

AGENCY OF NATURAL RESOURCES
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
ONE NATIONAL LIFE DRIVE, DAVIS BUILDING, 3rd FLOOR
MONTPELIER, VT 05620-3522

Permit Number: **3-1580**

NPDES Number **VT0120120**

Permittee Name: **Town of Fairlee**

Permittee Address: **75 Town Common Rd.
Fairlee, VT 05045**

Approximate Discharge Lat: **43.9233** Long: **-72.15215**
Coordinates:

Facility Classification: **N/A**

Expiration Date: **12/31/2025**

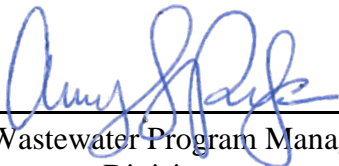
Reapplication Date: **6/30/2025**

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), the federal Clean Water Act as amended (33 U.S.C. § 1251 *et seq.*), and implementing federal regulations, the Town of Fairlee (hereinafter referred to as the “Permittee”) is authorized by the Secretary of the Agency of Natural Resources, Department of Environmental Conservation (hereinafter referred to as the “Secretary”) to discharge aluminum containing chemicals (hereinafter referred to as “alum”) from a boat (hereinafter referred to as the “Treatment System”) to Lake Morey in accordance with the following conditions.

This permit shall be effective on **5/1/2024**.

Julia S. Moore, Secretary
Agency of Natural Resources

By:



Date **4/30/2024**

Amy Polaczyk, Wastewater Program Manager
Watershed Management Division

I. PERMIT CONDITIONS

A. LIMITS AND MONITORING REQUIREMENTS

1. Discharge Point S/N 001, Treatment System: During the term of this permit, the Permittee is authorized to discharge from outfall S/N 001 of the Treatment System to Lake Morey, a discharge for which the characteristics shall be monitored as listed below.

Discharge Monitoring			
Constituent; Sampling Point and Sample Type	Season and Sampling Frequency	Limit 1	Limit 2
Flow; Continuous	Year Round Daily	Monitor Gallons Monthly Avg	Monitor Gallons Daily Max
Aluminum, Total	Year Round Daily	Monitor Only (mg/l)	Monitor Only (mg/l)

2. Water Column Monitoring Points:

Monitoring Point 002: Sector A

Monitoring Point 003: Sector B

Monitoring Point 004: Sector C

Monitoring Point 005: Sector D

During alum application, the Permittee is required to monitor the water column in the centroid of the treated area following all alum application that day. Composite samples shall be collected at 1-meter intervals starting at 1 meter below the surface and ending 1 meter above the lake bottom. The ambient water mixed with the alum treatment chemicals shall be monitored according to and comply with the table below.

Lake Profile Monitoring			
Constituent; Sampling Point and Sample Type	Season and Sampling Frequency	Limit 1	Limit 2
Aluminum, Total; Lake Morey; Composite	Year Round Daily	0.380 mg/l Weekly Avg	1.000 mg/l Daily Max

3. 1 Meter Below Water Surface Monitoring Points:

Monitoring Point 006: Sector A

Monitoring Point 007: Sector B

Monitoring Point 008: Sector C

Monitoring Point 009: Sector D

During alum application, the Permittee is required to monitor the water column at 1 meter below the water surface in the centroid of the treated area following all alum application that day. The ambient water mixed with the alum treatment chemicals shall comply with the table below.

Constituent; Sampling Point and Sample Type	Season and Sampling Frequency	Limit 1	Limit 2	Limit 3
pH; Lake Morey; Grab	Year Round Daily	6.5 SU Instantaneous Min	8.5 SU Instantaneous Max	
Turbidity; Lake Morey; Grab	Year Round Daily			Monitor NTU Weekly Avg
Temperature; Lake Morey; Grab	Year Round Daily			Monitor Deg. C Instantaneous Max
Dissolved Organic Carbon; Lake Morey; Grab	Year Round Daily			Monitor mg/l Instantaneous Max
Total Hardness; Lake Morey; Grab	Year Round Daily			Monitor mg/l Instantaneous Max
Aluminum, Total; Lake Morey; Grab	Year Round Daily			Monitor mg/l Instantaneous Max

4. 10 meters below water surface Monitoring Points:**Monitoring Point 010: Sector A****Monitoring Point 011: Sector B****Monitoring Point 012: Sector C****Monitoring Point 013: Sector D**

During alum application, the Permittee is required to monitor the water column 10 meters below the water surface in the centroid of the treated area following all alum application that day. The ambient water mixed with the alum treatment chemicals shall comply with the table below.

Constituent; Sampling Point and Sample Type	Season and Sampling Frequency	Limit 1	Limit 2	Limit 3
pH; Lake Morey; Grab	Year Round Daily	6.5 SU Instantaneous Min	8.5 SU Instantaneous Max	
Turbidity; Lake Morey; Grab	Year Round Daily			Monitor NTU Weekly Avg
Temperature; Lake Morey; Grab	Year Round Daily			Monitor Deg. C Instantaneous Max
Dissolved Organic Carbon; Lake Morey; Grab	Year Round Daily			Monitor mg/l Instantaneous Max
Total Hardness; Lake Morey; Grab	Year Round Daily			Monitor mg/l Instantaneous Max

5. Near Bottom Sampling Points:**Monitoring Point 014: Sector A****Monitoring Point 015: Sector B****Monitoring Point 016: Sector C****Monitoring Point 017: Sector D**

During alum application, the Permittee is required to monitor the water column at 1 meter above the sediment surface in the centroid of the treated area following all alum application that day.

The ambient water mixed with the alum treatment chemicals shall comply with the table below.

Constituent; Sampling Point and Sample Type	Season and Sampling Frequency	Limit 1	Limit 2	Limit 3
pH; Lake Morey; Grab	Year Round Daily	6.5 SU Instantaneous Min	8.5 SU Instantaneous Max	
Turbidity; Lake Morey; Grab	Year Round Daily			Monitor NTU Weekly Avg
Temperature; Lake Morey; Grab	Year Round Daily			Monitor Deg. C Instantaneous Max
Dissolved Organic Carbon; Lake Morey; Grab	Year Round Daily			Monitor mg/l Instantaneous Max
Total Hardness; Lake Morey; Grab	Year Round Daily			Monitor mg/l Instantaneous Max
Aluminum, Total; Lake Morey; Grab	Year Round Daily			Monitor mg/l Instantaneous Max

6. Monitoring Point 018, Outlet Stream Monitoring: During the term of this permit, and following completion of all alum applications, the Permittee is required to monitor the outlet stream as described below. Grab samples shall be taken at the water surface at a point between the dam and Clubhouse Road. The ambient water mixed with the alum treatment chemicals shall comply with the table below.

Outlet Stream Monitoring				
Constituent; Sampling Point and Sample Type	Season and Sampling Frequency	Limit 1	Limit 2	Limit 3
Aluminum, Total; Grab	4/1 to 10/31 Monthly		0.380 mg/l Weekly Avg	1.000 mg/l Daily Max
pH; Grab	4/1 to 10/31 Monthly	6.5 SU Instantaneous Min	8.5 SU Instantaneous Max	
Turbidity; Grab	4/1 to 10/31 Monthly			Monitor NTU Weekly Avg
Temperature: Grab	4/1 to 10/31 Monthly			Monitor Deg. C Instantaneous Max
Dissolved Organic Carbon; Grab	4/1 to 10/31 Monthly			Monitor mg/l Instantaneous Max
Total Hardness; Grab	4/1 to 10/31 Monthly			Monitor mg/l Instantaneous Max

7. Discharge Special Conditions

- a) A mixing zone for aluminum extending from the discharge point to the lake bottom and 200 feet in all lateral directions from the discharge is established through this permit.
- b) The permittee shall implement the alum treatment as described in Attachment A to this permit. This permit authorizes one alum treatment as described in Attachment A during the permit term.
- c) At least 1 week before aluminum application the permittee shall inform all lakefront property owners of the dates of application and post signage at public access points around the lake

with a phone number that the public can use to ask questions and report impacts due to the treatment. These impacts could include any adverse effects to humans (e.g., skin rashes) or domesticated animals that occur either from direct contact with or as a secondary effect from a discharge (e.g., sickness from consumption of plants or animals containing the applied chemicals) to waters of the State that are temporally and spatially related to exposure to a chemical residue (e.g., vomiting, lethargy) in addition to any impacts on aquatic biota or water quality. The permittee shall submit to the DEC any such reports within 24 hours of receipt and maintain a log of all complaints and concerns to be provided as an attachment to form WR-43.

- d) Prior to application each day, the permittee shall monitor each zone to be treated for aluminum, turbidity, and pH. Samples shall be taken at least 1 meter below the water surface and be representative of the entire area to be treated. Application shall not commence unless pH is confirmed to be within the permitted limitations and background aluminum concentration would not cause or contribute to an exceedance of VWQS given the dosing regime planned for the day.
- e) During treatment, the Permittee shall report the aluminum concentration and the volume of treatment chemicals added daily as an attachment to form WR-43.
- f) All data generated shall be attached to form WR-43.
- g) Monitoring and reporting of the weekly average Turbidity is required for Monitoring Points 006-018. Compliance with the VWQS for Turbidity is based on an annual average, and therefore a limit of 25 NTU annual average for Turbidity applies. The annual average based on samples taken during treatment shall be calculated and reported for each outfall point (i.e., each Monitoring Point) individually and reported as an attachment to WR-43.
- h) If a violation of any of the limits listed in I.A.2- I.A.5 occurs, the Permittee shall immediately stop all treatment application and implement the procedures detailed in the OMERP plan required by Condition I.A.4.A. Application shall not restart until the lake is restored to comply with permitted limits and the Secretary has approved restarting of the application.
- i) This permit authorizes the application of aluminum based on phosphorus binding chemistry, for the purpose of binding phosphorus. No other chemicals are authorized for use. Increases in the dosing rates of alum used must be authorized by a permit amendment. Notification of application commencement, application postponement, and application completion shall be electronically transmitted to DEC within one day of the event.
- j) Application shall not occur if the NOAA National Weather Service forecasts sustained winds of 15 mph or higher shall occur on the day of application or a significant precipitation event (greater than 1 inch in 24 hours) shall occur during treatment or begin within 24 hours after treatment completion.

- k) The Permittee shall demonstrate the accuracy of the discharge flow measurement device weekly and report the results on the monthly report forms. The acceptable limit of error is $\pm 10\%$.
- l) Other than those arising from the application of alum for phosphorus treatment, the discharge shall be free from substances in kind or quantity that:
1. Settle to form sludge deposits or solid refuse
 2. Form settleable solids, floating solids, oil, grease, scum, or total suspended solids in such concentrations or combinations that would prevent the full support of uses
 3. Create odor, color, taste or turbidity that is not naturally occurring and would render the surface water unsuitable for its designated uses
 4. Cause a violation of the Vermont Water Quality Standards
- m) Monthly average flow shall be calculated by summing the daily discharged flow for each day in the given month and dividing the sum by the number of days of discharge in that month.
- n) Any action on the part of the Secretary in reviewing, commenting upon or approving plans and specifications for the application regime shall not relieve the Permittee from the responsibility to achieve limitations set forth in this permit and shall not constitute a waiver of, or act of estoppel against any remedy available to the Secretary, the State of Vermont or the federal government for failure to meet any requirement set forth in this permit or imposed by state or federal law.
- o) OPERATION MANAGEMENT AND EMERGENCY RESPONSE PLAN (OMERP)
1. The Permittee shall submit an Operation, Management, and Emergency Response Plan for the systems used to transport, store and distribute aluminum containing chemicals for review and approval **prior to discharge**. This plan should be submitted to ANR.WSMDWastewater@vermont.gov.
 2. The Plan shall be immediately implemented upon approval by the Secretary. The Permittee shall revise these plans upon the Secretary's request or on its own motion to reflect equipment or operational changes. This plan shall include:
 - i) Identification of those elements that are determined to be prone to failure based on installation, age, design, or other relevant factors.
 - ii) Identification of those elements identified under subdivision (a) of this subsection which, if one or more failed, would result in a significant release to surface waters of the State.
 - iii) The elements identified in subdivision (b) of this subsection shall be inspected in accordance with a schedule approved by the Secretary.

iv) An emergency contingency plan to reduce the volume of a detected spill and to mitigate the effect of such a spill on public health and the environment. The Permittee shall have procedures for expeditiously stopping, containing, and cleaning up leaks, spills, and other releases to waters of the State. Employees who may cause, detect, or respond to a spill or leak must be trained in these procedures and have necessary spill response equipment available for immediate deployment upon detection of a spill or exceedance of the Vermont Water Quality Standards.

p) MONITORING FOR BIOTIC IMPACTS AND WATER QUALITY VIOLATIONS

1. At least one freshwater aquatic biologist shall conduct a continuous survey of the lake and outlet stream during the times when alum is being discharged. Observational monitoring shall also be completed during daylight hours for 48 hours following application. No discharge shall be allowed in the absence of these monitors. The biological monitors shall look for signs that the alum treatment has impacted any biota. In the event that an impact is observed, or if any of the Permittee's staff or contractors are informed of an impact, all discharge activities shall be suspended immediately, and the permittee shall implement measures to mitigate the toxicity. Evidence of an impact includes, but is not limited to: distressed or dead biota of any size, or species, washed up or floating biota, biota swimming abnormally or erratically, biota lying lethargically at water surface or in shallow water, biota that are listless or nonresponsive to disturbance, stunting, wilting, or desiccation of any submerged or emergent aquatic plants, algae, or fungi, other dead or visibly distressed organisms (amphibians, turtles, mammals, birds, invertebrates, etc.). The monitors shall also look for and report any violations of the Vermont Water Quality Standards, including the presence of floatable solids, sheens, a visible plume or other factors which prevent any designated uses of the lake and outlet stream.

2. The permittee shall submit to the Secretary any reports of adverse impacts within 24 hours of receipt and submit surveys as an attachment to form WR-43.

II. GENERAL CONDITIONS

A. GENERAL REQUIREMENTS

1. 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 (Environmental Protection Rule, Chapter 13), and § 402 of the Clean Water Act, as amended.

2. Operating Fees

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

3. Duty to Comply

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.B.5) and “Emergency Pollution Permits” (Condition II.B.8), nothing in this permit shall be construed to relieve the Permittee from civil or criminal penalties for noncompliance.

4. Civil and Criminal Liability

Civil and criminal penalties for non-compliance are provided for in 40 C.F.R. § 122.41(a)(2)-(3) and 10 V.S.A. Chapters 47, 201, and 211. As of the effective date of this permit, the Vermont statutory penalties, which are subject to change, are as follows:

a. Pursuant to 10 V.S.A. Chapter 47, a civil penalty not to exceed \$10,000.00 a day for each day of violation.

b. Pursuant to 10 V.S.A. Chapter 47, a fine not to exceed \$25,000.00 or imprisonment for not more than six months, or both.

c. Pursuant to 10 V.S.A. Chapter 47, any person who knowingly makes any false statement, representation or certification in any application, record, report, plan, or other document filed or required to be maintained by this permit, or who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained by this permit, shall upon conviction, be punished by a fine of not more than \$10,000.00 or by imprisonment for not more than six months, or by both.

d. Pursuant to 10 V.S.A. Chapter 201, a penalty of not more than \$42,500.00 for each determination of a separate violation. In addition, if the Secretary determines that a violation is continuing, the Secretary may assess a penalty of not more than \$17,000.00 for each day the

violation continues. The maximum amount of penalty assessed under this provision shall not exceed \$170,000.00.

e. Pursuant to 10 V.S.A. Chapter 211, a civil penalty of not more than \$85,000.00 for each violation. In addition, in the case of a continuing violation, a penalty of not more than \$42,500.00 may be imposed for each day the violation continues.

5. Reopener Clause

In accordance with 40 C.F.R. § 122.44(c), this permit may be reopened and modified during the life of the permit to incorporate any applicable standard for sewage sludge use or disposal promulgated under section 405(d) of the Clean Water Act. The Secretary may promptly modify or revoke and reissue this permit if the standard for sewage sludge use or disposal is more stringent than any requirements for sludge use or disposal in the permit, or controls a pollutant or practice not limited in the permit.

6. Permit Modification, Suspension, and Revocation

Pursuant to 40 C.F.R. § 124.5, the Secretary may modify, revoke and reissue, or terminate for cause, in whole or in part, the authorization to discharge under this permit. These actions may be taken for the reasons specified in 40 C.F.R. § 122.62 (modification or revocation and reissuance) and § 122.64 (termination), including:

- a. There are material and substantial alterations or additions to the permitted facility or activity;
- b. New information is received that was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and would have justified the application of different permit conditions at the time of issuance;
- c. To correct technical mistakes, such as errors in calculation, or mistaken interpretations of law made in determining permit conditions;
- d. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;
- e. Reallocation of the WLA under the LC TMDL;
- f. Development of an integrated WWTF and stormwater runoff NPDES permit;
- g. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge; or
- h. Correction of any permit violation, including violations of Vermont Water Quality Standards.

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.

7. 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 § 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.A.6 of this permit, in accordance with the toxic effluent standard or prohibition and the Permittee so notified.

8. 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 their 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.

9. Removed Substances

Collected screenings, sludges, and other solids removed in the course of treatment and control of wastewaters shall be stored, treated, and disposed of in accordance with 10 V.S.A. Chapter 159 and with the terms and conditions of any certification, interim or final, transitional operation authorization, or order issued pursuant to 10 V.S.A. Chapter 159 that is in effect on the effective date of this permit or is issued during the term of this permit.

10. 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.

11. Duty to Provide Information

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.

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. 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.

14. 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 10 V.S.A. Chapter 47.

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.

15. 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.

16. 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.

17. 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.

18. Other 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.

B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper 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 properly operate and maintain in good working order all facilities and systems of treatment and control (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, consistent with the Operator Rule (Environmental Protection Rule, Chapter 4), which is duly qualified to carry out the operation, maintenance, and testing functions required to ensure compliance with the conditions of this permit;

2. 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. The Permittee shall also 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.

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 shall be extended during the course of unresolved litigation and may be extended by request of the Secretary at any time.

c. Records of monitoring information shall include:

(i) The date, exact place, and time of sampling or measurements;

(ii) The individual(s) who performed the sampling or measurements;

(iii) The date(s) analyses were performed;

(iv) The individual(s) who performed the analyses;

(v) The analytical techniques or methods used; and

(vi) The results of such analyses.

(vii) The records of monitoring activities and results, including all instrumentation and calibration and maintenance records;

(viii) 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

(ix) 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.

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

d. In accordance with 40 CFR § 122.44(i)(1)(iv), the Permittee shall monitor according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR Part 136 or required under 40 CFR chapter I, subchapter N or O, for the analysis of pollutants or pollutant parameters (except WET). A method is “sufficiently sensitive” when:

(i) 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

(ii) The method has the lowest ML of the analytical methods approved under 40 CFR Part 136 or required under 40 CFR chapter I, subchapter N or O for the measured pollutant or pollutant parameter. The term “minimum level” refers to either the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit (MDL), whichever is higher. Minimum levels may be obtained in several ways: They may be published in a method; they may be based on the lowest acceptable calibration point used by a laboratory; or they may be calculated by multiplying the MDL in a method, or the MDL determined by a laboratory, by a factor.

2. Quality Control

a. 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.

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

3. Right of Entry

The Permittee shall allow the Secretary, 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. 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.

D. REPORTING 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 advance notice to the Secretary of such changes. This notification applies to pollutants which are subject neither to effluent limitations in this permit, nor to notification requirements for toxic pollutants under 40 C.F.R. § 122.42(a)(1). Following such notice, the permit may be modified, pursuant to Condition II.A.6 of this permit, to specify and limit any pollutants not previously limited.

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,

the Permittee shall provide notice as specified in subdivisions c and d of this subsection.

c. Pursuant to 10 V.S.A. § 1295, notice for “untreated discharges,” as defined in section III.

(i) Public notice. For “untreated discharges” an operator of the WWTF or the operator’s delegate shall as soon as possible, but no longer than one hour from discovery of an untreated discharge from the WWTF, post on a publicly accessible electronic network, mobile application, or other electronic media designated by the Secretary an alert informing the public of the untreated discharge and its location, except that if the operator or his or her delegate does not have telephone or Internet service at the location where he or she is working to control or stop the untreated discharge, the operator or his or her delegate may delay posting the alert until the time that the untreated discharge is controlled or stopped, provided that the alert shall be posted no later than four hours from discovery of the untreated discharge.

(ii) Secretary notification. For “untreated discharges” an operator of the WWTF shall within 12 hours from discovery of an untreated discharge from the WWTF notify the Secretary and the local health officer of the municipality where the facility is located of the untreated discharge. The operator shall notify the Secretary through use of the Department of Environmental Conservation’s online event reporting system. If, for any reason, the online event reporting system is not operable, the operator shall notify the Secretary via telephone or e-mail. The notification shall include:

(a) The specific location of each untreated discharge, including the body of water affected. For combined sewer overflows, the specific location of each untreated discharge means each outfall that has discharges during the wet weather storm event.

(b) Except for discharges from the WWTF to a separate storm sewer system, the date and approximate time the untreated discharge began.

(c) The date and approximate time the untreated discharge ended. If the untreated discharge is still ongoing at the time of reporting, the entity reporting the untreated discharge shall amend the report with the date and approximate time the untreated discharge ended within three business days of the untreated discharge ending.

(d) Except for discharges from the WWTF to a separate storm sewer system, the approximate total volume of sewage and, if applicable, stormwater that was released. If the approximate total volume is unknown at the time of reporting, the entity reporting the untreated discharge shall amend the report with the approximate total volume within three business days.

(e) The cause of the untreated discharge and a brief description of the noncompliance, including the type of event and the type of sewer structure involved.

(f) The person reporting the untreated discharge.

(g) Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

d. For any non-compliance not covered under Condition II.D.3.c of this permit, an operator of the WWTF or the operator’s delegate 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 of becoming aware of such condition:

- (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.
- (vi) The Secretary may waive the written report on a case-by-case basis for reports under this section if the oral report has been received within 24 hours.

e. 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.

4. Planned Changes

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

- (i) 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
- (ii) 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).
- (iii) 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.

5. 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.

6. Monthly Reporting

a. The Permittee is required to submit monthly reports of monitoring results and operational parameters on Discharge Monitoring Report (DMR) form WR-43 or through an electronic reporting system made available by the Secretary. Reports are due on the 15th day of each month, beginning with the month following the effective date of this permit.

b. Unless waived by the Secretary, 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 electronic submittals are submitted through the State of Vermont Agency of Natural Resources' Online Services Portal, or its replacement.

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

7. Signature Requirements

a. All reports shall be signed:

(i) For a corporation. By a responsible corporate officer or a duly authorized representative of that person. For the purpose of this section, a responsible corporate officer means: (1) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (2) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

(ii) For a partnership or sole proprietorship. By a general partner or the proprietor, respectively; or

(iii) For a municipality, state, or other public agency. By either a principal executive officer or ranking elected official, or a duly authorized representative of that person.

b. For the purposes of subdivision (d) of this subsection, a person is a duly authorized representative only if:

(i) The authorization is made in writing by a person described in subdivision (d) of this subsection;

(ii) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, or an individual or position having overall responsibility for environmental matters for the company; and

(iii) The written authorization is submitted to the Secretary.

c. Changes to authorization. If an authorization under subdivision (b) of this subsection is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of subdivision (b) of this subsection must be submitted to the Secretary prior to or together with any reports, information, or applications to be signed by an authorized representative.

d. Certification. Any person signing a document under subdivisions (a) or (b) of this subsection shall make the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

8. 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.

III. 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 – A composite of at least twenty-four (24) grab samples taken during one consecutive 24-hour period, either collected at equal intervals and combined proportional to flow or continuously collected proportional to flow.

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.

IC25 - means the % effluent in a sample that causes 25% (Chronic) Effect (i.e. reduced growth or reproduction) to the test population at a 7-day exposure interval of observation).

LC50 - means the % effluent in a sample that causes 50% (Acute) Effect (i.e. mortality) to the test population at the 48-hour exposure interval of observation.

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 § 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 or Maximum Daily Discharge Limitation – means the highest allowable “daily discharge” (mg/L, lbs or gallons).

Mean – means the arithmetic mean.

Method Detection Limit (MDL) – The method detection limit (MDL) is defined as the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results.

(https://www.epa.gov/sites/default/files/2016-12/documents/mdl-procedure_rev2_12-13-2016.pdf)

Minimum Level (ML) – The term “minimum level” refers to either the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit (MDL). Minimum levels may be obtained in several ways: They may be published in a method; they may be sample concentrations equivalent to the lowest acceptable calibration point used by a laboratory; or they may be calculated by multiplying the MDL in a method, or the MDL determined by a lab, by a factor. (<https://www.govinfo.gov/content/pkg/FR-2014-08-19/pdf/2014-19265.pdf>, p. 3 footnote 5)

Monthly Average or 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.

Monthly Average Flow - Monthly average flow shall be calculated by summing the daily effluent flow for each day in the given month and dividing the sum by the number of days of discharge in that month.

NPDES – means the National Pollutant Discharge Elimination System.

NOAEL - means the % effluent in a sample that causes no observed acute effect (i.e. mortality) to the test population at the 48-hour exposure interval of observation.

NOEC - means the % effluent in a sample that causes no observed chronic effect (i.e. reduced growth or reproduction) to the test population at a 7-day exposure interval of observation.

Pollutant – means dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked

or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.

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.

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.

Total Nitrogen - Total Nitrogen (TN) shall be reported as pounds TN and calculated as: $TN (mg/L) \times Total Daily Flow (MGD) \times 8.34$; where $TN (mg/L) = TKN (mg/L) + NO_x (mg/L)$.

Ultimate Oxygen Demand (UOD) - UOD shall be reported in pounds and calculated with the following formula: $UOD (lbs/day) = [(BOD_5 (lbs/day) \times 1.43) + (TKN (lbs/day) \times 4.57)]$

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.

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

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 – means 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 – means 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 or 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.

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

Wastewater Treatment Facility (WWTF) – means a treatment plant, collection system, pump station, and attendant facilities permitted by the Secretary for the purpose of treating domestic, commercial, or industrial wastewater.

Attachment A –

The following document was submitted by the applicant as an addendum to the permit application. It describes the method for controlling alum application and illustrates the treatment zones referenced in the permit.

Lake Morey - Permit Narrative Addendum (REVISED - March 4, 2024)

COMPLIANCE POINT

Following the initial permit application review, VT DEC has proposed that the compliance monitoring point be located 0.5 meters off the lake bottom in the treatment area. Subsequent discussion suggested that the point should be moved to 1 m off the bottom to prevent sample contamination from inadvertent disturbance of the bottom sediments and alum floc layer. Additional discussion centered around the topic of where the “worst case” scenario would be in terms of total aluminum concentration but also acknowledged that the presence of aquatic life is likely to be minimal near the bottom in the treatment area and more likely to be present in the epilimnion and upper sections of the hypolimnion.

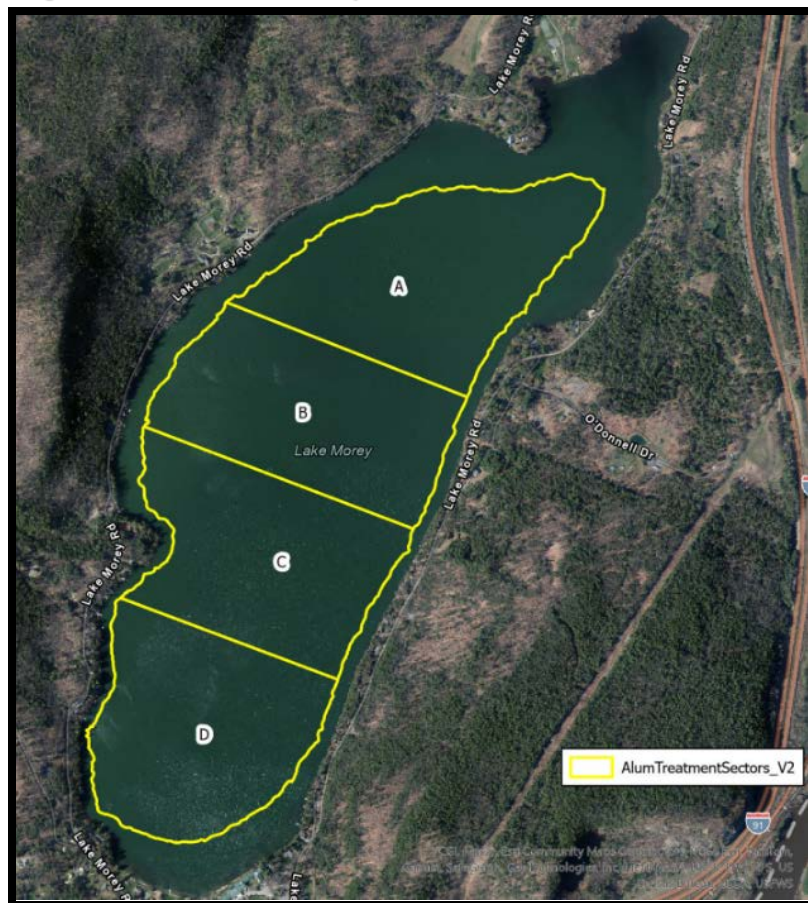
We propose that the compliance samples be collected as a depth integrated composite. No obvious hotspots have been detected over vertical profiles in past applications and with the treatment in the upper 15 feet, the highest residual aluminum concentrations are expected in the upper waters. Any floc that has not yet settled out might be detected, probably in deeper water, but sampling near the sediment-water interface shortly after treatment will not be representative of conditions in the lake overall and as oxygen is often low in that area, will not appropriately represent risk to aquatic life. A weighted hose that reaches from the surface to 1 m above the bottom will be used to collect samples. Collection in this way will be more representative of aluminum concentrations that aquatic life will be exposed to.

TREATMENT PROTOCOL

We propose to divide the treatment area into four sectors (see map below) with two, non-adjacent sectors being treated each day. The dose of 35 g/m² will be split over five passes of the treatment area (approximately 7 g/m² each time). Based on a minimum water column mixing zone of 26-feet (the shallowest depth subject to treatment), the initial theoretical aluminum concentration for each split dose will be 0.89 mg/l. We anticipate that this concentration will drop to < 0.2 mg/l within a maximum of 24 hours after the application by the floc settling to the bottom of the lake.

The sequence of application by sector will be as follows. Each pass of the entire treatment area will take 2 days and will include the application of approximately 21,200 gallons of alum and 10,600 gallons of sodium aluminate.

Figure 1: Lake Morey Alum Treatment Sectors



- Day 1: Sector A & C (1st Pass)
- Day 2: Sector B & D (1st Pass)
- Day 3: Sector A & C (2nd Pass)
- Day 4: Sector B & D (2nd Pass)
- Day 5: Sector A & C (3rd Pass)
- Day 6: Sector B & D (3rd Pass)
- Day 7: Sector A & C (4th Pass)
- Day 8: Sector B & D (4th Pass)
- Day 9: Sector A & C (5th Pass)
- Day 10: Sector B & D (5th Pass)

DEC has proposed that the total aluminum criteria to be met during the treatment are ~1 mg/l at any given time (CMC - acute) and ~0.370 mg/l over four days (4-day average) (CCC - chronic). With the proposed treatment protocol, we expect to meet these water quality standards throughout the treatment process.

Floc formation and settling improves at higher dose rates, leaving less residual aluminum in the water column, either as unsettled floc or aluminum bound to DOC. It would be possible to split the dose only four times, but this would result in a theoretical aluminum concentration over the minimum 26 foot water column of 1.11 mg/l, which is slightly over the proposed CMC. If we instead look at the average depth of the water column in the treatment area (min- 26 feet, max - 42 feet) of 34 feet, the theoretical aluminum concentration would actually drop to 0.85 mg/l, which is below the CMC. In fact, it would only be required to consider an average depth of 29-feet to meet the proposed water quality standard. If this is agreeable to DEC, we would suggest this otherwise the dose will be split five times as described initially.

As discussed, dissolved ionic aluminum is the more toxic form, while particulate aluminum (floc) is much less toxic and settles out quickly from the water column. When pH levels are maintained between 6.5 and 7.5 SU, the vast majority of the aluminum applied to the lake will quickly convert to the particulate form. While it is understood that the EPA criterion is based on total aluminum concentrations, the more toxic dissolved aluminum levels in the lake during the treatment process will be minimal and generally below 0.1 mg/l.

PROPOSED MONITORING PROGRAM

While pre & post treatment monitoring is recommended and may be required by DEC, we will focus on the during and immediate post treatment monitoring here for the purpose of complying with water quality standards. A third-party monitor will conduct the during treatment monitoring from a separate vessel under contract with the Town of Fairlee. It is assumed that the pre & post treatment monitoring recommendations will be developed in conjunction with VT DEC, the Town of Fairlee and, as needed, the third-party monitor.

During treatment monitoring will include the following.

- Daily pH and alkalinity testing - at the approximate midpoint of each treatment sector and in a reference area outside the treatment zone, pH profiles will be collected in the morning at the start of treatment and again in the afternoon. Alkalinity will only be tested if monitoring shows pH outside of the 6.5 to 7.5 SU range.
- Plume Monitoring - Periodically through the day, pH will be measured ~200-500 feet behind the treatment barge at a depth of 1-2 meters. Frequency will be higher during the initial days of treatment and reduced in frequency once confidence that the treatment protocol is working well.
- Aluminum Monitoring - samples will be collected for total and dissolved aluminum using a depth integrated composite (surface to 1 m above bottom) each morning, starting the day before treatment begins and ending the day after treatment is completed. On the day treatment begins, samples will be collected from the center of each treatment sector. On the second day of treatment and every day thereafter through the day after treatment is completed, sampling will occur at the center of the treatment sector that was treated the day before and from the center of the treatment area to be treated that day. The day after treatment is completed, samples will be collected from each treatment sector.
- Floc Monitoring - During each day of treatment, surface and subsurface inspection for floc formation and settling will be conducted near the conclusion of treatment.
- Adverse Effects - During the morning each day of the treatment, a shoreline survey on the windward side of any area treated the day before and those treated areas will be conducted to monitor for any distress or mortality to visible aquatic organisms.

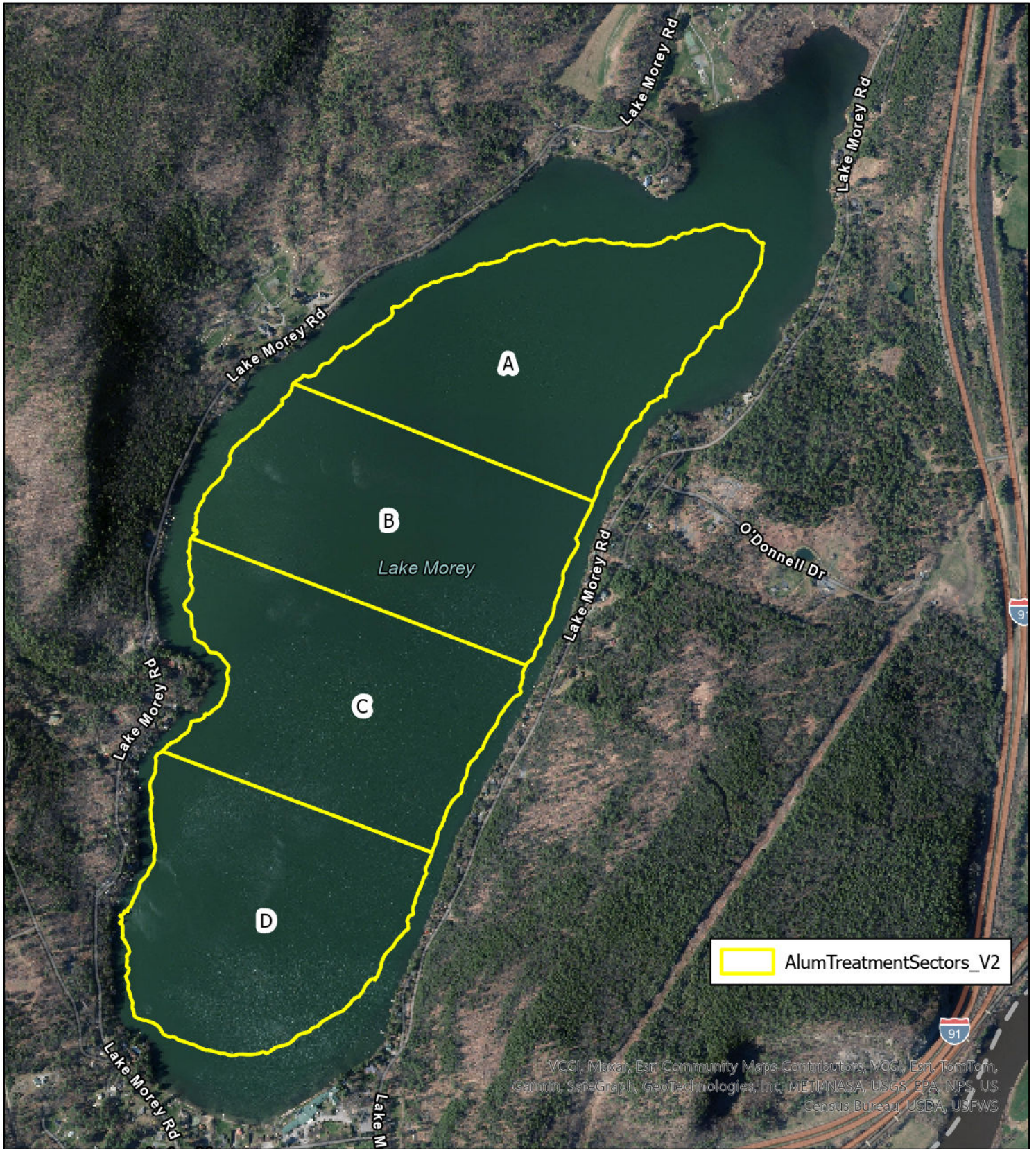
All data will be available to the Applicator and DEC as quickly as possible, with field measures available the same day as collected. The third-party monitor will communicate immediately with the Applicator if any problems are indicated, including high or low pH, fish kills, or other negative impacts that may require cessation and/or modification of the treatment protocol.

Example Pre/Post Treatment Monitoring for Additional Discussion

Before and after the proposed aluminum treatment, monthly water chemistry monitoring will be conducted within the treatment area and, for select parameters, an additional reference station as described below. Pre-Treatment samples will be collected once between 1-3 weeks prior to the start of application. Post-Treatment sampling will be initiated at approximately 1 week after the completion of treatment and then monthly thereafter through October. Sampling will occur at the midpoint of the lake during the pre-treatment sampling and at the midpoint of each treatment sector plus a control location outside of the treatment zone for the post-treatment sampling. Pending results and reaching background levels for total aluminum monitoring will be curtailed to the center of the lake station only.

Suggested pre & post treatment monitoring tasks are listed below.

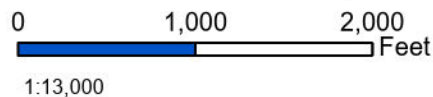
- Temperature, Dissolved Oxygen, Conductivity/pH & Chlorophyll A (profiles) will be collected at 1-meter intervals from the surface to the bottom of the lake.
- Total & dissolved aluminum, total phosphorus samples will be collected at 2 m intervals from surface to bottom. Aluminum sampling will cease once concentrations reach background levels.
- Phytoplankton and zooplankton samples will be collected from the mid-lake sampling station.
- Dissolved Organic Carbon, Total Kjeldahl Nitrogen, and Nitrate-Nitrite grab samples will be collected at 2-m intervals just prior to the treatment and within one week of the final application.



Lake Morey
Fairlee, Vermont
Orange County
43.9106° N, 72.1547° W



Lake Morey



Map Date: 3/1/2024
Prepared by: DM
Office: Shrewsbury, MA