of 7,200 gpd only in the event of reuse system breakdown; 2) Outfall 005 maximum daily flow of 10,200 gpd only in the event of reuse system breakdown; and 3) Outfall 007 maximum daily flow of 90,000 gpd combined overflow from 20,000-gallon tank. Sampling for Outfalls 005 and 007 occur in the holding tanks near the point of discharge. Sampling for Outfall 004 occurs end-of-pipe.

A quantitative description of the discharge in terms of effluent parameters, based on monitoring data submitted by the Permittee, including Discharge Monitoring Reports (DMRs), from May 1, 2015 through May 31, 2020, 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 Outfalls 002, 004, 005, and 007 to the Millers River (MA35-04), a 18.50-mile long segment stretching from the South Royalston United States Geological Survey (USGS) Gage, in Royalston to the Erving Center wastewater treatment plant (WWTP) in Erving, Massachusetts. Millers River is part of the Connecticut River Watershed. Millers River is approximately 52.1 miles in total length, flowing from Ashburnham to the Connecticut River downstream of Millers Falls, Massachusetts.

Millers River is classified as Class B, warm water fishery in the Massachusetts WQSs, 314 Code of Massachusetts Regulations (CMR) 4.06. Class B waters are described in the Commonwealth of Massachusetts Water Quality Standards at 314 CMR 4.05(3)(b) as follows: *"designated as a habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation. Where designated in 314 CMR 4.06, they shall be suitable as a source of public water supply with appropriate treatment (Treated Water Supply). Class B waters shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. These waters shall have consistently good aesthetic value."*

Millers River is listed in the *Massachusetts Year 2016 Integrated List of Waters* ("303(d) List") as a Category 5 "Waters Requiring a TMDL.[8] The cause of impairment listed is PCBs in fish tissue. Impairments for fecal coliform and total phosphorus were removed in the 2016 303(d) List due to applicable WQSs being attained. To date no TMDL has been developed for this segment for any of the listed impairments. The status of each designated use is presented in Table 3.

Table 3: Summary of Designated Uses and Listing Status

Designated Use	Status
Aquatic Life	Impaired[1]
Aesthetics	Support
Primary Contact Recreation	Not Assessed
Secondary Contact Recreation	Not Assessed
Fish Consumption	Impaired

[1] Upper 6.6 miles, which encompasses the Facility's outfalls.

According to the *Millers River Watershed Water Quality Assessment Report*,[9] the aquatic life and fish consumption designated uses are impaired. As described in the 303(d) list the cause is PCBs in fish tissue, believed to be sourced from contaminated sediment and releases from waste sites. All other designated uses are supported or not assessed. In lieu of a TMDL for Millers River, EPA is developing conditions for this permit based on a combination of technology-based standards, water-quality based standards, and anti-degradation provisions. However, if a future TMDL developed for this watershed identifies the discharge from the Facility as causing or contributing to non-attainment of surface water quality criteria, the permit may be re-opened.

4.2 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.[10] The critical flow is some measure of the low flow of the receiving water and may stipulate the magnitude, duration, and frequency of allowable excursions from the magnitude component of criteria in order to prevent adverse impacts of discharges on existing and designated uses. State WQSs specify the hydrologic condition at which water quality criteria must be applied. For rivers and streams, the lowest flow condition at and above which aquatic life criteria must be applied is the lowest mean flow for seven consecutive days, to be expected once in 10 years, or 7-day 10-year low flow (7Q10). *See* 314 CMR 4.03(3)(a). Further, human health criteria may be applied at the harmonic mean flow in rivers and streams and waters whose flows are regulated by dams or similar structures. *See* 314 CMR 4.03(3)(d).

[8] *Massachusetts Year 2016 Integrated List of Waters*. MassDEP Division of Watershed Management Watershed Planning Program, Worcester, Massachusetts;.
[9] *Millers River Watershed 2000 Water Quality Assessment Report*. MassDEP Division of Watershed Management, Worcester, Massachusetts; March, 2004, Report Number: 35-AC-1.
[10] EPA Permit Writer's Manual, Section 6.2.4

EPA calculated the 7Q10 and harmonic mean flow for the Millers River using the USGS's low-flow frequency statistics for the nearest USGS gauging station to the Facility along the Millers River (station number 01166500 at Erving[11]) for a 30-year period of record, and the USGS's StreamStats for Massachusetts watershed delineation tool.[12] The 7Q10 low flow and harmonic mean flow in the receiving water upstream of the discharge were then calculated as follows:

$$\text{Flow}_{@\text{Facility}} = \text{Flow}_{@\text{Gauge}} / \text{Drainage Area}_{@\text{Gauge}} * \text{Drainage Area}_{@\text{Facility}}$$

Where:

Drainage $\text{Area}_{@\text{Gauge}}$ = 372 square miles (mi^2)
7Q10 $\text{Flow}_{@\text{Gauge}}$ = 41.9 cubic feet per second (cfs)
Harmonic Mean $\text{Flow}_{@\text{Gauge}}$ = 250.68 cfs
Drainage $\text{Area}_{@\text{Facility}}$ = 202 mi^2

Therefore:

7Q10 = 41.9 cfs / 372 mi^2 * 202 mi^2
7Q10 = 22.8 cfs (14.7 MGD)

Harmonic mean = 250.68 cfs / 372 mi^2 * 202 mi^2
Harmonic mean = 136 cfs (87.9 MGD)

Using the above-calculated 7Q10 (Q_s), the dilution factors (DF) were calculated using the permitted daily maximum flows (Q_d) as follows:

$$DF = (Q_s + Q_d)/Q_d$$

Where:

Q_s = 7Q10 in million gallons per day (MGD)
Q_d = Discharge flow in MGD

Therefore:

DF = (14.7 MGD + 0.03 MGD)/ 0.03 MGD = 491

EPA used the 7Q10, harmonic mean, and/or 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. State and Federal regulations, data regarding discharge characteristics, and data regarding ambient

[11] USGS StreamStats National Data Collection Station Report for Station 01166500: https://streamstatsags.cr.usgs.gov/gagepages/html/01166500.htm
[12] USGS StreamStats for Massachusetts Interactive Map: http://water.usgs.gov/osw/streamstats/massachusetts.html

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

5.1 Effluent Limitations and Monitoring Requirements – Outfall 002

5.1.1 Effluent Flow

The Facility's 2009 Permit includes a maximum daily flow limit of 30,000 gpd and an average monthly flow limit of 25,000 gpd, monitored continuously by meter. From May 1, 2015 through May 31, 2020 (Appendix A) maximum daily effluent flow has ranged from 8,480 gpd to 17,833 gpd and average monthly effluent flow has ranged from 7,367 gpd to 13,911 gpd. Under normal operating conditions, and as indicated by monitoring data and information provided by the Permittee, the effluent flow does not exceed these limitations. Therefore, the Draft Permit maintains the maximum daily flow limit of 30,000 gpd and the average monthly flow limit of 25,000 gpd, as well as continuous monitoring for flow using a meter or similar device.

5.1.2 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.

The 2009 Permit includes a pH range limitation of 6.5 to 8.3 S.U., monitored continuously by meter. From May 1, 2015 through May 31, 2020 (Appendix A), pH has ranged from 6.5 to 8.3 S.U. The Draft Permit retains a pH range limitation of 6.5 to 8.3 S.U., monitored continuously by meter. The pH limitations are based on the State WQSs for Inland Water, Class B at 314 CMR 4.05(3)(b)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).

5.1.3 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.

The 2009 Permit contains a maximum daily TSS limitation of 30 mg/L and a monthly average TSS limitation of 20 mg/L, monitored twice per month by composite sample. From May 1, 2015

through May 31, 2020 (Appendix A), maximum daily total suspended solids (TSS) concentrations have ranged from below laboratory minimum levels to 7 mg/L and monthly average TSS concentrations have ranged from below laboratory minimum levels to 5.5 mg/L.

The existing limitations were established pursuant to CWA § 402(a)(1) and are more stringent than the ELGs for the Metal Finishing Point Source Category, found at 40 CFR Part 433, which contain a maximum daily TSS limit of 60 mg/L and a monthly average TSS limit of 31 mg/L as BPT for this industry. Therefore, consistent with anti-backsliding requirements found in 40 CFR § 122.44(*l*), the Draft Permit maintains the maximum daily limit of 30 mg/L, and the average monthly limit of 20 mg/L for Outfall 002, monitored twice per month by composite sample.

5.1.4 Oil & Grease

Oil and Grease is not a single chemical constituent, but includes a large range of organic compounds, which can be both petroleum-related (e.g., hydrocarbons) and non-petroleum (e.g., vegetable and animal oils and greases, fats, and waxes). These compounds have varying physical, chemical, and toxicological properties. Generally, oils and greases in surface waters either float on the surface, are solubilized or emulsified in the water column, adsorb onto floating or suspended solids and debris, or settle on the bottom or banks. Oil and grease, or certain compounds within an oil and grease mixture, can be lethal to fish, benthic organisms and water-dwelling wildlife.

The 2009 Permit includes a maximum daily and average monthly WQBEL for oil and grease of 15 mg/L, monitored twice per month by grab sample. From May 1, 2015 through May 31, 2020, oil and grease has not been detected above laboratory minimum levels (6.9 mg/L, 5.95 mg/L, 5 mg/L, and 4 mg/L) for Outfall 002. State WQSs at 314 CMR 4.05(3)(b)(7), state "These waters shall be free from oil, grease and petrochemicals that produce a visible film on the surface of the water, impart an oily taste to the water or an oily or other undesirable taste to the edible portions of aquatic life, coat the banks or bottom of the water course, or are deleterious or become toxic to aquatic life." In addition, a concentration of 15 mg/L is recognized as the level at which many oils produce a visible sheen and/or cause an undesirable taste in fish.[13] The ELGs at 40 CFR § 433 contain a maximum daily limit of 52 mg/l and a monthly average limit of 26 mg/L, which are less stringent than the existing WQBELs. EPA is required to apply the more stringent of applicable water quality-based effluent limits and technology-based limits.

Therefore, consistent with anti-backsliding requirements found in 40 CFR § 122.44(*l*), and to meet State WQSs, the Draft Permit maintains the maximum daily and average monthly limits of 15 mg/L for oil and grease at Outfall 002, monitored twice per month by grab sample.

5.1.5 Cyanide

Cyanide is an inorganic pollutant often limited in conjunction with metals, because it readily forms complexes with transition metals, particularly iron. Cyanide occurs in water in many forms, including hydrogen cyanide (HCN), the cyanide ion (CN^-), simple cyanides,

[13] USEPA. 1976. *The Red Book – Quality Criteria for Water.* July 1976.

metallocyanide complexes, and as organic compounds. The relative concentrations of these forms depend mainly on pH and temperature. Both HCN and CN^- are toxic to aquatic life. The cyanide ion readily converts to hydrogen cyanide at pH values less than 7.0. As a result, when present in surface water, cyanide occurs more commonly as the more toxic hydrogen cyanide. Certain bacteria, fungi, and algae can also produce cyanide, and cyanide is found naturally in several species of plants.[14] The metals finishing industry is a point source for cyanide as cyanide is used as a complexing agent in electroplating. One form of cyanide associated with this point source is amenable cyanide, which can be removed by alkaline chlorination. Cyanide removal via chlorination (i.e., cyanide destruct) is often necessary due to the high concentrations remaining in the wastewater.

The 2009 Permit included effluent limitations for total cyanide and amenable cyanide. Total cyanide was limited to daily maximum values no more than 1.0 mg/L and monthly average values no more than 0.5 mg/L. A daily maximum limitation of 0.1 mg/L and a monthly average limitation of 0.05 mg/L are in place for amenable cyanide. From May 1, 2015 through May 31, 2020 for Outfall 002, daily maximum total cyanide was detected above a laboratory minimum level of 0.02 mg/L in only one sample, at the 0.02 mg/L minimum level concentration (Appendix A). During the same period, amenable cyanide was detected during only one month at a concentration of 0.01 mg/L. These limitations were based on BPJ pursuant to CWA § 402(a)(1) and are more stringent than applicable TBELs found in the Metal Finishing Effluent Guidelines.

State WQSs contain minimum criteria applicable to all surface waters for toxic pollutants, which require 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). Those criteria include aquatic life criteria for free cyanide, and human health criteria for total cyanide. A summary of the criteria, the ELGs for the metal finishing industry, and current permit limits are provided in Table 2.

Table 4. Cyanide Effluent Limitations and Water Quality Criteria

	Total		**Amenable**		**Free**	
	Max Daily	*Mo. Avg*	*Max Daily*	*Mo. Avg*	*Max Daily*	*Mo. Avg*
2009 Permit Limits	1.0	0.5	0.1	0.05	---	---
ELGs	1.2	0.65	0.86	0.32	---	---
Aquatic Life Criteria	---	---	---	---	0.022	0.0052
Human Health Criteria: Water + Organism	---	0.7	---	---	---	---
Human Health Criteria: Organism Only	---	220	---	---	---	---

Notes: All values are in terms of milligrams per liter.
Max daily column represents chronic criteria and mo. avg column represents acute criteria.

[14] *Toxicological Profile for Cyanide.* Agency for Toxic Substances and Disease Registry: July, 2006.

The 2009 Permit Limits for both total cyanide and amenable cyanide are more stringent than the ELGs and WQSs; therefore, they remain in place in the Draft Permit. Free cyanide was not monitored; however, monitoring data for total cyanide can serve as a proxy for free cyanide in assessing whether the discharge has a reasonable potential to cause or contribute to an excursion above WQSs. Of 61 daily maximum samples reported between May 2015 and May 2020, there was only one detection of total cyanide at the minimum level concentration of 0.02 mg/L, indicating that free cyanide is consistently below the acute WQS of 0.022 mg/L. That observation, along with the dilution factor available to the discharge (491), and the fact that total cyanide concentrations would be greater than or equal to free cyanide concentrations, EPA finds that the Facility's discharge does not have a reasonable potential to cause or contribute to an excursion above State WQSs. Therefore, the Draft Permit does not include WQBELs for free cyanide.

Where effluent limits have been established in NPDES permits but compliance cannot be determined using currently approved analytical methods (e.g. if WQBELs are less than the analytical capability of the methods), EPA must establish a compliance level. The *National Pollutant Discharge Elimination System (NPDES): Use of Sufficiently Sensitive Test Methods for Permit Applications and Reporting Rule*[15] requires the use of an EPA-approved method that is sufficiently sensitive. Therefore, the Draft Permit requires that the test method used for cyanide analysis must achieve a minimum level of 5.0 µg/L and this minimum level is the compliance level for total cyanide, consistent with EPA's *Technical Support Document for Water Quality-based Toxics Control* (TSD) *EPA 505/2-90-001*, page 111, which recommends, "the compliance level be defined in the permit as the minimum level (ML)." This minimum level is based on the method that has the lowest minimum level of the analytical methods approved under 40 CFR Part 136, and is geographically available.

5.1.6 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 2009 Permit carried forward effluent limitations for metals from the 2004 Permit that were derived using BPJ pursuant to CWA § 402(a)(1). These limitations were found to be more stringent than applicable ELGs and WQBELs derived using the available dilution of the effluent in Millers River. Numerical effluent limitations for total chromium, hexavalent chromium, total copper, total nickel, total zinc, total lead, total silver, total aluminum and total cadmium were

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

included in the 2009 Permit. In reassessing the applicability of the effluent limitations for metals, EPA revisited State WQSs, ELGs, and the previous permit limits given the most recent monitoring data from May 1, 2015 through May 31, 2020. Tables 4 and 5 provide a summary comparison of that monitoring data and the applicable effluent limitations.

Table 5. Daily maximum metals monitoring data and applicable effluent limitations

	Monitoring Data		**Daily Maximum Limitations**		
	Max. Val.	*95th Pct*	*2009 Permit*	*ELG*	*Acute Criteria*
Aluminum	0.073	0.048	2	---	368
Cadmium	<.01	---	0.178	0.69	0.156
Chromium	0.319	0.210	1	2.77	190.73
Cr (VI)	0.09	0.059	0.1	---	8.00
Copper	0.76	0.401	1	3.38	1.18
Lead	<.05	---	0.69	0.69	3.69
Nickel	0.491	0.356	3	3.98	47.18
Silver	<.01	---	0.082	0.43	0.07
Zinc	0.97	0.869	2	2.61	12.02

Table 6. Monthly average metals monitoring data and applicable effluent limitations

	Monitoring Data		**Average Monthly Limitations**		
	Max. Val.	*95th Pct*	*2009 Permit*	*ELG*	*Chronic Criteria*
Aluminum	0.0615	0.049	1	---	427
Cadmium	<.01	---	0.068	0.26	0.033
Chromium	0.195	0.150	0.5	1.71	9.12
Cr (VI)	0.028	0.025	0.05	---	5.61
Copper	0.24	0.160	0.79	2.07	0.92
Lead	<.05	---	0.119	0.43	0.14
Nickel	0.645	0.305	2.38	2.38	5.25
Silver	<.01	---	0.026	0.24	---
Zinc	0.401	0.333	1.48	1.48	12.02

A few notes on the tables. The monitoring data columns show the maximum value observed for that parameter during the five-year monitoring period and also an estimate of the 95th percentile of effluent concentrations assuming a lognormal distribution following the procedure outlined in EPA's *Technical Support Document for Water Quality-based Toxics Control* (TSD). The Limitations columns show the 2009 Permit limitation currently in effect, the applicable limitations for the metal finishing Point Source Category ELGs, and a dilution-adjusted chronic or acute water quality criterion from State WQSs[16]. Where WQSs cite hardness-dependent criteria, EPA used a hardness value of 15.35 mg/L derived from five effluent hardness measurements collected as part of WET testing, a receiving water hardness concentration of 15.25 mg/L from MassDEP's *Millers River Watershed 2000 Water Quality Assessment Report*,

[16] For metals, 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.

and the Facility's dilution factor. Shaded boxes indicate that the current permit limit is the most stringent limitation of the three applicable limitations.

Tables 4 and 5 show that the Permittee did not have any violations of current metals effluent limitations and that current limitations are more stringent than applicable ELGs or WQBELs. Where dilution-adjusted chronic or acute criteria are less than current permit limits, e.g. for cadmium and silver, there were no detections of those metals and therefore no reasonable potential for the effluent to exceed WQSs. Given this analysis, the Draft Permit retains effluent limitations from the 2009 Permit in accordance with anti-backsliding requirements found in 40 CFR § 122.44(*l*). Quarterly monitoring continues for those metals not detected (lead, cadmium and silver) during the previous term, while twice per month monitoring continues for the remaining detected metals.

5.1.7 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 trihalomethanes. Potable water sources are typically chlorinated to minimize or eliminate pathogens. 40 CFR § 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.

The 2009 Permit included effluent limitations for total residual chlorine (TRC), a daily maximum limit of 1.0 mg/L and monthly average limit of 0.7 mg/L, monitored once per month. These effluent limitations were carried forward from previous permit drafts and were derived using BPJ pursuant to CWA § 402(a)(1). The Facility uses chlorine in its water treatment process, for instance to remove cyanide. From May 1, 2015 through May 31, 2020, daily maximum TRC concentration ranged from 0.01 to 0.08 mg/L and monthly average TRC concentrations ranged from 0.003 mg/L to 0.3 mg/L.

The *Massachusetts Water Quality Standards Implementation Policy for the Control of Toxic Pollutants in Surface Waters* (February 23, 1990) specifies that "Waters shall be protected from unnecessary discharges of excess chlorine." A maximum allowable TRC concentration of 1.0 mg/L is specified. State WQSs further require the use of federal water quality criteria where a specific pollutant could reasonably be expected to adversely affect existing or designated uses. *See* 314 CMR 4.05(5)(e). EPA's *National Recommended Water Quality Criteria* for aquatic life in freshwater for TRC are as follows:

19 µg/L (0.019 mg/L) acute criterion
11 µg/L (0.011 mg/L) chronic criterion

Using these criteria and the monitoring data from May 2015 through May 2020, EPA conducted a reasonable potential analysis to determine if the discharge has a reasonable potential to cause or contribute to excursions of the acute and chronic criteria for TRC (Appendix B).

The results of EPA's analysis indicate that the effluent has a reasonable potential to cause, or contribute to an excursion above water quality criteria. EPA notes that while the available dilution is relatively high, the major control on whether or not the downstream concentration would exceed criteria was the upstream receiving water concentration, and EPA recognizes that the TRC concentration in the Millers River is not zero. This is based on MassDEP's *Millers River Watershed 2000 Water Quality Assessment Report* where 83 ambient samples for TRC collected in WET tests in Segment MA35-04 detected TRC above the minimum level of 0.05 mg/L three times. Choosing any value for ambient TRC above the criteria results in reasonable potential. However, the WQBELs are less stringent than the TBELs, calculated as follows:

19 µg/L (0.019 mg/L) acute criterion * 491 dilution factor = 9,329 µg/L (9.3 mg/L)
11 µg/L (0.011 mg/L) chronic criterion * 491 dilution factor = 5,401 µg/L (5.4 mg/L)

Therefore, the Draft Permit maintains the more stringent 2009 Permit TBELs, a daily maximum limit of 1.0 mg/L and monthly average limit of 0.7 mg/L, monitored once per month, in accordance with the anti-backsliding provisions found in CWA §§ 402(o) and 303(d)(4).

5.1.8 Total Toxic Organics

Toxic organic pollutants can be found in common metals and oily waste streams, with relatively large variability in their types and concentrations between point sources.[17] In consideration of their presence and variability in the Metals Finishing industry as well as the difficulty involved with regulating a large number of pollutants, EPA chose to control the discharge of toxic organic pollutants by regulating their total observable concentration in the Metals Finishing ELGs. Total toxic organics (TTO) is the summation of all quantifiable values greater than 0.01 mg/L of the toxic organics found at 40 CFR 433.11(e) and listed in the Draft Permit.

The ELGs for the Metals Finishing Subcategory at 40 CFR Part 433 contain conditions for managing TTO with the aim of preventing the dumping of concentrated toxic organic wastes such as solvent degreasers and paint strippers directly into surface waters. In accordance with these ELGs, the 2009 Permit contained a daily maximum limitation for TTO of 2.13 mg/L monitored quarterly, with the option for the permittee to submit a certification statement in lieu of monitoring stating, "Based on my inquiry of the person or persons directly responsible for managing compliance with the permit limitations for total toxic organics (TTO), I certify that, to the best of my knowledge and belief, no dumping of concentrated toxic organics into the wastewater has occurred since filing of the last discharge monitoring report. I further certify that this facility is implementing the solvent management plan submitted to the permitting authority." The certification statement requires an accompanying solvent management plan outlining how organic compounds are used and managed at the Facility. *See* 40 CFR §§ 433.12 and 433.13(a).

From May 1, 2015 through May 31, 2020 TTO was reported four times out of 21 quarterly samples at concentrations between 0.0076 and 0.0161 mg/L. These cumulative detections were below the permit limitation. Therefore, the Draft Permit maintains the 2009 Permit limits in

[17] See section VI in EPA's June, 1983 *Development Document for Effluent Limitations Guidelines and Standards for the Metal Finishing Point Source Category*, EPA 440/1-83/091.

accordance with the anti-backsliding provisions found in CWA §§ 402(o) and 303(d)(4). The Draft Permit also maintains the certification statement alternative in accordance with the ELGs.

5.1.9 Trichloroethylene

Trichloroethylene (TCE) is a chlorinated solvent that has been widely used as a metal degreaser, as a chemical intermediate and extractant, and as a component of some consumer products. TCE has been produced commercially since the 1920s for use in vapor degreasing. More recently, worldwide TCE production is primarily used for degreasing metals. The dominant fate of TCE released to surface waters is volatilization (predicted half-life of minutes to hours) and slow photo-oxidation is known to occur (half-life of 10.7 months). Bioconcentration, biodegradation, and sorption to sediments and suspended solids are not thought to be significant and TCE is not hydrolyzed under normal environmental conditions.[18] TCE has a density higher than water, which causes TCE that is not immediately volatilized to submerge in water. Anaerobic degradation of TCE can produce dichloroethene (DCE), vinyl chloride, and ethylene.[19] TCE is listed as a priority pollutant in Appendix A to 40 CFR Part 423. Following EPA's 2005 *Guidelines for Carcinogen Risk Assessment*, TCE is characterized as "carcinogenic to humans" by all routes of exposure.

The Facility uses TCE for degreasing processes on-site; therefore, previous permits contained quarterly monitoring requirements to determine the quantity of this pollutant in discharges, and to determine whether the pollutant is present at concentrations that cause, or have a reasonable potential to cause, or contribute to an excursion above State WQSs. From May 1, 2015 through May 31, 2020, TCE has been detected above laboratory minimum levels in 17 of 21 samples ranging from 1.3 µg/L to 11 µg/L.

EPA is required to apply the more stringent of applicable water quality-based and technology-based effluent limits. For the Draft Permit, EPA first analyzed the applicability of technology-based limitations given the use of TCE at the Facility and the presence of TCE in the discharge. There are currently no limitations specific to TCE in the ELGs for the Metals Finishing at 40 CFR Part 433. Therefore, in accordance with CWA § 402(a)(1)(B) and 40 CFR § 125.3(c)(2), EPA may establish technology-based effluent limitations on a case-by-case basis using Best Professional Judgement (BPJ) by applying the appropriate factors listed in 40 CFR § 125.3(d). When establishing TBELs on a case-by-case basis using BPJ, EPA considers specific factors based on those specified in the statute for EPA's consideration in the development of ELGs. *See* 33 U.S.C. § 1314(b). In establishing a BAT TBEL for TCE, EPA must determine limits based on use of the most effective pollution control technologies that are technologically and economically achievable, and that will result in reasonable progress toward eliminating discharges of the toxic pollutant.

Assessment of BAT Based on EPA's BPJ

[18] HSDB, 2002; Howard et.al., 1991, IARC, 1995 and ASTDR, 1997a cited in *Toxicological Review of Trichloroethylene*. EPA/635/R-09/011A, October 27, 2009.
[19] *Draft Toxicological Profile for Trichloroethylene*. Agency for Toxic Substances and Disease Registry: October, 2014.

As previously discussed, to determine site-specific BAT limitations for TCE using BPJ, EPA must consider several factors: 1) age of the equipment and facilities involved; 2) process employed; 3) engineering aspects of the application of various types of control techniques; 4) process changes; 5) the cost of achieving such effluent reductions; and 6) non-water quality environmental impacts (including energy requirements). *See* CWA § 304(b)(2) and 40 CFR § 125.3(d)(3). Ultimately, when setting BAT limits, EPA's consideration of the required factors is governed by a reasonableness standard.[20]

According to 40 CFR § 125.3(c)(2), in determining BAT requirements, EPA should consider the "appropriate technology for the category of point sources of which the applicant is a member, based on all available information," and also "any unique factors relating to the applicant." EPA therefore reviewed treatment technologies for discharges currently subject to effluent limitations for TCE in Region 1,[21] taking into account site-specific information regarding the Facility's existing treatment technology in its consideration of the six BAT factors below.

1) Age of the equipment and facilities involved

The Facility began using the current treatment system for the waste stream containing TCE in or around 2001. The use of this technology is a replacement of and represents an improvement in the treatment efficiency as compared to conventional treatment. There is nothing about the age of the equipment and facilities involved that would prevent the ongoing use of the same or similar treatment components to treat the waste streams at the Facility.

2) Process(es) employed

The existing treatment system consists of: 1) Neutralization (i.e., pH adjustment) with sodium hydroxide and/or sulfuric acid; 2) Flocculation with polymer flocculant; 3) Sedimentation (i.e., clarification) by gravity settling and thickening with an inclined plate clarifier, sludge thickening tank and centrifuge; 4) Bag filtration; and 5) pH adjustment with sodium hydroxide and/or sulfuric acid. The clarifier works when the waste stream, which has received flocculant addition, enters the tank and flows upward between a pack of inclined plates. The solids fall to the plate surface, where they slide by gravity downward. The clarified effluent flows through orifice holes and exits the top of the settler.

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[20] *BP Exploration & Oil, Inc. v. EPA*, 66 F.3d 784, 796 (6th Cir. 1995), *citing American Iron & Steel Institute v. EPA*, 526 F.2d 1027, 1051 (3d Cir. 1975), *modified in other part*, 560 F.2d 589 (3d Cir. 1977), *cert. denied*, 435 U.S. 914 (1978); *Chemical Manufacturers Ass'n v. EPA*, 870 F.2d 177, 250 n.320 (5th Cir. 1989) (citing Congressional Research Service, A Legislative History of the Water Pollution Control Act Amendments of 1972 (1973), at 170) (in determining BAT, "[t]he Administrator will be bound by a test of reasonableness."). As one court summarized it, "[s]o long as the required technology reduces the discharge of pollutants, our inquiry will be limited to whether the Agency considered the cost of technology, along with other statutory factors, and whether its conclusion is reasonable." *Ass'n of Pacific Fisheries v. EPA*, 615 F.2d 794, 818 (9th Cir. 1980).

[21] A numeric effluent limitation of 5 µg/L applies to discharges authorized under EPA Region 1's Remediation General Permit that contain this pollutant.

Continuing to treat the waste streams with the treatment technology will not prevent the Permittee from operating the Facility as selected. In fact, the Permittee has continued to operate and maintain this treatment technology since installation. Implementation of minor additional treatment system components would also not interfere with current use of the Facility.

3) Engineering aspects of the application of various types of control techniques

EPA considered the types of treatment typically used for treatment of wastewaters that contain TCE. The most common treatment for TCE include either air stripping or granular activated carbon, but many physical, chemical, thermal, and biological methods have been applied successfully to remove TCE or to convert it into nonhazardous compounds, including: bioremediation, electrokinetics, flushing technologies (cosolvent/alcohol flooding, surfactant flushing), oxidation, thermal treatment (steam injection, electrical heating, in situ vitrification), and other volatilization technologies (soil vapor extraction).[22] In combination, these processes are straightforward, widely available technologies applied to many types of wastewaters containing VOCs. The wastewater at the Facility is treated using neutralization, flocculation, separation, and filtration. The current treatment processes at the Facility have been in place since around 2001. From an engineering standpoint, the Facility has achieved relatively low concentrations of TCE by maintaining the design performance of the existing treatment technology, and as will be discussed below, is capable of achieving the effluent limitations for TCE derived and included in the Draft Permit the vast majority of the time. Specifically, the treatment at the facility has reduced concentrations of TCE below 5 µg/L in 20 of 21 samples (i.e., >95 percent of the time). Finally, implementation of treatment system adjustments will entail minor engineered actions and installation of new infrastructure would be minimal.

4) Process changes

As discussed above, the wastewater that contains TCE at this facility is treated using neutralization, flocculation, separation, and filtration. The current treatment processes at the Facility have been in place since around 2001. The treatment technology does not appear to interfere with the operations at the Facility. Further, the addition of other types of removal technology that are most common for similar discharges to the existing treatment system would constitute minor process changes that are not likely to interfere with continued operations, such as addition of other types of filtration media (e.g., granular activated carbon). Neither should such adjustments interfere with current or future use of the Facility or require significant process changes.

5) Cost of achieving effluent reductions

As discussed above, EPA considers the cost of technological alternatives when determining the BAT and associated NPDES permit requirements. Where the BAT standard applies, CWA §§ 301(b)(2) and 304(b)(2) require "EPA to set discharge limits that reflect the amount of pollutant that would be discharged by a point source employing the best available technology that the EPA

[22] See trichloroethylene entries in *Contaminated Site Clean-Up Information (CLU-IN)* at https://clu-in.org/default.cfm.

determines to be economically feasible . . .."[23] To be an "available" technology, the option in question must be "economically achievable."[24] The United States Supreme Court has interpreted the CWA to mean that the BAT should "represent a commitment of the maximum resources economically possible to the ultimate goal of eliminating all polluting discharges."[25] Neither the CWA nor EPA regulations dictate precisely how the Agency should consider costs in its technology standards determinations, but the courts have made clear that only a reasonable consideration of cost is necessary and precise cost estimates are not required.[26] Moreover, the BAT standard does not call for consideration of a comparison of costs to benefits.[27]

Applying BAT limits based on use of the Facility's current technology with the potential for minor adjustment in the treatment system using widely available, widely accepted and cost-effective technologies will not result in any significant installation costs to the Permittee. In sum, EPA expects that there are minimal capital costs and minimal operating costs associated with continuing to operate and maintain the treatment technology. To the extent the Permittee incurs additional costs due to the operation and maintenance of the treatment technology necessary to meet effluent limitations, EPA notes that that the Permittee has installed this treatment technology and has been operating it for years. As such, implementation of the treatment system is "economically achievable."

In deriving a 5 µg/L technology-based limitation for TCE at the Facility, EPA finds that the known use of TCE and/or material(s) that contain TCE at the Facility and observed presence of the chemical in the Facility's effluent (as reported in quarterly DMRs) are sufficient and appropriate basis for increased regulatory measures, i.e. limitations, to control its discharge to the environment. Further, conditions at the Facility are consistent with those under which this limitation can be achieved. The treatment processes employed at the Facility include neutralization, flocculation, separation, and filtration. These are among the types of treatments specified for pollutant minimization in EPA Region 1's RGP.[28] Discharges covered under EPA Region 1's RGP that contain TCE are subject to a TBEL of 5 µg/L. This TBEL was promulgated in EPA Region 1's RGP issued in 2005, and has been retained in the 2010 and current, 2017 reissuances. In deriving this TBEL for TCE, EPA found that nearly all of the discharges pursuant to remediation projects in Massachusetts and New Hampshire have utilized off-the-shelf, economically viable, and proven treatment systems including: 1) phase separation; 2) sedimentation; 3) filtration; 4) air stripping; and/or 5) carbon adsorption. Further, EPA found that data submitted to EPA Region 1 from the vast majority of dischargers using these systems indicates that very low effluent concentrations are routinely achieved. The most common VOC compounds, including TCE, can typically be treated to below laboratory minimum levels by these common technologies.[29]

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[23] *Texas Oil and Gas v. EPA*, 161 F.3d 923, 928 (5th Cir. 1998).
[24] *See Chemical Manufacturers*, 870 F.2d at 250 (citing 33 U.S.C. § 1311(b)(2)(A)).
[25] *Crushed Stone*, 449 U.S. at 74.
[26] *See BP Exploration*, 66 F.3d at 803; *NRDC v. EPA*, 863 F.2d 1420, 1426 (9th Cir. 1988) (EPA need "develop no more than a rough idea of the costs the industry would incur").
[27] *See, e.g., Crushed Stone*, 449 U.S. at 74; *Texas Oil*, 161 F.3d at 936.
[28] *See* Part 2.5.2.d. of EPA Region 1's 2017 RGP for a complete list of pollution control technologies included.
[29] The Notice of Availability of the final 2005 NPDES Remediation General Permit (RGP) in Massachusetts

Next, EPA completed an analysis to determine if discharges of TCE 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 B). 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 applicable EPA *National Recommended Water Quality Criteria* for TCE is the human health criterion for consumption of organisms-only, 30 µg/L. This criterion applies because Millers River is a Class B waterbody with a fish consumption designated use. The results of EPA's analysis indicate discharges of TCE do not cause, or have a reasonable potential to cause, or contribute to an excursion above WQSs (Appendix B). EPA notes that, in 2015, EPA updated its human health criteria for TCE using carcinogenic toxicity endpoints. The updated human health criterion for carcinogenic effects at a 10^{-6} cancer risk level for TCE is 7 µg/L for consumption of organisms only.[30] This updated criterion replaced EPA's previously published values (i.e., 2002). The State issued proposed revised surface WQSs for public notice and comment from October 4, 2019, through November 8, 2019, that would adopt EPA's recommended criteria. The revised surface WQSs have not been finalized, however. If the proposed TCE criterion, 7 µg/L, is finalized prior to issuance of the Final Permit, EPA will consider the applicability of the 7 µg/L criterion to discharges from this Facility when establishing the appropriate effluent limitation. Concentrations of TCE in discharges from Outfall 002 exceeded 7 µg/L on 1 occasion (i.e., 11 µg/L during February 2020) during the permit term.

Based on EPA's analyses, the Draft Permit proposes a TBEL for TCE of 5.0 µg/L, selected in accordance with 40 CFR §122.44(d)(1)(vi) because EPA determined that a more stringent WQBEL is not required to ensure discharges meet State WQSs.

5.1.10 Per- and polyfluoroalkyl substances (PFAS)

As explained at https://www.epa.gov/pfas, PFAS are a group of synthetic chemicals that have been in use since the 1940s. PFAS are found in a wide array of consumer and industrial products. PFAS manufacturing and processing facilities, facilities using PFAS in production of other products, airports, and military installations can be contributors of PFAS releases into the air, soil, and water. Due to their widespread use and persistence in the environment, most people in the United States have been exposed to PFAS. Exposure to some PFAS above certain levels may increase risk of adverse health effects.[31]

Although the Massachusetts WQSs do not include numeric criteria for PFAS, the Massachusetts narrative criterion for toxic substances at 314 CMR 4.05(5)(e) states that:

(MAG910000) and New Hampshire (NHG910000) was published in the Federal Register on September 9, 2005 (70 FR 53663). *See* Part I.C. of the Fact Sheet, currently available at: https://www.epa.gov/npdes-permits/expired-remediation-general-permits-massachusetts-new-hampshire

[30] *Update of Human Health Ambient Water Quality Criteria: Trichloroethylene (TCE)*. U.S. Environmental Protection Agency, Office of Water, EPA-820-R-15-066: June 2015.

[31] EPA, *EPA's Per- and Polyfluoroalkyl Substances (PFAS) Action Plan,* EPA 823R18004, February 2019. Available at: https://www.epa.gov/pfas/epas-pfas-action-plan.

> [a]ll surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife.

The narrative criterion is further elaborated for human health risk levels at 314 CMR 4.05(5)(e)2, which states:

> [w]here EPA has not set human health risk levels for a toxic pollutant, the human health-based regulation of the toxic pollutant shall be in accordance with guidance issued by the Department of Environmental Protection's Office of Research and Standards. The Department's goal is to prevent all adverse health effects which may result from the ingestion, inhalation or dermal absorption of toxins attributable to waters during their reasonable use as designated in 314 CMR 4.00.

On November 22, 2020, EPA issued an "*Interim Strategy for Per- and Polyfluoroalkyl Substances in Federally Issued National Pollutant Discharge Elimination System Permits*." This guidance memo sets out the EPA workgroup's recommendation for including phased-in monitoring and best management practices (as appropriate), when PFAS compounds are expected to be present in point source wastewater discharges. Facilities that have been identified as potential point sources of PFAS include:

- Platers/Metal Finishers
- Paper and Packaging Manufacturers
- Tanneries and Leather/Fabric/Carpet Treaters
- Manufacturers of parts with Polytetrafluroethlylene (PTFE) (i.e.teflon-type coatings and bearings)
- Landfill Leachate
- Centralized Waste Treatment Facilities
- Contaminated Sites
- Fire Fighting Training Facilities
- Airports

Since PFAS chemicals are persistent in the environment and may lead to adverse human health and environmental effects, the Draft Permit requires that the Facility conduct quarterly effluent sampling for PFAS chemicals, six months after appropriate, multi-lab validated test methods are made available by EPA to the public. This monitoring requirement includes the following PFAS chemicals:

> Perfluorohexanesulfonic acid (PFHxS)
> Perfluoroheptanoic acid (PFHpA)
> Perfluorononanoic acid (PFNA)
> Perfluorooctanesulfonic acid (PFOS)
> Perfluorooctanoic acid (PFOA)
> Perfluorodecanoic acid (PFDA)

The purpose of this monitoring and reporting requirement is to better understand potential discharges of PFAS from this facility and to inform future permitting decisions, including the potential development of water quality-based effluent limits on a facility-specific basis. EPA is authorized to require this monitoring and reporting by CWA § 308(a), which states:

> "SEC. 308. (a) Whenever required to carry out the objective of this Act, including but not limited to (1) developing or assisting in the development of any effluent limitation, or other limitation, prohibition, or effluent standard, pretreatment standard, or standard of performance under this Act; (2) determining whether any person is in violation of any such effluent limitation, or other limitation, prohibition or effluent standard, pretreatment standard, or standard of performance; (3) any requirement established under this section; or (4) carrying out sections 305, 311, 402, 404 (relating to State permit programs), 405, and 504 of this Act—
>
> …the Administrator shall require the owner or operator of any point source to (i) establish and maintain such records, (ii) make such reports, (iii) install, use, and maintain such monitoring equipment or methods (including where appropriate, biological monitoring methods), (iv) sample such effluents (in accordance with such methods, at such locations, at such intervals, and in such manner as the Administrator shall prescribe), and (v) provide such other information as he may reasonably require…"

Since an EPA method for sampling and analyzing PFAS in wastewater is not currently available, the PFAS sampling requirement in the Draft Permit includes a compliance schedule that delays the effective date of this requirement until six months after EPA's multi-lab validated method for wastewater is made available to the public on EPA's CWA methods program website. For wastewater see https://www.epa.gov/cwa-methods/other-clean-water-act-test-methods-chemical and https://www.epa.gov/cwa-methods. EPA expects this method will be available by the end of 2021. This approach is consistent with 40 CFR § 122.44(i)(1)(iv)(B), which states that "[i]n the case of pollutants or pollutant parameters for which there are no approved methods under 40 CFR part 136 or methods are not otherwise required under 40 CFR chapter I, subchapter N or O, monitoring shall be conducted according to a test procedure specified in the permit for such pollutants or pollutant parameters." After one year of monitoring, if all samples are non-detect for all six PFAS compounds, using EPA's multi-lab validated method for wastewater, the Permittee may request to remove the requirement for PFAS monitoring.

5.1.11 Whole Effluent Toxicity

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

In addition, under CWA § 301(b)(1)(C), discharges are subject to effluent limitations based on WQSs. Under CWA §§ 301, 303 and 402, EPA and the States may establish toxicity-based limitations to implement narrative water quality criteria calling for "no toxics in toxic amounts." *See also* 40 CFR § 122.44(d)(1). The Massachusetts WQSs at 314 CMR 4.05(5)(e) state, "All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife." In addition, the Massachusetts WQSs at 314 CMR 4.03(2)(a) require no lethality to organisms passing through a mixing zone.

In accordance with current EPA guidance and State policy,[32] whole effluent chronic effects are regulated by limiting the highest measured continuous concentration of an effluent that causes no observed chronic effect on a representative standard test organism, known as the chronic No Observed Effect Concentration (C-NOEC). Whole effluent acute effects are regulated by limiting the concentration that is lethal to 50% of the test organisms, known as the $LC_{50.}$ For a Facility with a dilution factor between 100:1 and 1,000:1, EPA's *Technical Support Document for Water Quality-based Toxics Control* (1991) recommends acute or chronic toxicity testing and recommends that toxicity testing be required even if the effluent is not determined to cause or contribute to an excursion above water quality criteria. Both EPA's *Technical Support Document for Water Quality-based Toxics Control* (1991) and the *Massachusetts Water Quality Standards Implementation Policy for the Control of Toxic Pollutants in Surface Waters* (February 23, 1990) recommended criterion to prevent acutely toxic effects is 0.3 T.U. Further, for discharges with dilution factors greater than 100, if there is reasonable potential to exceed water quality criteria, the *Massachusetts Water Quality Standards Implementation Policy for the Control of Toxic Pollutants in Surface Waters* (February 23, 1990) specifies that the end-of-pipe acute (i.e., LC_{50}) limit is 2.0 toxic units (T.U.), equivalent to an LC_{50} of 50%.

The 2009 Permit included annual WET monitoring with an acute limitation of LC_{50} greater than 50%, using the daphnid (*Ceriodaphnia dubia*) as the test species. From May 1, 2015, through May 31, 2020, WET test results indicated an LC_{50} below 100% in one of five tests, with an LC_{50} of 75.2 in October 2015. 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 the acute criterion of 0.3 T.U. specified in the *Massachusetts Water Quality Standards Implementation Policy for the Control of Toxic Pollutants in Surface Waters* (February 23, 1990) (Appendix C). EPA found that the downstream toxicity of the receiving water mixed with the effluent did not exceed the acute toxicity criterion, 0.3 T.U., largely due to the significant dilution afforded the effluent in the receiving water. However, the projected effluent toxicity at the end of pipe did exceed 2.0 T.U. Therefore, discharges from the Facility have a reasonable potential to cause or contribute to an excursion above State WQSs and a limitation for toxicity is required.

Therefore, in accordance with 40 CFR § 122.44(d), the Draft Permit continues the effluent limits from the 2009 Permit. Further, given the acute toxicity, the relative magnitude, frequency and duration of discharges, and the complex nature of the effluent chemistry, the Draft Permit also

[32] *Massachusetts Water Quality Standards Implementation Policy for the Control of Toxic Pollutants in Surface Waters*. February 23, 1990.

includes monitoring, without limits for chronic WET testing. These data will be used to determine of numeric limits for chronic WET are necessary to meet State WQSs. Toxicity testing must be performed in accordance with EPA Region 1's test procedures and protocols specified in **Attachment A,** *Freshwater Acute Toxicity Test Procedure and Protocol* (February 2011), **and Attachment B,** *Freshwater Chronic Toxicity Test Procedure and Protocol* (March 2013) of the Draft Permit.

5.2 Effluent Limitations and Monitoring Requirements – Outfall 003

5.2.1 Effluent Flow

The Facility's 2009 Permit includes reporting requirements for daily maximum and monthly average effluent flow. From May 1, 2015 through May 31, 2020, monthly average and daily maximum effluent flow have been 0.001 MGD, except for one month (September 2017) where flow was reported as 0.01 MGD. The Draft Permit maintains flow reporting requirements at Outfall 003 to determine the proportion of the discharge to Millers River coming from the internal outfall. Flow reporting frequency is twice per month.

5.2.2 Cyanide

The metal plating processes employed at the Facility create wastewaters high in cyanide; therefore, the Facility treats this wastestream through alkaline chlorination to remove cyanide prior to discharging through Outfall 003. The 2009 Permit included effluent limitations and monitoring requirements for cyanide to ensure water treatment was successfully removing cyanide from the discharge. Outfall 003 has a daily maximum limit of 1.2 mg/L and a monthly average limit of 0.65 mg/L for total cyanide. These limitations were based on the ELGs for the Metal Plating industry discussed previously and found at 40 CFR § 433.13.

From May 1, 2015 through May 31, 2020, total cyanide was detected above a laboratory minimum level of 0.02 mg/L during three separate months at concentrations of 0.02, 0.05, and 0.02 mg/L. These concentrations do not exceed the effluent limitations. The Draft Permit maintains the TBELs for total cyanide, monitored twice per month at internal Outfall 003.

5.3 Outfalls 004, 005, and 007

5.3.1 Effluent Flow

The 2009 Permit includes daily maximum flow limitations for Outfalls 004, 005, and 006. For Outfall 004, a daily maximum flow limitation of 7,200 gallons per day (gpd); for Outfall 005, a daily maximum flow limitation of 20,000 gpd; and for Outfall 007, a daily maximum flow limitation of 98,200 gpd. In addition, the sum of all three discharges was not to exceed 98,200 gpd. Flow was monitored continuously using a flow meter at Outfall 007 and was estimated daily at the two emergency discharge outfalls.

From May 2015 through May 2020, effluent flow at Outfall 007 has ranged from no flow to 64,223 gpd. During this time period, the Facility did not discharge from Outfall 004 nor Outfall

005. Since no substantial alterations to the Facility's NCCW discharge system have occurred, the Draft Permit maintains all three flow limitations and the average monthly reporting requirements for all three outfalls.

5.3.2 pH

The 2009 Permit includes a pH range limitation of 6.5 to 8.3 S.U., monitored once per week by grab sample at all three NCCW outfalls. From May 1, 2015 through May 31, 2020 (Appendix A), pH was measured at Outfall 007 and ranged from 6.5 to 8.3 S.U. Since no discharge occurred at the other two outfalls, pH was not measured. The Draft Permit maintains a pH range limitation of 6.5 to 8.3 S.U., monitored weekly by grab sample in weeks when discharges occur. The pH limitations are based on the State WQSs for Inland Water, Class B at 314 CMR 4.05(3)(b)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).

5.3.3 Temperature

Section 502(6) of the Clean Water Act defines heat as a "pollutant." *See* 33 U.S.C. § 1362(6). Water temperature affects the metabolic and reproductive activities of aquatic organisms and can determine which fish and macroinvertebrate species can survive in a given water body. Certain cold-blooded species cannot regulate their body temperature through physiological means, so their body temperatures reflect the temperatures of the water they inhabit. Rapid increases or decreases in ambient water temperature can directly affect aquatic life, particularly fish. Ambient water temperature can indirectly affect aquatic life by influencing water quality parameters such as dissolved oxygen, by which the solubility of oxygen decreases as water temperature increases.

In developing temperature limits for the discharge of NCCW from Outfalls 004, 005, and 007, EPA considered applicable water quality-based requirements, technology-based requirements, and the limitations in place in the 2009 Permit.

The state waterbody classification for Millers River is Class B. The WQSs at 314 CMR 4.05(3)(b)(2)(a) require that the instream water temperature, "shall not exceed 83°F (28.3°C) in warm water fisheries," and that, "the rise in temperature due to a discharge shall not exceed 5°F (2.8°C) in rivers and streams designated as warm water fisheries (based on the minimum expected flow for the month)." In lieu of any National Effluent Guidelines for the discharge of NCCW from the Metal Finishing Industry, the 2009 Permit set temperature limitations based on these State WQSs. All three outfalls were subject to a maximum daily limitation of 83°F monitored weekly by grab sample.

From May 1, 2015 through May 31, 2020, temperature at Outfall 007 ranged from 64.6°F to 77.5°F, never exceeding the daily maximum limitation. No temperature sampling occurred for Outfall 004 and 005 because there were no discharges from either outfall. In assessing whether the rise in temperature WQS would be met, EPA calculated what the rise in temperature would be under worst case conditions given the Facility's dilution:

	Millers Rivers Ambient Conditions	Proposed Permit Conditions
Flow	7Q10 Low Flow = 14.7 MGD	Max Flow Limit = 0.0982 MGD
Temperature	Max. Observed Temp. = 73.2°F	Max Temp. Limit = 83°F

The maximum observed temperature was based on data provided in the *Millers River Watershed 2000 Water Quality Assessment Report*. Using these values, EPA calculated the estimated downstream temperatures after mixing:

$$Temp_{Downstream} = \frac{(Flow_{RW} * Temp_{RW}) + (Flow_{Effluent} * Temp_{Effluent})}{Total\ Flow}$$

Where,

$Temp_{Downstream}$ = downstream temperature after mixing
$Flow_{RW}$ = receiving water flow (7Q10 low flow)
$Temp_{RW}$ = receiving water temperature
$Flow_{Effluent}$ = effluent flow
$Temp_{Effluent}$ = effluent temperature
Total Flow = combined effluent and receiving water flow

$$Temp_{Downstream} = \frac{(14.7MGD * 73.2°\text{F}) + (0.0982\ MGD * 83°\text{F})}{(14.7 + 0.0982MGD)}$$

$$Temp_{Downstream} = 73.3°\text{F}$$

Given the amount of dilution afforded the discharge and the maximum daily permitted temperature limitation, the rise in temperature WQS would be met during critical conditions. For example, substituting in a lower instream temperature of 32°F would still result in a rise in temperature less than 1°F. EPA is satisfied that a maximum daily limit of 83°F will ensure all temperature WQSs are met and so has maintained the limitation in the Draft Permit. Weekly temperature monitoring is required for all three NCCW outfalls for weeks where discharges occur.

5.4 Special Conditions

5.4.1 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. The following chemicals and additives were disclosed to EPA:

- Polymer coagulant

- Sodium hydroxide
- Sulfuric acid
- Sodium hypochlorite
- Sodium meta bisulfite

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 in writing of the discharge a new chemical or additive; allows for EPA 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:

- Product name, chemical formula, general description, 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 application concentration), 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 unless otherwise notified by EPA.

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 L.S. Starrett Company Facility's discharges of pollutants. The Draft Permit is intended to replace the 2009 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 expected action area of the outfall to determine if EPA's proposed NPDES permit could potentially impact any such listed species in this section of Millers River.

Regarding protected species under the jurisdiction of NOAA Fisheries[15], a number of anadromous and marine species and life stages are present in Massachusetts coastal waters. Various life stages of the following fish, sea turtles and whales have been documented in these near shore waters, either seasonally or year-round: adult and subadult life stages of Atlantic sturgeon (*Acipenser oxyrinchus*); adult shortnose sturgeon (*Acipenser brevirostrom*); protected sea turtles, including adult and juvenile life stages of leatherback sea turtles (*Dermochelys coriacea*), loggerhead sea turtles (*Caretta caretta*), Kemp's ridley sea turtles (*Lepidochelys kempii*) and green sea turtles (*Chelonia mydas*), along with adult and juvenile life stages of North Atlantic right whales (*Eubalaena glacialis*) and fin whales (*Balaenoptera physalus*). In addition, this coastal area has been designated as critical habitat for North Atlantic right whale feeding.

In this case, the Facility's outfall discharges far from coastal waters and also does not discharge to a river segment where protected sturgeon are present. Therefore, there are no known federally listed threatened or endangered species or their critical habitat under the jurisdiction of NOAA Fisheries within the vicinity of the L.S. Starrett Company discharge.[33] Because the action area of the discharge is not expected to overlap with these threatened or endangered species or critical habitat, consultation with NOAA Fisheries under Section 7 of the ESA is not required for this federal action.

For protected species under the jurisdiction of the USFWS, the dwarf wedgemussel (*Alasmidonta heterodon*), a listed endangered species, has been documented in Massachusetts in three waterbodies in the Connecticut River watershed in the last 25 years. Information obtained from the USFWS indicates that the dwarf wedgemussel is not found in the Millers River within the action area resulting from the L.S. Starrett Company discharge.

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[33] See §7 resources for NOAA Fisheries at https://www.fisheries.noaa.gov/resource/map/greater-atlantic-region-esa-section-7-mapper.

However, one terrestrial listed threatened species, the northern long-eared bat (*Myotis septentrionalis*) was identified as potentially occurring in the action area of L.S. Starrett Company discharge. [34]

According to the USFWS, the threatened northern long-eared bat is found in the following habitats based on seasons, "winter – mines and caves; summer – wide variety of forested habitats." This species is not considered aquatic. However, because the Facility's projected action area in the Millers River in Athol, Massachusetts, overlaps with the general statewide range of the northern long-eared bat, EPA prepared an Effects Determination Letter for the L.S. Starrett Company NPDES Permit Reissuance and submitted it to USFWS. Based on the information submitted by EPA, the USFWS notified EPA by letter (November 27, 2020) that the permit reissuance is consistent with activities analyzed in the USFWS January 5, 2016, Programmatic Biological Opinion (PBO)[35]. The PBO outlines activities that are excepted from "take" prohibitions applicable to the northern long-eared bat under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.). The USFWS consistency letter concluded EPA's consultation responsibilities for the L.S. Starrett Company NPDES permitting action under ESA Section 7(a)(2) with respect to the northern long-eared bat. No further ESA section 7 consultation is required with USFWS.

At the beginning of the public comment period, EPA notified USFWS and NOAA Fisheries Protected Resources Division that the Draft Permit and Fact Sheet were available for review and provided a link to the EPA NPDES Permit website to allow direct access to the documents.

Initiation of consultation is required and shall be requested by the EPA or by USFWS/NOAA Fisheries where discretionary Federal involvement or control over the action has been retained or is authorized by law and: (a) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered in the analysis; (b) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this analysis; or (c) If a new species is listed or critical habitat designated that may be affected by the identified action. No take is anticipated or exempted. If there is any incidental take of a listed species, initiation of consultation would be 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 National Oceanic and Atmospheric Administration Fisheries Service (NOAA Fisheries) if EPA's action or proposed actions that it funds, permits, or undertakes, "may adversely impact any essential fish habitat". *See* 16 U.S.C. § 1855(b).

The Amendments broadly define "essential fish habitat" (EFH) as: "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity". *See* 16 U.S.C.

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[34] See §7 resources for USFWS at https://ecos.fws.gov/ipac/.
[35] USFWS Event Code: 05E1NE00-2021-E-01683, November 27, 2020.

§ 1802(10). "Adverse impact" means any impact that reduces the quality and/or quantity of EFH. *See* 50 CFR § 600.910(a). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

EFH is only designated for fish species for which federal Fisheries Management Plans exist. *See* 16 U.S.C. § 1855(b)(1)(A). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999.

The Federal action being considered in this case is EPA's proposed NPDES permit for the L.S. Starrett Company, which discharges through Outfalls 002, 004, 005, and 007 to the Millers River in Athol, Massachusetts. The portion of the river receiving the discharge is river segment MA35-04.

EPA has determined that the Connecticut River and its tributaries, including the Millers River at Latitude 42° 35' 41" N Longitude 71° 13' 40" W, are designated EFH for Atlantic salmon (*Salmo salar*)[36]. Although the presence of this species may be in question since the termination of the stocking program, EPA has taken the conservative approach and decided that one or more lifestages of Atlantic salmon may be present within the area which encompasses the discharge site. EPA has concluded that the limits and conditions contained in the Draft Permit minimize adverse effects to Atlantic Salmon EFH for the following reasons:

EPA's Finding of all Potential Impacts to EFH Species

- This Draft Permit action does not constitute a new source of pollutants. It is the reissuance of an existing NPDES permit;
- The facility withdraws no water from the Millers River, so no life stages of Atlantic salmon are vulnerable to impingement or entrainment;
- Acute toxicity tests will be conducted once a year to ensure that the discharge does not present toxicity problems;
- Total suspended solids, oil and grease, pH, total aluminum, total chromium, total hexavalent, total copper, total nickel, total zinc, total cadmium, total lead, total silver, total residual chlorine, total toxic organics, trichloroethylene, total and amenable cyanide and temperature are regulated by the Draft Permit to meet water quality standards;
- The Draft Permit prohibits the discharge of pollutants or combination of pollutants in toxic amounts;
- The effluent limitations and conditions in the Draft Permit were developed to be protective of all aquatic life; and

[36] NOAA EFH Mapper available at http://www.habitat.noaa.gov/protection/efh/efhmapper/

- The Draft Permit prohibits violations of the state water quality standards.

EPA believes that the conditions and limitations contained within the L.S. Starrett Company Draft Permit adequately protects all aquatic life, including EFH designated for Atlantic salmon in the receiving water. Further mitigation is not warranted. Should adverse impacts to EFH be detected as a result of this permit action, or if new information is received that changes the basis for EPA's conclusions, NOAA Fisheries Habitat and Ecosystem Services Division will be contacted and an EFH consultation will be re-initiated.

At the beginning of the public comment period, EPA notified NOAA Fisheries Habitat and Ecosystem Services Division that the Draft Permit and Fact Sheet were available for review and provided a link to the EPA NPDES Permit website to allow direct access to the documents.

In addition to this Fact Sheet and the Draft Permit, information to support EPA's finding was included in a letter under separate cover that will be sent to the NOAA Fisheries Habitat and Ecosystem Services Division during the public comment period.

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

Prior to the close of the public comment period, any person may submit a written request to EPA 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 CFR § 124.12 are satisfied. In reaching a final decision on the Draft Permit, 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, 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. 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 CFR § 124.19.

8.0 Administrative Record

The administrative record on which this Draft Permit is based may be accessed at EPA's Boston office by appointment, Monday through Friday, excluding holidays from Shauna Little, EPA Region 1, 5 Post Office Square, Suite-100 (06-1), Boston, MA 02109-3912, or via email to little.shauna@epa.gov.

1/19/2021

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

Figure 1: Location Map

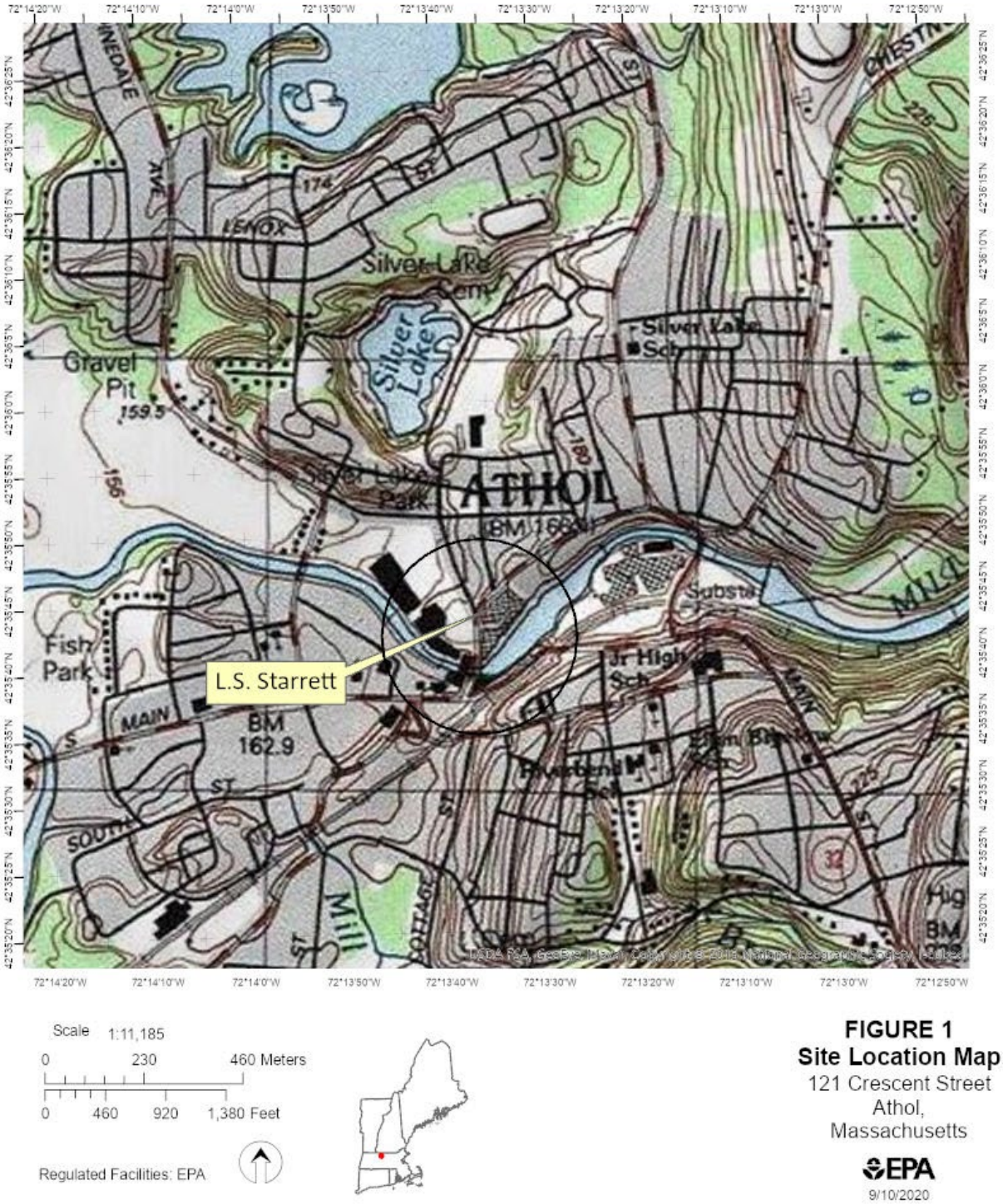
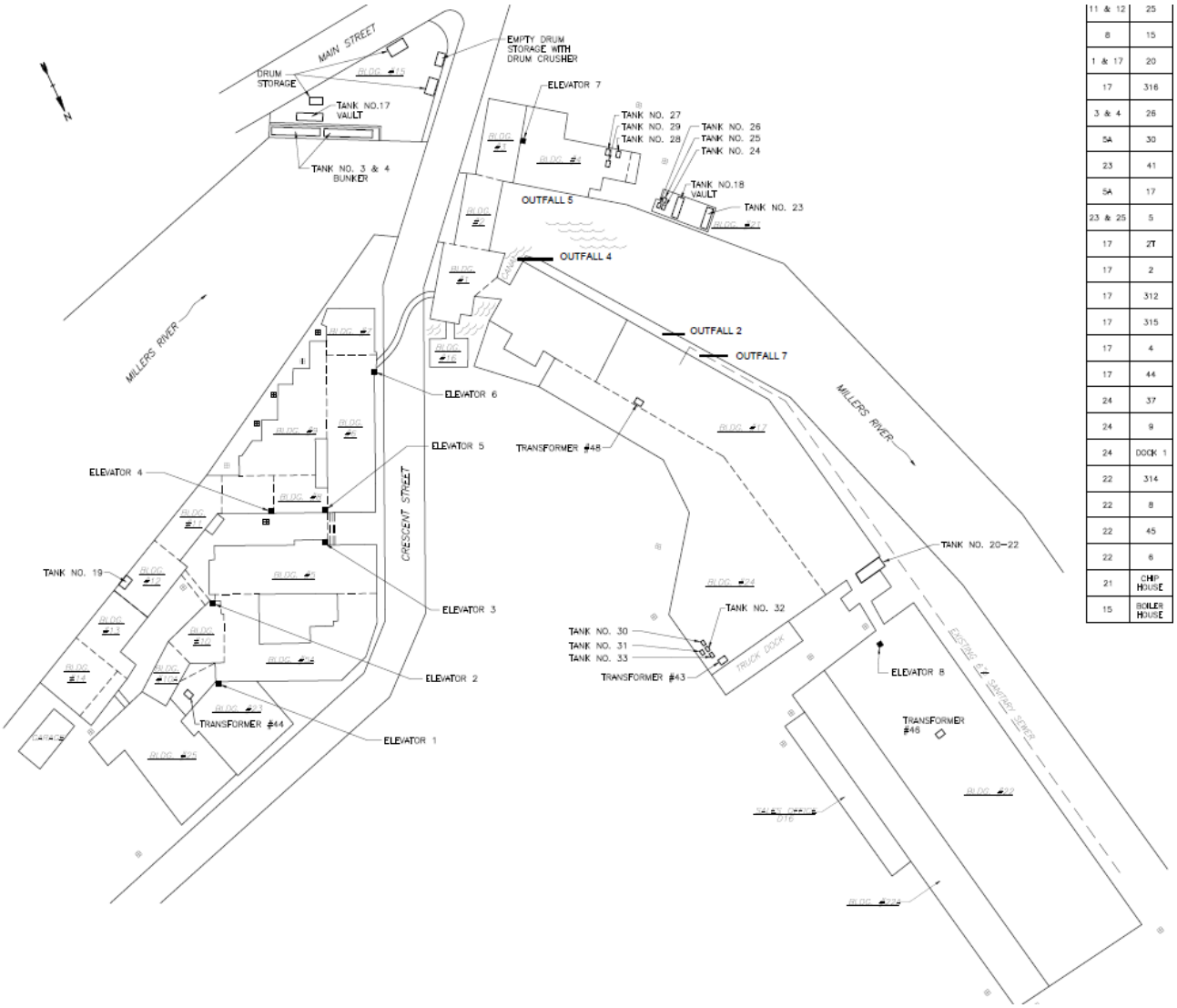
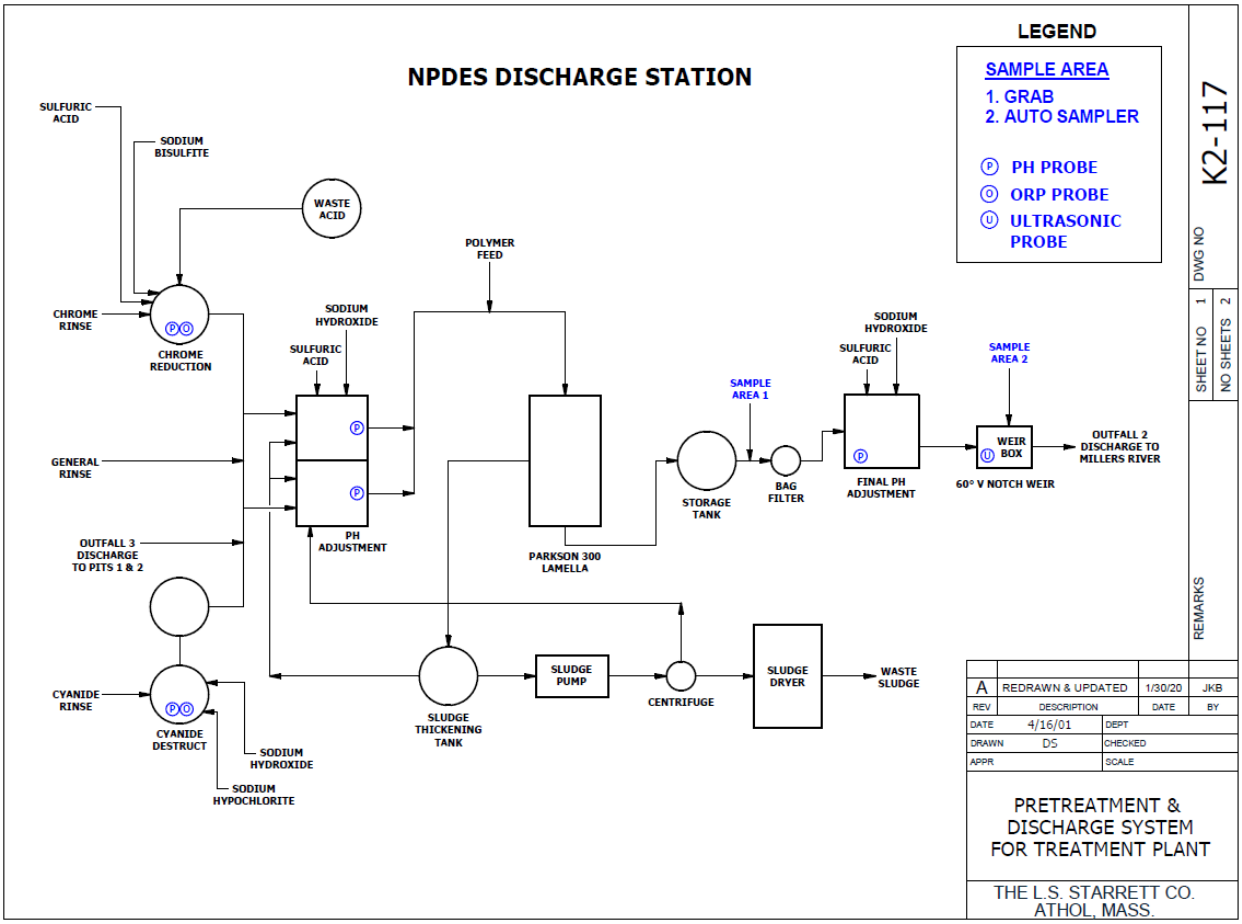


Figure 2: Site Plan



11 & 12	25
8	15
1 & 17	20
17	316
3 & 4	26
5A	30
23	41
5A	17
23 & 25	5
17	2T
17	2
17	312
17	315
17	4
17	44
24	37
24	9
24	DOCK 1
22	314
22	8
22	45
22	6
21	CHIP HOUSE
15	BOILER HOUSE

Figure 3: Schematic of Water Flow



Appendix A: Discharge Monitoring Data

Outfall 002 – Monthly Monitoring

Parameter	**Flow**	**Flow**	**TSS**	**TSS**	**pH**	**pH**	**TRC**	**TRC**	**Oil & grease**	**Oil & grease**
	Monthly Ave	**Daily Max**	**Monthly Ave**	**Daily Max**	**Minimum**	**Maximum**	**Monthly Ave**	**Daily Max**	**Monthly Ave**	**Daily Max**
Units	**gal/d**	**gal/d**	**mg/L**	**mg/L**	**SU**	**SU**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
Effluent Limit	**25000**	**30000**	**20**	**30**	**6.5**	**8.3**	**0.7**	**1**	**15**	**15**
Minimum	**7367**	**8480**	**0**	**0**	**6.5**	**0**	**0.003**	**0.01**	**No Data**	**No Data**
Maximum	**13911**	**17833**	**5.5**	**7**	**7.4**	**8.3**	**0.3**	**0.08**	**No Data**	**No Data**
Median	**9957**	**12150**	**Non-Detect**	**Non-Detect**	**7**	**8.1**	**0.02**	**0.03**	**No Data**	**No Data**
No. of Violations	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**No Data**	**No Data**
5/31/2015	8753	10120	< 4	< 4	7.1	8	0.013	0.03	< 5	< 5
6/30/2015	8879	9550	< 4	< 4	6.9	8.1	0.022	0.05	< 5	< 5
7/31/2015	8631	10260	< 4	< 4	6.6	7.9	0.033	0.04	< 5	< 5
8/31/2015	8963	10220	< 4	< 4	6.7	7.8	0.008	0.02	< 5	< 5
9/30/2015	8894	10210	< 4	< 4	6.8	7.7	0.038	0.06	< 5	< 5
10/31/2015	9853	12020	< 4	< 4	6.9	7.9	0.023	0.06	< 5	< 5
11/30/2015	11661	13090	< 4	< 4	7	7.9	0.028	0.06	< 5	< 5
12/31/2015	10925	14200	< 4	< 4	6.9	7.9	0.04	0.07	< 5	< 5
1/31/2016	11635	13330	< 4	< 4	6.9	8	0.008	0.02	< 5	< 5
2/29/2016	10306	11510	< 4	< 4	7	7.8	0.015	0.04	< 5	< 5
3/31/2016	10182	12000	< 4	< 4	7	7.9	0.022	0.05	< 5	< 5
4/30/2016	10394	17833	< 4	< 4	6.6	7.9	0.028	0.06	< 5	< 5
5/31/2016	10100	11490	< 4	< 4	6.9	7.9	0.02	0.03	< 5	< 5

6/30/2016	9862	11540	< 4	< 4	7.2	8	0.035	0.05	< 5	< 5
7/31/2016	10572	12550	< 4	< 4	7.3	8.1	0.02	0.03	< 5	< 5
8/31/2016	11079	14150	< 4	< 4	7.1	7.8	0.024	0.05	< 5	< 5
9/30/2016	11344	14060	< 4	< 4	6.5	7.7	0.023	0.03	< 5	< 5
10/31/2016	9278	11470	< 4	< 4	6.5	7.7	0.038	0.05	< 5	< 5
11/30/2016	8398	10260	< 4.5	< 5	7	7.9	0.022	0.06	< 5	< 5
12/31/2016	8694	10120	< 4	< 4	6.9	8.1	0.023	0.03	< 5	< 5
1/31/2017	8273	9020	< 4	< 4	7.1	7.8	0.022	0.05	< 5	< 5
2/28/2017	8015	9290	< 4	< 4	7.1	7.9	0.028	0.05	< 5	< 5
3/31/2017	7926	9030	< 4	< 4	6.9	8.1	0.018	0.04	< 5	< 5
4/30/2017	8093	9810	< 4	< 4	7.2	7.9	0.015	0.02	< 5	< 5
5/31/2017	9825	12200	< 4	< 4	7.1	8.1	0.016	0.03	< 5	< 5
6/30/2017	10251	12660	< 4	< 4	6.9	8	0.01	0.02	< 5	< 5
7/31/2017	9644	10500	< 4	< 4	7	7.9	0.015	0.03	< 5	< 5
8/31/2017	10355	11980	< 4	< 4	6.7	8.1	0.038	0.06	< 5	< 5
9/30/2017	9957	12100	< 4	< 4	6.8	8.1	0.008	0.03	< 5	< 5
10/31/2017	10726	13080	< 4	< 4	7.1	8.1	0.3	0.03	< 5	< 5
11/30/2017	11675	13330	< 4	< 4	7	8.2	0.013	0.03	< 5	< 5
12/31/2017	10647	12810	< 4	< 4	7.1	8	0.027	0.03	< 5	< 5
1/31/2018	11870	15730	< 4	< 4	7.1	8.1	0.02	0.03	< 5.95	< 6.9
2/28/2018	13911	16120	< 4	< 4	7	8.1	0.018	0.03	< 5	< 5
3/31/2018	13832	15390	< 4	< 4	7.1	8.2	0.015	0.03	< 5	< 5
4/30/2018	13326	15460	< 4	< 4	7.2	8.1	0.018	0.02	< 5	< 5
5/31/2018	13094	16360	< 4	< 4	7.1	8.2	0.02	0.03	< 5	< 5
6/30/2018	12688	16482	< 4	< 4	7.3	8.2	0.018	0.03	< 5	< 5
7/31/2018	13601	16310	< 5	< 5	7.1	8.2	0.015	0.02	< 4	< 4
8/31/2018	13337	15970	< 4	< 4	7.2	8.2	0.03	0.05	< 5	< 5
9/30/2018	11550	13460	< 4	< 4	7	8.2	0.02	0.04	< 5	< 5
10/31/2018	11868	13600	< 4	< 4	7	8.2	0.034	0.06	< 5	< 5
11/30/2018	10233	12150	< 4	< 4	7	8.2	0.025	0.04	< 5	< 5
12/31/2018	9923	12190	< 4	< 4	7.1	8.2	0.028	0.04	< 5	< 5

1/31/2019	10548	16130	< 4.5	< 5	7.2	8.3	0.052	0.08	< 5	< 5
2/28/2019	9424	13300	< 4	< 4	6.9	8.3	0.02	0.03	< 5	< 5
3/31/2019	10076	11040	< 4	< 4	6.9	7.3	0.005	0.02	< 5	< 5
4/30/2019	10420	11930	4.5	5	6.9	8.2	0.012	0.02	< 5	< 5
5/31/2019	9714	11830	< 4	< 4	6.9	8.2	0.008	0.01	< 5	< 5
6/30/2019	10755	13010	< 4	< 4	7.4	8.1	0.005	0.02	< 5	< 5
7/31/2019	9642	12600	5	< 4	7.1	8.1	0.015	0.04	< 5	< 5
8/31/2019	9543	12120	< 5	< 4	6.9	8.1	0.013	0.02	< 5	< 5
9/30/2019	8389	10420	5.5	7	6.9	8.1	0.005	0.02	< 5	< 5
10/31/2019	9405	13040	< 4	< 4	6.5	8.2	0.012	0.03	< 5	< 5
11/30/2019	9449	11420	< 4	< 4	7	8.2	0.013	0.02	< 5	< 5
12/31/2019	8707	16610	< 4	< 4	6.5	<= 8.2	0.024	0.04	< 5	< 5
1/31/2020	8232	10890	< 4	< 4	6.6	8.2	0.01	0.02	< 5	< 5
2/29/2020	7367	8480	< 4	< 4	7.1	8.2	0.005	0.01	< 5	< 5
3/31/2020	7395	10170	< 4	< 4	7.3	7.9	0.004	0.02	< 5	< 5
4/30/2020	9582	12160	< 4	< 4	6.8	7.9	0.003	0.01	< 5	< 5
5/31/2020	8151	11270	< 4	< 4	7.2	8.1	0.018	0.03	< 5	< 5

Outfall 002 – Monthly Monitoring

Parameter	**Copper**	**Copper**	**Nickel**	**Nickel**	**Zinc**	**Zinc**	**Aluminum, total (as Al)**	**Aluminum, total (as Al)**
	Monthly Ave	**Daily Max**	**Monthly Ave**	**Daily Max**	**Monthly Ave**	**Daily Max**	**Monthly Ave**	**Daily Max**
Units	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
Effluent Limit	**0.79**	**1**	**2.38**	**3**	**1.48**	**2**	**1**	**2**
Minimum	**0.032**	**0.07**	**0.047**	**0.058**	**0**	**0**	**0**	**0**
Maximum	**0.24**	**0.76**	**0.645**	**0.491**	**0.401**	**0.97**	**0.0615**	**0.073**
Median	**0.089**	**0.16**	**0.1045**	**0.119**	**0.076**	**0.13**	**Non-Detect**	**Non-Detect**
No. of Violations	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5/31/2015	0.103	0.16	0.074	0.08	0.03	0.041	< .05	< .05
6/30/2015	0.24	0.76	0.101	0.104	0.011	0.012	< .05	< .05
7/31/2015	0.091	0.18	0.0775	0.094	0.0145	0.015	< .05	< .05
8/31/2015	0.067	0.14	0.4395	0.46	0.012	0.014	< .05	< .05
9/30/2015	0.086	0.17	0.1515	0.172	< .01	< .01	< .05	< .05
10/31/2015	0.087	0.16	0.092	0.098	0.012	0.014	< .05	< .05
11/30/2015	0.102	0.21	0.0645	0.078	0.023	0.036	< .05	< .05
12/31/2015	0.076	0.15	0.124	0.132	0.012	0.014	< .05	< .05
1/31/2016	0.059	0.14	0.07	0.082	0.012	0.014	< .05	< .05
2/29/2016	0.072	0.17	0.066	0.075	0.0145	0.019	0.05	0.05
3/31/2016	0.196	0.73	0.119	0.155	0.0185	0.024	< .05	< .05
4/30/2016	0.094	0.17	0.109	0.142	< .01	< .01	< .05	< .05
5/31/2016	0.119	0.29	0.047	0.058	0.0145	0.017	< .05	< .05
6/30/2016	0.075	0.13	0.0545	0.065	0.01	0.01	< .05	< .05
7/31/2016	0.101	0.27	0.084	0.085	0.0125	0.015	< .05	< .05

8/31/2016	0.194	0.401	0.2105	0.284	0.0125	0.015	< .05	< .05
9/30/2016	0.099	0.15	0.3175	0.398	0.072	0.126	< .05	< .05
10/31/2016	0.164	0.372	0.266	0.399	0.0135	0.017	< .05	< .05
11/30/2016	0.104	0.32	0.0865	0.102	0.011	0.012	< .05	< .05
12/31/2016	0.095	0.26	0.084	0.097	0.01	0.01	< .05	< .05
1/31/2017	0.139	0.42	0.0665	0.067	0.018	0.026	< .05	< .05
2/28/2017	0.076	0.13	0.0965	0.111	0.0365	0.061	< .05	< .05
3/31/2017	0.034	0.09	0.0935	0.106	< .01	< .01	< .05	< .05
4/30/2017	0.054	0.12	0.0685	0.077	< .01	< .01	< .05	< .05
5/31/2017	0.108	0.26	0.081	0.091	0.01	0.01	< .05	< .05
6/30/2017	0.131	0.24	0.0875	0.11	< .01	< .01	< .05	< .05
7/31/2017	0.053	0.08	0.063	0.065	0.0145	0.019	< .05	< .05
8/31/2017	0.091	0.13	0.415	0.491	0.016	0.019	< .05	< .05
9/30/2017	0.101	0.26	0.393	0.438	0.147	0.25	< .05	< .05
10/31/2017	0.078	0.15	0.101	0.107	0.08	0.16	< .05	< .05
11/30/2017	0.107	0.16	0.231	0.259	0.078	0.14	< .05	< .05
12/31/2017	0.117	0.31	0.1305	0.152	0.076	0.13	< .05	< .05
1/31/2018	0.099	0.16	0.105	0.108	0.101	0.21	< .05	< .05
2/28/2018	0.062	0.09	0.323	0.348	0.07	0.11	< .05	< .05
3/31/2018	0.032	0.07	0.1045	0.131	0.078	0.17	< .05	< .05
4/30/2018	0.08	0.17	0.157	0.205	0.223	0.97	< .05	< .05
5/31/2018	0.075	0.15	0.0825	0.088	0.1	0.24	< .05	< .05
6/30/2018	0.078	0.13	0.106	0.117	0.078	0.13	< .05	< .05
7/31/2018	0.083	0.13	0.1685	0.19	0.212	0.56	< .05	< .05
8/31/2018	0.116	0.32	0.265	0.347	0.217	0.59	0.0615	0.073
9/30/2018	0.045	0.16	0.2895	0.369	0.157	0.27	< .05	< .05
10/31/2018	0.076	0.15	0.101	0.111	0.227	0.44	< .05	< .05
11/30/2018	0.055	0.1	0.0765	0.101	0.18	0.38	< .05	< .05
12/31/2018	0.058	0.1	0.107	0.119	0.104	0.22	< .05	< .05
1/31/2019	0.089	0.18	0.0665	0.067	0.157	0.32	< .05	< .05
2/28/2019	0.083	0.24	0.121	0.16	0.074	0.18	< .05	< .05

3/31/2019	0.134	0.36	0.154	0.223	0.198	0.68	< .05	< .05
4/30/2019	0.08	0.16	0.2155	0.36	0.107	0.18	< .05	< .05
5/31/2019	0.064	0.13	0.645	0.065	0.086	0.18	< .05	< .05
6/30/2019	0.061	0.16	0.1	0.111	0.086	0.14	< .05	< .05
7/31/2019	0.066	0.13	0.08	0.082	0.109	0.23	< .05	< .05
8/31/2019	0.092	0.19	0.1225	0.164	0.177	0.32	< .05	< .05
9/30/2019	0.087	0.14	0.159	0.308	0.159	0.31	< .05	< .05
10/31/2019	0.111	0.28	0.1185	0.129	0.119	0.19	< .05	< .05
11/30/2019	0.115	0.26	0.103	0.127	0.401	0.905	< .05	< .05
12/31/2019	0.093	0.114	0.1095	0.148	0.139	0.24	< .05	< .05
1/31/2020	0.119	0.28	0.098	0.133	0.084	0.13	< .05	< .05
2/29/2020	0.089	0.15	0.094	0.135	0.218	0.43	< .05	< .05
3/31/2020	0.081	0.13	0.0915	0.095	0.155	0.4	0.05	0.05
4/30/2020	0.093	0.15	0.106	0.132	0.124	0.23	< .05	< .05
5/31/2020	0.063	0.11	0.144	0.206	0.124	0.19	0.05	0.05

Outfall 002 – Monthly Monitoring

Parameter	**Chromium, hexavalent (as Cr)**	**Chromium, hexavalent (as Cr)**	**Chromium, total (as Cr)**	**Chromium, total (as Cr)**	**Cyanide, free (amen. to chlorination)**	**Cyanide, free (amen. to chlorination)**	**Cyanide, total (as CN)**	**Cyanide, total (as CN)**
	Monthly Ave	**Daily Max**	**Daily Max**	**Monthly Ave**	**Monthly Ave**	**Daily Max**	**Monthly Ave**	**Daily Max**
Units	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
Effluent Limit	**0.05**	**0.1**	**1**	**0.5**	**0.05**	**0.1**	**0.5**	**1**
Minimum	**0**	**0**	**0.02**	**0.0185**	**0**	**0**	**No Data**	**0**
Maximum	**0.028**	**0.09**	**0.319**	**0.195**	**0.003**	**0.01**	**No Data**	**0.02**
Median	**0.013**	**0.023**	**0.078**	**0.0705**	**Non-Detect**	**Non-Detect**	**No Data**	**Non-Detect**
No. of Violations	**0**	**0**	**0**	**0**	**0**	**0**	**No Data**	**0**
5/31/2015	0.015	0.025	0.059	0.054	< .02	< .02	< .02	< .02
6/30/2015	0.02	0.04	0.063	0.054	< .02	< .02	< .02	< .02
7/31/2015	0.018	0.04	0.061	0.0465	< .02	< .02	< .02	< .02
8/31/2015	0.015	0.039	0.09	0.071	< .02	< .02	< .02	< .02
9/30/2015	0.019	0.076	0.084	0.0565	< .02	< .02	< .02	< .02
10/31/2015	0.009	0.029	0.048	0.041	< .02	< .02	< .02	< .02
11/30/2015	0.0125	0.023	0.047	0.04	< .02	< .02	< .02	< .02
12/31/2015	0.015	0.03	0.071	0.055	< .02	< .02	< .02	< .02
1/31/2016	0.008	0.017	0.055	0.047	< .02	< .02	< .02	< .02
2/29/2016	0.014	0.021	0.136	0.096	< .02	< .02	< .02	< .02
3/31/2016	0.016	0.028	0.192	0.14	< .02	< .02	< .02	< .02
4/30/2016	0.018	0.038	0.062	0.048	< .02	< .02	< .02	< .02
5/31/2016	0.025	0.049	0.054	0.046	< .02	< .02	< .02	< .02
6/30/2016	0.018	0.046	0.091	0.068	< .02	< .02	< .02	< .02
7/31/2016	0.01	0.019	0.071	0.071	< .02	< .02	< .02	< .02

8/31/2016	0.013	0.045	0.037	0.037	< .02	< .02	< .02	< .02
9/30/2016	0.022	0.09	0.104	0.073	< .02	< .02	< .02	< .02
10/31/2016	0.015	0.09	0.23	0.138	< .02	< .02	< .02	< .02
11/30/2016	0.013	0.029	0.044	0.043	< .02	< .02	< .02	< .02
12/31/2016	0.025	0.051	0.059	0.054	< .02	< .02	< .02	< .02
1/31/2017	0.023	0.045	0.05	0.046	< .02	< .02	< .02	< .02
2/28/2017	0.028	0.051	0.075	0.0735	< .02	< .02	< .02	< .02
3/31/2017	0.025	0.036	0.078	0.068	< .02	< .02	< .02	0.02
4/30/2017	0.022	0.042	0.086	0.078	< .02	< .02	< .02	< .02
5/31/2017	0.022	0.036	0.063	0.0615	< .02	< .02	< .02	< .02
6/30/2017	0.007	0.009	0.033	0.033	< .02	< .02	< .02	< .02
7/31/2017	0.025	0.05	0.057	0.0515	< .02	< .02	< .02	< .02
8/31/2017	0.011	0.025	0.101	0.088	< .02	< .02	< .02	< .02
9/30/2017	0.005	0.011	0.131	0.0995	< .02	< .02	< .02	< .02
10/31/2017	0.01	0.017	0.02	0.0185	< .02	< .02	< .02	< .02
11/30/2017	0.011	0.033	0.173	0.126	< .02	< .02	< .02	< .02
12/31/2017	<= .008	<= .014	0.136	0.1235	< .02	< .02	< .02	< .02
1/31/2018	0.011	0.035	0.086	0.0705	< .02	< .02	< .02	< .02
2/28/2018	0.017	0.031	0.135	0.1135	< .02	< .02	< .02	< .02
3/31/2018	0.014	0.023	0.05	0.049	< .02	< .02	< .02	< .02
4/30/2018	< .01	< .02	0.138	0.116	< .02	< .02	< .02	< .02
5/31/2018	0.013	0.024	0.093	0.0825	< .02	< .02	< .02	< .02
6/30/2018	0.014	0.02	0.106	0.088	< .02	< .02	< .02	< .02
7/31/2018	0.014	0.02	0.119	0.114	< .02	< .02	< .02	< .02
8/31/2018	0.014	0.02	0.207	0.149	< .02	< .02	< .02	< .02
9/30/2018	0.016	0.044	0.319	0.195	< .02	< .02	< .02	< .02
10/31/2018	0.009	0.02	0.053	0.048	< .02	< .02	< .02	< .02
11/30/2018	< .02	< .02	0.036	0.0295	< .02	< .02	< .02	< .02
12/31/2018	0.01	0.02	0.036	0.032	< .02	< .02	< .02	< .02
1/31/2019	0.008	0.02	0.052	0.0425	< .02	< .02	< .02	< .02
2/28/2019	0.013	0.021	0.129	0.091	< .02	< .02	< .02	< .02

3/31/2019	0.009	0.02	0.109	0.0855	< .02	< .02	< .02	< .02
4/30/2019	0.009	0.02	0.314	0.193	< .02	< .02	< .02	< .02
5/31/2019	0.011	0.02	0.048	0.0395	< .02	< .02	< .02	< .02
6/30/2019	0.009	0.02	0.105	0.0775	< .02	< .02	< .02	< .02
7/31/2019	0.01	0.02	0.061	0.0545	< .02	< .02	< .02	< .02
8/31/2019	0.009	0.02	0.103	0.078	< .02	< .02	< .02	< .02
9/30/2019	0.01	0.02	0.197	0.1035	< .02	< .02	< .02	< .02
10/31/2019	0.009	0.02	0.072	0.0515	< .02	< .02	< .02	< .02
11/30/2019	0.01	0.02	0.06	0.058	< .02	< .02	< .02	< .02
12/31/2019	0.011	0.02	0.106	0.0945	< .02	< .02	< .02	< .02
1/31/2020	0.013	0.02	0.077	0.072	< .02	< .02	< .02	< .02
2/29/2020	0.012	0.02	0.063	0.0365	< .02	< .02	< .02	< .02
3/31/2020	0.022	0.047	0.089	0.0885	< .02	< .02	< .02	< .02
4/30/2020	0.015	0.028	0.095	0.0825	0.003	0.01	< .02	< .02
5/31/2020	0.009	0.02	0.249	0.1695	< .02	< .02	< .02	< .02

Outfall 002 – Quarterly Monitoring

Parameter	**Lead**	**Lead**	**Cadmium, total (as Cd)**	**Silver, total (as Ag)**	**Cadmium, total (as Cd)**	**Organics, total toxic (TTO)**	**Silver, total (as Ag)**	**Trichloroethylene**
	Monthly Ave	**Daily Max**	**Monthly Ave**	**Monthly Ave**	**Daily Max**	**Daily Max**	**Daily Max**	**Daily Max**
Units	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
Effluent Limit	**0.119**	**0.69**	**0.083**	**0.026**	**0.178**	**2.13**	**0.082**	**Report**
Minimum	**No Data**	**No Data**	**No Data**	**No Data**	**No Data**	**0**	**No Data**	**0**
Maximum	**No Data**	**No Data**	**No Data**	**No Data**	**No Data**	**0.0161**	**No Data**	**0.011**
Median	**No Data**	**No Data**	**No Data**	**No Data**	**No Data**	**0**	**No Data**	**0.002**
No. of Violations	**No Data**	**No Data**	**No Data**	**No Data**	**No Data**	**0**	**No Data**	**N/A**
5/31/2015	< .05	< .05	< .01	< .01	< .01	0.0076	< .01	0.0016

8/31/2015	< .05	< .05	< .01	< .01	< .01	0	< .01	< .001
11/30/2015	< .05	< .05	< .01	< .01	< .01	0	< .01	0.0015
2/29/2016	< .05	< .05	< .01	< .01	< .01	0	< .01	0.0013
5/31/2016	< .05	< .05	< .01	< .01	< .01	0.0161	< .01	0.002
8/31/2016	< .05	< .05	< .01	< .01	< .01	0	< .01	0.0028
11/30/2016	< .05	< .05	< .01	< .01	< .01	0	< .01	0.0014
2/28/2017	< .05	< .05	< .01	< .01	< .01	0	< .01	0.0038
5/31/2017	< .05	< .05	< .01	< .01	< .01	0.0013	< .01	< .001
8/31/2017	< .05	< .05	< .01	< .01	< .01	0	< .01	0.0022
11/30/2017	< .05	< .05	< .01	< .01	< .01	0	< .01	< .0015
2/28/2018	< .01	< .01	< .01	< .01	< .01	0.0131	< .01	0.003
5/31/2018	< .01	< .01	< .01	< .01	< .01	0	< .01	0.0036
8/31/2018	< .01	< .01	< .01	< .01	< .01	0	< .01	0.0021
11/30/2018	< .01	< .01	< .01	< .01	< .01	0	< .01	< .001
2/28/2019	< .01	< .01	< .01	< .01	< .01	0	< .01	0.0015
5/31/2019	< .01	< .01	< .01	< .01	< .01	0	< .01	0.0023
8/31/2019	< .01	< .01	< .01	< .01	< .01	0	< .01	0.0014
11/30/2019	< .01	< .01	< .01	< .01	< .01	0	< .01	0.0022
2/29/2020	< .01	< .01	< .01	< .01	< .01	0	< .01	0.011
5/31/2020	< .01	< .01	< .01	< .01	< .01	0	< .01	0.0034

Outfall 003 – Monthly Monitoring

Parameter	**Cyanide, total (as CN)**	**Flow rate**	**Cyanide, total (as CN)**	**Flow rate**
	Monthly Ave	**Monthly Ave**	**Daily Max**	**Daily Max**
Units	**mg/L**	**MGD**	**mg/L**	**MGD**
Effluent Limit	**0.65**	**Report**	**1.2**	**Report**
Minimum	**0**	**0.001**	**0**	**0.001**

Maximum	**0.035**	**0.01**	**0.05**	**0.01**
Median	**Non-Detect**	**0.001**	**Non-Detect**	**0.001**
No. of Violations	**0**	**N/A**	**0**	**N/A**
5/31/2015	< .02	0.001	< .02	0.001
6/30/2015	< .02	0.001	< .02	0.001
7/31/2015	< .02	0.001	< .02	0.001
8/31/2015	< .02	0.001	< .02	0.001
9/30/2015	< .02	0.001	< .02	0.001
10/31/2015	< .02	0.001	< .02	0.001
11/30/2015	< .02	0.001	< .02	0.001
12/31/2015	< .02	0.001	< .02	0.001
1/31/2016	< .02	0.001	< .02	0.001
2/29/2016	< .02	0.001	< .02	0.001
3/31/2016	< .02	0.001	0.02	0.001
4/30/2016	< .02	0.001	< .02	0.001
5/31/2016	< .02	0.001	< .02	0.001
6/30/2016	< .02	0.001	< .02	0.001
7/31/2016	< .02	0.001	< .02	0.001
8/31/2016	< .02	0.001	< .02	0.001
9/30/2016	< .02	0.001	< .02	0.001
10/31/2016	< .02	0.001	< .02	0.001
11/30/2016	< .02	0.001	< .02	0.001
12/31/2016	< .02	0.001	< .02	0.001
1/31/2017	< .02	0.001	< .02	0.001
2/28/2017	< .02	0.001	< .02	0.001
3/31/2017	< .02	0.001	< .02	0.001
4/30/2017	< .02	0.001	< .02	0.001
5/31/2017	< .02	0.001	< .02	0.001
6/30/2017	< .02	0.001	< .02	0.001

7/31/2017	< .02	0.001	< .02	0.001
8/31/2017	< .02	0.001	< .02	0.001
9/30/2017	< .02	0.01	< .02	0.01
10/31/2017	0.035	0.001	0.05	0.001
11/30/2017	< .02	0.001	< .02	0.001
12/31/2017	0.02	0.001	0.02	0.001
1/31/2018	< .02	0.001	< .02	0.001
2/28/2018	< .02	0.001	< .02	0.001
3/31/2018	< .02	0.001	< .02	0.001
4/30/2018	< .02	0.001	< .02	0.001
5/31/2018	< .02	0.001	< .02	0.001
6/30/2018	< .02	0.001	< .02	0.001
7/31/2018	< .02	0.001	< .02	0.001
8/31/2018	< .02	0.001	< .02	0.001
9/30/2018	< .02	0.001	< .02	0.001
10/31/2018	< .02	0.001	< .02	0.001
11/30/2018	< .02	0.001	< .02	0.001
12/31/2018	< .02	0.001	< .02	0.001
1/31/2019	< .02	0.001	< .02	0.001
2/28/2019	< .02	0.001	< .02	0.001
3/31/2019	< .02	0.001	< .02	0.001
4/30/2019	< .02	0.001	< .02	0.001
5/31/2019	< .02	0.001	< .02	0.001
6/30/2019	< .02	0.001	< .02	0.001
7/31/2019	< .02	0.001	< .02	0.001
8/31/2019	< .02	0.001	< .02	0.001
9/30/2019	< .02	0.001	< .02	0.001
10/31/2019	< .02	0.001	< .02	0.001
11/30/2019	< .02	0.001	< .02	0.001
12/31/2019	< .02	0.001	< .02	0.001
1/31/2020	< .02	0.001	< .02	0.001

2/29/2020	< .02	0.001	< .02	0.001
3/31/2020	< .02	0.001	< .02	0.001
4/30/2020	< .02	0.001	< .02	0.001
5/31/2020	< .02	0.001	< .02	0.001

Outfall 004

Parameter	**Flow**	**Temperature, water deg. fahrenheit**
	Daily Max	**Daily Max**
Units	**gal/d**	**deg F**
Effluent Limit	**7200**	**83**
Minimum	**No Data**	**No Data**
Maximum	**No Data**	**No Data**
Median	**No Data**	**No Data**
No. of Violations	**No Data**	**No Data**

Outfall 005

Parameter	**Flow**	**Temperature, water deg. fahrenheit**
	Monthly Ave	**Daily Max**
Units	**gal/d**	**deg F**
Effluent Limit	**20000**	**83**
Minimum	**No Data**	**No Data**
Maximum	**No Data**	**No Data**
Median	**No Data**	**No Data**

No. of Violations	**No Data**	**No Data**

Outfall 007 – Monthly Monitoring

Parameter	**Flow**	**pH**	**pH**	**Temperature, water deg. fahrenheit**
	Daily Max	**Minimum**	**Maximum**	**Daily Max**
Units	**gal/d**	**SU**	**SU**	**deg F**
Effluent Limit	**98200**	**6.5**	**8.3**	**85**
Minimum	**0**	**6.5**	**0**	**64.6**
Maximum	**64223**	**7.77**	**8.3**	**77.5**
Median	**21201**	**6.94**	**7.4**	**70.7**
No. of Violations	**0**	**0**	**0**	**0**
5/31/2015	10821	7.21	7.64	71.4
6/30/2015	1437	7.17	7.32	74.1
7/31/2015	4473	7.07	7.3	75.7
8/31/2015	16323	6.7	7.24	76.1
9/30/2015	25444	6.56	6.85	75.9
10/31/2015	29184	6.53	6.71	72.5
11/30/2015	37182	6.73	6.91	71.1
12/31/2015	33694	6.54	6.86	68.2
1/31/2016	35105	6.73	7	67.3
2/29/2016	32658	6.76	7.66	66
3/31/2016	26717	6.64	6.89	68
4/30/2016	17833	6.7	7.75	68.5
5/31/2016	27116	7.1	7.86	70.5
6/30/2016	13498	7	8.3	73.8
7/31/2016	22474	7.16	7.76	76.8

8/31/2016	6460	7.01	7.96	76.5
9/30/2016	20407	6.57	8.1	77.5
10/31/2016	0	6.6	8.14	73.2
11/30/2016	5370	6.53	6.86	72.3
12/31/2016	152	6.64	6.79	70.7
1/31/2017	8588	6.58	7.56	70.2
2/28/2017	0	7.19	7.4	68.2
3/31/2017	2389	7.07	7.44	70.9
4/30/2017	4737	7.44	8.15	68.2
5/31/2017	7012	7	7.44	69.1
6/30/2017	8214	6.92	8.3	77
7/31/2017	46080	7.51	8.25	77.2
8/31/2017	37066	7.01	7.21	72.9
9/30/2017	32796	6.99	7.68	71.8
10/31/2017	30157	6.8	7.33	69.8
11/30/2017	40829	6.85	7.56	70.7
12/31/2017	35099	7.65	7.92	69.6
1/31/2018	14541	7.77	8.26	64.6
2/28/2018	17434	7.28	8.22	64.9
3/31/2018	17929	7.12	7.24	68
4/30/2018	13750	7.69	7.9	65.3
5/31/2018	18726	7.02	7.49	65.3
6/30/2018	16482	7.21	8.19	68.4
7/31/2018	17361	7.17	7.3	72.9
8/31/2018	13439	6.55	7.25	76.1
9/30/2018	26707	7.08	7.28	73.6
10/31/2018	29360	6.71	7.23	70.3
11/30/2018	40187	6.59	7.32	68
12/31/2018	46594	7.1	7.31	66.2
1/31/2019	42904	6.96	8.02	64.9
2/28/2019	23152	6.81	7.35	65.3

3/31/2019	24288	6.94	7.27	64.8
4/30/2019	29175	6.89	8.05	67.5
5/31/2019	6399	7.05	7.67	66.6
6/30/2019	3453	7.37	8.08	73.4
7/31/2019	13012	6.6	7.52	75.4
8/31/2019	64223	7.08	7.7	76.1
9/30/2019	34354	6.6	7.2	72.7
10/31/2019	37352	6.54	7.37	70.7
11/30/2019	24681	6.54	7.29	70.9
12/31/2019	21201	6.5	<= 10.12	70.2
1/31/2020	30068	6.53	6.87	67.3
2/29/2020	27910	6.52	<= 6.86	67.5
3/31/2020	18728	7.04	7.22	70.3
4/30/2020	7813	6.65	7.23	72.3
5/31/2020	29315	7	7.5	72.9

Outfalls 004, 005, 007

Parameter	**Flow**
	Sum
Units	**gal/d**
Effluent Limit	**98200**
Minimum	**0**
Maximum	**64223**
Median	**20407**
No. of Violations	**0**
5/31/2015	10821
6/30/2015	1437
7/31/2015	4473
8/31/2015	16323

9/30/2015	25444
10/31/2015	5051.9
11/30/2015	37182
12/31/2015	33694
1/31/2016	35105
2/29/2016	32658
3/31/2016	26717
4/30/2016	17833
5/31/2016	27116
6/30/2016	13498
7/31/2016	22474
8/31/2016	6460
9/30/2016	20407
10/31/2016	0
11/30/2016	5370
12/31/2016	152
1/31/2017	8588
2/28/2017	0
3/31/2017	2389
4/30/2017	4737
5/31/2017	7012
6/30/2017	8214
7/31/2017	46080
8/31/2017	37066
9/30/2017	32796
10/31/2017	30157
11/30/2017	40829
12/31/2017	35099
1/31/2018	14541
2/28/2018	17434
3/31/2018	17929

4/30/2018	13750
5/31/2018	18726
6/30/2018	16482
7/31/2018	17361
8/31/2018	13439
9/30/2018	26707
10/31/2018	29360
11/30/2018	40187
12/31/2018	46594
1/31/2019	42904
2/28/2019	23152
3/31/2019	24288
4/30/2019	29175
5/31/2019	6399
6/30/2019	3453
7/31/2019	13012
8/31/2019	64223
9/30/2019	34354
10/31/2019	37352
11/30/2019	24681
12/31/2019	21201
1/31/2020	30068
2/29/2020	27910
3/31/2020	18728
4/30/2020	7813
5/31/2020	29315

Appendix B: 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) 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 minimum levels). EPA used this methodology to calculate the 95th percentile.

EPA 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 (7Q10 flow upstream of the outfall for aquatic life criteria; harmonic mean flow upstream of the outfall for human health criteria)
Q_e = effluent flow of the Facility (permitted maximum daily flow)
Q_d = downstream flow ($Q_s + Q_e$)

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

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

When both the downstream concentration (C) exceeds the applicable criterion, there is reasonable potential for the discharge to cause, or contribute to an excursion above WQSs. *See* 40 CFR § 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 CFR § 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 314 CMR 4.05(5)(e). The applicable criteria are summarized in the table below.

Parameter	**Applicable Criteria**	
	Acute Criteria (CMC)	**Chronic Criteria (CCC)**
Units	**µg/L**	**µg/L**
Total Residual Chlorine (TRC)	19	11
Trichloroethylene (TCE)	NA	30

Calculation of Reasonable Potential

EPA first calculated the upper bound of expected effluent concentrations for each parameter. The concentrations of TRC and TCE in the Millers River was assumed equal to zero; sampling done by MassDEP for the *Millers River Watershed 2000 Water Quality Assessment Report* found that the vast majority of total residual chlorine measurements were below the analytical detection limit of 0.05 mg/L. EPA then used the calculated upper bound of expected effluent concentrations, 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) exceeds 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]	Upstream Flow	Upstream Conc[2]	Downstream Flow[3]	Downstream Concentration	Acute Criterion	Chronic Criterion	Acute Reasonable Potential[4]	Chronic Reasonable Potential[5]
Units	**MGD**	**µg/L**	**MGD**	**µg/L**	**MGD**	**µg/L**	**µg/L**	**µg/L**	**—**	**—**
TRC	0.03	69.9	14.7	50	14.73	50.041	19	11	**Y**	**Y**
TCE	0.03	333	14.7	0	14.73	0.679	—	30	**—**	**N**

[1] Values represent the 95th percentile concentration calculated using the monitoring data reported by the Facility (*See* Appendix A).
[2] Ambient river sampling done for WET testing and reported in *Millers River Watershed 2000 Water Quality Assessment Report* found that total residual chlorine measurements were above the laboratory minimum level of 0.05 mg/L on three occasions.
[3] Value calculated as the sum of effluent flow and upstream flow.
[4] "Y" is indicated if downstream concentration exceeds the acute/chronic criterion.
[5] "N" is indicated if downstream concentration does not exceed the acute/chronic criterion.

EPA's analysis found that discharges of TRC have reasonable potential to cause, or contribute to an excursion above water quality standards, while discharges of TCE do not have reasonable potential to cause, or contribute to an excursion above water quality standards.

Appendix C: Whole Effluent Toxicity Reasonable Potential Analysis

The dilution factor determined for the Facility is 491, equivalent to approximately 0.2% effluent at the edge of the mixing zone. For discharges with dilution greater than 100 the criterion recommended in the *Massachusetts Water Quality Standards Implementation Policy for the Control of Toxic Pollutants in Surface Waters* (February 23, 1990) for acute effects is 0.3 toxic units (T.U.). To determine whether discharges from the Facility have reasonable potential to cause or contribute to an excursion above this level of toxicity, EPA converted the LC_{50} results for the Facility to toxic units, defined as 100 divided by the LC_{50}, as shown below.

Monitoring Period End Date	LC50 Static 48Hr Acute Ceriodaphnia	Toxic Units Equivalent
	%	T.U.
10/31/2015	75.2	1.33
10/31/2016	100	1
10/31/2017	100	1
10/31/2018	100	1
10/31/2019	100	1

Using the toxic unit equivalents calculated above, EPA then determined the 95th percentile projected effluent concentration following the methodology described in Appendix B, above. Based on a dataset where n<10, the 95th percentile was calculated as 3.059 toxic units, or an LC_{50} of 32.6%, as shown below. The projected downstream toxicity was calculated as 0.0062 toxic units, determined by multiplying the 95th percentile by the percent effluent at the edge of the mixing zone (or dividing the 95th percentile by the dilution factor).

Toxicity in T.U. - lognormal distribution assumed

Estimated Daily Maximum Effluent Concentration		
k = number of daily samples =	5	
Max Concentration	1.33	
cv(x)= Coefficient of Variation* =	0.6	
95th percentile multiplication factor**	2.3	
Daily Max 95th Percentile = Max Concentration*95th percentile multiplication factor		
Daily Max 95th Percentile =	**3.059**	**TU**
Projected Downstream Concentration = Daily Max 95th Percentile/dilution factor		
Projected Downstream Concentration =	**0.0062**	**TU**

The estimated downstream toxicity does not exceed 0.3 T.U. However, the projected (95th Percentile) effluent toxicity at the end of pipe does exceed 2.0 T.U. Therefore, discharges from the Facility have a reasonable potential to cause or contribute to an excursion above State WQSs and a limitation for toxicity is required.

Effluent Limitations

For discharges with dilution factors greater than 100, if there is reasonable potential to exceed water quality criteria, the *Massachusetts Water Quality Standards Implementation Policy for the Control of Toxic Pollutants in Surface Waters* (February 23, 1990) specifies that the end-of-pipe acute (i.e., LC_{50}) limit is 2.0 toxic units (T.U.), equivalent to an LC_{50} of 50%. This limitation was in the 2009 Permit and is carried forward.

Summary of Effluent Limitations

Parameter	Criterion	Limitation in Toxic Units	Limitation in %
Units	**T.U.**	**T.U.**	**%**
LC_{50}	0.3	2.0	50

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

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

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

PUBLIC NOTICE PERIOD: **1/19/2021 – 2/17/2021**

PERMIT NUMBER: **MA0001350**

PUBLIC NOTICE NUMBER: **MA-008-21**

NAME AND MAILING ADDRESS OF APPLICANT:

L.S. Starrett Company
121 Crescent Street
Athol, MA 01331

NAME AND ADDRESS OF THE FACILITY WHERE DISCHARGE OCCURS:

L.S. Starrett Company
121 Crescent Street
Athol, MA 01331

RECEIVING WATER AND CLASSIFICATION:

Millers River (Class B)

PREPARATION OF THE DRAFT PERMIT AND EPA REQUEST FOR CWA § 401 CERTIFICATION:

EPA is issuing for public notice and comment the Draft NPDES Permit for the L.S. Starrett Company, which discharges process water and non-contact cooling water. The effluent limits and permit conditions imposed have been drafted pursuant to, and assure compliance with, the CWA, including EPA-approved State Surface Water Quality Standards at 314 CMR 4.00. MassDEP cooperated with EPA in the development of the Draft NPDES Permit. MassDEP retains independent authority under State law to issue a separate Surface Water Discharge Permit for the discharge, not the subject of this notice, under the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53.

In addition, EPA has requested that MassDEP grant or deny certification of this Draft Permit pursuant to Section 401 of the CWA and implementing regulations. Under federal regulations governing the NPDES program at 40 Code of Federal Regulations (CFR) § 124.53(e), state certification shall contain conditions that are necessary to assure compliance with the applicable provisions of CWA sections 208(e), 301, 302, 303, 306, and 307 and with appropriate requirements of State law, including any conditions more stringent than those in the Draft Permit that MassDEP finds necessary to meet these requirements. In addition, MassDEP may provide a statement of the extent to which each condition of the Draft Permit can be made less stringent without violating the requirements of State law.

INFORMATION ABOUT THE DRAFT PERMIT:

The Draft Permit and explanatory Fact Sheet may be obtained at no cost at https://www.epa.gov/npdes-permits/massachusetts-draft-individual-npdes-permits or by contacting:

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

Following U.S. Centers for Disease Control and Prevention (CDC) and U.S. Office of Personnel Management (OPM) guidance and specific state guidelines impacting our regional offices, EPA's workforce has been directed to telework to help prevent transmission of the coronavirus. While in this workforce telework status, there are practical limitations on the ability of Agency personnel to allow the public to review the administrative record in person at the EPA Boston office. However, any electronically available documents that are part of the administrative record can be requested from the EPA contact above.

PUBLIC COMMENT AND REQUESTS FOR PUBLIC HEARINGS:

All persons, including applicants, who believe any condition of this Draft Permit is inappropriate must raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position by February 17, 2021, which is the close of the public comment period. Comments, including those pertaining to EPA's request for CWA § 401 certification, should be submitted to the EPA contact at the address or email listed above. Upon the close of the public comment period, EPA will make all comments available to MassDEP.

Any person, prior to the close of the public comment period, may submit a request in writing to EPA for a public hearing on the Draft Permit under 40 CFR § 124.10. 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 if 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.

Due to the COVID-19 National Emergency, if comments are submitted in hard copy form, please also email a copy to the EPA contact above.

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 notify the applicant and each person who has submitted written comments or requested notice.

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

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