

AGENCY OF NATURAL RESOURCES
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
ONE NATIONAL LIFE DRIVE, MAIN BUILDING, 2nd FLOOR
MONTPELIER, VT 05620-3522

Permit No.: 3-1131
PIN: NS09-0106
NPDES No.: 0000141

Name of Applicant: Imerys Talc Vermont, Inc.
73 East Hill Rd
Ludlow, VT 05149

Expiration Date: September 30, 2023

DISCHARGE PERMIT

In compliance with the provisions of the Vermont Water Pollution Control Act as amended (10 V.S.A. chapter 47), the Vermont Water Pollution Control Permit Regulations as amended (Environmental Protection Rules, Chapter 13), and the federal Clean Water Act as amended (33 U.S.C. § 1251 *et seq.*), and implementing federal regulations, Imerys Talc Vermont, Inc. (hereinafter referred to as the "Permittee") is authorized by the Secretary of the Agency of Natural Resources ("Secretary") to discharge from the Hammondsville Mine Pit (Mine Pit) to the Reading Hill Brook in accordance with the following conditions.

This permit shall become effective on October 1, 2018.

Emily Boedecker, Commissioner
Department of Environmental Conservation

By: Jessica Bulova Date: 9/17/2018

Jessica Bulova, Wastewater Program Manager
Watershed Management Division

I. SPECIAL CONDITIONS

A. EFFLUENT LIMITS

1. During the **initial drawdown period**, the Permittee is authorized to discharge from outfall serial number S/N 001 of the Hammondsville Mine Pit Lake to the Reading Hill Brook, an effluent for which the characteristics shall not exceed the values listed below:

EFFLUENT CHARACTERISTICS	Effluent Limits		Sampling Requirements	
	Maximum Day	Instantaneous Maximum	Minimum Frequency of Analysis	Sample Type

Flow	0.216 MGD	150 GPM	Daily	Daily Total, Max.
Turbidity		10 NTU	Daily	Grab
Hardness ¹		Monitor Only	Twice per discharge ²	Grab
Total Phosphorus		Monitor Only	Monthly	Grab
Total Nitrogen		Monitor Only	Monthly	Grab
Priority Pollutant Metals ^{1,3}		Monitor Only	Twice per discharge ²	Grab
pH		Between 6.5-8.5 Standard Units	Daily	Grab

¹ Hardness and priority pollutant metals shall be analyzed on the same sample.

² Sampling shall be representative of the beginning and end of the discharge period.

³ (Ag, As, Be, Cd, Cr, Cu, Hg, Ni, Pb, Sb, Se, Ti, Zn)

Samples collected in compliance with the monitoring requirements specified above shall be collected from the sampling tap on the siphon line.

2. **Following the initial drawdown period**, the Permittee is authorized to discharge from outfall serial number S/N 001 of the Hammondsville Mine Pit Lake to the Reading Hill Brook, an effluent for which the characteristics shall not exceed the values listed below:

EFFLUENT CHARACTERISTICS	Effluent Limits		Sampling Requirements	
	Maximum Day	Instantaneous Maximum	Minimum Frequency of Analysis	Sample Type
Flow ¹	Monitor Only	150 GPM	Quarterly	Max
Turbidity		10 NTU	Quarterly	Grab
Hardness ²		Monitor Only	Annually	Grab
Priority Pollutant Metals ^{2,3}		Monitor Only	Annually	Grab
pH		Between 6.5-8.5 Standard Units	Quarterly	Grab

¹ Weather conditions at the time of flow shall be noted on form WR-43-3.

² Hardness and priority pollutant metals shall be analyzed on the same sample.

³ (Ag, As, Be, Cd, Cr, Cu, Hg, Ni, Pb, Sb, Se, Ti, Zn)

Samples collected in compliance with the monitoring requirements specified above shall be collected from the pit lake at the head of the spillway.

3. The effluent shall not have concentrations or combinations of contaminants which would cause a violation of the Vermont Water Quality Standards.
4. The effluent shall not cause visible discoloration of the receiving waters.

B. SPECIAL CONDITIONS

1. The permittee shall notify the secretary in writing 2 weeks prior to the planned commencement of drawdown.
2. The permittee shall provide a report to the secretary within 1 month of conclusion of the initial drawdown that includes the following:
 - (1) the dates the temporary drawdown commenced and concluded. If the initial drawdown occurs over two or more periods of discharge, the dates for each discharge shall be included. The initial drawdown period will be considered complete based on the dates within this notification.
 - (2) flow monitoring data and laboratory reports for the analyses conducted as required in Table A.1.
3. This permit does not allow any alteration or removal of the dam.
4. The permittee must use a test method for Copper with a detection limit of 10 µg/L-Cu or lower.
5. Down-gradient areas shall be inspected regularly (at least quarterly) for erosion. The permittee shall take immediate action to correct any erosion resulting from this discharge.
6. The Permittee shall implement a spill prevention and control plan to prevent any fuels or chemicals from entering the pit lake. The Permittee shall immediately implement all reasonable steps to prevent any equipment spills or leaks from entering the pit lake. The discharge of any fuels, chemicals, or other pollutants not specifically authorized by this permit is prohibited.
7. The dates of inspections and maintenance activities shall be reported on the appropriate discharge monitoring report.

C. REAPPLICATION

If the Permittee desires to continue to discharge after the expiration of this permit, the Permittee shall reapply on the application forms then in use at least 180 days before this permit expires.

Reapply for a Discharge Permit by: March 31, 2023

D. OPERATING FEES

This discharge is subject to operating fees as required by 3 V.S.A. § 2822.

E. MONITORING AND REPORTING

1. Sampling and Analysis

The sampling, preservation, handling, and analytical methods used shall conform to the test procedures published in Title 40 of the Code of Federal Regulations (C.F.R.) Part 136.

The Permittee shall use sufficiently sensitive test procedures (i.e., methods) approved under 40 C.F.R. Part 136 for the analysis of the pollutants or pollutant parameters required under this Section.

Samples shall be representative of the volume and quality of effluent discharged over the sampling and reporting period. All samples are to be taken during normal operating hours. The Permittee shall identify the effluent sampling location used for each discharge. A description of the effluent sample location is included in Condition I.A.1.

2. Reporting

The Permittee is required to submit quarterly reports of monitoring results on Discharge Monitoring Report (DMR) form WR-43. **Reports are due on the 15th day of each quarter, beginning with the quarter following the issuance date of this permit.**

The Permittee shall electronically submit its DMRs via Vermont's on-line electronic reporting system. The Permittee shall electronically submit additional compliance monitoring data and reports specified by the Secretary. When the Permittee submits DMRs using an electronic system designated by the Secretary, which requires attachment of scanned DMRs in pdf format, it is not required to submit hard copies of DMRs. The link below shall be used for electronic submittals:

<https://anronline.vermont.gov/>

If, in any reporting period, there has been no discharge, the Permittee must submit that information by the report due date.

All reports shall be signed:

- a) In the case of corporations, by a principal executive officer of at least the level of vice president, or his/her duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge described in the permit form originates and the authorization is made in writing and submitted to the Secretary;
- b) In the case of a partnership, by a general partner;

- c) In the case of a sole proprietorship, by the proprietor; or
- d) In the case of a municipal, State, or other public facility, by either a principal executive officer, ranking elected official, or other duly authorized employee.

3. Recording of Results

The Permittee shall maintain records of all information resulting from any monitoring activities required, including:

- a) The exact place, date, and time of sampling or measurement;
- b) The individual(s) who performed the sampling or measurements;
- c) The dates and times the analyses were performed;
- d) The individual(s) who performed the analyses;
- e) The analytical techniques and methods used including sample collection handling and preservation techniques;
- f) The results of such analyses;
- g) The records of monitoring activities and results, including all instrumentation and calibration and maintenance records;
- h) The original calculation and data bench sheets of the operator who performed analysis of the influent or effluent pursuant to requirements of this permit; and
- i) For analyses performed by contract laboratories:
 - a. The detection level reported by the laboratory for each sample; and
 - b. The laboratory analytical report including documentation of the QA/QC and analytical procedures.

The results of monitoring requirements shall be reported (in the units specified) on the DMR form WR-43 or other forms approved by the Secretary.

When “non-detects” are recorded, the method detection limit shall be reported and used in calculating any time-period averaging for reporting on DMRs.

4. Additional Monitoring

If the Permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the DMR form WR-43. Such increased frequency shall also be indicated.

II. GENERAL CONDITIONS

A. MANAGEMENT REQUIREMENTS

1. Facility Modification / Change in Discharge

All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant more frequently than, or at a level in excess of, that identified and authorized by this permit shall constitute a violation of the terms and conditions of this permit. Such a violation may result in the imposition of civil and/or criminal penalties pursuant to 10 V.S.A. chapters 47, 201, and/or 211. Any anticipated facility alterations or expansions or process modifications which will result in new, different, or increased discharges of any pollutants must be reported by submission of a new permit application or, if such changes will not violate the effluent limitations specified in this permit, by notice to the Secretary of such changes. Following such notice, the permit may be modified, pursuant to Condition II.B.4 of this permit, to specify and limit any pollutants not previously limited.

In addition, the Permittee, within 30 days of the of the date on which the Permittee is notified of such discharge, shall provide notice to the Secretary of the following:

- a) Any new introduction of pollutants into the treatment works from a source which would be a new source as defined in Section 306 of the Clean Water Act if such source were discharging pollutants;
- b) Except for such categories and classes of point sources or discharges specified by the Secretary, any new introduction of pollutants into the treatment works from a source which would be subject to Section 301 of the Clean Water Act if such source were discharging pollutants; and
- c) Any substantial change in volume or character of pollutants being introduced into the treatment works by a source introducing pollutants into such works at the time of issuance of the permit.

The notice shall include:

- i. The quality and quantity of the discharge to be introduced into the system, and
- ii. The anticipated impact of such change in the quality or quantity of the effluent to be discharged from the WWTF.

2. Noncompliance Notification

- a) The Permittee shall give advance notice to the Secretary of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- b) In the event the Permittee is unable to comply with any of the conditions of this permit due, among other reasons, to:
 - i. Breakdown or maintenance of waste treatment equipment (biological and physical-chemical systems including all pipes, transfer pumps, compressors, collection ponds or tanks for the segregation of treated or untreated wastes, ion exchange columns, or carbon absorption units);
 - ii. Accidents caused by human error or negligence;
 - iii. Any unanticipated bypass or upset which exceeds any effluent limitation in the permit;
 - iv. Violation of a maximum day discharge limitation for any of the pollutants listed by the Secretary in this permit; or
 - v. Other causes such as acts of nature.
- c) The permittee shall notify the Secretary within 24 hours of becoming aware of such condition and shall provide the Secretary with the following information, in writing, within five days:
 - i. Cause of non-compliance;
 - ii. A description of the non-complying discharge including its impact upon the receiving water;
 - iii. Anticipated time the condition of non-compliance is expected to continue or, if such condition has been corrected, the duration of the period of non-compliance;
 - iv. Steps taken by the Permittee to reduce and eliminate the non-complying discharge; and
 - v. Steps to be taken by the Permittee to prevent recurrence of the condition of non-compliance.

3. Operation and Maintenance

All waste collection, control, treatment, and disposal facilities shall be operated in a manner consistent with the following:

- a) The Permittee shall, at all times, maintain in good working order and operate as efficiently as possible all treatment and control facilities and systems (and related appurtenances) installed or used by the Permittee to achieve compliance with the terms and 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 the Permittee only when the operation is necessary to achieve compliance with the conditions of this permit.
- b) The Permittee shall provide an adequate operating staff which is duly qualified to carry out the operation, maintenance, and testing functions required to ensure compliance with the conditions of this permit; and

4. Quality Control

The Permittee shall calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at regular intervals to ensure accuracy of measurements, or shall ensure that both activities will be conducted.

The Permittee shall keep records of these activities and shall provide such records upon request of the Secretary.

The permittee shall analyze any additional samples as may be required by the Secretary to ensure analytical quality control.

5. Bypass

The bypass of facilities (including pump stations) is prohibited, except where authorized under the terms and conditions of an Emergency Pollution Permit issued pursuant to 10 V.S.A. § 1268. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the activity in order to maintain compliance with the conditions of this permit.

6. Duty to Mitigate

The Permittee shall take all reasonable steps to minimize or prevent any adverse impact to waters of the State, the environment, or human health resulting from non-compliance with any condition specified in this permit, including accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge.

7. Records Retention

All records and information resulting from the monitoring activities required by this permit including all records of analyses performed, all calibration and maintenance of instrumentation records and all original 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 shall be retained for a minimum of three years, and

shall be submitted to the Secretary upon request. This period shall be extended during the course of unresolved litigation regarding the discharge of pollutants or when requested by the Secretary.

8. Emergency Pollution Permits

Maintenance activities, or emergencies resulting from equipment failure or malfunction, including power outages, which result in an effluent which exceeds the effluent limitations specified herein, shall be considered a violation of the conditions of this permit, unless the Permittee's discharge is covered under an emergency pollution permit under the provisions of 10 V.S.A. § 1268. The Permittee shall notify the Secretary of the emergency situation by the next working day, unless notice is required sooner under Section II.A.2.

10 V.S.A. § Section 1268 reads as follows:

When a discharge permit holder finds that pollution abatement facilities require repairs, replacement or other corrective action in order for them to continue to meet standards specified in the permit, he may apply in the manner specified by the secretary for an emergency pollution permit for a term sufficient to effect repairs, replacements or other corrective action. The Secretary shall proceed in accordance with chapter 170 of this title. No emergency pollution permit shall be issued unless the applicant certifies and the secretary finds that:

- (1) there is no present, reasonable alternative means of disposing of the waste other than by discharging it into the waters of the state during the limited period of time of the emergency;
- (2) the denial of an emergency pollution permit would work an extreme hardship upon the applicant;
- (3) the granting of an emergency pollution permit will result in some public benefit;
- (4) the discharge will not be unreasonably harmful to the quality of the receiving waters;
- (5) the cause or reason for the emergency is not due to willful or intended acts or omissions of the applicant.

Application shall be made to the Secretary at the following address: Agency of Natural Resources, Department of Environmental Conservation, One National Life Drive, Main Building, 2nd Floor, Montpelier VT 05620-3522.

B. RESPONSIBILITIES

1. Right of Entry

The Permittee shall allow the Secretary or authorized representative, upon the presentation of proper credentials:

- a) To 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) To have access to and copy, at reasonable times, any records required to be kept under the terms and conditions of this permit;
- c) To inspect, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
- d) To 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.

2. Transfer of Ownership or Control

This permit is not transferable without prior written approval of the Secretary. All application and operating fees must be paid in full prior to transfer of this permit. In the event of any change in control or ownership of facilities from which the authorized discharges emanate, the Permittee shall provide a copy of this permit to the succeeding owner or controller and shall send written notification of the change in ownership or control to the Secretary **at least 30 days in advance of the proposed transfer date**. The notice to the Secretary shall include a written agreement between the existing and new Permittees containing a specific date for transfer of permit responsibility, coverage, and liability between them. The Permittee shall also inform the prospective owner or operator of their responsibility to make an application for transfer of this permit.

This request for transfer application must include as a minimum:

- a) A properly completed application form provided by the Secretary and the applicable processing fee.
- b) A written statement from the prospective owner or operator certifying:
 - i. The conditions of the operation that contribute to, or affect, the discharge will not be materially different under the new ownership;
 - ii. The prospective owner or operator has read and is familiar with the terms of the permit and agrees to comply with all terms and conditions of the permit; and
 - iii. The prospective owner or operator has adequate funding to operate and maintain the treatment system and remain in compliance with the terms and conditions of the permit.
- c) The date of the sale or transfer.

The Secretary may require additional information dependent upon the current status of the facility operation, maintenance, and permit compliance.

3. Confidentiality

Pursuant to 10 V.S.A. § 1259(b):

Any records or information obtained under this permit program that constitutes trade secrets under 1 V.S.A. § 317(c)(9) shall be kept confidential, except that such records or information may be disclosed to authorized representatives of the State and the United States when relevant to any proceedings under this chapter.

Claims for confidentiality for the following information will be denied:

- a) The name and address of any permit applicant or Permittee.
- b) Permit applications, permits, and effluent data.
- c) Information required by application forms, including information submitted on the forms themselves and any attachments used to supply information required by the forms.

4. Permit Modification, Suspension, and Revocation

After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including the following:

- a) Violation of any terms or conditions of this permit;
- b) Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;
- c) Reallocation of WLA under the LC TMDL;
- d) Development of an integrated WWTF and stormwater runoff NPDES permit; or
- e) A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge.

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 shall not stay any permit condition.

The Permittee shall provide to the Secretary, within a reasonable time, any information which the Secretary 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 Secretary upon request, copies of records required to be kept by this permit.

5. Toxic Effluent Standards

If a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under section 307(a) of the Clean Water Act for a toxic pollutant which is present in the Permittee's discharge and such standard or prohibition is more stringent than any limitation upon such pollutant in this permit, then this permit shall be modified or revoked and reissued, pursuant to Condition II.B.4 of this permit, in accordance with the toxic effluent standard or prohibition and the Permittee so notified.

6. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of legal action or relieve the Permittee from any responsibilities, liabilities, or penalties to which the Permittee is or may be subject under 10 V.S.A. § 1281.

7. Other Materials

Other materials ordinarily produced or used in the operation of this facility, which have been specifically identified in the application, may be discharged at the maximum frequency and maximum level identified in the application, provided:

- a) They are not:
 - i. Designated as toxic or hazardous under provisions of Sections 307 and 311, respectively, of the Clean Water Act, or
 - ii. Known to be hazardous or toxic by the Permittee,

except that such materials indicated in (i) and (ii) above may be discharged in certain limited amounts with the written approval of, and under special conditions established by, the Secretary or his/her designated representative, if the substances will not pose any imminent hazard to the public health or safety;
- b) The discharge of such materials will not violate the Vermont Water Quality Standards; and
- c) The Permittee is not notified by the Secretary to eliminate or reduce the quantity of such materials entering the water.

8. Navigable Waters

This permit does not authorize or approve the construction of any onshore or offshore physical structures or facilities or the undertaking of any work in any navigable waters.

9. Civil and Criminal Liability

The Permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. Except as provided in "Bypass" (Condition II.A.5) and "Emergency Pollution Permits" (Condition II.A.9), nothing in this permit shall be construed to relieve the Permittee from civil or criminal penalties for noncompliance. Civil and criminal penalties for non-compliance are provided for in 10 V.S.A. Chapters 47, 201, and 211.

10. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the Permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by Section 510 of the Clean Water Act.

11. Property Rights

Issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.

12. Other Information

If 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 Secretary, it shall promptly submit such facts or information.

13. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

14. Authority

This permit is issued under authority of 10 V.S.A. §§1258 and 1259 of the Vermont Water Pollution Control Act, the Vermont Water Pollution Control Permit Regulation, and Section 402 of the Clean Water Act, as amended.

15. Definitions

For purposes of this permit, the following definitions shall apply.

Agency – means the Vermont Agency of Natural Resources.

Annual Average - means the highest allowable average of daily discharges calculated as the sum of all daily discharges (mg/L, lbs or gallons) measured during a calendar year divided by the number of daily discharges measured during that year.

Average - means the arithmetic means of values taken at the frequency required for each parameter over the specified period.

Bypass – means the intentional diversion of waste streams from any portion of the treatment facility.

The Clean Water Act - means the federal Clean Water Act, as amended (33 U.S.C. § 1251, *et seq.*).

Composite Sample - means a sample consisting of a minimum of one grab sample per hour collected during a 24-hour period (or lesser period as specified in the section on Monitoring and Reporting) and combined proportionally to flow over that same time period.

Daily Discharge - means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling.

For pollutants with limitations expressed in pounds the daily discharge is calculated as the total pounds of pollutants discharged over the day.

For pollutants with limitations expressed in mg/L the daily discharge is calculated as the average measurement of the pollutant over the day.

Discharge – means the placing, depositing, or emission of any wastes, directly or indirectly, into an injection well or into the waters of the State.

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

Incompatible Substance – means any waste being discharged into the treatment works which interferes with, passes through without treatment, or is otherwise incompatible with said works or would have a substantial adverse effect on the works or on water quality. This includes all pollutants required to be regulated under the Clean Water Act.

Instantaneous Maximum - means a value not to be exceeded in any grab sample.

Major Contributing Industry – means one that: (1) has a flow of 50,000 gallons or more per average work day; (2) has a flow greater than five percent of the flow carried by the municipal system receiving the waste; (3) has in its wastes a toxic pollutant in toxic amounts as defined in standards issued under Section 307(a) of the Clean Water Act; or (4) has a significant impact, either singly or in combination with other contributing industries, on a treatment works or on the quality of effluent from that treatment works.

Maximum Day (maximum daily discharge limitation) - The highest allowable “daily discharge” (mg/L, lbs or gallons).

Mean - is the arithmetic mean.

Monthly Average (average monthly discharge limitation) – means the highest allowable average of daily discharges (mg/L, lbs or gallons) over a calendar month, calculated as the sum of all daily discharges (mg/L, lbs or gallons) measured during a calendar month divided by the number of daily discharges measured during that month.

NPDES - The National Pollutant Discharge Elimination System.

Secretary – means the Secretary of the Agency of Natural Resources or the Secretary’s duly authorized representative.

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.

Untreated Discharge – means (1) combined sewer overflows from a WWTF; (2) overflows from sanitary sewers and combined sewer systems that are part of a WWTF during dry weather flows, which result in a discharge to waters of the State; (3) upsets or bypasses around or within a WWTF during dry or wet weather conditions that are due to factors unrelated to a wet weather storm event and that result in a discharge of sewage that has not been fully treated to waters of the State; and (4) discharges from a WWTF to separate storm sewer systems.

Waste – means effluent, sewage or any substance or material, liquid, gaseous, solid, or radioactive, including heated liquids, whether or not harmful or deleterious to waters.

Waste Management Zone – A specific reach of Class B waters designated by a permit to accept the discharge of properly treated wastes that prior to treatment contained organisms pathogenic to human beings. Throughout the receiving waters, water quality criteria must be achieved but increased health risks exist in a waste management zone due to the authorized discharge.

Waters includes all rivers, streams, creeks, brooks, reservoirs, ponds, lakes, springs, and all bodies of surface waters, artificial or natural, which are contained within, flow through, or border upon the State or any portion of it.

Weekly average - (average weekly discharge limitation) – means the highest allowable average of daily discharges (mg/L, lbs or gallons) over a calendar week, calculated as the sum of all daily discharges (mg/L, lbs or gallons) measured during a calendar week divided by the number of daily discharges measured during that week.

WWTF or wastewater treatment facility shall have the same meaning as “pollution abatement facilities,” as defined under 10 V.S.A. § 1251, which means municipal sewage treatment plants, pumping stations, interceptor and outfall sewers, and attendant facilities as prescribed by the Department to abate pollution of the waters of the State.

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WATERSHED MANAGEMENT DIVISION
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MONTPELIER, VT 05620-3522

**FACT SHEET FOR DRAFT PERMIT
(July 2018)**

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO
DISCHARGE TO WATERS OF THE STATE**

PERMIT NO: 3-1131
PIN: NS09-0106
NPDES NO: 0000141

NAME AND ADDRESS OF APPLICANT:

Imerys Talc Vermont, Inc.
73 East Hill Rd
Ludlow, VT 05149

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Imerys Talc – Hammondsville Mine
Vermont Route 106
Reading, Vermont

RECEIVING WATER: Reading Hill Brook

CLASSIFICATION: All uses Class B. Class B waters are suitable for swimming and other primary contact recreation; irrigation and agricultural uses; aquatic biota and aquatic habitat; good aesthetic value; boating, fishing, and other recreational uses; and suitable for public water source with filtration and disinfection or other required treatment.

I. Proposed Action, Type of Facility, and Discharge Location

The Secretary of the Vermont Agency of Natural Resources (Secretary) received an application for the permit to discharge into the designated receiving water from the above-named applicant on May 17, 2018. At this time, the Secretary has made a tentative decision to issue the discharge permit.

The discharge is from a closed talc mine pit that has filled with storm and groundwater.

The following map shows the location of the mine pit lake, approximate outfall location, and the receiving water.



II. Description of Discharge

The proposed discharge is from the dewatering of the former Hammondsville Talc Mine pit to reduce pressure on an earthen dam separating the pit from the Reading Hill Brook. Dewatering will occur in two phases, the initial dewatering to reduce the pit level by 5 to 6 feet (equating to a discharge of approximately 300,000 cubic feet or 2.24 MG), and the subsequent stormwater and groundwater discharge that will occur over a spillway to be constructed once the initial dewatering is complete. Based on Imerys in-house monitoring data from 1998 to 2016, Nickel and Copper have been detected at levels that may exceed Vermont Water Quality Criteria.

III. Limitations and Conditions

The draft permit contains limitations for effluent flow and monitoring requirements for Turbidity, Hardness, Total Phosphorus, Total Nitrogen, Priority Pollutant Metals (Ag, As, Be, Cd, Cr, Cu,

Hg, Ni, Pb, Sb, Se, Ti, Zn), and pH. The effluent limitations of the draft permit and the monitoring requirements may be found on the following pages of the draft permit:

Effluent Limitations: Pages 2-4 of 16

Monitoring Requirements: Pages 2-7 of 16

IV. Statutory and Regulatory Authority

A. Clean Water Act and NPDES Background

Congress enacted the Clean Water Act (CWA or Act), “to restore and maintain the chemical, physical, and biological integrity of the Nation's waters.” CWA § 101(a). To achieve this objective, the CWA makes it unlawful for any person to discharge any pollutant into the waters of the United States from any point source, except as authorized by specified permitting sections of the Act, one of which is Section 402. CWA §§ 301(a), 402(a). Section 402 establishes one of the CWA's principal permitting programs, the National Pollutant Discharge Elimination System (NPDES). Under this section of the Act, the U.S. Environmental Protection Agency (EPA) may “issue a permit for the discharge of any pollutant, or combination of pollutants” in accordance with certain conditions. CWA § 402(a). The State of Vermont has been approved by the EPA to administer the NPDES Program in Vermont. NPDES permits generally contain discharge limitations and establish related monitoring and reporting requirements. CWA § 402(a)(1) - (2).

Section 301 of the CWA provides for two types of effluent limitations to be included in NPDES permits: “technology-based” limitations and “water quality-based” limitations. CWA §§ 301, 303, 304(b); 40 CFR Parts 122, 125, 131. Technology-based limitations, generally developed on an industry-by-industry basis, reflect a specified level of pollutant-reducing technology available and economically achievable for the type of facility being permitted. CWA § 301(b). As a class, WWTFs must meet performance-based requirements based on available wastewater treatment technology. CWA § 301(b)(1)(B). The performance level for WWTFs is referred to as “secondary treatment.” Secondary treatment is comprised of technology-based requirements expressed in terms of BOD5, TSS and pH; 40 C.F.R. Part 133.

Water quality-based effluent limits, on the other hand, are designed to ensure that state water quality standards are achieved, irrespective of the technological or economic considerations that inform technology-based limits. Under the CWA, states must develop water quality standards for all water bodies within the state. CWA § 303. These standards have three parts: (1) one or more “designated uses” for each water body or water body segment in the state; (2) water quality “criteria,” consisting of numerical concentration levels and/or narrative statements specifying the amounts of various pollutants that may be present in each water body without impairing the designated uses of that water body; and (3) an antidegradation provision, focused on protecting high quality waters and protecting and maintaining water quality necessary to protect existing uses. CWA § 303(c)(2)(A); 40 C.F.R. § 131.12. The applicable water quality standards for this permit are the 2017 Vermont Water Quality Standards (Environmental Protection Rule, Chapter 29a).

A permit must include limits for any pollutant or pollutant parameter (conventional, non-conventional, toxic, and whole effluent toxicity) that is or may be discharged at a level that causes or has "reasonable potential" to cause or contribute to an excursion above any water quality

standard, including narrative water quality criteria. See 40 CFR §122.44(d)(1). An excursion occurs if the projected or actual in-stream concentration exceeds the applicable criterion. A NPDES permit must contain effluent limitations and conditions in order to ensure that the discharge does not cause or contribute to water quality standard violations.

Receiving stream requirements are established according to numerical and narrative standards adopted under state law for each stream classification. When using chemical-specific numeric criteria from the State's water quality standards to develop permit limits, both the acute and chronic aquatic life criteria are used and expressed in terms of maximum allowable in stream pollutant concentrations. Acute aquatic life criteria are generally implemented through maximum daily limits and chronic aquatic life criteria are generally implemented through average monthly limits.

Where a state has not established a numeric water quality criterion for a specific chemical pollutant that is present in the effluent in a concentration that causes or has a reasonable potential to cause a violation of narrative water quality standards, 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 Section 304(a) recommended water quality criteria, supplemented as necessary by other relevant information; or, in certain circumstances, based on an "indicator parameter." 40 CFR § 122.44(d)(1)(vi)(A-C).

The state rules governing Vermont's NPDES permit program are found in the Vermont Water Pollution Control Permit Regulations (Environmental Protection Rule, Chapter 13).

1. Reasonable Potential Determination

In determining whether this permit has the reasonable potential to cause or contribute to an impairment, Vermont has considered:

- 1) Existing controls on point and non-point sources of pollution as evidenced by the Vermont surface water assessment database;
- 2) Pollutant concentration and variability in the effluent as determined from the permit application materials, monthly discharge monitoring reports (DMRs), or other facility reports;
- 3) Receiving water quality based on targeted water quality and biological assessments of receiving waters, as applicable, or other State or Federal water quality reports;
- 4) Toxicity testing results based on the Vermont Toxic Discharge Control Strategy, and compelled as a condition of prior permits;
- 5) Available dilution of the effluent in the receiving water, expressed as the instream waste concentration. In accordance with the applicable Vermont Water Quality Standards, available dilution for rivers and streams is based on a known or estimated value of the lowest average flow which occurs for seven (7) consecutive days with a recurrence

interval of once in ten (10) years (7Q10) for aquatic life and human health criteria for non-carcinogens, or at all flows for human health (carcinogens only) in the receiving water. For nutrients, available dilution for stream and river discharges is assessed using the low median monthly flow computed as the median flow of the month containing the lowest annual flow. Available dilution for lakes is based on mixing zones of no more than 200 feet in diameter, in any direction, from the effluent discharge point, including as applicable the length of a diffuser apparatus; and

- 6) All effluent limitations, monitoring requirements, and other conditions of the proposed draft permit.

The Reasonable Potential Determination for this facility was waived due to the size and nature of the discharge. The waiver memorandum is attached to this Fact Sheet as Attachment A.

B. Anti-Backsliding

Section 402(o) of the CWA provides that certain effluent limitations of a renewed, reissued, or modified permit must be at least as stringent as the comparable effluent limitations in the current permit. EPA has also promulgated anti-backsliding regulations which are found at 40 C.F.R. § 122.44(l). Unless applicable anti-backsliding exemptions are met, the limits and conditions in the reissued permit must be at least as stringent as those in the current permit.

V. Description of Receiving Water

The receiving water for this discharge is the Reading Hill Brook, a designated Cold-Water Fish Habitat. At the point of discharge, the river has a contributing drainage area of 3.8 square miles. The summer 7Q10 flow of the river is estimated to be 0.132 cubic feet per second (CFS). Based on a discharge of 150 GPM (0.334 CFS), the instream waste concentration at the summer 7Q10 flow is 0.7167 (71.7%).

VI. Facility History and Background

Imerys Talc owns and mined talc at the Hammondsville Mine (the mine), located on Route 106 in Reading, Vermont (Lat: 43.49165 Long: -72.55265). The mine formerly operated under Discharge Permit #3-1131 which was allowed to expire in 1993 when the mine was closed after approximately 30 years of operation. The site has not been operated as a mine since the end of November 1992.

As a Condition of Act 250 Land Use Permit 2S0488, Imerys Talc is required to reclaim the former Hammondsville Mine. The former mine pit (henceforth referred to as “the pit”) is approximately 1.75 acres at normal levels and is fed by stormwater and groundwater. An earthen embankment was originally constructed along the outer perimeter of the open pit mine as an informal levee to separate storm flows from the adjacent Reading Hill Brook from the mine. However, now that the pit has filled with water, the embankment functions as a dam, impounding the pond and preventing it from flowing into Reading Hill Brook. Depth soundings of the bottom of the pit lake have indicated a maximum depth of 42 feet.

The dam is approximately 450 feet long and 10 feet in height, with an approximately 350-foot-long segment along the western side of the pond parallel with Reading Hill Brook and approximately 100-foot-long segment along the southern side of the pond. There are several small pipes that provide drainage through the dam, but no formal spillways or outlet works. The State of Vermont Dam Safety Program has classified the dam as a low hazard, meaning that in the event of a failure, neither loss of life nor significant economic loss is anticipated. The dam is considered jurisdictional by the Dam Safety Program and alterations or removal will require a design and application be prepared by a Vermont registered Professional Engineer experienced in dam removal for review and approval by the Dam Safety Program.

Based on an aerial topographic map of the pit lake with a 2-foot contour interval, the berm crest is at elev. 980 feet. To reduce pressure on the dam, the pit level is to be reduced via siphon and a spillway constructed to keep the water level below an elevation of 975 ± 2 feet. Pollutants of concern were detected in the pit water during routine monitoring from 1998 to 2016. Testing done on November 2, 2017 on pit water at multiple depths indicated Turbidity and Nickel concentrations exceeding the VWQS at depths of 30 and 40 feet.

The discharge permit authorizes discharge for an initial drawdown period as well as the overflow via spillway, which is to be constructed during the term of the permit.

VII. Permit Basis and Explanation of Effluent Limitation Derivation

This permit was evaluated under the 2017 Vermont Water Quality Standards

A. Flow – The draft permit sets a Maximum Day flow limitation of **0.216 MGD**, with an instantaneous Maximum of **150 GPM** for the initial drawdown period. Based on this flow and the 7Q10 of the Reading Hill Brook, the discharge will not lead to exceedance of the VWQS for Nickel or Copper. Following the initial drawdown, the instantaneous maximum for effluent flow is set to 150 GPM to maintain a limit that is protective of the receiving water with regard to Copper.

B. Conventional Pollutants

1. pH – The pH limitation is 6.5 - 8.5 Standard Units as specified in Section 29A-303(6) in the Vermont Water Quality Standards. Monitoring is required daily during initial drawdown and quarterly once the initial drawdown is complete.

C. Non-Conventional and Toxics

1. Total Phosphorus (TP) and Total Nitrogen (TN)

Per the US EPA, excess nitrogen (N) and phosphorus (P) are the leading cause of water quality degradation in the United States. Historically nutrient management focused on limiting a single nutrient—phosphorus or nitrogen—based on assumptions that production is usually phosphorus limited in freshwater and nitrogen limited in marine waters. Scientific research demonstrates this is an overly simplistic model. The evidence clearly indicates management of

both phosphorus and nitrogen is necessary to protect water quality. The literature shows that aquatic flora and fauna have differing nutrient needs, some are P dependent, others N dependent and others are co-dependent on these two nutrients.

Like P, N promotes noxious aquatic plant and algal growth. High concentrations of P and N together cause greater growth of algae than P alone. The relative abundance of these nutrients also influences the type of species within the community. Furthermore, a high N-to-P ratio may exacerbate the growth of cyanobacteria, while elevated levels of nitrogen increase toxicity in some cyanobacteria species. Given the dynamic nature of all aquatic ecosystems, for the State to fully understand the degradation to water quality it is necessary to limit P and monitor bioavailable N (including nitrate, ammonium, and certain dissolved organic nitrogen compounds). TN is a calculated value based on Total Kjeldahl Nitrogen (TKN) and Nitrate/Nitrite (NO_x) Nitrogen. The sum of TKN and NO_x shall be used to derive TN.

Monitoring for TP and TN is required monthly during initial drawdown.

For more information, see:

<https://www.epa.gov/sites/production/files/documents/nandpfactsheet.pdf>.

2. **Turbidity** – The permittee has a limit of 10 NTU and must monitor daily during the initial drawdown period and quarterly once the initial drawdown is complete. Pit lake data collected 11/2/2017 indicate turbidity increases at depth, with 14.7 NTU observed at 30 ft and a maximum of 25.5 NTU observed at 40 ft. These data are attached to this fact sheet as Attachment B.
3. **Priority Pollutant Metals** –by mining desirable materials, such as talc, undesired metals may leach from rock exposed to weathering and occur above the VWQS levels. Pit lake data collected 11/2/2017 indicate Nickel and Copper may be present in concentrations that exceed the 2017 VWQS (see Attachment B). The flow limit has been set with these metals in mind to assure concentrations in the Reading Hill Brook do not exceed VWQS. To determine if these metal concentrations are varying over the time of the discharge, monitoring is required twice per discharge during the initial drawdown period and annually thereafter. Samples must be taken to be representative of the beginning and end of the discharge period.

Regarding the methods used for metal detection, as the Cu acute criteria is 20 µg/L at a hardness of 150 mg/L-CaCO₃ (pit lake and receiving water mixed), the permittee must ensure the method used for the quantification of Copper has a detection limit of 10 µg/L-Cu or lower. This is specified in Special Condition I.B.4.

4. **Hardness** – In order to determine if the priority pollutant metals concentrations are within the Vermont Water Quality Standards, the hardness of the same sample obtained for priority pollutant metals shall be determined. Monitoring is required twice per discharge during the initial drawdown period and annually thereafter.

D. Special Conditions

1. Condition I.B.1 requires the permittee to notify the Secretary in writing, preferably by email, 2 weeks prior to the beginning of drawdown operations.
2. Condition I.B.2 requires the permittee to provide a report the Secretary within 1 month of the conclusion of drawdown that proves the dates the drawdown started and ended and the daily flow monitoring and laboratory reports for the discharge during the drawdown.
3. Conditions I.B.4 requires the permittee to use a test method for Copper with a minimum detection limit of 10 µg/L-Cu or lower in order to assure compliance with the Vermont Waste Quality Standards.
4. Condition I.B.5 requires a quarterly inspection of downgradient areas for erosion and the immediate rectification of any erosion issues due to this discharge.
5. Condition I.B.6 requires the permittee to implement a spill prevention plan to assure fuel or chemicals that may be used onsite do not enter the discharge.
6. Condition I.B.7 requires the dates of maintenance and inspections to be reported on the appropriate discharge monitoring report (WR-43).
7. **Electronic Reporting** - The EPA recently promulgated a final rule to modernize the Clean Water Act reporting for municipalities, industries, and other facilities by converting to an electronic data reporting system. The final rule requires the inclusion of electronic reporting requirements in NPDES permits that become effective after December 21, 2015. The rule requires that NPDES regulated entities that are required to submit discharge monitoring reports (DMRs), including majors and nonmajors, individually permitted or covered by a general permit, must do so electronically after December 2016. The Secretary has created an electronic reporting system for DMRs and has recently trained facilities in its use. As of December 2020, these NPDES facilities will also be expected to submit additional information electronically as specified in Appendix A in 40 CFR part 127.

A. Reasonable Potential Analysis

The Reasonable Potential Determination for this facility was waived due to the size and nature of the discharge. The waiver memorandum is attached to this Fact Sheet as Attachment A.

VIII. Procedures for Formulation of Final Determinations

The public comment period for receiving comments on this draft permit was from **August 1, 2018 through September 5, 2018**.

No comments were received during the public comment period

ATTACHMENT A

Agency of Natural Resources
Department of Environmental Conservation

Watershed Management Division
1 National Life Drive 2 Main
802-828-1535

MEMORANDUM

To: Amy Polaczyk, Wastewater Program (WWP)

From: Rick Levey, Monitoring, Assessment and Planning Program (MAPP) *Rick Levey 07/14/2018*

Cc: Pete LaFlamme, Director, (WSMD)
Jessica Bulova, Section Supervisor, Wastewater Program
Ethan Swift, Manager, MAPP

Date: July 14, 2018

Subject: Imerys Talc – Hammondsville Mine Reasonable Potential Determination Decision

Facility:

Imerys Talc – Hammondsville Mine
Permit No. 3-1131
NPDES No. 0000141

Hydrology for Imerys Talc – Hammondsville Mine:

Flow: 0.216 MGD (0.334 cfs)
Instantaneous Maximum: 150 GPM (0.334 cfs)
7Q10 = 0.132 cfs
IWC-7Q10 = 0.7167

Receiving Water:

Reading Hill Brook, Reading, VT
Location: 043.50804 / 072.548890

MAPP has evaluated the request to waive the Reasonable Potential Determination for the Imerys Talc - Hammondsville Mine and has determined that a full determination is not necessary due to the size and nature of the discharge. The receiving water is Reading Hill Brook, which is classified as Class B and is designated a Cold-Water Fish Habitat. At the point of discharge, the brook has a drainage area of 3.8 square miles. There are no permitted discharges upstream of this discharge.

The Imerys Talc – Hammondsville Mine is permitted to discharge 0.216 MGD (0.71 cfs) with instantaneous maximum of 150 GPM. The proposed discharge is from dewatering the former Hammondsville Talc Mine pit lake to reduce pressure on an earthen dam. The discharge will occur in two phases, the first will lower the Mine pit lake level 5 – 6 feet so that a spillway can be constructed; the second phase will be to discharge stormwater and groundwater as needed to maintain proper water level.

Water quality sampling of the pit lake and Reading Hill Brook has been conducted for analytes of concern. This water quality includes Priority Pollutant Metals (13), most recently sampling occurred on November 2, 2017. Water Chemistry results indicate that contaminants of concern are limited to copper and nickel. Nickel concentrations within the pit lake at some depths are slightly higher than the Vermont Water Quality Standards (VWQS) chronic criteria (51 µg/L-Ni) to protect Aquatic Biota. However, the nickel concentrations observed are significantly lower than the acute criteria of 456 µg/L-Ni and the draft permit limits and monitoring requirements will ensure Reading Hill Brook surface waters maintain compliance with VWQS most stringent chronic criteria.

To illustrate that the draft permit will be protective of VWQS, using the maximum nickel concentration observed in the pit lake of 53µg/L-Ni, at maximum permitted discharge flow of 150 GPM would result in Reading Hill Brook receiving water concentration (0.716 IWC X 53 µg/L-Ni) of 37.9 µg/L-Ni; below the VWQS chronic criteria. These conditions also reflect using the 7Q10 critical flow for Reading Hill Brook, which represents summer low flow conditions that occur at a frequency of once every 10 years for 7 consecutive days.

Additionally, the monitoring requirements within the draft permit will ensure continued compliance with VWQS, weekly Priority Metals sampling will be conducted during the initial drawdown period. Annual monitoring will be conducted after the drawdown period.

Considering this factor, MAPP concurs with the Wastewater Program that this facility and its discharge as currently operated and permitted, does not have the potential to cause measurable change in the receiving water.

ATTACHMENT B

IMERYS TALC VERMONT, Inc.
Hammondsville Mine
Pit Lake and Receiving Stream Water Quality Monitoring - Table 1

Parameter: (Unless Noted)	VWQS (ppb Unless Noted)				11/2/17 SAMPLE RESULTS (ppb Unless Noted)					
	HUMAN HEALTH & GENERAL CRITERIA		MAC ₂	AAC _{2,3}	Pit Lake	Pit Lake	Pit Lake	Pit Lake	Reading Hill Brook	Reading Hill Brook
	Water & Organisms	Organisms Only	(ppb Unless Noted)	(ppb Unless Noted)	Depth 10 Ft.	Depth 20 Ft.	Depth 30 Ft.	Depth 40 Ft.	Upstream	Downstream
Hardness (ppm) ₂	--	--	97 ppm	97 ppm	192 ppm	193 ppm	233 ppm	230 ppm	96 ppm	97 ppm
Nitrate (ppm)	5 ppm	5 ppm	--	--	< 0.020 ppm	< 0.020 ppm	< 0.020 ppm	< 0.020 ppm	0.14 ppm	0.14 ppm
Nitrite (ppm)	--	--	--	--	< 0.020 ppm	< 0.020 ppm	< 0.020 ppm	< 0.020 ppm	< 0.020 ppm	< 0.020 ppm
TSS (ppm)	10 ppm	10 ppm	10 ppm	10 ppm	< 2.2 ppm	< 2.1 ppm	< 2.2 ppm	< 2.1 ppm	< 2.2 ppm	< 2.2 ppm
Sulfate (ppm)	--	--	--	--	110 ppm	110 ppm	120 ppm	120 ppm	7.9 ppm	8.6 ppm
Turbidity (NTU)	10 NTU	10 NTU	10 NTU	10 NTU	1.06 NTU	2.26 NTU	14.7 NTU	25.5 NTU	0.64 NTU	0.69 NTU
Antimony (ppb)	5.6	640	--	--	< 2	< 2	< 2	< 2	< 2	< 2
Arsenic (ppb)	0.02	1.5	340	150	3.6	6.8	13.9	18.6	< 1	< 1
Beryllium (ppb)	--	--	--	--	< 1	< 1	< 1	< 1	< 1	< 1
Cadmium (ppb) ₁	--	--	1.74	0.70	< 2	< 2	< 2	< 2	< 2	< 2
Calcium (ppm)	--	--	--	--	62 ppm	62 ppm	75 ppm	74 ppm	34 ppm	34 ppm
Chromium III (ppb) ₁	--	--	556	72	< 5	< 5	< 5	< 5	< 5	< 0.5
Copper (ppb) ₁	--	--	13.1	8.7	< 20	< 20	< 20	< 20	< 20	< 20
Iron (ppb)	300	--	--	1000			Not Sampled			
Lead (ppb) ₁	--	--	62.5	2.4	< 1	< 1	1.2	< 1	< 1	< 1
Magnesium (ppm)	--	--	--	--	9.1 ppm	9.3 ppm	11 ppm	11 ppm	2.7 ppm	2.9 ppm
Mercury (ppb)	--	--	1.4	0.012	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Nickel (ppb) ₁	610	4600	456	50.7	44	42	51	53	< 5	< 5
Selenium (ppb)	170	4200	--	--	< 2	< 2	< 2	< 2	< 2	< 2
Silver (ppb) ₁	--	--	3.1	--	< 2	< 2	< 2	< 2	< 2	< 2
Thallium (ppb)	0.24	0.47	--	--	< 1	< 1	< 1	< 1	< 1	< 1
Zinc (ppb) ₁	--	--	114	115	< 20	< 20	< 20	< 20	< 20	< 20
pH (SU)	6.5 - 8.5 SU	6.5 - 8.5 SU	6.5 - 8.5 SU	6.5 - 8.5 SU	7.45 SU	7.38 SU	7.38 SU	7.43 SU	8.15 SU	8.35 SU
Temperature (Deg. F)	10	10	10	10	50.9 F	50.5 F	47.5 F	46.8 F	50.7 F	50.5 F
Conductivity (us/cm)	--	--	--	--	368 us/cm	420 us/cm	469 us/cm	469 us/cm	241 us/cm	243 us/cm

EXCEEDS STANDARD

1. VWQS "Water Effect Ratio" Aquatic Biota Criteria Based on Total Hardness
2. Receiving Water Hardness Downstream of Pit Lake
3. Appendix D Dissolved Metal Conversion Factors Applied to Hardness Dependent Metals