DRAFT AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

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

Specialty Minerals, Inc.

is authorized to discharge from a facility located at

Specialty Minerals, Inc.
260 Columbia Street
Adams, MA 01220

to receiving water named

Hoosic River (MA11-04)
Hoosic Watershed

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

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

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

This permit supersedes the permit issued on September 16, 2003.

This permit consists of **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 , 2019.

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

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

[1] Pursuant to 40 Code of Federal Regulations (C.F.R.) § 124.15(b)(3), if no comments requesting a change to the Draft Permit are received, this permit shall become effective upon the date of signature.

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 non-contact cooling water, quarry water, stormwater, groundwater, and process water from the production of precipitated calcium carbonate through Outfall Serial Number 001 to the Hoosic River. The discharge shall be limited and monitored as specified below; the receiving water shall be monitored as specified below.

Effluent Characteristic	**Effluent Limitation**		**Monitoring Requirements[1,2,3]**	
	Average Monthly	**Maximum Daily**	**Measurement Frequency[4]**	**Sample Type[5]**
Effluent Flow[6]	5.0 MGD	Report MGD	Continuous	Meter
Total Suspended Solids (TSS)	25 mg/L	50 mg/L	1/week	Composite
Turbidity	25 NTU	25 NTU	1/week	Grab
Alkalinity	---	Report	1/quarter	Grab
pH[7]	6.5 - 8.3 S.U.		2/week	Grab
Temperature[8]	Report °F	83.4 °F	Continuous	Meter
Temperature[8]	Report number of days per month maximum temperature exceeded 83.4°F.		---	---
Instream Temperature (Jun 1 - Sep 30)[9]	Report °F	Report °F	1/day	Grab

Effluent Characteristic	Effluent Limitation		Monitoring Requirements[1,2,3]	
	Average Monthly	Maximum Daily	Measurement Frequency[4]	Sample Type[5]
Total Nitrogen	Report mg/L	Report mg/L	1/quarter	Composite
Perchlorate[10]	Report mg/L	Report mg/L	1/quarter	Composite
Total Phosphorus	Report mg/L	Report mg/L	1/quarter	Composite
Bis(2-ethylhexyl)phthalate	---	Report µg/L	1/quarter	Grab
Whole Effluent Toxicity (WET) Testing[11,12]				
LC_{50}	---	100 %	1/year	Composite
C-NOEC	---	30.3%	1/quarter	Composite
Hardness	---	Report mg/L	1/quarter	Composite
Ammonia Nitrogen	---	Report mg/L	1/quarter	Composite
Total Aluminum	---	Report mg/L	1/quarter	Composite
Total Cadmium	---	Report mg/L	1/quarter	Composite
Total Copper	---	Report mg/L	1/quarter	Composite
Total Nickel	---	Report mg/L	1/quarter	Composite
Total Lead	---	Report mg/L	1/quarter	Composite
Total Zinc	---	Report mg/L	1/quarter	Composite

Ambient Characteristic[13]	Reporting Requirement		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
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[14]	---	Report S.U.	1/quarter	Grab
Temperature[14]	---	Report °C	1/quarter	Grab

2. During the period beginning on the effective date and lasting through the expiration date, the Permittee is authorized to discharge groundwater seep, groundwater extraction well curtain system, boiler blowdown and process water from the production of precipitated calcium carbonate through internal Outfall Serial Number 002. Prior to mixing with any other waste stream, the discharge shall be limited and monitored as specified below.

Effluent Characteristic	**Effluent Limitation**		**Monitoring Requirements[1,2,3]**	
	Average Monthly	**Maximum Daily**	**Measurement Frequency[4]**	**Sample Type[5]**
Effluent Flow[6]	Report MGD	Report MGD	Continuous	Meter
Temperature[15]	Report °F	Report °F	1/day	Grab
Total Suspended Solids (TSS)	126 lbs/day	252 lbs/day	1/week	Composite
pH[16]	Report S.U.	Report S.U.	2/week	Grab

3. During the period beginning on the effective date and lasting through the expiration date, the Permittee is authorized to discharge process water consisting of non-contact cooling water and quarry water, and stormwater through internal Outfall Serial Number 003. Prior to mixing with any other waste stream, the discharge shall be limited and monitored as specified below.

Effluent Characteristic	Effluent Limitation		Monitoring Requirements[1,2,3]	
	Average Monthly	Maximum Daily	Measurement Frequency[4]	Sample Type[5]
Effluent Flow[6]	Report MGD	Report MGD	Continuous	Meter
Temperature[15]	Report °F	Report °F	1/day	Grab
Total Suspended Solids (TSS)	Report mg/L	Report mg/L	1/week	Composite
pH[16]	Report S.U.	Report S.U.	2/week	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 treatment in the lagoon settling system, prior to co-mingling with any other wastestream. Changes in sampling location must be approved in writing by the Environmental Protection Agency Region 1 (EPA) and the State. The Permittee shall report the results to EPA and the State of any additional testing above that required herein, if testing is done in accordance with 40 C.F.R. § 136.

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

3. When a parameter is not detected above the ML, the Permittee must report the data qualifier signifying less than the ML for that parameter (e.g., < 50 µg/L, if the ML for a parameter is 50 µg/L).

4. Measurement frequency of 1/week is defined as the sampling of one discharge event in each seven-day calendar week. 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 twenty-four grab samples taken during one consecutive 24-hour period, either collected at equal intervals and combined proportional to flow or continuously collected proportionally to flow.

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

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

8. The temperature limit is an instantaneous maximum limit, not a maximum daily limit (i.e., 83.8°F is the highest allowable value). The highest recorded value from continuous monitoring during the month shall be reported. The Permittee shall report the number of days per month that the instantaneous maximum exceeded the temperature limit.

9. In-stream temperature shall be sampled once per day upstream of Outfall 001 at the Lime Street Bridge from June 1 through September 15 between 2:30 PM and 5:30 PM. Ambient weather conditions shall be recorded when the temperature samples are taken. The Permittee shall report the maximum daily in-stream temperature observed during the calendar month and the average monthly in-stream temperature calculated as the sum of daily temperature values divided by the number of sampling days. If the daily upstream temperature is 79°F or greater, the Permittee shall operate the temperature adjustment misters in the treatment system.

10. Perchlorate shall be monitored in conjunction with total nitrogen.

11. The Permittee shall conduct acute toxicity tests (LC_{50}) in August each year and chronic toxicity tests (C-NOEC) in February, May, August, and November each year 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 monthly DMR submittal immediately following the completion of the test.

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

13. 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.

14. 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.

15. Temperature at Outfalls 002 and 003 may be measured from grab samples collected once per day from each internal outfall between the hours of 12:00 PM and 3:00 PM. Grab samples from the two internal outfalls shall be collected within sixty (60) minutes of each other.

16. A pH measurement shall be taken from grab samples collected twice per week from each internal outfall. Grab samples from each internal outfall shall be collected on two separate days during the week and the minimum and maximum pH for each outfall shall be reported.

Part I.A. continued.

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

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

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

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

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

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

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

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

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

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

        (1) 500 µg/L;
        (2) One mg/L for antimony;

(3) 10 times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 C.F.R. § 122.21(g)(7); or
(4) Any other notification level established by the Director in accordance with 40 C.F.R. § 122.44(f) and State regulations.

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

B. UNAUTHORIZED DISCHARGES

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

2. The discharge of any sludge and/or bottom deposits from any storage tank or basin at the Facility to the receiving water is prohibited.

3. There shall be no discharge of process wastewater pollutants into the receiving stream from the production of calcium oxide.

C. SPECIAL CONDITIONS

1. Best Management Practices (BMPs)

The Permittee shall design, install, and implement control measures, including best management practices (BMPs), to minimize pollutant discharges from stormwater associated with quarry operations to the receiving water. At a minimum, the Permittee must implement control measures, both structural and non-structural, consistent with those described in Part 2.1 and any Sector specific control measures in Part 8 of EPA's Multi-Sector General Permit (MSGP). (The current MSGP was effective June 4, 2015 – see https://www.epa.gov/npdes/final-2015-msgp-documents). Specifically, control measures, including BMPs must be selected and implemented in compliance with the non-numeric technology-based effluent limitations found in Parts 2.1.2, 8.E.2, and 8.J.5 of the 2015 MSGP:

a. Minimize exposure of processing and material storage areas to stormwater discharges;
b. Good housekeeping measures designed to maintain areas that are potential sources of pollutants;
c. Preventative maintenance programs to avoid leaks, spills, and other releases of pollutants in stormwater discharged to receiving waters;
d. Spill prevention and response procedures to ensure effective response to spills and leaks if or when they occur;

e. Erosion and sediment controls designed to stabilize exposed areas and contain runoff using structural and/or non-structural control measures to minimize onsite erosion and sedimentation, and the resulting discharge of pollutants;
f. Runoff management practices to divert, infiltrate, reuse, contain, or otherwise reduce stormwater runoff;
g. Proper handling procedures for salt or materials containing chlorides that are used for snow and ice control;
f. Employee training to ensure personnel understand the requirements of this permit
g. Minimize dust generation and vehicle tracking of industrial materials; and
h. Sector specific non-numeric technology-based effluent limitations included in Sector E (Glass, Clay, Cement, Concrete, and Gypsum Products) and Sector J (Non-Metallic Mineral Mining and Dressing) of the 2015 MSGP.

2. Stormwater Pollution Prevention Plan (SWPPP)

The Permittee shall develop a Stormwater Pollution Prevention Plan (SWPPP) to document the selection, design and installation of control measures, including BMPs designed to meet the non-numeric technology-based effluent limitations required in Part I.C.1 and consistent with Parts 2.1.2, 8.E.2, and 8.J.5 of the 2015 MSGP, to minimize the discharge of pollutants from the Permittee's operations to the receiving water. The SWPPP shall be a written document and consistent with the terms of this Permit.

a. The SWPPP shall be developed and signed consistent with the signatory requirements in Part II.D.2 of this Permit within ninety (90) days after the effective date of this Permit.

b. The SWPPP shall be consistent with the general provisions for SWPPPs included in Part 5 of EPA's MSGP. The SWPPP shall be prepared in accordance with good engineering practices, identify potential sources of pollution that may reasonably be expected to affect the quality of the stormwater discharges, and document the implementation of non-numeric technology based effluent limitations described in Part I.C.1 that will be used to reduce the pollutants and assure compliance with this Permit. Specifically, the SWPPP shall contain the elements listed in Parts 5.2.1 through 5.2.5, Part 8.E.3, and Part 8.J.6 of the 2015 MSGP and briefly described below:

(1) Stormwater pollution prevention team;
(2) Site description;
(3) Summary of potential pollutant sources;
(4) Description of all stormwater control measures; and
(5) Schedules and procedures.

c. The Permittee shall inspect quarterly all areas identified as: being exposed to stormwater, potential pollutant sources, discharge points, and control measures. Inspections shall occur beginning the first full calendar quarter after the effective date of the Permit. Inspections shall be consistent with the conditions in Part 3.1 of the 2015 MSGP. EPA considers quarters as follows: January through March; April through June; July through September; and October through December. Inspections shall be performed by qualified

personnel with participation of at least one member of the stormwater pollution prevention team. At least once each calendar year, the routine inspection must be conducted during a period when a stormwater discharge is occurring.

d. The Permittee shall amend and update the SWPPP within fourteen (14) days of any changes at the facility affecting the SWPPP. Changes that may affect the SWPPP include, but are not limited to: a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to the waters of the United States; a release of a reportable quantity of pollutants as described in 40 C.F.R. § 302; and a determination by the Permittee or EPA that the SWPPP appears to be ineffective in achieving the general objective of controlling pollutants in stormwater discharges associated with industrial activity. Any amended or new versions of the SWPPP shall be re-certified by the Permittee. Such re-certifications also shall be signed in accordance with the requirements identified in Part II.D.2 of this Permit.

e. The Permittee shall certify at least annually that the previous year's inspections, maintenance, and training activities were conducted, results were recorded, records were maintained, as described in the SWPPP. If the facility is not in compliance with any BMPs and/or activities described in the SWPPP, the annual certification shall state the non-compliance and the remedies which are being undertaken. Such annual certifications also shall be signed in accordance with the requirements identified in Part II.D.2 of this Permit. The Permittee shall keep a copy of the current SWPPP and all SWPPP certifications (i.e., the initial certification, recertifications, and annual certifications) signed during the effective period of this Permit at the Facility and shall make them available for inspection by EPA and MassDEP. All documentation of SWPPP activities shall be kept at the Facility for at least five years and provided to EPA or MassDEP upon request.

3. Requests for Reduction in WET Monitoring Frequency

The Permittee may request a reduction in toxicity testing requirements after submitting a minimum of eight consecutive WET testing results, all of which must be valid tests and demonstrate compliance with the WET permit limitations. Until written notice is received from EPA indicating that the WET testing requirements have been changed, the Permittee is required to continue the WET testing specified in this permit.

4. Discharges of Chemicals and Additives

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

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

a. The 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., daily), magnitude (i.e., maximum application concentration), duration (e.g., hours), 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 will not: 1) Add any pollutants in concentrations which exceed permit effluent limitations; 2) Exceed any applicable water quality standard; and 3) Add any pollutants that would justify the application of permit conditions that are different from or absent in this permit.

c. All documentation of chemicals and additives shall be kept at the Facility for at least five (5) years and provided to EPA or MassDEP upon request.

D. REPORTING REQUIREMENTS

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

1. Submittal of DMRs Using NetDMR

a. The Permittee shall continue to submit its monthly monitoring data in discharge monitoring reports (DMRs) to EPA and the State no later than the 15th day of the month electronically using NetDMR. When the Permittee submits DMRs using NetDMR, it is not required to submit hard copies of DMRs to EPA or the State. NetDMR is accessed from the internet at https://netdmr.zendesk.com/hc/en-us.

2. Submittal of Reports as NetDMR Attachments

Unless otherwise specified in this permit, the Permittee shall electronically submit all reports to EPA as NetDMR attachments rather than as hard copies. *See* Part I.D.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), 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/WD

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

      (1) Transfer of Permit notice;
      (2) Request for changes in sampling location;
      (3) BMP reports and certifications, if required;
      (4) Request to discharge new chemicals or additives;
      (5) Request for change in WET testing requirements; and
      (6) Report on unacceptable dilution water/request for alternative dilution water for WET testing.

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

U.S. Environmental Protection Agency
Water Division
EPA/WD NPDES Applications Coordinator
5 Post Office Square - Suite 100 (06-03)
Boston, MA 02109-3912

   c. These reports, information, and requests shall be submitted to MassDEP by hard copy to the following address:

Massachusetts Department of Environmental Protection
Bureau of Water Resources
Western Regional Office
463 Dwight Street
Springfield, MA 01103

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.

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

U.S. Environmental Protection Agency
Enforcement and Compliance Assurance Division

Water Compliance Section
5 Post Office Square, Suite 100
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: **617-918-1510**

and to

MassDEP's Emergency Response: **888-304-1133**

E. STATE PERMIT CONDITIONS

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

2. This authorization also incorporates the state water quality certification issued by MassDEP under § 401(a) of the Federal Clean Water Act, 40 C.F.R. 124.53, M.G.L. c. 21, § 27 and 314 CMR 3.07. All of the requirements (if any) contained in MassDEP's water quality

certification for the permit are hereby incorporated by reference into this state surface water discharge permit as special conditions pursuant to 314 CMR 3.11.

3. Each agency shall have the independent right to enforce the terms and conditions of this permit. Any modification, suspension or revocation of this permit shall be effective only with respect to the agency taking such action, and shall not affect the validity or status of this permit as issued by the other agency, unless and until each agency has concurred in writing with such modification, suspension or revocation. In the event any portion of this permit is declared invalid, illegal or otherwise issued in violation of state law such permit shall remain in full force and effect under Federal law as a NPDES Permit issued by the EPA. In the event this permit is declared invalid, illegal or otherwise issued in violation of Federal law, this permit shall remain in full force and effect under State law as a permit issued by the Commonwealth of Massachusetts.

USEPA REGION 1 FRESHWATER ACUTE TOXICITY TEST PROCEDURE AND PROTOCOL

I. GENERAL REQUIREMENTS

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

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

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

II. METHODS

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

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

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

III. SAMPLE COLLECTION

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

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

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

IV. DILUTION WATER

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

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

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

and

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

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

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

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

V. TEST CONDITIONS

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

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

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

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

Footnotes:

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

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

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

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

Footnotes:

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

VI. CHEMICAL ANALYSIS

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

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

Notes:

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

VII. TOXICITY TEST DATA ANALYSIS

LC50 Median Lethal Concentration (Determined at 48 Hours)

Methods of Estimation:

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

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

No Observed Acute Effect Level (NOAEL)

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

VIII. TOXICITY TEST REPORTING

A report of the results will include the following:

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

FRESHWATER CHRONIC
TOXICITY TEST PROCEDURE AND PROTOCOL
USEPA Region 1

I. GENERAL REQUIREMENTS

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

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

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

II. METHODS

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

III. SAMPLE COLLECTION AND USE

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

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

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

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

IV. DILUTION WATER

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

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

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

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

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

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

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

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

and

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

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

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

V. TEST CONDITIONS AND TEST ACCEPTABILITY CRITERIA

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

V.1. Use of Reference Toxicity Testing

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

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

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

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

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

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

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

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

VI. CHEMICAL ANALYSIS

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

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

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

Notes:

1. Hardness may be determined by:

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

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

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

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

VII. TOXICITY TEST DATA ANALYSIS AND REVIEW

A. Test Review

1. Concentration / Response Relationship

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

2. Test Variability (Test Sensitivity)

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

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

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

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

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

B. Statistical Analysis

1. General - Recommended Statistical Analysis Method

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

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

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

2. *Pimephales promelas*

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

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

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

3. *Ceriodaphnia dubia*

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

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

VIII. TOXICITY TEST REPORTING

A report of results must include the following:

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

In addition to the summary sheets the report must include:

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

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

TABLE OF CONTENTS

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

A. GENERAL REQUIREMENTS

1. Duty to Comply

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

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

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

(1) Criminal Penalties

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

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

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

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

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

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

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

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

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

2. Permit Actions

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

condition.

3. Duty to Provide Information

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

4. Oil and Hazardous Substance Liability

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

5. Property Rights

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

6. Confidentiality of Information

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

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

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

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

7. Duty to Reapply

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

8. State Authorities

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

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

9. Other Laws

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

B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

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

2. Need to Halt or Reduce Not a Defense

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

3. Duty to Mitigate

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

4. Bypass

a. Definitions

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

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

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

c. Notice

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

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

d. *Prohibition of bypass.*

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

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

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

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

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

5. Upset

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

improper operation.

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

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

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

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

C. MONITORING REQUIREMENTS

1. Monitoring and Records

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

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

c. Records of monitoring information shall include:

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

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

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

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

2. Inspection and Entry

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

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

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

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

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

D. REPORTING REQUIREMENTS

1. Reporting Requirements

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

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

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

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

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

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

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

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

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

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

e. *Twenty-four hour reporting.*

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

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

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

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

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

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

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

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

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

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

2. Signatory Requirement

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

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

3. Availability of Reports.

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

E. DEFINITIONS AND ABBREVIATIONS

1. General Definitions

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

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

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

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

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

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

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

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

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

Bypass see B.4.a.1 above.

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

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

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

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

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

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

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

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

Direct Discharge means the "discharge of a pollutant."

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

Discharge

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

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

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

Discharge of a pollutant means:

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

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

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

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

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

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

Agency.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Municipality

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

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

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

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

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

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

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

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

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

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

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

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

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

NPDES means "National Pollutant Discharge Elimination System."

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

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

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

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

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

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

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

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

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

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

(a) Sewage from vessels; or

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Upset see B.5.a. above.

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

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

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

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

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

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

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

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

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

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

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

(f) The territorial sea; and

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

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

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

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

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

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

2. Commonly Used Abbreviations

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

kg/day	Kilograms per day
lbs/day	Pounds per day
mg/L	Milligram(s) per liter
mL/L	Milliliters per liter
MGD	Million gallons per day
Nitrogen	
Total N	Total nitrogen
NH_3-N	Ammonia nitrogen as nitrogen
NO_3-N	Nitrate as nitrogen
NO_2-N	Nitrite as nitrogen
NO_3-NO_2	Combined nitrate and nitrite nitrogen as nitrogen
TKN	Total Kjeldahl nitrogen as nitrogen
Oil & Grease	Freon extractable material
PCB	Polychlorinated biphenyl
Surfactant	Surface-active agent
Temp. °C	Temperature in degrees Centigrade
Temp. °F	Temperature in degrees Fahrenheit
TOC	Total organic carbon
Total P	Total phosphorus
TSS or NFR	Total suspended solids or total nonfilterable residue
Turb. or Turbidity	Turbidity measured by the Nephelometric Method (NTU)
µg/L	Microgram(s) per liter
WET	"Whole effluent toxicity"
ZID	Zone of Initial Dilution

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND - REGION 1
5 POST OFFICE SQUARE, SUITE 100
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: MA0005991

PUBLIC NOTICE START AND END DATES: June 6, 2019 – July 5, 2019

NAME AND MAILING ADDRESS OF APPLICANT:

Specialty Minerals, Inc.
260 Columbia Street
Adams, MA 01220

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Specialty Minerals, Inc.
260 Columbia Street
Adams, MA 01220

RECEIVING WATER AND CLASSIFICATION:

Hoosic River (MA11-04)
Hudson Watershed
Class B

SIC CODE: 1422 (Crushed and Broken Limestone)
3274 (Lime Manufacturing)
2819 (Industrial inorganic chemicals not elsewhere classified, precipitated calcium carbonate production)

Table of Contents

Tables

Figures

Appendices

1.0 Proposed Action

Specialty Minerals, Inc. ("SMI" or the "Permittee") has applied to the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit to discharge from Specialty Minerals (the "Facility") into the Hoosic River. Specialty Minerals has additional coverage for stormwater-only discharges under the 2015 Multi-sector General Permit (MSGP) MAR054010. Authorization for stormwater discharges under the MSGP will not be discussed further; stormwater discharges that commingle with non-contact cooling and quarry water prior to discharge are addressed in the Draft Permit.

The permit currently in effect was issued on September 16, 2003 with an effective date of November 16, 2003 and expired on November 15, 2008 (the "2003 Permit"). The Permittee filed an application for permit reissuance with EPA dated May 14, 2008, as required by 40 Code of Federal Regulations (C.F.R.) § 122.6. Since the permit application was deemed timely and complete by EPA on July 16, 2008, the Facility's 2003 Permit has been administratively continued pursuant to 40 C.F.R. § 122.6 and § 122.21(d). EPA and the State conducted site visits on October 9, 2018 and December 18, 2018.

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

2.0 Statutory and Regulatory Authority

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

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

2.1 Technology-Based Requirements

Technology-based treatment requirements represent the minimum level of control that must be imposed under §§ 301(b) and 402 of the CWA to meet best practicable control technology

currently available (BPT) for conventional pollutants and some metals, best conventional control technology (BCT) for conventional pollutants, and best available technology economically achievable (BAT) for toxic and non-conventional pollutants. *See* 40 C.F.R. § 125 Subpart A.

Subpart A of 40 C.F.R. § 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 § 402(a)(1) of the CWA.

In general, ELGs for non-POTW facilities must be complied with as expeditiously as practicable but in no case later than three years after the date such limitations are established and in no case later than March 31, 1989. *See* 40 C.F.R. § 125.3(a)(2). Compliance schedules and deadlines not in accordance with the statutory provisions of the CWA cannot be authorized by a NPDES permit. In the absence of published technology-based effluent guidelines, the permit writer is authorized under § 402(a)(1)(B) of the CWA 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 Technology Based Effluent Limitations (TBELs) would interfere with the attainment or maintenance of water quality criteria in the receiving water. *See* § 301(b)(1)(C) of the CWA and 40 C.F.R. §§ 122.44(d)(1) and 122.44(d)(5).

2.2.1 Water Quality Standards

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

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

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

2.2.2 Anti-degradation

Federal regulations found at 40 C.F.R. § 131.12 require states to develop and adopt a statewide anti-degradation policy that maintains and protects existing in-stream water uses and the level of water quality necessary to protect these existing uses. In addition, the anti-degradation policy ensures that high quality waters which exceed levels necessary to support propagation of fish, shellfish, and wildlife and support recreation in and on the water, are maintained unless the State finds that allowing degradation is necessary to accommodate important economic or social development in the area in which the waters are located.

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

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

2.2.3 Assessment and Listing of Waters and Total Maximum Daily Loads

The objective of the CWA is to restore and maintain the chemical, physical and biological integrity of the Nation's waters. To meet this goal, the CWA requires states to develop information on the quality of their water resources and report this information to EPA, the U.S. Congress, and the public. To this end, the EPA released guidance on November 19, 2001, for the preparation of an integrated "List of Waters" that could combine reporting elements of both § 305(b) and § 303(d) of the CWA. The integrated list format allows states to provide the status of all their assessed waters in one list. States choosing this option must list each water body or segment in one of the following five categories: 1) Unimpaired and not threatened for all designated uses; 2) Unimpaired waters for some uses and not assessed for others; 3) Insufficient information to make assessments for any uses; 4) Impaired 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 is essentially a pollution budget designed to restore the health of an impaired water body. A TMDL typically identifies the source(s) of the pollutant from direct and indirect discharges, determines the maximum load of the pollutant that can be discharged to a specific water body while maintaining WQSs for designated uses, and allocates that load to the various pollutant sources, including point source discharges, subject to NPDES permits. *See* 40 C.F.R. § 130.7.

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

2.2.4 Reasonable Potential

Pursuant to 40 C.F.R. § 122.44(d)(1), NPDES permits must contain any requirements in addition to TBELs necessary to achieve water quality standards established under § 303 of the CWA. In addition, limitations "must control any pollutant or pollutant parameter (conventional, non-conventional, or toxic) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any water quality standard, including State narrative criteria for water quality." *See* 40 C.F.R. § 122.44(d)(1)(i).

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 in the receiving water. *See* 40 C.F.R. § 122.44(d). There is reasonable potential to cause or contribute to an excursion if the projected or actual in-stream concentration exceeds the applicable criterion. If the permitting authority determines that the discharge of a pollutant will cause, has the reasonable potential to cause, or contribute to such an excursion, the permit must contain WQBELs for that pollutant. *See* 40 C.F.R. § 122.44(d)(1)(iii).

2.2.5 State Certification

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

If the State believes that any conditions more stringent than those contained in the Draft Permit are necessary to meet the requirements of either the CWA §§ 208(e), 301, 302, 303, 306 and 307 or the appropriate requirements of State law, the State should include such conditions and, in each case, cite the CWA or State law reference upon which that condition is based. Failure to

provide such a citation waives the right to certify as to that condition. The only exception to this is that the sludge conditions/requirements implementing § 405(d) of the CWA are not subject to the § 401 State Certification requirements. Reviews and appeals of limitations and conditions attributable to State certification shall be made through the applicable procedures of the State and may not be made through the applicable procedures of 40 C.F.R. § 124.

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

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

2.3 Effluent Flow Requirements

Generally, EPA uses effluent flow both to determine the necessity for effluent limitations in a permit that comply with the CWA, and to calculate the effluent limitations themselves. EPA's 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 § 301(b)(1)(C) of the CWA. Should the effluent flow exceed the flow assumed in these calculations, the in-stream dilution would decrease, and the calculated effluent limitations may not be protective (i.e., 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 derivation of permit effluent limitations remain sound for the duration of the permit, EPA may ensure its "worst-case" effluent flow assumption through imposition of permit conditions for effluent flow.[1] In this regard, the effluent flow limit is a component of WQBELs because the WQBELs are premised on a maximum level flow. The effluent flow limit also is 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 in order to carry out the objectives of the CWA. *See* CWA §§ 402(a)(2) and 301(b)(1)(C); 40 C.F.R. §§ 122.4(a) and (d); 122.43 and 122.44(d). A condition on the discharge designed to protect EPA's WQBEL and reasonable potential calculations is encompassed by the references to "condition" and

[1] EPA's reasonable potential regulations require EPA to consider "where appropriate, the dilution of the effluent in the receiving water," which is a function of both the effluent flow and receiving water flow. 40 C.F.R. §122.44(d)(1)(ii). EPA guidance directs that this "reasonable potential" analysis be based on "worst-case" conditions. In *re Washington Aqueduct Water Supply Sys., 11 E.A.D. 565, 584 (EAB 2004)*.

"limitations" in §§ 402 and 301 and implementing regulations, as they are designed to assure compliance with applicable water quality regulations, including anti-degradation. Regulating the quantity of pollutants in the discharge through a restriction on the quantity of effluent is consistent with the overall structure and purposes of the CWA.

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

2.4 Monitoring and Reporting Requirements

2.4.1 Monitoring Requirements

EPA has the authority in accordance with several statutory and regulatory requirements established pursuant to the CWA, 33 USC § 1251 et seq., the NPDES program (*see* § 402 and the implementing regulations generally found at 40 C.F.R. §§ 122, 124, 125, and 136), CWA § 308(a), 33 USC § 1318(a), and applicable state regulations to include requirements such as monitoring and reporting in NPDES permits.

The monitoring requirements included in this permit have been established to yield data representative of the discharges under the authority of §§ 308(a) and 402(a)(2) of the CWA, and consistent with 40 C.F.R. §§ 122.41(j), 122.43(a), 122.44(i) and 122.48. The monitoring requirements included in this permit specify routine sampling and analysis, which will provide ongoing, representative information on the levels of regulated constituents in the wastewater discharge streams. The monitoring program is needed to assess effluent characteristics, evaluate permit compliance, and determine if additional permit conditions are necessary to ensure compliance with technology-based and water quality-based requirements, including WQSs. EPA and/or the state may use the results of the chemical analyses conducted pursuant to this permit, as well as national water quality criteria developed pursuant to § 304(a)(1) of the CWA, state water quality criteria, and any other appropriate information or data, to develop numerical effluent limitations for any pollutants, including, but not limited to, those pollutants listed in Appendix D of 40 C.F.R. § 122. Therefore, the monitoring requirements in this permit are included for specific regulatory use in carrying out the CWA.

NPDES permits require that the approved analytical procedures found in 40 C.F.R. § 136 be used for sampling and analysis unless other procedures are explicitly specified. Permits also include requirements necessary to comply with the *National Pollutant Discharge Elimination System (NPDES): Use of Sufficiently Sensitive Test Methods for Permit Applications and Reporting Rule*.[2] This Rule requires that where EPA-approved methods exist, NPDES applicants must use sufficiently sensitive EPA-approved analytical methods when quantifying the presence of pollutants in a discharge. Further, the permitting authority must prescribe that only sufficiently

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

sensitive EPA-approved methods be used for analyses of pollutants or pollutant parameters under the permit. The NPDES regulations at 40 C.F.R. § 122.21(e)(3) (completeness), 40 C.F.R. § 122.44(i)(1)(iv) (monitoring requirements) and/or as cross referenced at 40 C.F.R. § 136.1(c) (applicability) indicate that an EPA-approved method is sufficiently sensitive where:

- The method minimum level[3] (ML) is at or below the level of the effluent limitation established in the permit for the measured pollutant or pollutant parameter; or
- In the case of permit applications, the ML is above the applicable water quality criterion, but the amount of the pollutant or pollutant parameter in a facility's discharge is high enough that the method detects and quantifies the level of the pollutant or parameter in the discharge; or
- The method has the lowest ML of the analytical methods approved under 40 C.F.R. Part 136 or required under 40 C.F.R. Chapter I, Subchapter N or O for the measured pollutant or pollutant parameter.

2.4.2 Reporting Requirements

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

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

With the use of NetDMR, the Permittee is no longer required to submit hard copies of DMRs and reports to EPA and the State unless otherwise specified in the Draft Permit. In most cases, reports required under the permit shall be submitted to EPA as an electronic attachment through NetDMR. Certain exceptions are provided in the permit such as for providing written notifications required under the Part II Standard Conditions.

2.5 Anti-backsliding

A permit may not be renewed, reissued or modified with less stringent limitations or conditions than those contained in a previous permit unless in compliance with the anti-backsliding

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

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

requirements of the CWA. *See* §§ 402(o) and 303(d)(4) of the CWA and 40 C.F.R. § 122.44(l)(1 and 2). Anti-backsliding provisions apply to effluent limits based on technology, water quality, BPJ and state certification requirements.

All proposed limitations in the Draft Permit are at least as stringent as limitations included in the 2003 Permit unless specific conditions exist to justify one of the exceptions listed in 40 C.F.R. § 122.44(l)(2)(i) and/or in accordance with § 303(d)(4). Discussion of any applicable exceptions are discussed in sections that follow. Therefore, the Draft Permit complies with the anti-backsliding requirements of the CWA.

3.0 Description of Facility and Discharge

3.1 Location and Type of Facility

The Facility is located west of the Hoosic River on Columbia Street in Adams, Massachusetts. A location map is provided in Figure 1. The main features of the Facility are a limestone quarry; a manufacturing center, and an office building. Discharges from the Facility cross under Columbia Street (Route 8) to a series of settling lagoons. A site plan of the Facility operations is provided in Figure 2 and a treatment system plan is provided in Figure 3.

The operations at the Facility include a limestone quarry operation, limestone processing, lime manufacturing, and precipitated calcium carbonate manufacturing. Limestone is mined from the on-site quarry and hauled to a crushing operation. From there, some limestone is milled to produce ground calcium carbonate ($CaCO_3$) (GCC) for various industrial applications. The GCC process is a dry process with no associated discharge and is not discussed further in this Fact Sheet. A portion of the GCC produced is fed to on-site kilns where calcium oxide (CaO (lime)) is manufactured by heating the calcium carbonate to 1850 degrees Fahrenheit. The production of calcium oxide in the kilns is a dry process, apart from the wet venturi scrubbers that are used to control lime dust and volatile gases in the exhaust from the kilns. The calcium oxide produced may either be sold as a finished product or used in the precipitated calcium carbonite ($CaCO_3$) (PCC) manufacturing process. In the PCC process, water is added to calcium oxide in the "slaker" to create a slurry. Next, carbon dioxide is added to the slurry in the "carbonator" to precipitate calcium carbonate. Removal of impurities, physical and chemical adjustment, and dewatering using mechanical means (centrifuges and filter presses) is conducted depending on the end-product being produced. Process wastewater from the production of PCC consists of the dewatering, wash water, and related wet operations, as well as water from pump and compressor seals. The process water from the PCC manufacturing process combines with water from the kiln scrubbers (used in the production of calcium oxide) and a groundwater extraction system adjacent to the quarry (groundwater seep) in the process water pit. The combined wastestreams are then piped to the process water settling ponds. Additional groundwater from a groundwater extraction system adjacent to the process water settling ponds (groundwater extraction well curtain system) mixes with the process water wastestream prior to treatment and discharge.

Groundwater withdrawn from on-site production wells is also used as non-contact cooling water, which comingles with quarry dewatering and stormwater prior to treatment in the non-process wastewater ponds.

3.1.1 Effluent Limitation Guidelines

EPA has promulgated the following technology-based effluent limitation guidelines (ELGs) that apply to Specialty Minerals: Mineral Mining and Processing Point Source Category, 40 CFR Part 436, and Inorganic Chemicals Manufacturing Point Source Category, 40 CFR Part 415.

The applicable subpart of the Mineral Mining and Processing Point Source Category for Specialty Minerals is Subpart B —Crushed Stone Subcategory (SIC code 1422). For this subcategory, the revised ELGs promulgated on July 12, 1977 included BPT limitations on the discharge of pH (6-9 standard units) and TSS (a 30-day average of 25 mg/L and a maximum daily average of 45 mg/L) for both the mine dewatering discharges (40 C.F.R. § 436(a)(2)).[5] However, on June 18, 1979 the TSS limitations were revoked based on a Fourth Circuit Court decision that invalidated certain portions of the BPT regulations. Therefore, Subpart B contains BPT-based discharge limitations for pH only as mentioned above.

The applicable subparts of the Inorganic Chemicals Manufacturing Point Source Category for Specialty Minerals are Subpart E - Calcium Oxide Production Subcategory, specifically § 415.53, and Subpart AD - Calcium Carbonate Production Subcategory, specifically § 415.302(a).

Subpart E - Calcium Oxide Production Subcategory as set forth in § 415.53 includes the following BAT limitations:

> (a) Subject to the provisions of paragraph (b) of this section there shall be no discharge of process wastewater pollutants into navigable waters.
>
> (b) A process wastewater impoundment which is designed, constructed, and operated so as to contain the precipitation from the 25-year, 24-hour rainfall event as established by the National Climatic Center, National Oceanic and Atmospheric Administration for the area in which such impoundment is located may discharge that volume of process wastewater which is equivalent to the volume of precipitation that falls within the impoundment in excess of that attributable to the 25-year, 24-hour rainfall event, when such event occurs.

This BAT effluent limitation guideline therefore prohibits the discharge of calcium oxide production wastewater unless from a specifically sized impoundment during a rain event that totals more than a 25-year, 24-hour rainfall. SMI does not utilize such an impoundment.

SMI currently sends its wet (kiln) scrubber wastewater to the “process water collection basin”, where it mixes with PCC wastewater and groundwater seep (see figure 4). Effluent from the process water collection basin flows through two series of treatment ponds, separated by a neutralization basin, prior to discharge. A portion of the treated wastewater from pond 2 is reused in the kiln scrubbers (1.4 MGD), while the remaining wastewater discharges through outfall 002.

[5] The term “mine” shall mean an area of land, surface or underground, actively mined for the production of crushed and broken stone from natural deposits. 40 C.F.R. § 436.21(d).

Since water used in air pollution control equipment is considered "process wastewater" covered by the Calcium Oxide Production Subcategory, SMI is currently discharging process wastewater pollutants in contradiction with the ELG limitations.[6] Therefore, SMI must either cease the discharge from the kiln scrubbers or construct a separate process water impoundment for kiln scrubber wastewater in accordance with 40 C.F.R. Part 415.53(b). The Draft Permit prohibits the discharge of process wastewater pollutants from the production of calcuim oxide (see Part I.B.3 of the Draft Permit).

Subpart AD - Calcium Carbonate Production Subcategory as set forth in § 415.302(a) includes BPT limitations for discharges from the production of calcium carbonate using the milk of lime process. The precipitated calcium carbonate manufacturing process produces effluent primarily when water in the slurries (from hydrating the lime) is removed using mechanical methods such as filter press and centrifuge. This ELG applies to the process water from the precipitated calcium carbonate process. These effluent guideline limitations are presented in the Table 1:

Table 1: Subpart AD - Calcium Carbonate Milk of Lime Process

Pollutant or pollutant property	BPT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of product	
TSS	0.56	0.28
pH	Within the range 6.0 to 9.0	Within the range 6.0 to 9.0

In the absence of BCT limitations guidelines for conventional pollutants such as TSS, EPA establishes effluent limitations on a case-by-case basis using best professional judgement (BPJ). For rulemaking activities, EPA has determined effluent limitations based on BCT may not be less stringent than limitations based on BPT. In other words, BPT effluent limitations guidelines are a "floor" below which BCT effluent limitations guidelines cannot be established. In this case, Region 1 knows no candidate technologies that have been identified as more stringent than BPT. Therefore, based on BPJ, the Region has determined that appropriate BCT limits shall be established at a level equal to BPT effluent limitations.

3.1.2 Measure of Production

In accordance with 40 CFR § 122.45(b)(2), EPA based the calculation of TSS effluent limitations for Outfall 002 (precipitated calcium carbonate process water) upon a reasonable measure of actual production of the Facility. Mass-based ELGs are expressed as an allowable mass of pollutant discharge per unit of production and are directly related to a facility's

[6] *See* Development Document for Effluent Limitations Guidelines and New Source Performance Standards for the Major Inorganic Products Segment of the Inorganic Chemicals Manufacturing Point Source Category, EPA-440/1-74-007-a, March 1974. *See also* 39 Fed. Reg. 9612 (March 12, 1974).

production. The production rate is determined by dividing the annual production in kilograms (kg) or pounds (lbs) by the number of operating days during that annual period (kgs or pounds per day). The Permittee presented the following yearly production figures (in tons per day) for precipitated calcium carbonate.

2013	79,734 tons	218 tons/day
2014	79,440 tons	218 tons/day
2015	80,573 tons	221 tons/day
2016	78,272 tons	214 tons/day
2017	82,297 tons	225 tons/day
2018	82,233 tons	225 tons/day

EPA determined that the most appropriate value to use in determining production-based effluent limits is 82,297 tons for year 2017, given that production is expected to increase during the permit term. Therefore, 225 tons/day is converted to pounds/day (225 tons x 2000 pounds/ton = 450,000 pounds/day). This value is used to calculate the permissible mass-based limits for TSS in the process water effluent at Outfall 002 in the Draft Permit consistent with the BPT limitations for discharges from the production of calcium carbonate using the milk of lime process provided in Table 1, above.

450,000 lbs/day x 0.56 lbs/1000 lbs = 252 lbs/day (maximum daily)

450,000 lbs/day x 0.28 lbs/1000 lbs = 126 lbs/day (average monthly)

Although the groundwater seep, boiler blowdown, and groundwater extraction well curtain system also discharge through Outfall 002, the contribution of flow is de minimis compared to the wastewater flow from the production of calcium carbonate.

3.2 Location and Type of Discharge

The Permittee has requested authorization to discharge wastewater from the Facility through Outfall 001 into the Hoosic River. Outfall 001 is located at Latitude 42° 38’ 52.8” Longitude 73° 6’ 31.6” on the western bank of Hoosic River.

The discharge consists of non-contact cooling water (NCCW), quarry dewatering, groundwater, stormwater, and treated process water. The discharge from Outfall 001 is a combination of internal Outfall 002 (formerly designated as Outfall 001A), which is the treated process wastewater from the PCC production process, kiln scrubbers and contaminated groundwater; and internal Outfall 003 (formerly designated as Outfall 001B), which is comprised of NCCW, quarry dewatering, and stormwater. Wastewater from each internal outfall (002 and 003) combine after treatment before being discharged to the Hoosic River via Outfall 001. A schematic of the water flow is provided in Figure 4.

The process wastewater is treated in a series of settling ponds (Ponds 1-D, 1-B, 2, and 3 as shown in Figure 4). Flocculant is added to the process water wastestream prior to entering the first settling pond (1-D). Process water from the settling ponds is treated in a pH neutralization

unit using waste carbon dioxide recaptured from the kilns. Flocculant is then added to the water from the neutralization basin before it enters an effluent finishing pond (Pond 2). This pond is periodically dredged with the solids being sent to a landfill. Water from this finishing pond is then routed to an effluent polishing pond (Pond 3). Temperature control may be conducted at these last two ponds using misters. The outlet of this polishing pond (formerly designated as Outfall 001A) is re-designated as Outfall 002 in the Draft Permit.

Three additional minor flow inputs also occur within the process wastewater stream: the groundwater seep, groundwater extraction well curtain system and boiler blowdown. The seep represents seasonal groundwater leachate from the base of a historical mineral stockpile located on the Facility property. The seep typically represents approximately 10 to 20 gallons per minute (gpm) intermittently and discharges directly into the process wastewater stream immediately prior to the first process water settling pond. See Figure 4. The groundwater extraction well curtain system consists of a series of 22 extraction wells surrounding the settling and finishing pond area that capture shallow overburden groundwater with elevated pH. The captured groundwater volume (approximately 70 gpm) is discharged into the pH neutralization unit, where carbon dioxide from the kilns is used to adjust pH, before being discharged to the process water settling ponds. Boiler blowdown is discharge periodically at a rate of 200 gallons per minute.

NCCW, quarry dewatering, and stormwater are treated in a separate series of two settling ponds (Ponds 1-A and 1-C in Figure 4). Groundwater withdrawn from on-site production wells is also used as non-contact cooling water (NCCW), which comingles with quarry dewatering and stormwater before being discharged to the non-process wastewater settling ponds. There is no added flocculant for the non-contact cooling water wastestream. The outlet of the second settling pond (formerly designated Outfall 001B) is re-designated as Outfall 003 in the Draft Permit. Once Outfalls 002 and 003 are combined, effluent flow is measured with a flow meter prior to discharge to Outfall 001, after additional temperature adjustment via a mister system.

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 February 2014 through February 2019 is provided in Appendix A of this Fact Sheet.

4.0 Description of Receiving Water and Dilution

4.1 Receiving Water

The Facility discharges through Outfall 001 to the Hoosic River (Segment ID MA11-04) (also known locally as the South Branch Hoosic River), which covers 5.39 miles in Adams, Massachusetts. The Hoosic River is part of the Hoosic River sub basin of the Hudson River Watershed. The Hoosic River originates at the outlet of Cheshire Reservoir and flows northeast through Adams to North Adams where is joins with the North Branch Hoosic River. The mainstem Hoosic River discharges to the Hudson River.

The Hoosic River is classified as Class B, warm water fishery in the Massachusetts WQSs, 314 Code of Massachusetts Regulations (CMR) 4.05(4)(a). Class B waters are described in the

Commonwealth of Massachusetts Water Quality Standards (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."* In addition, the Massachusetts Division of Fisheries and Wildlife has designated the Hoosic River as a Coldwater Fishery Resource (CWFR) under 321 CMR 5.00.[7] A CWFR is a waterbody (stream, river, or tributary thereto) used by reproducing cold water fish to meet one or more of their life history requirements. The Massachusetts Division of Fisheries and Wildlife (MassWildlife) observed multiple stages of brown trout in this segment of the Hoosic River in 2003.[8]

The Hoosic River segment MA11-04 is listed in the final *Massachusetts Year 2014 Integrated List of Waters* ("303(d) List") as a Category 5 "Waters Requiring a TMDL.[9] The pollutant requiring a TMDL is fecal coliform. To date no TMDL has been developed for this segment for fecal coliform. The segment is also listed as impaired due to alterations in stream-side or littoral vegetative covers and other flow regime alterations. No TMDL is required for these impairments. *Id*. The status of each designated use is presented in Table 2.

Table 2: Summary of Designated Uses and Listing Status

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

According to the *2002 Hudson River Watershed Water Quality Assessment Report* and MassDEP's 2014 Integrated List of Waters Map[10] this waterbody segment is attaining designated uses for aesthetics and secondary contact. Designated uses for fish consumption have not been assessed. The primary contact recreation designated use is listed as not supported due to the fecal coliform impairment, which is associated with discharges from municipal separated storm sewer systems (MS4s) and from crop production. Designated uses for fish, other aquatic life and wildlife are not supported due to impairments related to streambank vegetative cover and flow regime alterations associated with channelization and alteration of the streambank. The *2002 Watershed Assessment Report* specifies that these impairments are limited to the lower 0.6 miles, nearly 5 miles downstream from the SMI outfall. The U.S. Army Corps of Engineers constructed

[7] MassWildlife Coldwater Fisheries Resources. https://mass-eoeea.maps.arcgis.com/apps/webappviewer/index.html?id=56ddeb43ffc642feb3117ce7ebd1aa43
[8] Hudson River Watershed Water Quality Assessment Report. MassDEP Division of Watershed Management. Worcester Massachusetts, June 2006. Report Number 11/12/13-A C-2.
[9] *Massachusetts Year 2014 Integrated List of Waters*. MassDEP Division of Watershed Management Watershed Planning Program, Worcester, Massachusetts; December 2015.
[10] MassDEP 2014 Integrated List of Waters Map. http://maps.massgis.state.ma.us/images/dep/omv/il2014viewer.htm.

flood control projects in the 1950s in Adams and North Adams, MA. The segment is channelized (grassy bermed banks) for 0.7 miles in North Adams. The final 0.6 mile-reach before the confluence with the North Branch Hoosic River is encased in a concrete channel. These modifications to the natural streamflow are linked to the impairments for aquatic life.

4.2 Ambient Data

A summary of the ambient data collected in the receiving water in the vicinity of the Facility that is referenced in this Fact Sheet can be found in Appendix B of this Fact Sheet.

4.3 Available Dilution

To ensure that discharges do not cause or contribute to violations of WQSs under all expected conditions, WQBELs are derived assuming critical conditions for the receiving water.[11] The critical flow in rivers and streams is a measure of the low flow of that river or stream. State WQSs require that effluent dilution be calculated based on the receiving water lowest observed mean river flow for seven consecutive days, recorded over a 10-year recurrence interval, or 7-day 10-year low flow (7Q10). *See* 314 CMR 4.03(3)(1).

To estimate the 7Q10 flow at Outfall 001, a ratio of the drainage area at the facility to the drainage area at the Adams Gage Station (USGS Station No. 01331500, approximately 3 miles upstream of Outfall 001) was applied to the 7Q10 flow at the Adams Gage Station. The proration methodology to estimate 7Q10 flow for the facility in this Draft Permit is similar to the methodology used for the current permit. StreamStats[12] was used to calculate the drainage area at the Adams Gage Station and at Outfall 001. The drainage area at the facility is 65 square miles and the drainage area at the Adams Gage Station reported by USGS is 46.7 square miles. USGS daily streamflow data for the Adams Gage Station and the USGS Stormwater Toolbox[13] were used to calculate the 7Q10 at the Adams Gage Station. The 7Q10 at the Adams Gage Station is 12.6 cfs.

A longer period of record at the Adams Gage Station, 1933 through 1990, was used to calculate the 7Q10 for the current permit. North Branch and Williamstown Gage flow was also used to prorate the 7Q10 for the current permit. For this permit issuance, only the most recent 30 years (April 1, 1988 through March 9, 2018) of daily streamflow data for the Adams Gage Station was used to calculate 7Q10. Recent data reflects climatic changes, development and water withdrawals from the watershed, and the proration method using a single gage is preferred. Alterations to the hydrology are documented in the Hudson River Watershed 2002 Water Quality Assessment Report.[14]

---

[11] EPA Permit Writer's Manual, Section 6.2.4

[12] *StreamStats* is a web-based tool that allows users to obtain stream flow statistics, drainage-basin characteristics, and other information for user-selected sites on streams *(i.e.,* http://water.usgs.gov/osw/streamstats/massachusetts.html).

[13] USGS gage flow data derived from the National Water Information System, Web Interface, http://ma.water.usgs.gov/water/default.htm.

[14] O'Brien Clayton, Katie, 2006, Hudson River Watershed, 2002 Water Quality Assessment Report, MassDEP, p. 24.

The 7Q10 and the dilution factor for Outfall 001 was calculated as follows:

$$Qs = Q_{gage} * \frac{(A_{001})}{A_{gage}} = 12.6\ cfs * (65\ mi^2 \div 46.7\ mi^2) = \ 17.5\ cfs$$

$$Dilution\ Factor\ (DF) = \frac{(Q_s + Q_d)}{Q_d} = \frac{17.5\ cfs + 7.74\ cfs}{7.74\ cfs} = \mathbf{3.32}$$

Where:

Q_{gage} = Estimated 7Q10 flow for the Hoosic River at the Adams Gage Station = 12.6 cfs
Q_s = Calculated 7Q10 flow for the Hoosic River at Outfall 001
A_{gage} = Drainage area at the Adams Gage Station = 46.7 miles^2
A_{001} = Hoosic River drainage area at Outfall 001 = 65 miles^2
Q_d = maximum permitted effluent flow= (5.0 MGD x 1.547) = 7.74 cfs
1.547 = converts million gallons per day (mgd) to cubic feet per second (cfs) units

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.

5.1 Effluent Limitations and Monitoring Requirements

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

5.1.1 Effluent Flow

Outfall 001 is the discharge location for wastewater from the combined flows from the site (internal Outfall 002 and 003) prior to entering the receiving stream. From February 1, 2014 through February 28, 2019 (Appendix A) the average monthly effluent flow through Outfall 001 ranged from 2.9 MGD to 4.9 MGD. The Facility's 2003 Permit limits the average monthly flow to 5.0 MGD, which is maintained in the Draft Permit, as well as continuous flow monitoring using a totalizer or similar device and reporting daily maximum.

Outfall 002 (formerly Outfall 001A in the 2003 Permit) is the discharge location for wastewater generated from the production of precipitated calcium carbonate (PCC), groundwater seep, groundwater extraction well curtain system, and boiler blowdown. The outfall is located at the end of a treatment system consisting of two settling ponds, a neutralization basin and two finishing ponds. The 2003 Permit requires monitoring and reporting only for flow. Data from February 1, 2014 through February 28, 2019 (Appendix A), shows that the Outfall 002 flow

ranged from 1.0 MGD to 3.3 MGD. The Draft Permit maintains the flow monitoring and reporting only requirements.

Outfall 003 (001B in the 2003 Permit) is the discharge location for wastewater comprised of NCCW, quarry dewatering, and stormwater from a second series of settling ponds, separate from the PPC ponds. The 2003 Permit requires monitoring and reporting for flow. Data from February 1, 2014 through February 28, 2019 (Appendix A), shows that the Outfall 003 flow ranged from 2.1 MGD to 3.6 MGD. The Draft Permit maintains the flow monitoring and reporting only requirements.

5.1.2 Total Suspended Solids

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

For Outfall 001, the 2003 Permit requires the following limitations for total suspended solids (TSS): 50 mg/L and 2102 pounds per day (lbs/day) (maximum daily); and 25 mg/L and 1051 lbs/day (average monthly). From February 1, 2014 through February 28, 2019 (Appendix A), daily maximum TSS concentrations at Outfall 001 ranged from 1.4 mg/L to 36.8 mg/L and monthly average concentrations ranged from 1 mg/L to 18.1 mg/L. Daily maximum TSS loadings ranged from 54.9 lbs/day to 1365.8 lbs/day and monthly average TSS loadings ranged from 25 lbs/day to 528.3 lbs/day.

For Outfall 002 (previously 001A), the 2003 Permit requires weekly monitoring and reporting only for maximum daily and average monthly TSS concentrations. From February 1, 2014 through February 28, 2019 (Appendix A), daily maximum TSS concentrations at Outfall 002 ranged from 0.9 mg/L to 37.8 mg/L and monthly average concentrations ranged from 0.8 mg/L to 14.4 mg/L.

For Outfall 003 (previously 001B), the 2003 Permit requires weekly monitoring and reporting only for maximum daily and average monthly TSS concentrations. From February 1, 2014 through February 28, 2019 (Appendix A), daily maximum TSS concentrations at Outfall 003 ranged from 2.6 mg/L to 37.4 mg/L and monthly average concentrations ranged from 1.1 mg/L to 13.4 mg/L.

As previously discussed in Section 3.1.2 of this Fact Sheet, EPA established technology-based TSS limits for the discharge from the production of calcium carbonate using the milk of lime process, pursuant to Subpart AD of the Inorganic Chemicals Manufacturing Point Source Category (§ 415.302(a)). The ELG-derived, mass-based limits have been incorporated into the

Draft Permit for Outfall 002: maximum daily TSS effluent limit of 252 lbs/day and average monthly TSS effluent limit of 126 lbs/day.

At Outfall 001, the Draft Permit contains monthly average TSS limitations of 25 mg/L and 50 mg/L, respectively, monitored once per week by composite sampling. These limitations have been continued from the Facility's 2003 Permit in accordance with anti-backsliding requirements found in 40 C.F.R. § 122.44(1). Performance data from the Facility's existing treatment system indicate that these TBELs are routinely achievable and no material or substantial changes in operations at the Facility have occurred since these limitations were imposed. *See* Appendix A. The mass-based TSS limits at Outfall 001 in the 2003 Permit have been eliminated and replaced with the ELG-derived, mass-based TSS limits for the process water effluent at Outfall 002. The Draft Permit continues the TSS monitoring and reporting requirements for Outfall 003.

5.1.3 Turbidity

Turbidity is a measure of relative water clarity, with relatively higher turbidity corresponding to relatively lower water clarity. Materials such as inorganic matter (e.g., silt, sand, and clay), organisms (e.g., algae, plankton, and microbes) and detritus can contribute turbidity. Highly turbid water can influence the amount of dissolved oxygen in the water by decreasing light penetration in the water, in turn reducing photosynthesis, by increasing water temperature as suspended particles absorb heat, or by oxygen depletion as bacteria consume dead plant matter. These materials can also have physical effects on aquatic life and waterbodies, clogging fish gills, reducing growth and disease resistance, and smothering fish eggs and benthic macroinvertebrates, and causing sedimentation that may alter the nature of bottom sediments.

For Outfall 001 from February 1, 2014 through February 28, 2019 (Appendix A), daily maximum turbidity concentrations have ranged from 2.1 nephelometric turbidity units (NTUs) to 57.5 NTU and the monthly average turbidity concentrations have ranged from 1.6 NTU to 18.5 NTU.[15] The Draft Permit contains daily maximum and monthly average turbidity limitations of 25 NTU for Outfall 001, monitored once per month by composite samples, when discharging. These limitations have been adjusted from the Facility's 2003 Permit, which contained daily maximum and monthly average turbidity limitations of 60 NTU and 30 NTU, respectively.

EPA considered information in accordance with 40 CFR §122.44(d)(1)(ii) to determine if discharges of turbidity from the Facility cause, or have the reasonable potential to cause, or contribute to an excursion above State WQSs. EPA determined the discharge of turbidity from the Facility has a reasonable potential to cause or contribute to an excursion above State WQSs for color and turbidity at 314 CMR 4.05(3)(b)6 and aesthetics at 314 CMR 4.05(5)(a) given: 1) the Facility operation, which involves the treatment of fine solids; 2) the maximum levels of turbidity measured in the discharge, 40.8 NTU; and 3) chronic toxicity to *P. promelas* in discharges from the Facility is a listed cause of the aquatic life impairment to the lower portion of Hoosic River segment MA11-04. The proposed limitation is required by 40 C.F.R. § 122.44(d)(1)(iii) and is based on certification requirements under § 401(a)(1) of the CWA, as

[15] Although the 2003 Permit listed Jackson Turbidity Units (JTU) as the unit of measure of turbidity, the discharge monitoring report listed NTU as the unit of measure. The permittee has consistently measured and reported turbidity values as NTU for the monitoring period.

described in 40 C.F.R. §§ 124.53 and 124.55 and complies with anti-backsliding requirements found in 40 C.F.R. § 122.44(1).

EPA selected the proposed water quality-based limitations for turbidity based on State WQSs for Inland Water, Class B at 314 CMR 4.05(3)(b)5 for solids, which states, "*These waters shall be free from floating, suspended and settleable solids in concentrations or combinations that would impair any use assigned to this Class, that would cause aesthetically objectionable conditions, or that would impair the benthic biota or degrade the chemical composition of the bottom*" and 314 CMR 4.05(5)(e), which states, "*All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife."* A turbidity value of 25 NTU is consistent with the upstream turbidity cited in EPA's *Quality Criteria for Water* to explain major increases in stream suspended solids.[16] Impacts to aquatic life from elevated sediment and turbidity can take place both through direct mortality in the short term and reduced reproductive success in the long term.[17] This value is also consistent with several states that have established numeric water quality criteria for turbidity, including the New England states of Vermont[18] and New Hampshire.[19]

5.1.4 pH

The hydrogen-ion (H^-) concentration in an aqueous solution is represented by the pH using a logarithmic scale of 0 to 14 standard units (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.

For Outfall 001, from February 1, 2014 through February 28, 2019 (Appendix A), pH has ranged from 6.5 to 7.9 S.U. The Draft Permit requires a pH range of 6.5 to 8.3 S.U. for Outfall 001 monitored twice per week by grab samples, when discharging. These limitations have been continued from the Facility's 2003 Permit and 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. This water quality-based limit is more stringent than the technology-based limit of 6.0-9.0 S.U. as prescribed by Subpart AD - Calcium Carbonate Production Subcategory set forth in 40 C.F.R. § 415.302(a)). The Draft Permit also includes twice weekly monitoring and reporting requirements for pH at Outfalls 002 and 003 consistent with the 2003 Permit.

[16] EPA 440/5-86-001, May 1, 1986. Solids (Suspended, Settleable) and Turbidity, p. 270 of 395.
[17] *National Marine Fisheries Service Endangered Species Act Section 7 Consultation Biological And Conference Opinion* for EPA's Multi-Sector General Permit for Stormwater Associated with Industrial Activity Pursuant to the National Pollutant Discharge Elimination System; Table 10; March 19, 2015.
[18] *See* Vermont Water Quality Standards, Subchapter 3, § 29A-302(4), effective January 15, 2017.
[19] *See* "Review of New Hampshire's Water Quality Criteria for Turbidity (Env-Wq 1703.11)," State of New Hampshire Inter-Department Communication, October 6, 2011.

5.1.5 Alkalinity

Alkalinity is the sum of components in water that tend to elevate the pH of water above approximately 4.5 S.U. Therefore, alkalinity is a measure of the buffering capacity of water. Since pH has a direct effect on organisms as well as an indirect effect on the toxicity of other pollutants in the water, the buffering capacity is also important to water quality. Commonly occurring materials in natural waters that increase the alkalinity are carbonates, bicarbonates, phosphates and hydroxides. Alkalinity resulting from naturally occurring carbonate and bicarbonate up to levels of approximately 400 mg/L as calcium carbonate is generally not considered a hazard to human health. Alkalinity is important for fish and other aquatic life in freshwater systems because it buffers pH changes that occur as a result of photosynthetic activity of chlorophyll-bearing vegetation. Carbonate and bicarbonate will also complex some metals, reducing their toxicity.[20]

Massachusetts WQSs do not include numeric criteria for alkalinity. Instead, minimum criteria applicable to all waters specifies "*For pollutants not otherwise listed in 314 CMR 4.00, the National Recommend Water Quality Criteria: 2002, EPA 822-R-02-047, November 2002 published by EPA pursuant to Section 304(a) of the Federal Water Pollution Control Act, are the allowable receiving water concentrations for the affected waters, unless the Department either establishes a site specific criterion or determines that naturally occurring background concentrations are higher."* 314 CMR 4.05(5)(e). EPA's *National Recommend Water Quality Criteria* for alkalinity is a *minimum* value of 20 mg/L.

For Outfall 001, from February 1, 2014 through February 28, 2019 (Appendix A and Appendix B), alkalinity has ranged from 105 mg/L $CaCO_3$ to 350 mg/L $CaCO_3$. Given that the freshwater criterion for alkalinity is a minimum value, and discharges from the Facility are consistently an approximate order of magnitude higher, discharges are not expected to cause, or have the reasonable potential to cause, or contribute to an excursion above WQSs. To ensure this determination remains sound for the duration of the permit term, the Draft Permit maintains a monitor-only requirement for alkalinity for Outfall 001. However, since EPA determined that discharges will not cause, or have the reasonable potential to cause, or contribute to an excursion above WQSs, the Draft Permit proposes reducing the monitoring frequency from monthly to quarterly, conducted in conjunction with Whole Effluent Toxicity testing.

5.1.6 Temperature

The Hoosic River is designated as a warm water fishery at 314 CMR 4.06 and as a coldwater fishery resource under 314 CMR 5.00. The State WQSs for Inland Water, Class B warm water fisheries at 314 CMR 4.05(3)(b)(2), requires a temperature not to exceed 83°F (28.3°C) and a rise in temperature due to a discharge not to exceed 5°F (1.7°C). A December 2000 study by MassWildlife documented the presence of brown trout (*Salmo trutta*) in the Hoosic River in the segment including the Facility's discharge. As such, the Hoosic River provides habitat for one or more life history requirements of cold-water trout species that were reproduced in the Hoosic River or one of its tributaries, even though the Hoosic River is designated as a warm water

[20] U.S. Environmental Protection Agency. *Quality Criteria for Water*: EPA 440/5-86-001, May 1, 1986.

fishery and the ambient temperatures are naturally higher than the State WQSs for cold water fisheries during the summer months (68°F or 20°C). *See* 314 CMR 5.02. The State WQSs specify that "[W]here a reproducing cold water aquatic community exists at a naturally occurring higher temperature, the temperature necessary to protect the community shall not be exceeded and the natural daily and seasonal temperature fluctuations necessary to protect the community shall be maintained. Finally, State WQSs require that natural seasonal and daily variations necessary to protect existing and designated uses must be maintained the WQSs also prohibit changes from natural background conditions that would impair any use assigned to this Class, including those conditions necessary to protect normal species diversity, successful migration, reproductive functions or growth of aquatic organism. Therefore, the temperature limits in the Draft Permit must protect existing and designated uses for both the warm water fishery classification and the cold water fishery resources in the river.

When the 2003 Permit was issued, SMI was typically running three kilns simultaneously and operated a co-generation facility that supplied power for the manufacturing processes. SMI discontinued operation of the co-generation facility in 2005 and indicated that at most, it typically only runs two kilns simultaneously. As a result, the heat input to the process water is substantially lower under current operating conditions than it was when the 2003 Permit was issued. The average maximum daily temperature reported from December 2003 through October 2008 (when the 2003 permit expired) at Outfall 002 was 84.1°F, as compared to an average of 78.7°F between August 2013 and 2018.

The 2003 Permit includes a maximum daily temperature limit of 84.7°F and required the permittee to monitor the ambient temperature upstream of the discharge (at Lime Street Bridge) once per week between June 1 and August 31. The maximum daily and average monthly summer temperature data from February 1, 2014 through February 28, 2019 for Outfalls 001, 002, and 003, as well as in-stream data is provided in Appendix A. The existing maximum daily temperature limit of 84.7°F at Outfall 001 was consistently met between February 2014 and February 2019. The temperature limit at Outfall 001 was exceeded in May 2015 when a maximum daily temperature of 87.7°F was reported and in September 2018 when a maximum daily temperature of 85.4 was reported. In May 2015, the maximum daily temperatures reported for Outfalls 002 and 003 were 72.6°F and 70.2°F, respectively. May 2015 is the only month in the period of record examined for this Draft Permit in which Outfall 001 temperature exceeded the process water temperature at Outfall 002. The maximum daily temperature reported at Outfall 001 was also consistently lower than the Class B, warm water fishery water quality standard of 83°F during this period. The maximum daily Outfall 001 temperature exceeded the in-stream water quality standard once in August 2017 when a maximum daily temperature of 83.8°F was reported.

The maximum daily and average monthly summer temperature data from 2014 through 2018 for Outfalls 001, 002, and 003, as well as in-stream data is provided in Appendix A and summarized in Table 3, below.

Table 3. Maximum Daily and Average Monthly Summer Temperature Data from June 2014 to September 2018 for Outfalls 001, 002, 003, and In-Stream

	Outfall 001		Outfall 002*		Outfall 003*		In-stream	
	Range	Avg	Range	Avg	Range	Avg	Range	Avg
Average Monthly Temperature °F								
Jun	75-77	75.9	66-84	77.2	58-65	62.3	---	---
Jul	73-78	75.9	74-84	79.2	61-66	63.8	---	---
Aug	72-78	75.7	73-85	79.0	63-67	64.5	---	---
Sep	75-85	77.4	73-83	79.0	58-63	61.0	---	---
Season	72-85	76.2	66-85	78.6	58-67	62.9	---	---
Maximum Daily Temperature °F								
Jun	78-83	80.5	82-88	84.6	66-70	67.9	64-76	69.0
Jul	79-81	80.4	82-90	85.0	67-69	67.6	71-80	75.7
Aug	78-84	81.0	82-92	85.6	68-71	69.0	70-79	74.7
Sep	75-81	78.3	79-92	85.5	65-69	66.2	65-76	69.9
Season	75-84	80.0	79-92	85.2	65-71	67.7	64-80	72.3

*Outfall 002 (process water) is designated as Outfall 001A in the 2003 permit. Outfall 003 (NCCW and stormwater) is designated 001B in the 2003 permit. Outfall designations have been updated for clarification purposes.

EPA calculated the expected in-stream temperature downstream of Outfall 001 during the months of June to September from 2013 through 2018 using a mass-balance equation and based on the reported upstream temperature at Lime Street Bridge, the corresponding daily maximum temperature and flow reported for at Outfall 001, and assuming a 7Q10 flow of 11.3 MGD (17.5 cfs). The expected in-stream temperature downstream of Outfall 001 ranged from 67.8°F to 80.4°F with an average of 74.5°F. The expected rise in temperature from the Lime Street Bridge to downstream of Outfall 001 with the addition of SMI's effluent was estimated to range from 0.3°F to 4.0°F with an average of 2.1°F.

The 2003 Permit limit of 84.7°F was calculated based on a worst-case upstream temperature of 81°F and a target in-stream temperature of 82°F downstream of the discharge. The up-stream temperature of 81°F was based on temperature data collected by the Hoosic River Watershed Association and was assumed to occur under existing conditions at the 7Q10 flow. Under the 2003 Permit, the Permittee monitored ambient temperature in the river at the Lime Street Bridge once per week during the hours of 2:30 PM and 5:30 PM from June 1 through August 31. Between August 2013 and August 2018, the maximum reported in-stream temperature at the Lime Street Bridge was 80.1°F, which occurred in July 2018. USGS Gage 01331500 (at Adams, MA) indicates that streamflow was generally in the normal range during July 2018.

An evaluation of the ambient and effluent temperature data between August 2013 and August 2018 indicates that discharge of heated effluent from the Facility to the Hoosic River at Outfall 001 consistently meets the State WQS for Class B, warm water fisheries. In addition, thermal inputs to process water effluent have decreased since the 2003 Permit was issued, the effluent and upstream temperature data collected between 2013 and 2018 reflects current conditions, and the 7Q10 value in the Draft Permit has been refined. EPA recalculated the maximum daily

permit limit using the mixing equation in Section 2.2.4 with an updated 7Q10 flow, a worst-case upstream temperature of 80.1°F, and a target rise in temperature of 1°F between upstream and downstream river temperatures based on the 2003 permit:

$$T_e = (QT - Q_sT_s)/Q_e$$

$$T_e = [(16.3 \text{ MGD}*81.1°F) - (11.3 \text{ MGD}*80.1°F)]/5 \text{ MGD} = \mathbf{83.4°F}$$

Where:

T = target downstream temperature (1°F rise from worst-case ambient temperature) = 81.1°F
T_s = upstream temperature at Lime Street Bridge (Appendix A) = 80.1°F
T_e = effluent temperature
Q_s = upstream flow (7Q10 flow upstream of the Facility) = 17.5 cfs (11.3 MGD)
Q_e = effluent flow of the Facility = 5 MGD
Q = receiving water flow downstream of discharge = Qs + Qd = 16.3 MGD

A maximum temperature limit of 83.4°F at Outfall 001 is likely to ensure that ambient temperatures downstream of the outfall remain suitable for the cold water trout species in the Hoosic River. The 2003 Fact Sheet states that the Massachusetts Division of Fish and Wildlife (MassWildlife) identified a maximum temperature of 79°F for the protection of trout. As discussed above, recent temperature data collected at the Lime Street Bridge by the Permittee indicates that the Hoosic River temperature occasionally exceeds 79°F upstream of the Facility. EPA used this worst-case data to calculate a protective maximum daily temperature limit at Outfall 001. Using the seasonal average upstream temperature of 72.3°F and monthly maximum average temperature of 75.7°F (see Table 2), the expected downstream temperature (using the mass balance equation above) is 75.7°F and 78.1°F, respectively. At typical summer ambient river temperatures, the downstream temperature is not likely to exceed MassWildlife's identified maximum temperature of 79°F. EPA conducted ambient temperature monitoring in the Hoosic River during July through October 2018. Temperature probes were placed in the Hoosic River at a location between the discharge and Hodges Cross Road. The average and maximum ambient temperatures in the Hoosic River during the study period were 65°F and 79°F, respectively. Streamflow was relatively high during the study; however, the ambient temperatures downstream of the Facility suggest that the Hoosic River remains viable habitat for cold water trout species.

The Draft Permit requires a maximum daily temperature limit of 83.4°F for Outfall 001. The requirement to report the average monthly temperature at Outfall 001, and the average monthly and maximum daily temperatures at Outfalls 002 and 003 have been continued from the 2003 Permit. Temperature at Outfalls 001, 002, and 003 is monitored continuously. The Permittee must report the instantaneous maximum daily temperature recorded during a single day over a calendar month and the average monthly temperature, calculated as the sum of all the daily effluent temperatures for an outfall divided by the number of daily discharges measured during a calendar month. In addition, the Draft Permit requires the Permittee to operate the temperature adjustment misters when the upstream temperature, as measured at the Lime Street Bridge, is at or above 79°F. This technology-based, non-numeric limit requiring use of the misters will ensure that the effluent temperature is minimized prior to discharge.

5.1.7 Nitrogen

Nitrogen is an essential nutrient for plant growth; however, high concentrations of nitrogen can result in eutrophication, where high nutrient concentrations lead to excessive plant and algal growth. Respiration and decomposition of plants and algae under eutrophic conditions reduce dissolved oxygen in the water and can create poor habitat for aquatic organisms.

Total Nitrogen is the sum of Total Kjeldahl Nitrogen (TKN) (ammonium, organic and reduced nitrogen) and nitrate-nitrite. It can be derived by individually monitoring for organic nitrogen compounds ammonia, nitrate, and nitrite and adding the components together. The Permittee indicated to EPA that nitrogen-based explosive agents are used at the Facility. The Permittee also indicated to EPA that blasting is conducted regularly (i.e., one to two times per week). The explosives used at the Facility contain nitrogen compounds, typically ammonium nitrate, which may mix with stormwater runoff and groundwater removed during quarry dewatering. Massachusetts WQSs do not include numeric criteria for total nitrogen. Instead, narrative criteria specify that waters "*shall be free from nutrients in concentrations that would cause or contribute to impairment of existing or designated uses and shall not exceed the site-specific criteria developed in a TMDL or as otherwise established by the Department pursuant to 314 CMR 4.00.*" 314 CMR 4.05(5)(c). However, Massachusetts WQSs include minimum criteria applicable to all waters specifies "*For pollutants not otherwise listed in 314 CMR 4.00, the National Recommend Water Quality Criteria: 2002, EPA 822-R-02-047, November 2002 published by EPA pursuant to Section 304(a) of the Federal Water Pollution Control Act, are the allowable receiving water concentrations for the affected waters, unless the Department either establishes a site specific criterion or determines that naturally occurring background concentrations are higher."* 314 CMR 4.05(5)(e).

The 2003 Permit did not require monitoring for total nitrogen. Nitrogen is not listed as a cause of any of the designated use impairments in Hoosic River and, as such, the discharge of nitrogen compounds in the effluent is not expected to cause or contribute to impairments downstream of the Facility. However, because the Facility uses explosives that contain nitrogen compounds (e.g, ammonium nitrate), the Draft Permit proposes establishing quarterly monitoring for total nitrogen. This monitoring will ensure that EPA's determination that discharges of nitrogen-based blasting chemicals will not cause or contribute to water quality issues related to nitrogen in the receiving water remains sound for the duration of the permit term.

The Permittee has obtained quarterly monitoring data for ammonia in the discharge and the receiving water in conjunction with Whole Effluent Toxicity Testing for Outfall 001. From February 1, 2014 through February 28, 2019 (Appendix D), ammonia has ranged from below detection limits to 3.78 mg/L.

The applicable ammonia water quality criteria are pH dependent and, for the chronic criteria, temperature dependent.[21] and can be derived using EPA-recommended ammonia criteria from the document: Update of Ammonia Water Quality Criteria for Ammonia, 1999 (EPA 822-R-99-014). These are the freshwater ammonia criteria in EPA's National Recommended Water Quality

[21] *Aquatic Life Ambient Water Quality Criteria for Ammonia – Freshwater;* EPA 822-R-13-001: 2013.

Criteria, 2002 (EPA 822-R-02-047) document, which are included by reference in the Massachusetts WQS (See 314 CMR 4.05(5)(e)). At the worst case condition with a pH of 6.5 and a maximum effluent temperature of 29°C (83.4°F), and assuming salmonids are present, the acute criterion[22] is 11 mg/L and the chronic criteria is 1.2 mg/L.

EPA completed an analysis to determine if these discharges cause or have a reasonable potential to cause or contribute to an excursion above WQSs (Appendix C). The result of this analysis indicates that discharges of ammonia do not cause, or have a reasonable potential to cause, or contribute to an excursion above WQSs. As a result, the Draft Permit does not include effluent limitations for ammonia. Quarterly monitoring data for ammonia in the discharge from Outfall 001 and the receiving water continue to be required in conjunction with Whole Effluent Toxicity testing.

5.1.8 Perchlorate

Perchlorate is both a naturally-occurring and man-made chemical that is commonly used as an oxidizer in propellants, munitions, fireworks, flares and explosives. Manufactured forms of perchlorate include salts such as ammonium perchlorate. Perchlorate is highly soluble in water and relatively stable and mobile in surface water and groundwater systems. Perchlorate may be found as a co-contaminant in water with nitrate because ammonium nitrate is a main component in explosives. Perchlorate may also be present in nitrogen-based explosives as an impurity. EPA's Interim Drinking Water Health Advisory for perchlorate is 15 µg/L.

The Facility indicated to EPA that nitrogen-based explosive agents are used at the Facility. The Facility also indicated to EPA that blasting is conducted regularly (i.e., one to two times per week). Therefore, the Draft Permit proposes quarterly monitoring in conjunction with total nitrogen monitoring to determine if perchlorate is present in discharges resulting from quarry dewatering.

5.1.9 Total Phosphorus

During development of the Draft Permit, the Permittee disclosed that it currently uses, and plans to continue use of, organophosphate as an additive for the groundwater curtain well treatment system. Organophosphate is included in the list of chemicals and additives under Section 5.2.3 of this Fact Sheet. Use of organophosphate may contribute phosphorus to the receiving water and EPA does not currently have information regarding phosphorus in discharges from the Facility. Excess phosphorus can lead to adverse effects, including algae blooms, accelerated plant growth, and low dissolved oxygen from the decomposition of additional vegetation. The Draft Permit includes a requirement for quarterly monitoring of total phosphorus to ensure phosphorus is not present in discharge from the Facility at concentrations that could cause or contribute to an excursion above State WQSs.

[22] Trout species are present in the Hoosic River, however, at the pH and maximum effluent temperatures in the Draft Permit there is no difference in the acute criteria with salmonids present or absent.

5.1.10 Bis (2-ethylhexyl) phthalate

Phthalates are a group of compounds that contain a phenyl ring with two attached acetate groups. They are often referred to as plasticizers. Because phthalates are not a part of the polymers that make up plastics, they can be released from these materials fairly easily. The use of plastics and materials containing plasticizers is widespread. In its 2008 application for NPDES permit reissuance, the Facility reported a detection of one phthalate compound, bis (2-ethylhexyl) phthalate (also referred to as diethylhexyl phthalate (DEHP)) at a concentration of 0.052 mg/L in Outfall 001, at a concentration of 0.098 mg/L in Outfall 002, and at a concentration of 0.061 mg/L in Outfall 003. Bis (2-ethylhexyl) phthalate is listed as a priority pollutant in Appendix A to 40 CFR Part 423.

Sufficient data is required to determine whether SMI's discharge has reasonable potential to cause or contribute to an impairment in the Hoosic River. The Draft Permit includes a requirement to monitor and report bis (2-ethylhexyl) phthalate on a quarterly basis.

5.1.11 Metals

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

The Permittee has obtained quarterly monitoring data for total recoverable aluminum, cadmium, copper, lead, nickel and zinc in the discharge and the receiving water in conjunction with Whole Effluent Toxicity testing. For Outfall 001, from February 1, 2014 through February 28, 2019 (Appendix A), total recoverable cadmium, lead and nickel were not detected above laboratory detection limits. However, total recoverable aluminum, copper and zinc were detected in the discharge. EPA completed an analysis to determine if these discharges cause, or have a reasonable potential to cause, or contribute to an excursion above WQSs (Appendix C). The results of this analysis indicate discharges of aluminum, copper and zinc do not cause, or have a reasonable potential to cause, or contribute to an excursion above WQSs. As a result, the Draft Permit does not include effluent limitations for these metals. Quarterly monitoring data for total recoverable aluminum, cadmium, copper, lead, nickel and zinc in the discharge and the receiving water continue to be required in conjunction with Whole Effluent Toxicity Testing, discussed further below.

5.1.12 Whole Effluent Toxicity

Sections 402(a)(2) and 308(a) of the CWA provide EPA and States with the authority to require toxicity testing. Section 308 specifically describes biological monitoring methods as techniques that may be used to carry out objectives of the CWA. Whole effluent toxicity (WET) testing is conducted to ensure that discharges do not cause toxicity to the receiving water.

In addition, under § 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on WQSs. Under certain narrative State WQSs, and §§ 301, 303 and 402 of the CWA, EPA and the States may establish toxicity-based limitations to implement the narrative "no toxics in toxic amounts". The Massachusetts WQSs at 314 CMR 4.05(5)(e) state, "*All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife*."

The regulations at 40 C.F.R. Part 122.44(d)(ii) state, "When determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall use procedures which account for existing controls on point and non-point sources of pollution...(including) the sensitivity of the species to toxicity testing..." The regulations at 40 C.F.R. § 122.44(d)(1)(v) further require whole effluent toxicity limits in a permit when a discharge has a "reasonable potential" to cause or contribute pollutants in concentrations or combinations that are toxic to humans, aquatic life, or wildlife.

In accordance with current EPA and State policies,[23] 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}. According to State policy, dischargers having a dilution factor less than 10, such as SMI, are required to conduct acute and chronic toxicity testing four times per year for two species. Additionally, for discharges with dilution factors less than 10, the C-NOEC effluent limit should be greater than or equal to the receiving water concentration and the LC_{50} limit should be greater than or equal to 100%.

The chronic and acute WET limits in the 2003 Permit are C-NOEC greater than or equal to 27.17% and LC_{50} greater than or equal to 100%, respectively, using daphnid (*Ceriodaphnia dubia*) and fathead minnow (*Pimephales promelas*) as the test species. While the Facility consistently met the acute toxicity limits between February 1, 2014 and February 28, 2019, the chronic toxicity limit of 27.17% was exceeded on four occasions, most recently in February 2019. *See* Appendix D. Accordingly, an updated reasonable potential analysis, as previously explained, was conducted using the C-NOEC toxicity testing results for both the *Ceriodaphnia dubia* and *Pimephales promelas*. Therefore, an updated reasonable potential analysis was

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

conducted using the C-NOEC toxicity testing results for both the *Ceriodaphnia dubia* and *Pimephales promelas*. *See also* Appendix D.

The reasonable potential analysis, using the C-NOEC WET test results, resulted in the determination that there is a reasonable potential for SMI's effluent to cause or contribute pollutants in concentrations or combinations that are toxic to aquatic life. Specifically, after accounting for the 2003 Permit's dilution factor (3.68), the 95th percentile was 2.1 Toxic Units – Chronic (TUc) for *Pimephales promelas*. The Technical Support Document for Water Quality-based Toxics Control (TSD) combines knowledge of effluent variability as estimated by a coefficient of variation (CV) with uncertainty due to the number of data (n) to project an estimated maximum concentration for the effluent using a reasonable potential multiplying factor. An evaluation of reasonable potential by the TSD method requires that the projected toxicity be compared to an applicable criterion. The TSD recommends an acute criterion of 0.3 toxic units (TUs) and a chronic criterion of 1.0 TUs. Based on the calculated 95th percentile of 2.1 TUc, EPA has determined the Draft Permit requires C-NOEC limits. *See* Appendix D.

The approach followed by EPA and MassDEP is to set a C-NOEC limit based on the receiving water concentration after accounting for the dilution factor. The policy for Massachusetts NPDES permits is to set the C-NOEC limit for dilution factors at or below 10 at the receiving water concentration (RWC).[24] The chronic dilution factor for SMI's effluent at Outfall 001 is 3.32. For the Draft Permit, EPA calculated the C-NOEC limit at the receiving water concentration using the reciprocal of the chronic dilution factor (3.3) multiplied by 100 [(1/3.3) x 100] to express the limit as a WET test percentage limit. The C-NOEC limit for Outfall 001 set at the RWC is 30.3.

The Draft Permit includes chronic and acute WET limits greater than or equal to 30.3% and 100%, respectively, using the daphnid (*Ceriodaphnia dubia*) and the fathead minnow (*Pimephales promelas*) as the test species. The acute limit has been continued from the 2003 Permit based on anti-backsliding, but the frequency of monitoring is reduced to once per year based on the absence of acute toxicity; the C-NOEC limit is 30.3%, which is slightly more stringent than the 2003 Permit limit based on re-calculation of the dilution factor using the most recent streamflow data. Toxicity testing must be performed in accordance with the EPA Region 1 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 Special Conditions

5.2.1 Best Management Practices

Best management practices (BMPs) may be expressly incorporated into a permit on a case-by-case basis where it is determined that they are necessary to achieve effluent limitations and standards or to carry out the purpose and intent of the CWA under § 402(a)(1). BMPs may be necessary to control or abate the discharge of pollutants when: 1) authorized under section 304(e)

[24] See footnote 22.

of the CWA for the control of toxic pollutants and hazardous substances from ancillary industrial activities; 2) authorized under section 402(p) of the CWA for the control of storm water discharges; 3) numeric effluent limitations are infeasible; or 4) The practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA. *See* 40 C.F.R. 122.44(k). Pollutants may be present because they are generated during Facility operations, which could result in significant amounts of these pollutants reaching waters of the United States via discharges of wastewater and stormwater.

In this case, the Draft Permit requires the selection, design, installation, and implementation of control measures for stormwater associated with the Facility operations to comply with the non-numeric technology-based effluent limits in the Draft Permit. These limitations are consistent with the limitations specified in Part 2.1.2 and Part 8 Subpart J, Sectors C (SIC Code 2819, Chemicals and Allied Products), Sector E (SIC Code 3274, Glass, Clay, Cement, Concrete, and Gypsum Products), and Sector J (SIC Code 1422, Non-Metallic Mineral Mining and Dressing) of the MSGP, which include:

- Minimize exposure of processing and material storage areas to stormwater discharges;
- Good housekeeping measures designed to maintain areas that are potential sources of pollutants;
- Preventative maintenance programs to avoid leaks, spills, and other releases of pollutants in stormwater discharged to receiving waters;
- Spill prevention and response procedures to ensure effective response to spills and leaks if or when they occur;
- Erosion and sediment controls designed to stabilize exposed areas and contain runoff using structural and/or non-structural control measures to minimize onsite erosion and sedimentation, and the resulting discharge of pollutants;
- Runoff management practices to divert, infiltrate, reuse, contain, or otherwise reduce stormwater runoff;
- Proper handling procedures for salt or materials containing chlorides that are used for snow and ice control;
- Employee training to ensure personnel understand the requirements of this permit;
- Minimize dust generation and vehicle tracking of industrial materials; and

Sector-specific non-numeric technology-based effluent limitations for stormwater associated with industrial activity are included in EPA's MSGP for Chemical and Allied Products Manufacturing and Refining (Sector C), Glass, Clay, Cement, Concrete, and Gypsum Products (Sector E), and Non-Metallic Mineral Mining and Dressing (Sector J). These limitations are found in Part 8 of the 2015 MSGP and summarized in the table, below.

Table 4: Summary of MSGP Requirements for Industrial Activities Conducted at the Facility

MSGP Sector	SIC Code	Industrial Activity	MSGP Requirements
C, subsector C2	2819	Manufacturing of industrial inorganic chemicals	Benchmarks for total aluminum, total iron, and nitrate plus nitrite nitrogen
E	3274	Manufacturing of structural clay products	TBELs + SWPPP requirements Benchmark for total aluminum
J	1422	active mining of limestone	TBELs + SWPPP requirements Benchmark for TSS

Because SIC codes 2819, 3274, and 1422 apply to SMI, Parts I.C.1 and I.C.2 of the Draft Permit includes the additional non-numeric technology-based limits and SWPPP requirements from Sector E and Sector J by reference. However, because the Draft Permit includes TSS limitations that are more stringent than the benchmark values, requires quarterly Total Nitrogen monitoring, and requires quarterly WET testing, which includes reporting total aluminum and total iron, no additional requirements are necessary to ensure that the Permittee is in compliance with sector-specific benchmarks included in Sectors C, E, and J.

The non-numeric effluent limitations support, and are equally enforceable as, the numeric effluent limitations included in the Draft Permit. The purpose of these requirements is to reduce or eliminate the discharge of pollutants to waters of the United States. They have been selected on a case-by-case basis based on those appropriate for this specific facility. See §§ 304(e) and 402(a)(1) of the CWA and 40 C.F.R. § 122.44(k). These requirements ensure that discharges from the Facility will meet State WQSs pursuant to CWA section 301(b)(1)(C) and 40 CFR 122.44(d)(1). Unless otherwise stated, the Permittee may select, design, install, implement and maintain control measures, including BMPs, as the Permittee deems appropriate to meet the permit requirements. The selection, design, installation, implementation and maintenance of control measures must be in accordance with good engineering practices and manufacturer's specifications.

5.2.2 Stormwater Pollution Prevention Plan

On September 9, 1992, EPA issued its general permit for stormwater discharges associated with industrial activity, which, among other things, required all facilities to prepare a Stormwater Pollution Prevention Plan (SWPPP) to implement technology-based pollution prevention measures in lieu of numeric limitations [57 FR 41264]. The general permit established a process whereby the operator of the industrial facility evaluates potential pollutant sources at the site and selects and implements appropriate measures designed to prevent or control the discharge of pollutants in stormwater runoff [57 FR 41242]. This Draft Permit contains BMPs for stormwater associated with Non-Metallic Mineral Mining and Dressing operations. In addition to BMPs, the Draft Permit also contains requirements for the Permittee to develop, implement, and maintain a SWPPP for stormwater associated with Non-Metallic Mineral Mining and Dressing operations. These requirements are consistent with EPA's MSGP effective June 4, 2015. The Draft Permit specifies that the SWPPP must include the following, at a minimum:

- Stormwater pollution prevention team;
- Site description;
- Summary of potential pollutant sources;
- Description of all stormwater control measures; and
- Schedules and procedures pertaining to implementation of stormwater control measures, inspections and assessments, and monitoring.

The development and implementation of the SWPPP is an enforceable element of the permit. The Draft Permit directs the Permittee to incorporate BMPs, as described above, directly into the SWPPP, which serves to document the selection, design and installation of control measures selected to meet the non-numeric technology-based effluent limitations required in Part I.C.1 of the Draft Permit and found in Parts 2.1.2, 8.E.2, and 8.J.5 of the 2015 MSGP. In other words, the SWPPP documents the implementation of control measures designed to reduce or prevent the discharge of pollutants to waters of the United States either directly or indirectly through stormwater runoff.

The Draft Permit requires the Permittee within ninety (90) days of the effective date of the permit to certify that the SWPPP has been prepared and meets the requirements of the permit. The Permittee must also certify at least annually that the Facility has complied with the BMPs described in the SWPPP, including inspections, maintenance, and training activities. The Permittee is required to amend and update the SWPPP if any change occurs at the Facility affecting the SWPPP, such as changes in the design, construction, operation, or maintenance of the Facility. The SWPPP must be maintained on site at the Facility and provided to EPA and/or the State upon request. All SWPPP records must be maintained on-site for at least three years.

5.2.3 Discharges of Chemicals and Additives

Chemicals and additives include, but are not limited to: algaecides/biocides, antifoams, coagulants, corrosion/scale inhibitors/coatings, disinfectants, flocculants, neutralizing agents, oxidants, oxygen scavengers, pH conditioners, and surfactants. The Draft Permit allows the discharge of only those chemicals and additives specifically disclosed by the Permittee to EPA and the State, provided that such discharge does not violate § 307 or 311 of the CWA or applicable State WQSs. The following chemicals and additives were disclosed to EPA:

- Acids – muriatic, mineral, citric, lauric, stearic
- Explosive agents – ammonium nitrate, cast boosters, emulsion explosives, electric and electronic detonators, detonating cord
- Polymer flocculant
- Dispersant
- Biocide
- Sodium hydroxide
- Sodium silicate
- Sodium hexametaphosphate
- Boiler water treatment chemicals – sodium sulfite, tetrapotassium salt

- Groundwater treatment system chemicals – organophosphorus, organosilicone, inhibited mineral acid

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

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

The Permittee must also provide an explanation which demonstrates that the discharge of such chemical or additive: 1) Will not add any pollutants in concentrations which exceed permit effluent limitations; 2) Will not exceed any applicable water quality standard; and 3) Will not add any pollutants that would justify the application of permit conditions that are different from or absent in this permit.

Discharges of a new chemical or additive is authorized under the permit upon notification to EPA and the State unless otherwise notified by EPA or the State.

5.3 Standard Conditions

The standard conditions of the permit are based on 40 C.F.R. § 122, Subparts A and D and 40 C.F.R. § 124, Subparts A, D, E, and F and are consistent with management requirements common to other permits.

6.0 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 habitat of such species that has been designated as critical (a “critical habitat”).

Section 7(a)(2) of the ESA requires every Federal agency, in consultation with and with the assistance of the Secretary of Interior, to ensure that any action it authorizes, funds or carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of

any listed species or result in the destruction or adverse modification of critical habitat. The United States Fish and Wildlife Service (USFWS) administers Section 7 consultations for freshwater species. The National Marine Fisheries Service (NMFS) administers Section 7 consultations for marine and anadromous species.

The Federal action being considered in this case is EPA's proposed NPDES permit for the Facility. The Draft Permit is intended to replace the 2003 Permit in governing the Facility. Specifically, the Draft Permit proposes to regulate the discharge from Outfall 001, located at Latitude 42° 38' 52.8", Longitude 73° 6' 31.6" on the western bank of Hoosic River in Adams, Massachusetts.

As the federal agency charged with authorizing the discharge from this Facility, EPA determines potential impacts to federally listed species and initiates consultation when required under § 7(a)(2) of the ESA.

EPA has reviewed the federal endangered or threatened species of fish, wildlife, and plants in Adams Massachusetts and the related surrounding area to determine if EPA's proposed NPDES permit could potentially impact any such listed species. No federally listed threatened or endangered species have been identified in the proposed action area.[25] However, one listed endangered species, the northern long-eared bat (*Myotis septentrionalis*), was identified as "statewide". According to the USFWS, the northern long-eared bat is found in "winter – mines and caves, summer – wide variety of forested habitats." This terrestrial species is not aquatic, so the discharge will have no direct effect on this mammal. Further, the permit action is also expected to have no indirect effect on the species because it is not expected to impact insects, the primary prey of the northern long-eared bat. Therefore, the proposed permit action is deemed to have no impact on this listed species.

The two endangered species of anadromous fish which occur in Massachusetts, shortnose sturgeon (*Acipenser brevirostrom*) and Atlantic sturgeon (*Acipenser oxyrinchus*), have not been identified in the Hoosic River.[26] Based on the expected normal distribution of these species, it is highly unlikely that they would be present in the vicinity of this discharge and the action area of the outfall. Therefore, the proposed permit action will have no impact on these listed anadromous fish species.

Based on the above review, EPA finds that adoption of the proposed permit will have no effect on any threatened or endangered species or their designated critical habitat. Therefore, consultation with NMFS or USFWS under Section 7 of the ESA is not required.

6.2 Essential Fish Habitat

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (*see* 16 U.S.C. § 1801 et seq., 1998), EPA is required to consult with the National Marine Fisheries Service (NMFS) if EPA's action or proposed actions that it funds,

[25] See §7 resources for USFWS at https://ecos.fws.gov/ipac/
[26] See §7 resources for NMFS at https://www.greateratlantic.fisheries.noaa.gov/protected/section7/index.html

permits, or undertakes, "may adversely impact any essential fish habitat". *See* 16 U.S.C. § 1855(b).

The Amendments broadly define "essential fish habitat" (EFH) as: "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity". *See* 16 U.S.C. § 1802(10). "Adverse impact" means any impact that reduces the quality and/or quantity of EFH, 50 C.F.R. § 600.910(a). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

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

EPA has determined that the Hoosic River is not covered by the EFH designation for riverine systems at Latitude 42° 38' 52.8", Longitude 73° 6' 31.6" as determined by the NOAA EFH Mapper.[27] EPA's review of available EFH information indicated that this waterbody is not designated EFH for any federally managed species. As this section of the Hoosic River is far upstream from expected EFH species habitat, they are not expected in the vicinity of the discharge. Also, no indirect effects from the action are expected. Therefore, consultation with NMFS under the Magnuson-Stevens Fishery Conservation and Management Act is not required.

7.0 Public Comments, Hearing Requests, and Permit Appeals

All persons, including applicants, who believe any condition of the Draft Permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to Shauna Little, U.S. EPA, Water Division**,** Industrial Permits Branch, 5 Post Office Square, Suite 100, Boston, Massachusetts 02109-3912 or via email to little.shauna@epa.gov.

Any person, prior to the close of the public comment period, may submit a request in writing for a public hearing to consider the Draft Permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public meeting may be held if the criteria stated in 40 C.F.R. § 124.12 are satisfied. In reaching a final decision on the Draft Permit, the EPA will respond to all significant comments and make these responses available to the public at EPA's Boston office.

Following the close of the comment period, and after any public hearings, if such hearings are held, the EPA will issue a Final Permit decision, forward a copy of the final decision to the applicant, and provide a copy or notice of availability of the final decision to each person who has submitted written comments or requested notice. Within 30 days following the notice of the Final Permit decision, any interested person may submit a petition for review of the permit to EPA's Environmental Appeals Board consistent with 40 C.F.R. § 124.19 and/or submit a request

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

for an adjudicatory hearing to MassDEP's Office of Appeals and Dispute Resolution consistent with 310 CMR 1.00.

8.0 EPA and MassDEP Contacts

The administrative record on which this Draft Permit is based may be obtained between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays, from the EPA and MassDEP contacts below:

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

Jennifer Wood
MassDEP
Surface Water Discharge Permit Program
One Winter Street, 5th Floor
Boston, MA 02108
Telephone: (617) 348-6536
Email: jennifer.wood@mass.gov

Date: May 30, 2019

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

Figure 1: Location Map

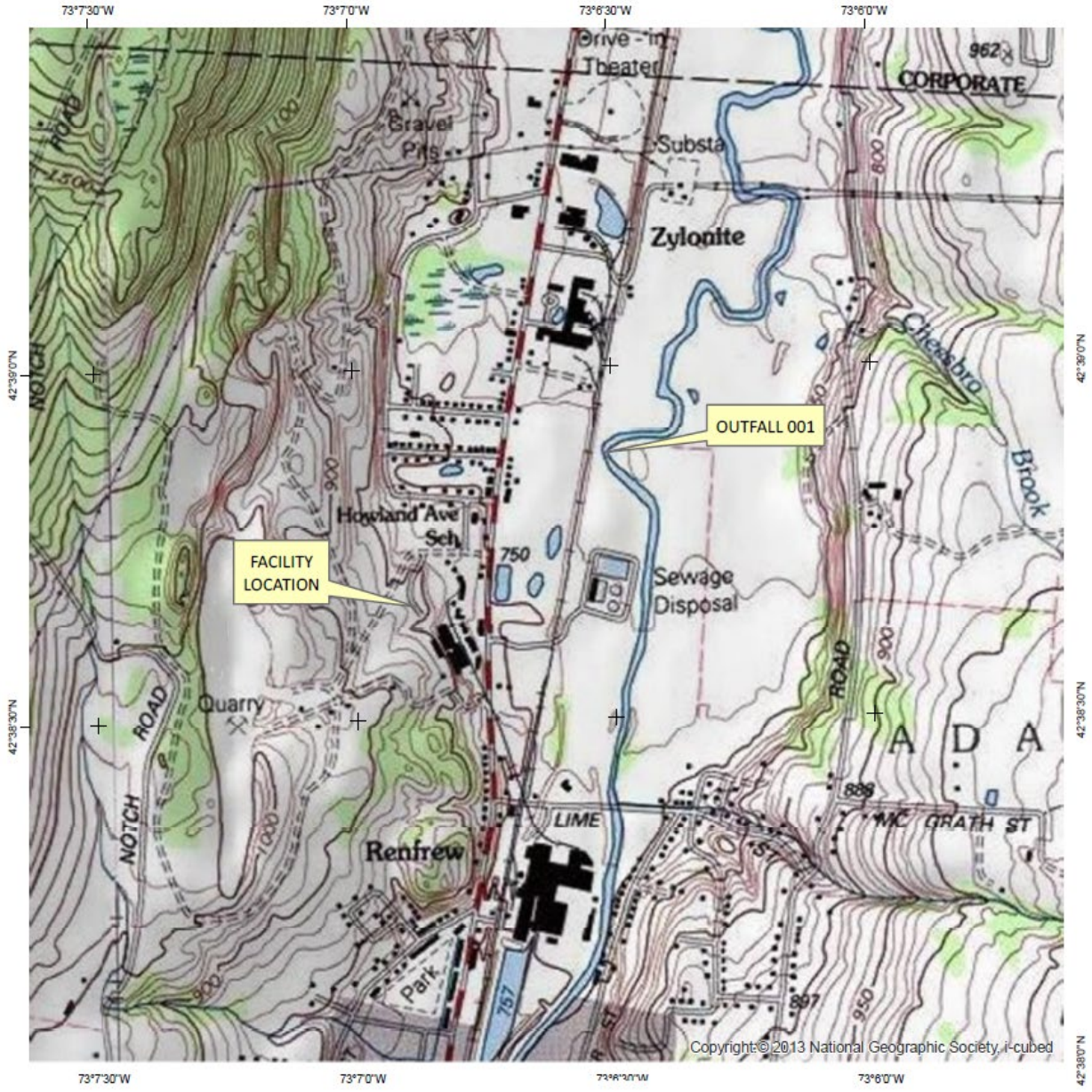


FIGURE 1
Specialty Minerals Inc.
Location Map

Adams, MA

EPA
11/1/2018

Figure 2: Site Plan

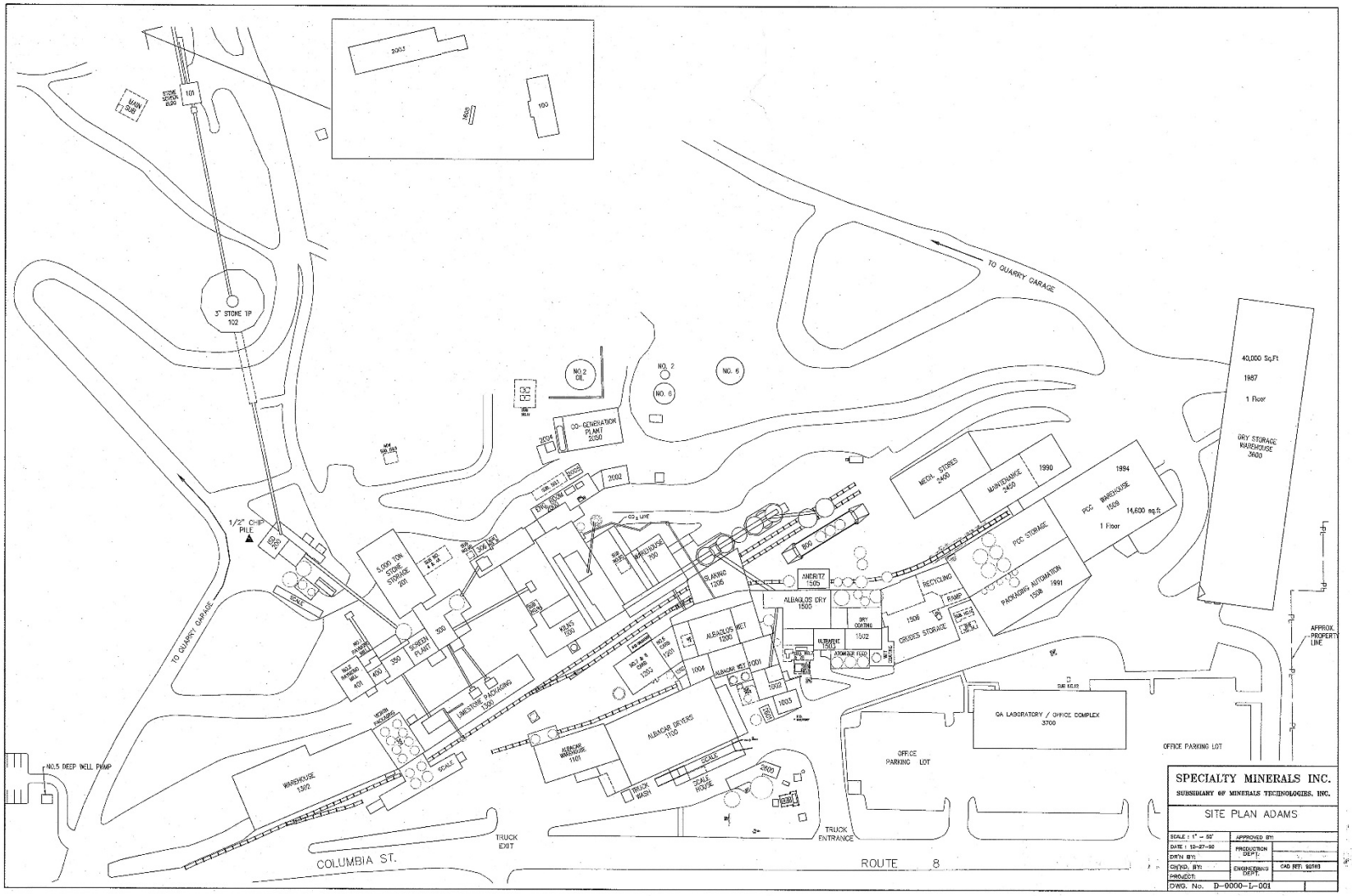


Figure 3: Treatment System Plan

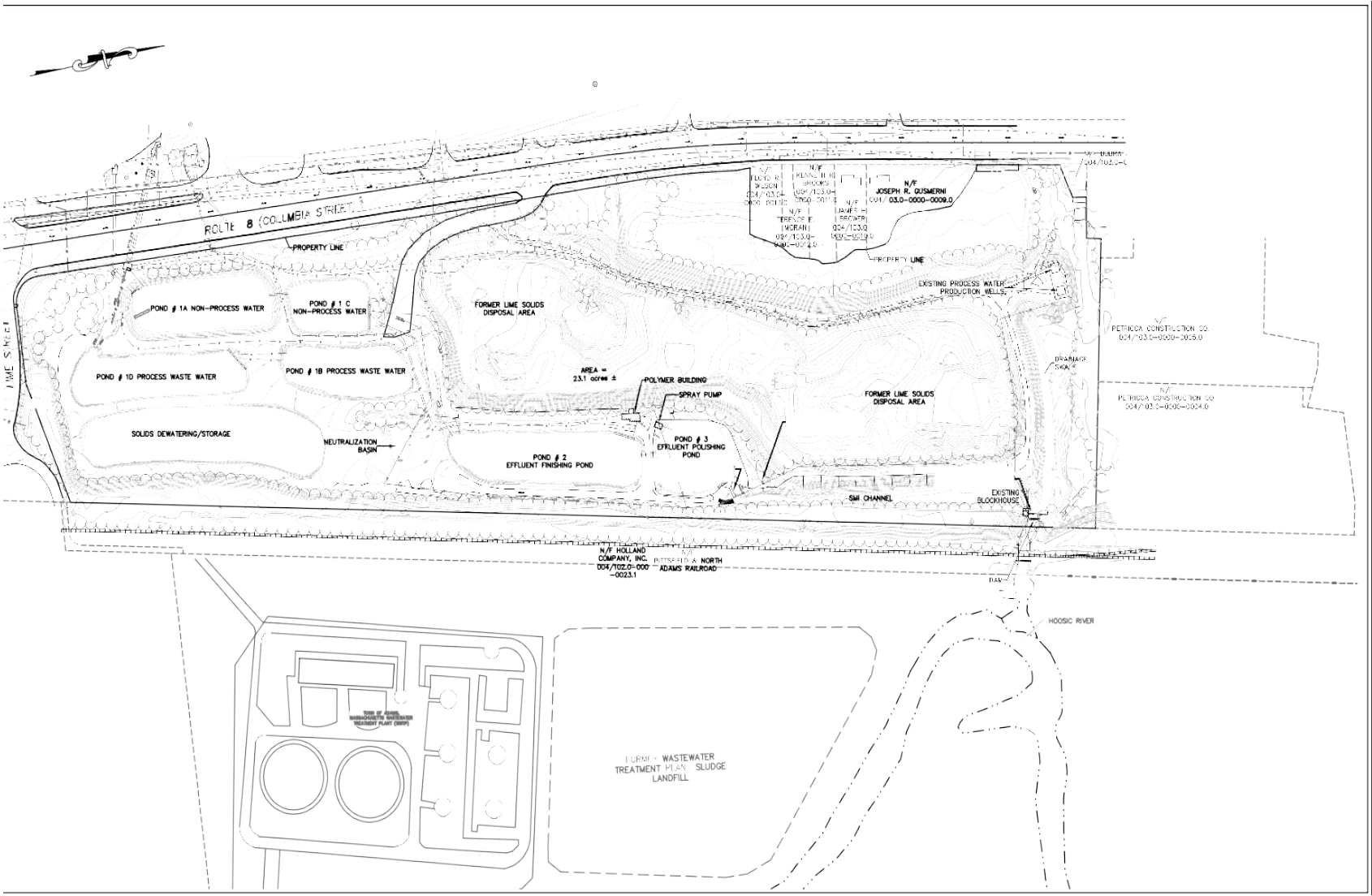
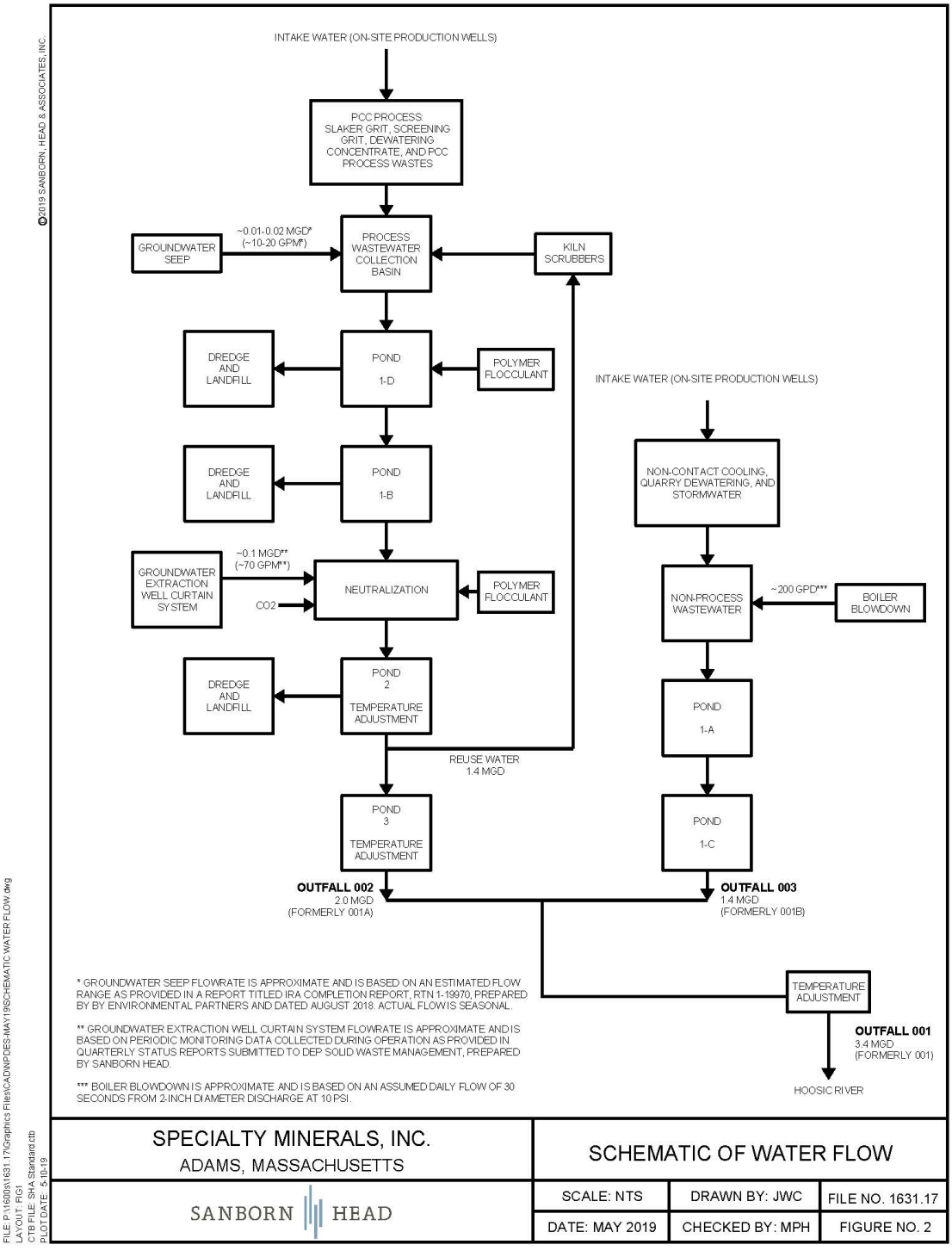


Figure 4: Schematic of Water Flow



Appendix A: Discharge Monitoring Data

Specialty Minerals: NPDES Permit No. MA0005991									
Outfall Serial Number 001, Monthly Reporting									
Monitoring Period Range: 2/01/2014 to 2/28/2019									
Parameter	Alkalinity, total (as CaCO3)	Flow, in conduit or thru treatment plant	Flow, in conduit or thru treatment plant	Solids, total suspended	Solids, total suspended	Solids, total suspended	Solids, total suspended	Turbidity	Turbidity
Reporting Units	Mon mg/L	5 MGD	Mon MGD	1051 lb/d	2102 lb/d	25 mg/L	50 mg/L	30 NTU	60 NTU
Monitoring Period End Date	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max
02/28/2014	210	4.6	5.2	165	312.2	4.3	7.2	5.2	6.7
03/31/2014	250	4.8	5.2	104.1	234.2	2.6	5.4	2.2	2.9
04/30/2014	240	4.9	5.2	175.7	273.2	4.3	6.3	5	6.7
05/31/2014	240	3.7	5.1	135.8	221.2	4.4	5.2	3.3	5.5
06/30/2014	240	3.4	3.8	147.5	206	5.2	6.5	7	12.1
07/31/2014	210	2.9	3.3	94.3	233.9	3.9	8.5	4	4.3
08/31/2014	220	3.7	4.2	129.6	294.2	4.2	8.4	2.8	3.4
09/30/2014	230	3.8	4.2	60.2	91.1	1.9	2.6	3.3	5.6
10/31/2014	220	4.2	4.8	70.1	92.1	2	2.3	2.7	3.3
11/30/2014	220	4.2	4.8	59.5	88.1	1.7	2.2	2.1	2.8
12/31/2014	230	4.1	5.4	71.8	126.1	2.1	2.8	3.9	6.3
01/31/2015	235	3.3	4.4	90.8	146.8	3.3	4	4.7	6.4
02/28/2015	235	4.4	5.3	51.4	75.1	1.4	1.7	2	2.1
03/31/2015	180	4	4.7	36.7	54.9	1.1	1.4	1.9	3.1
04/30/2015	235	3	4.2	25	63.1	1	1.8	1.6	2.1
05/31/2015	190	3.5	4.3	169.3	408.8	5.8	11.4	5.9	12.2
06/30/2015	180	3.3	4.7	44	78.4	1.6	2	4.5	7.1

07/31/2015	190	3.7	4.5	64.8	82.6	2.1	2.2	3.1	3.7
08/31/2015	146	3.4	4	70.3	110.1	2.5	3.3	6.2	7.5
09/30/2015	190	3.4	4.6	76.7	129.4	2.3	3.3	3.9	5.1
10/31/2015	150	3.9	4.58	65.2	103.1	2	2.7	3.4	5.1
11/30/2015	190	3.9	4.2	42.4	61.1	1.3	1.6	2.5	3.5
12/31/2015	225	3.8	4.2	60.2	148.2	1.9	4.23	1.7	2.2
01/31/2016	170	3.8	4.8	91.9	164.1	2.9	4.1	2.9	4.5
02/29/2016	210	3.8	4.3	101.4	264.7	3.2	7.38	5.1	8.1
03/31/2016	200	4	4.3	83.4	111.2	2.5	3.1	3.6	6.7
04/30/2016	150	4.1	4.5	47.9	60	1.4	1.6	1.8	2.2
05/31/2016	190	4.2	4.8	119.1	64.1	3.4	4.9	3.5	4.8
06/30/2016	110	3.8	5	101.4	200.2	3.2	4.8	4.1	6.3
07/31/2016	240	3.1	3.6	103.4	174.1	4	5.8	3.6	4.3
08/31/2016	190	3.6	3.9	63.1	84.6	2.1	2.6	2.2	3.3
09/30/2016	105	3.8	4.2	364.5	1289	11.5	36.8	9.9	32.2
10/31/2016	190	4.3	4.8	276.1	868.7	7.7	21.7	3.1	4.6
11/30/2016	240	3.5	4.5	93.4	313.4	3.2	8.35	4.8	12.2
12/31/2016	170	3.3	4	192.7	417	7	12.5	11	14.8
01/31/2017	145	4	5.4	106.8	171.1	3.2	3.8	4.1	5.8
02/28/2017	170	3.8	4.5	85.6	157.6	2.7	4.2	3.6	6.1
03/31/2017	145	3.7	4.6	277.7	1365.8	9	35.6	12	40.8
04/30/2017	160	4.6	5.1	61.4	80.8	1.6	1.9	2.3	2.7
05/31/2017	135	4.7	5.3	125.4	203.3	3.2	4.6	3	4.1
06/30/2017	185	3.9	4.6	130.1	191.8	4	5	4.2	5.3
07/31/2017	120	3.4	3.8	116.3	183.8	4.1	5.8	3.4	8.1
08/31/2017	190	3.3	3.6	88.1	129.1	3.2	4.3	4.7	5.9
09/30/2017	170	3.4	4.3	130.4	254.6	4.6	7.1	4.2	6.7
10/31/2017	205	3.6	4.5	66.1	135.1	2.2	3.6	2.1	2.6
11/30/2017	245	3.9	4.6	104.1	263.9	3.2	6.9	4.9	8.3
12/31/2017	235	2.9	3.7	108.8	364.1	4.5	11.8	9.2	13.9
01/31/2018	210	2.9	3.6	261.2	693.6	10.8	23.1	12.4	16.9

02/28/2018	225	3.1	4.2	431.8	805.6	16.7	23	11.9	21.9
03/31/2018	170	3.2	3.6	269.5	459.4	10.1	15.3	7.2	9.4
04/30/2018	210	3.5	3.8	528.3	912.7	18.1	28.8	9.8	27.3
05/31/2018	140	3.3	4	107.3	183.5	3.9	5.5	3.6	4.7
06/30/2018	160	3.3	3.6	225.7	456.4	8.2	15.2	14.1	27.1
07/31/2018	210	3	3.4	275.2	918.7	11	32.4	3.5	16.6
08/31/2018	160	3.4	3.6	113.4	144.1	4	4.8	5	5.8
09/30/2018	175	3.6	4.2	162.1	455.4	5.4	13	5.1	7.7
10/31/2018	245	3.7	4	160.5	313.6	5.2	9.4	11.1	15.1
11/30/2018	270	3.3	3.6	341.3	1009	12.4	33.6	18.5	57.5
12/31/2018	180	3.1	3.7	134.4	293.2	5.2	9.5	8.4	14.1
01/31/2019	175	2.9	3.3	161.6	415.6	6.8	15.1	6.1	11.2
02/28/2019	205	2.9	3.3	130.6	382.6	5.4	13.9	8.1	12.8
2003 Limits	**Mon mg/L**	**5 MGD**	**Mon MGD**	**1051 lb/d**	**2102 lb/d**	**25 mg/L**	**50 mg/L**	**30 NTU**	**60 NTU**
Minimum	105.0	2.9	3.3	25.0	54.9	1.0	1.4	1.6	2.1
Maximum	270.0	4.9	5.4	528.3	1365.8	18.1	36.8	18.5	57.5
Average	194.4	3.7	4.3	136.9	304.7	4.7	9.0	5.3	9.5
Standard Deviation	37.7	0.5	0.6	98.6	298.5	3.6	9.0	3.5	9.9
No. Measurements	61	61	61	61	61	61	61	61	61
No. Exceedances		0		0	0	0	0	0	0

Specialty Minerals: NPDES Permit No. MA0005991					
Outfall Serial Number 001, Monthly Reporting (continued)					
Monitoring Period Range: 2/01/2014 to 2/28/2019					
Parameter	**Temperature Deg. F**	**Temperature Deg. F**	**Instream Temperature, Deg. F**	**pH**	**pH**
Reporting Units	**84.7 °F**	**Mon °F**	**Mon °F**	**6.5 SU**	**8.3 SU**
Monitoring Period End Date	**Daily Max**	**Monthly Avg**	**Daily Max**	**Minimum**	**Maximum**
02/28/2014	66	59.6	NODI: 9	6.7	7
03/31/2014	67	62.7	NODI: 9	6.7	7.1
04/30/2014	72.3	68.6	NODI: 9	6.7	6.9
05/31/2014	77.7	72.6	NODI: 9	6.8	7
06/30/2014	79.5	76.4	63.8	6.7	7
07/31/2014	79.2	75.4	71.4	6.6	6.9
08/31/2014	78.2	73.9	69.9	6.6	6.7
09/30/2014	77.9	75.1	64.8	6.7	6.8
10/31/2014	76.5	70.6	NODI: 9	6.8	7
11/30/2014	71	66.2	NODI: 9	6.8	6.9
12/31/2014	69.1	62	NODI: 9	6.7	6.9
01/31/2015	61.5	56	NODI: 9	6.7	6.9
02/28/2015	63	54.3	NODI: 9	6.7	6.9
03/31/2015	67.8	62.7	NODI: 9	6.7	7
04/30/2015	72.4	65.3	NODI: 9	6.6	6.8
05/31/2015	87.7	79.5	NODI: 9	6.9	7.5
06/30/2015	78.3	75.1	67.1	6.5	6.9
07/31/2015	80.3	76.9	76.8	6.6	7.1
08/31/2015	81.2	77.6	79.2	6.7	7.2
09/30/2015	80.5	75.9	76.1	6.8	7.2
10/31/2015	74.4	71.1	NODI: 9	6.7	7
11/30/2015	73.8	63.6	NODI: 9	6.7	6.9
12/31/2015	71.4	61.8	NODI: 9	6.7	7.1
01/31/2016	65.5	53	NODI: 9	6.8	7.6

02/29/2016	66.1	52.5	NODI: 9	7.3	7.5
03/31/2016	71.1	61.3	NODI: 9	7.3	7.8
04/30/2016	73.2	61.5	NODI: 9	7.1	7.3
05/31/2016	81.1	66.6	NODI: 9	7.3	7.5
06/30/2016	80	75.5	76.1	7.1	7.7
07/31/2016	80.5	72.9	78.4	7.1	7.3
08/31/2016	80	72	76.8	7.1	7.5
09/30/2016	78.1	75	73.5	7.1	7.6
10/31/2016	75.8	58.6	NODI: 9	7.2	7.8
11/30/2016	72.7	58.9	NODI: 9	7	7.3
12/31/2016	66.1	49.6	NODI: 9	6.9	7.4
01/31/2017	67.6	51.7	NODI: 9	6.8	7
02/28/2017	69.2	57.1	NODI: 9	6.9	7
03/31/2017	71	62.1	NODI: 9	6.9	7.3
04/30/2017	74.2	68	NODI: 9	6.9	7.2
05/31/2017	77.5	71.6	NODI: 9	7.1	7.3
06/30/2017	81.9	75.6	68.4	6.9	7.2
07/31/2017	80.6	76.8	71.7	7	7.4
08/31/2017	83.8	77.8	74.3	6.8	7.4
09/30/2017	79.7	75.5	66.3	7	7.3
10/31/2017	77.3	72.1	NODI: 9	6.9	7.2
11/30/2017	71	65.5	NODI: 9	6.9	7.2
12/31/2017	68.7	61.8	NODI: 9	7	7.4
01/31/2018	64.5	58.9	NODI: 9	6.8	7.3
02/28/2018	71.9	63.1	NODI: 9	6.7	7.2
03/31/2018	68.8	63.9	NODI: 9	6.7	7.1
04/30/2018	72.9	65.9	NODI: 9	6.8	7.9
05/31/2018	78.6	74	NODI: 9	6.9	7.3
06/30/2018	82.9	76.7	69.4	7	7.3
07/31/2018	81.4	77.7	80.1	6.7	7.2
08/31/2018	81.7	77.4	73.2	6.6	6.8
09/30/2018	85.4	75.2	69	6.5	6.7
10/31/2018	73.2	68.5	NODI: 9	7.3	7.9

11/30/2018	70.1	62	NODI: 9	7	7
12/31/2018	67.7	61.3	NODI: 9	0	0
01/31/2019	65.9	58.8	NODI: 9	67	67
02/28/2019	70.3	59.1	NODI: 9	0	0
2003 Limits	**84.7 °F**	**Mon °F**	**Report MGD**	**6.5 SU**	**8.3 SU**
Minimum	61.5	49.6	63.8	6.5	6.7
Maximum	87.7	79.5	80.1	7.3	7.9
Average	74.3	67.2	72.3	6.8	7.2
Standard Deviation	6.2	8.1	4.9	0.2	0.3
No. Measurements	61	61	20	61	61
No. Exceedances	2			0	0

Specialty Minerals: NPDES Permit No. MA0005991								
Outfall Serial Number 002 (formerly 001A), Monthly Reporting								
Monitoring Period Range: 2/01/2014 to 2/28/2019								
Parameter	Flow, in conduit or thru treatment plant	Flow, in conduit or thru treatment plant	Solids, total suspended	Solids, total suspended	Temperature Deg. F	Temperature Deg. F	pH	pH
Reporting Units	Mon MGD	Mon MGD	Mon mg/L	Mon mg/L	Mon °F	Mon °F	Mon SU	Mon SU
Monitoring Period End Date	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Maximum	Minimum
02/28/2014	3	2.5	4.7	2.4	66.8	61.2	6.9	6.7
03/31/2014	3.1	2.7	5.2	2.8	76.4	68.5	6.9	6.7
04/30/2014	3.1	2.8	2.5	1.8	78.3	73.6	6.9	6.7
05/31/2014	3	1.6	7.6	3	83.7	77.3	6.9	6.7
06/30/2014	1.7	1.3	1.7	1.4	85	80.1	6.9	6.7
07/31/2014	1.1	0.8	3.5	2.7	85.8	80.4	6.8	6.5
08/31/2014	2	1.6	2.3	1.5	84.6	78.3	6.8	6.7
09/30/2014	2	1.6	4.2	2.7	83.1	77.7	6.9	6.6
10/31/2014	2.7	2.1	1	0.9	80.2	75.3	6.9	6.7
11/30/2014	3.2	2.3	2.5	1.8	76.4	71	6.9	6.7
12/31/2014	3.2	2	2.2	1.6	73	67.5	6.8	6.7
01/31/2015	2.3	1.2	2	1.4	67.9	60.3	6.9	6.6
02/28/2015	3.3	2.2	1.7	1.4	69.9	62.9	6.8	6.6
03/31/2015	2.6	1.9	2.1	1.7	72.6	67.1	7.1	6.6
04/30/2015	2.1	0.91	0.9	0.8	78.1	70	6.7	6.6
05/31/2015	2.1	1.4	2	1.4	72.6	67.1	7.3	6.9
06/30/2015	2.4	1.2	1	0.9	85.6	79.7	7	6.5
07/31/2015	2.4	1.6	1.6	1.08	84.9	80.5	7	6.7
08/31/2015	1.8	1.2	1.6	1.1	85.8	80.6	6.9	6.7
09/30/2015	2.4	1.2	7.7	3.9	85.1	79.7	7	6.8

10/31/2015	2.5	1.8	5.3	2.44	79.4	74.2	6.9	6.7
11/30/2015	2.2	1.8	6.35	2.52	77.3	66.3	6.8	6.7
12/31/2015	2.1	1.8	2.16	1.71	74.4	64.7	7	6.6
01/31/2016	2.7	1.7	11	5	68	54.6	7.3	6.7
02/29/2016	2.2	1.7	4.4	2.3	68.5	53	7.3	6.9
03/31/2016	2.1	1.9	12	4.2	74.1	63.4	8	7.2
04/30/2016	2.3	2	4.8	2.3	75.3	64	7.2	7
05/31/2016	2.7	2	3.4	2.4	82.4	68.3	7.4	7.1
06/30/2016	2.9	1.6	3.2	2	81.8	66.1	7.8	7
07/31/2016	1.5	1	3.4	2.3	82.6	73.9	7.2	7
08/31/2016	1.7	1.4	3.7	2.4	81.8	73	7.6	6.8
09/30/2016	2.1	1.6	3.5	1.7	79.3	73.3	7.6	7
10/31/2016	2.6	2.2	7.6	4.3	77	59.4	8.2	7.2
11/30/2016	2.4	1.4	3.45	1.75	74.3	60	7	6.8
12/31/2016	1.9	1.1	29.3	10.2	67.3	49.2	7.4	7.1
01/31/2017	3.3	1.8	12.4	6.2	68.6	51.2	7.1	6.8
02/28/2017	2.4	1.7	6.2	3.5	70.2	58.2	6.9	6.7
03/31/2017	2.5	1.6	3.8	2.8	72.1	63	7.1	6.7
04/30/2017	2.9	2.5	4.5	3.2	74.7	60.4	7.1	6.9
05/31/2017	3.2	2.5	3.3	2.3	78.3	65.1	7.2	6.9
06/30/2017	2.5	1.7	11	4.4	82.3	76.2	7.2	6.7
07/31/2017	1.5	1.1	6.3	3.6	81.5	77.3	7.6	6.9
08/31/2017	1.3	1	4.5	3.2	84.3	78.1	7.3	6.9
09/30/2017	2	1.1	4.9	4	88.4	81.3	7.3	7
10/31/2017	2.2	1.3	1.6	1.3	85.6	80.4	7.1	6.9
11/30/2017	2.3	1.6	6.9	2.5	77.9	73.2	7	6.6
12/31/2017	1.5	0.65	11.7	5.9	75.2	69.6	7.6	6.6
01/31/2018	1.4	0.65	6.9	5.1	75.8	67.4	7	6.6
02/28/2018	2	0.9	23	11.6	84.7	71.7	6.9	6.6
03/31/2018	1.3	1	37.8	10.8	78.5	72.5	7.3	6.5
04/30/2018	1.5	1.2	15.8	9.8	79.3	74.4	7.7	6.9

05/31/2018	1.7	1.1	6.6	3.9	84.5	80.2	7.3	6.9
06/30/2018	1.3	1	30.1	14.4	88.1	84	7.5	7.1
07/31/2018	1.1	0.8	24.1	13.8	90.3	84	7.4	6.6
08/31/2018	1.3	1.2	5	2.4	91.6	85.2	6.7	6.5
09/30/2018	1.9	1.5	5.1	2.5	91.5	83	6.6	6.4
10/31/2018	1.8	1.4	18.8	6.6	82.9	78.1	7.1	6.5
11/30/2018	1.4	1	29.3	11.6	77.2	70.1	7	6.5
12/31/2018	1.5	0.8	6.3	3.8	77.4	70.2	7	6.8
01/31/2019	1	0.6	8.1	4	72.9	66.2	7.2	6.5
02/28/2019	1.1	0.7	4.6	2.4	76	67.1	6.7	6.4
2003 Limits	**Report**	**Report**	**Report**	**Report**	**Report**	**Report**	**Report**	**Report**
Minimum	1.0	0.6	0.9	0.8	66.8	49.2	6.6	6.4
Maximum	3.3	2.8	37.8	14.4	91.6	85.2	8.2	7.2
Average	2.2	1.5	7.5	3.8	78.8	70.7	7.1	6.7
Standard Deviation	0.6	0.5	8.1	3.2	6.3	8.7	0.3	0.2
No. Measurements	61	61	61	61	61	61	61	61

Specialty Minerals: NPDES Permit No. MA0005991								
Outfall Serial Number 003 (formerly 001B), Monthly Reporting								
Monitoring Period Range: 2/01/2014 to 2/28/2019								
Parameter	Flow, in conduit or thru treatment plant	Flow, in conduit or thru treatment plant	Solids, total suspended	Solids, total suspended	Temperature Deg. F	Temperature Deg. F	pH	pH
Reporting Units	Mon MGD	Mon MGD	Mon mg/L	Mon mg/L	Mon °F	Mon °F	Mon SU	Mon SU
Monitoring Period End Date	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Maximum	Minimum
02/28/2014	2.2	2.1	5.8	5.2	54.1	50	7.6	7.1
03/31/2014	2.2	2.1	7.6	3.8	57.5	51.8	7.3	7
04/30/2014	2.2	2.1	8.5	6.1	63.3	57.2	7.3	7
05/31/2014	2.1	2.1	9.5	5.3	70.5	61.6	7.3	7
06/30/2014	2.2	2.1	5.7	4.9	70	64.7	7.4	7.1
07/31/2014	2.2	2.1	11.4	8.2	68.7	66.1	7.5	7
08/31/2014	2.2	2.1	12.5	7.7	67.7	62.9	7.4	7
09/30/2014	2.3	2.2	9.5	5.9	65.8	61.5	7	6.9
10/31/2014	2.1	2.1	4.7	3.6	65.4	58.1	7.4	7
11/30/2014	2.1	2.1	12.1	7.3	59.7	53.1	7.2	7.1
12/31/2014	2.2	2.1	15.7	6.7	59.7	53.1	7.2	7.1
01/31/2015	2.2	2.1	7	5.3	53.8	48.7	7.5	7.2
02/28/2015	2.2	2.1	10.6	5.9	55	49.9	7.4	7.1
03/31/2015	2.1	2.1	11.2	6.4	57.2	52.4	7.3	6.7
04/30/2015	2.1	2.1	22.1	7.8	61.1	55	7.5	7.2
05/31/2015	2.2	2.1	6.9	2.8	70.2	62.2	7.5	6.7
06/30/2015	2.2	2.1	25.8	12.9	68.5	62.2	8.4	6.9
07/31/2015	2.18	2.16	20.8	10.2	67.3	63.5	7.5	7.2
08/31/2015	2.2	2.2	7.1	2.2	68	63.5	7.5	7.1
09/30/2015	2.2	2.1	9.1	2.6	65.1	58.4	7.4	7.2

10/31/2015	2.1	2.1	24.7	4	61.1	56.7	7.4	6.9
11/30/2015	2.1	2.1	3.4	1.4	59.4	51.8	7.3	6.8
12/31/2015	2.2	2	9.5	4	56.5	48.5	7.5	7.1
01/31/2016	2.1	2.1	15.6	13.4	56.9	43.6	8.2	7.2
02/29/2016	2.2	2.1	16.7	12.1	56.1	47.7	8	7.6
03/31/2016	2.2	2.1	10.3	1.6	58.5	50.2	8.2	7.5
04/30/2016	2.2	2.1	4.6	2.7	60.8	50.5	7.9	7.5
05/31/2016	2.2	2.2	5.3	2.1	67.7	56.4	8.1	7.6
06/30/2016	2.2	2.1	3.7	1.9	66.1	57.7	7.7	7.5
07/31/2016	2.2	2.2	3.1	1.1	67.3	62.9	7.7	7.5
08/31/2016	2.2	2.1	7.8	1.8	67.9	62.6	7.6	7.4
09/30/2016	2.1	2.1	3.2	1.3	64.6	58.8	7.8	7.5
10/31/2016	2.2	2.1	2.6	1.9	62.1	50.7	7.7	7.4
11/30/2016	2.2	2.1	8.8	1.61	56.8	49.2	7.6	7.3
12/31/2016	2.1	2.1	8.8	2.8	53.1	45	7.7	7.5
01/31/2017	2.2	2.1	20	3.4	58.4	46.5	7.4	7.1
02/28/2017	2.2	2.1	7.6	3	55.4	46.5	7.3	6.9
03/31/2017	2.2	2.1	9.8	5.4	58.4	51.4	7.8	7
04/30/2017	2.2	2.1	6.9	3.4	62.3	56.8	7.9	7
05/31/2017	2.2	2.1	5.6	4.2	64.5	59.9	7.9	7.4
06/30/2017	2.3	2.2	5.5	3.2	68	63.9	7.7	7.4
07/31/2017	2.3	2.3	3	2.6	67.2	61.3	7.7	7.4
08/31/2017	2.3	2.3	4.4	2.4	70.9	66.5	7.7	7.3
09/30/2017	2.3	2.3	4.9	3.6	66.2	63.1	7.6	7.3
10/31/2017	2.3	2.3	3.1	1.9	63.7	60	7.7	7.4
11/30/2017	2.3	2.3	11	4.7	59.8	53.4	7.7	7.4
12/31/2017	2.3	2.2	6.9	4.1	57.1	51.3	7.6	7.4
01/31/2018	2.3	2.2	10.7	6.6	54.5	49	7.7	7.4
02/28/2018	2.3	2.3	5.6	4.4	96.7	54.7	7.8	7.2
03/31/2018	3.6	3.2	4.3	2.2	100	60.4	7.6	6.8
04/30/2018	2.3	2.3	8.8	4.2	76	54.1	8	6.8

05/31/2018	2.3	2	37.4	9.2	62.9	59.4	7.2	6.8
06/30/2018	2.3	2.3	5	2.3	67	62.8	7.5	7
07/31/2018	2.4	2.3	21.2	8	67.3	65	7.2	6.7
08/31/2018	2.3	2.2	6.4	2.6	70.6	67.2	7	6.7
09/30/2018	2.3	2.2	4.7	2.6	69.1	63.4	7	6.7
10/31/2018	2.3	2.2	2.9	2.3	59.3	55.9	7.5	6.7
11/30/2018	2.3	2.3	5.7	4.5	54.6	49.9	7.4	7.1
12/31/2018	2.3	2.3	3.9	2.8	50.2	47.7	7.6	6.8
01/31/2019	2.3	2.3	8	3.9	51.2	46.2	7.7	7.3
02/28/2019	2.3	2.2	5.9	4.2	54.2	46.7	7.7	6.9
2003 Limits	**Report**	**Report**	**Report**	**Report**	**Report**	**Report**	**Report**	**Report**
Minimum	2.1	2.0	2.6	1.1	50.2	43.6	7.0	6.7
Maximum	3.6	3.2	37.4	13.4	100.0	67.2	8.4	7.6
Average	2.2	2.2	9.4	4.5	63.4	55.9	7.6	7.1
Standard Deviation	0.2	0.2	6.7	2.8	8.8	6.5	0.3	0.3
No. Measurements	61	61	61	61	61	61	61	61

Appendix B: Ambient Data

Specialty Minerals: NPDES Permit No. MA0005991										
Whole Effluent Toxicity Testing, Receiving Water Chemical Analysis, Quarterly Reporting										
Monitoring Period Range: 2/01/2014 to 2/28/2019										
Parameter	**Aluminum**	**Cadmium**	**Copper**	**Hardness**	**Nickel**	**Lead**	**Zinc**	**Ammonia**	**pH**	**Alkalinity, total (as CaCO3)**
Reporting Units	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**S.U.**	**mg/L**
2/10/2014	0.056	<0.0002	0.0012	99.4	<0.0005	<0.0005	<0.0010	0.07	8.02	114
2/11/2014	0.099	<0.0002	<0.0005	106	<0.0005	<0.0005	<0.001	0.05	8.06	94.7
5/12/2014	0.084	<0.0002	0.002	75.5	<0.001	<0.0005	0.002	0.14	7.94	90.7
8/11/2014	0.015	<0.0002	<0.001	117	<0.001	<0.0005	<0.002	0.1	8.11	109
11/10/2014	0.114	<0.0002	<.001	119	<0.001	<0.0005	0.006	<0.02	7.92	91.8
2/9/2015	0.122	<0.0001	<0.002	121	<0.001	<0.0003	<0.002	0.02	8.16	101
5/11/2015	0.117	<0.0001	<0.002	102	<0.001	<0.0003	<0.002	<0.05	7.97	95.4
8/10/2015	0.06	<0.0001	<0.002	140	<0.001	<0.0003	<0.002	<0.05	8.11	129
11/9/2015	0.031	<0.0001	<0.002	109	<0.001	<0.0003	<0.002	<0.05	7.78	127
5/16/2016	0.06	<0.0001	<0.005	101	0.004	<0.0003	<0.002	<0.05	7.96	86.4
8/8/2016	0.025	<0.0001	<0.002	139	0.003	<0.0003	<0.002	<0.05	8.11	128
11/7/2016	0.013	<0.0001	<0.002	125	<0.001	<0.0003	<0.002	<0.05	8.12	112
2/13/2017	0.045	<0.0001	<0.002	110	<0.001	<0.0002	<0.002	<0.05	7.99	96.5
8/7/2017	0.095	<0.0001	<0.001	141	<0.001	<0.0003	<0.001	0.15	8.14	143
11/13/2017	0.063	<0.0001	<0.001	102	<0.001	<0.0003	<0.001	0.06	7.95	104
2/5/2018	0.168	<0.0001	0.0015	90.9	<0.001	<0.0003	0.003	0.29	7.74	80.1
5/14/2018	0.108	<0.0001	<0.001	79.8	<0.001	<0.0003	0.003	0.1	8.04	84.7
8/6/2018	0.089	<0.0001	0.0013	83.7	<0.001	<0.0003	0.002	<0.05	7.91	87.2

11/12/2018	0.054	0.0001	0.0022	88.3	0.001	<0.0003	0.053	<0.05	7.73	90.5
2/11/2019	0.058	<0.0001	<0.002	92.2	<0.001	<0.0003	<0.004	<0.05	7.8	85.8

Appendix C: Reasonable Potential Analysis

Methodology

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

EPA 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:

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

Where:

C = 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)
Q_e = effluent flow of the Facility (permitted maximum daily flow)
Q_d = downstream flow (Q_s + Q_e)

When both the downstream concentration (C) and the effluent concentration (C_e) exceed the applicable criterion, there is reasonable potential for the discharge to cause, or contribute to an excursion above the water quality standard. *See* 40 C.F.R. § 122.44(d). When EPA determines that a discharge causes, has the reasonable potential to cause, or contribute to such an excursion, the permit must contain WQBELs for the parameter. *See* 40 C.F.R. § 122.44(d)(1)(iii).

Determination of Applicable Criteria

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

Freshwater aquatic life criteria for aluminum, copper, and zinc are established in terms of dissolved metals and are converted to total recoverable using published conversion factors. Additionally, the criteria for copper, and zinc are hardness-dependent. EPA calculated hardness-dependent chronic and acute criteria for metals detected in the effluent using the downstream hardness determined using the hardness values measured in the Facility's discharge (Appendix A) and the median hardness value measured in the receiving water immediately upstream of the discharge (Appendix B). The applicable criteria are summarized in the table below.

Summary of Applicable Criteria

Parameter	Coefficients				Applicable Criteria	
	ma	ba	mc	bc	Acute Criteria[1] (CMC)	Chronic Criteria (CCC)
Units	—	—	—	—	**µg/L**	**µg/L**
Aluminum[3]	—	—	—	—	750	87
Copper[3,4]	0.9422	-1.7000	0.8545	-1.702	20.19	13.00
Zinc[3,4]	0.8473	0.884	0.8473	0.884	166.51	166.51
Ammonia	—	—	—	—	11	1.2

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

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

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

m_c = pollutant-specific coefficient
b_c = pollutant-specific coefficient
ln = natural logarithm
h = hardness of the receiving water

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

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

Calculation of Reasonable Potential

EPA first calculated the upper bound of expected effluent concentrations for each parameter. EPA then used the calculated upper bound of expected effluent concentrations, the median value of the available ambient data, the permitted daily maximum effluent flow and the upstream 7Q10 flow to project the in-stream concentration downstream from the discharge. When both this resultant in-stream concentration (C) and the effluent concentration (C_e) exceed the applicable criterion, there is reasonable potential for the discharge to

cause, or contribute to an excursion above water quality standards. The results are summarized in the table below:

Summary of Reasonable Potential Results

Parameter	Effluent Flow	Effluent Conc[1]	Upstream Flow	Upstream Conc[2]	Downstream Flow[3]	Downstream Concentration	Acute Criterion	Chronic Criterion	Acute Reasonable Potential[4]	Chronic Reasonable Potential[5]
Units	**cfs**	**µg/L**	**cfs**	**µg/L**	**cfs**	**µg/L**	**µg/L**	**µg/L**	**—**	**—**
Aluminum	7.74	111.6	17.5	61.5	25.24	76.9	750	87	N	N
Copper		3.2		1.4		1.95	20.12	12.96	N	N
Zinc		6.0		3		3.9	166.05	166.05	N	N
Ammonia		0.603		0.07		0.233	11	1.2	N	N

[1] Values represent the 95th percentile concentration calculated using the monitoring data reported by the Facility (*See* Appendix A).
[2] Median upstream values calculated using monitoring data for the receiving water immediately upstream of the Facility's discharge reported by the Facility (see Appendix B).
[3] Value calculated as the sum of effluent flow and upstream flow.
[4] "Y" is indicated if both effluent concentration and downstream concentration exceeds the acute criterion.
[5] "Y" is indicated if both effluent concentration and downstream concentration exceeds the chronic criterion.

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

Appendix D: Specialty Minerals Whole Effluent Toxicity Test Data

Outfall Serial Number 001 Monitoring Period Range: 2/01/2014 to 2/28/2019				
	LC50 Static 48-Hr Acute *Ceriodaphnia*	**LC50 Static 48-Hr Acute *Pimephales***	**NOEL Static 7-Day Chronic *Ceriodaphnia***	**NOEL Static 7-Day Chronic *Pimephales***
Mon Period End Date	**Daily Min**	**Daily Min**	**Daily Min**	**Daily Min**
02/28/2014	100	100	100	100
05/31/2014	100	100	27.17	100
08/31/2014	100	100	100	100
02/28/2015	100	100	100	25
05/31/2015	100	100	100	100
08/31/2015	100	100	100	100
11/30/2015	100	100	100	100
02/29/2016	100	100	100	6.25
05/31/2016	100	100	100	100
08/31/2016	100	100	100	6.25
11/30/2016	100	100	100	100
02/28/2017	100	100	100	100
05/31/2017	100	100	100	100
08/31/2017	100	100	100	100
11/30/2017	100	100	100	100
02/28/2018	100	100	100	100
05/31/2018	100	100	100	100
08/31/2018	100	100	100	100
11/31/2018	100	100	100	100
2/28/2019	100	100	25	27.17
2003 Limits	**100%**	**100%**	**27.17%**	**27.17%**
Minimum	100	100	25	6.25
No. Measurements	22	22	22	22
No. Exceedances	0	0	1	3

Specialty Minerals: NPDES Permit No. MA0009551									
Outfall Serial Number 001, Whole Effluent Toxicity Test Chemical Analysis, Effluent									
Monitoring Period Range: 2/01/2014 to 2/28/2019									
Monitoring Period End Date	**Aluminum**	**Cadmium**	**Copper**	**Hardness**	**Nickel**	**Lead**	**Zinc**	**Ammonia**	**Alkalinity**
2/10/2014	0.069	<0.0001	0.0015	174	<0.0005	<0.0005	<0.0010	0.08	200
5/12/2014	0.033	<0.0002	0.003	155	<0.001	<0.0005	0.002	0.11	206
8/11/2014	0.066	<0.0002	0.003	208	<0.001	<0.0005	0.002	0.29	181
11/10/2014	0.109	<0.0002	0.003	215	<0.001	<0.0005	0.006	0.03	350
2/9/2015	0.12	<0.0001	<0.002	191	<0.001	<0.0003	<0.002	0.13	181
5/11/2015	0.024	<0.0001	0.002	181	<0.001	<0.0003	<0.002	<0.05	206
8/10/2015	0.068	<0.0001	<0.002	146	<0.001	<0.0003	<0.002	0.05	150
11/9/2015	0.039	<0.0001	<0.002	136	<0.001	<0.0003	<0.002	<0.05	173
5/16/2016	<0.01	<0.0001	<0.005	215	<0.001	<0.0003	<0.002	<0.05	188
8/8/2016	0.035	<0.0001	<0.002	165	<0.001	<0.0003	<0.002	<0.05	155
11/7/2016	<0.01	<0.0001	<0.002	195	<0.001	<0.0003	<0.002	<0.05	183
2/13/2017	0.07	<0.0001	0.003	173	<0.001	<0.0002	<0.002	<0.05	171
8/7/2017	<0.005	<0.0001	<0.001	165	<0.001	<0.0003	<0.001	0.15	185
11/13/2017	<0.005	<0.0001	<0.001	354	<0.001	<0.0003	<0.001	0.08	320
2/5/2018	0.01	<0.0001	0.0017	301	<0.001	<0.0003	0.002	3.78	255
5/14/2018	<0.005	<0.0001	<0.001	205	<0.001	<0.0003	0.003	0.16	161
8/6/2018	0.051	<0.0001	<0.001	200	<0.001	<0.0003	<0.002	0.1	166
11/12/2018	0.049	<0.0001	0.0017	298	<0.001	<0.0003	0.011	<0.05	263
2/11/2019	0.048	<0.0001	0.0012	219	<0.001	<0.0003	<0.002	<0.10	219

Reasonable Potential Analysis *C.dubia*
≥10 data points, Lognormal distribution
Chronic - Reproduction (sublethal)

Dilution Factor:	3.3

Date	NOEC - Reproduction (%)	NOEC (TUc)	*Yi* lnNOEC
2/28/2014	100	1	0.0000
5/31/2014	27.17	3.68053	1.3031
8/31/2014	100	1	0.0000
2/28/2015	100	1	0.0000
5/31/2015	100	1	0.0000
8/31/2015	100	1	0.0000
11/30/2015	100	1	0.0000
2/29/2016	100	1	0.0000
5/31/2016	100	1	0.0000
8/31/2016	100	1	0.0000
11/30/2016	100	1	0.0000
2/28/2017	100	1	0.0000
5/31/2017	100	1	0.0000
8/31/2017	100	1	0.0000
11/30/2017	100	1	0.0000
2/28/2018	100	1	0.0000
5/31/2018	100	1	0.0000
8/31/2018	100	1	0.0000
11/31/2018	100	1	0.0000
2/31/2018	25	4	1.3863

WET - (Lognormal distribution, n ≥ 10)

Estimated Daily Maximum Effluent Concentration		
k = number of daily samples =	20	
u_y = Avg of Nat. Log of daily Discharge =	0.13447	
s_y = Std Dev. of Nat Log of daily discharge =	0.41410	
σ_y^2 = estimated variance = (SUM[$(y_i - u_y)^2$]) / (k-1) =	0.171480974	
cv(x)= Coefficient of Variation =	3.079572685	
99th Percentile Daily Max Estimate = exp (u_y + 2.326*s_y)		
Estimated Daily Max 99th percentile =	NA	Toxic Units (TU)
Estimated acute downstream concentration =	**NA**	**Toxic Units (TU)**
Acute criterion	**NA**	**NO RP**
95th Percentile Daily Max Estimate = exp (u_y + 1.645*s_y)		
Estimated Daily Max =	2.2607	Chronic Toxic Units (TUc)
Estimated chronic downstream concentration =	**0.6809**	**Chronic Toxic Units (TUc)**
Chronic criterion	**1.0**	**NO RP**

The CV is calculated using the method in Appendix E of *Technical Support Document for Water Quality-based Toxics Control*.

The estimated dow nstream concentrations and resulting RP determinations do not consider receiving w ater concentrations.

Reasonable Potential Analysis *P. promelas*

≥10 data points, Lognormal distribution

Chronic - Growth (sublethal)

Dilution Factor:	3.3

Date	NOEC - Growth (%)	NOEC (TU)	Yi lnNOEC
2/28/2014	100	1	0.0000
5/31/2014	100	1	0.0000
8/31/2014	100	1	0.0000
2/28/2015	25	4	1.3863
5/31/2015	100	1	0.0000
8/31/2015	100	1	0.0000
11/30/2015	100	1	0.0000
2/29/2016	6.25	16	2.7726
5/31/2016	100	1	0.0000
8/31/2016	6.25	16	2.7726
11/30/2016	100	1	0.0000
2/28/2017	100	1	0.0000
5/31/2017	100	1	0.0000
8/31/2017	100	1	0.0000
11/30/2017	100	1	0.0000
2/28/2018	100	1	0.0000
5/31/2018	100	1	0.0000
8/31/2018	100	1	0.0000
11/31/2018	100	1	0.0000
2/31/2019	27.17	3.68053	1.3031

WET - (Lognormal distribution, n ≥ 10)

Estimated Daily Maximum Effluent Concentration		
k = number of daily samples =	20	
u_y = Avg of Nat. Log of daily Discharge =	0.41173	
s_y = Std Dev. of Nat Log of daily discharge =	0.90623	
σ_y^2 = estimated variance = (SUM[$(y_i - u_y)^2$]) / (k-1) =	0.821257494	
cv(x)= Coefficient of Variation =	2.201055168	
99th Percentile Daily Max Estimate = exp (u_y + 2.326*s_y)		
Estimated Daily Max 99th percentile =	NA	Toxic Units (TU)
Estimated acute downstream concentration =	**NA**	**Toxic Units (TU)**
Acute criterion	**NA**	**NO RP**
95th Percentile Daily Max Estimate = exp (u_y + 1.645*s_y)		
Estimated Daily Max =	6.7025	Chronic Toxic Units (TUc)
Estimated chronic downstream concentration =	**2.0188**	**Chronic Toxic Units (TUc)**
Chronic criterion	**1.0**	**RP**

The CV is calculated using the method in Appendix E of *Technical Support Document for Water Quality-based Toxics Control*.

The estimated downstream concentrations and resulting RP determinations do not consider receiving water concentrations.

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

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

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

PUBLIC NOTICE PERIOD: **June 6, 2019 – July 5, 2019**

PERMIT NUMBER: **MA0005991**

PUBLIC NOTICE NUMBER: **MA-010-19**

NAME AND MAILING ADDRESS OF APPLICANT:

Specialty Minerals, Inc.
260 Columbia Street
Adams, MA 01220

NAME AND ADDRESS OF THE FACILITY WHERE DISCHARGE OCCURS:

Specialty Minerals, Inc.
260 Columbia Street
Adams, MA 01220

RECEIVING WATER: Hoosic River (MA11-04) (Class B)

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

INFORMATION ABOUT THE DRAFT PERMIT:

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

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

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

PUBLIC COMMENT AND REQUEST FOR PUBLIC HEARING:

All persons, including applicants, who believe any condition of this draft permit is inappropriate, must raise all issues and submit all available arguments and all supporting material for their arguments in full by **July 5, 2019**, to the address or email address listed above. Any person, prior to such date, may submit a request in writing to EPA and MassDEP for a public hearing to consider this draft permit. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on this draft permit, the Regional Administrator will respond to all significant comments and make the responses available to the public at EPA's Boston office.

FINAL PERMIT DECISION:

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

LEALDON LANGLEY, DIRECTOR
WETLANDS AND WASTEWATER
PROGRAM
MASSACHUSETTS DEPARTMENT OF
ENVIRONMENTAL PROTECTION

KEN MORAFF, DIRECTOR
WATER DIVISION
EPA-REGION 1