

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

Permit No.: 3-1575
PIN:
NPDES No.: VT0120100

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

MHG Solar
PO Box 1204
Manchester Center, VT 05255

(hereinafter referred to as the “Permittee”) is authorized by the Secretary of Natural Resources (Secretary) to discharge from a facility located at:

Button Falls Solar Project
1308 Button Falls Rd
Pawlet, VT

to the Mettawee River, Class B at the point of discharge in accordance with the following conditions.

This facility is unclassified and does not require a certified operator.

This permit shall become effective on October 1, 2022.

This permit and the authorization to discharge shall expire on September 30, 2027. The Reapplication date is March 31, 2027.

Julia S. Moore, Secretary
Agency of Natural Resources

By:

Date

Amy Polaczyk, Wastewater Program Manager
Watershed Management Division

I. SPECIAL CONDITIONS**A. EFFLUENT LIMITS and MONITORING REQUIREMENTS**

1. Until September 30, 2027, the Permittee is authorized to discharge from outfall serial number S/N 001 (located at approximately 43.40194° N, 73.24278° W): comingled process water from a slate quarry to the Mettawee River. Such discharges shall be limited and monitored by the Permittee as specified below:

Discharge Monitoring						
Constituent; Sampling Point and Sample Type	Season and Sampling Frequency	Limit 1	Limit 2	Limit 3	Limit 4	Limit 5
Flow; Effluent; Continuous	Year Round Daily	1.44 mgd Daily Avg				
Turbidity Effluent; Grab	Year Round Daily					10 NTU Instant Max
pH; Effluent; Grab	Year Round Daily			6.5 s.u. Min		8.5 s.u. Max
Flow Effluent; Continuous	Year Round Monthly	Monitor mgd Monthly Total				

2. Effluent Sampling Point

- a. The Permittee shall collect samples from the downstream end of the splash pool.

3. Special Conditions

- a. Samples do not need to be collected during months without a discharge. Monthly reports must be submitted even if no discharge occurs until the permit is terminated.
- b. The discharge shall not cause a violation of the Vermont Water Quality Standards in the receiving waters.
- c. The effluent shall not cause visible discoloration of the receiving waters.
- d. The discharge shall be free from substances in kind or quantity that settle to form harmful benthic deposits; float as foam, debris, scum or other visible substances; produce odor, color, taste or turbidity that is not naturally occurring and would render the surface water unsuitable for its designated uses; result in the dominance of nuisance species; or interfere with recreational activities; or which would cause a violation of the Vermont Water Quality Standards.
- e. Any action on the part of the Secretary in reviewing, commenting upon or approving plans and specifications for the construction of WWTFs shall not relieve the Permittee from the responsibility to achieve effluent 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.
- f. All erosion control devices and practices shown on Sheet C-100 dated 2/1/22 must be implemented. The devices must be visually inspected three (3) times each day that pumping occurs. These inspections must be recorded and submitted as an attachment to the monthly report. In the event that ANY erosion resulting from the discharge is observed which creates visible turbidity in excess of 10 NTU or which carves a visible channel in the riverbank, the discharge must be immediately stopped and a plan submitted to the Secretary for review and approval prior to the continuation of discharge.
- g. If an exceedance of VWQS is measured, the discharge must be immediately halted.

For an exceedance of Turbidity, a passing test result representative of the water to be discharged must be obtained before discharge may resume.

For an exceedance of pH, the Permittee must submit plans and supporting calculations for a treatment system capable of treating the discharged water to

meet the VWQS for approval by the Secretary. Discharge may not resume until the treatment system is approved and operational.

- h. Discharge must not occur unless the USGS Station (04280450) in Middle Granville, NY reads a minimum of 80.3 cfs. Flow at this gage shall be checked each day prior to the start of pumping operations and a record of this shall be submitted as an attachment to the monthly report. This record shall include the time and date of the flow check, the flow value, and the name of the person performing the check.
- i. Discharge must not occur after materials have been placed within the quarry. Permittee shall provide written notice to ANR.WSMDWastewater@vermont.gov at the time discharge ceases and prior to placing materials into the quarry.
- j. The Discharge shall consist of comingled process water and is authorized for the short-term dewatering of the quarry prior to placement of fill material in the quarry.

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 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 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; and

c. The operation and maintenance of the WWTF shall be performed only by a person or persons holding a valid license to engage in the practice of pollution abatement facility operation.

2. Need to Halt or Reduce Activity not a Defense

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.

3. Duty to Mitigate

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

4. Dry Weather Flows

Dry weather flows of untreated municipal wastewater from any sanitary or combined sewers are not authorized by this permit and are specifically prohibited by state and federal laws and regulations. If for any reason there is a discharge to waters of the State of dry weather flows of

untreated municipal wastewater from any sanitary or combined sewer, the operator of the WWTF or the operator's delegate shall comply with the notice requirements outlined in this permit.

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.

In addition to § 1268 findings, such bypass must meet the following three conditions:

- a.** Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
- b.** There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
- c.** The Permittee submitted notices as required under 40 C.F.R. § 122.41(m)(3):

(i) Anticipated bypass. If the Permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass.

(ii) Unanticipated bypass. The Permittee shall submit notice of an unanticipated bypass as required in Condition II.D.3 (24-hour notice).

6. Upset

a. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of Condition II.B.6.b of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

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

(i) An upset occurred and that the Permittee can identify the cause(s) of the upset;

(ii) The permitted facility was at the time being properly operated; and

(iii) The Permittee submitted notice of the upset as required in condition II.D.3 (24-hour notice).

(iv) The Permittee complied with any remedial measures required under Condition II.B.3.

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

7. Sewer Ordinance

The Permittee shall have in effect a sewer use ordinance acceptable to the Secretary which, at a minimum, shall:

a. prohibit the introduction by any person into the Permittee's sewerage system or WWTF of any pollutant which:

(i) Is a toxic pollutant in toxic amounts as defined in standards issued from time to time under § 307(a) of the Clean Water Act;

(ii) Creates a fire or explosion hazard in the Permittee's treatment works;

(iii) Causes corrosive structural damage to the Permittee's treatment works, including all wastes with a pH lower than 5.0;

(iv) Contains solid or viscous substances in amounts which would cause obstruction to the flow in sewers or other interference with proper operation of the Permittee's treatment works; or

(v) In the case of a major contributing industry, as defined in this permit, contains an incompatible substance, as defined in this permit, in an amount or concentration in excess of that allowed under standards or guidelines issued from time to time pursuant to Sections 304, 306, and/or 307 of the Clean Water Act.

b. Require 45 days prior notification to the Permittee by any person or persons of a:

(i) Proposed substantial change in volume or character of pollutants over that being discharged into the Permittee's treatment works at the time of issuance of this permit;

(ii) Proposed new discharge into the Permittee's treatment works of pollutants from any source which would be a new source as defined in § 306 of the Clean Water Act if such source were discharging pollutants; or

(iii) Proposed new discharge into the Permittee's treatment works of pollutants from any source which would be subject to § 301 of the Clean Water Act if it were discharging such pollutants.

c. Require any industry discharging into the Permittee's treatment works to perform such monitoring of its discharge as the Permittee may reasonably require, including the installation, use, and maintenance of monitoring equipment and monitoring methods, keeping records of the results of such monitoring, and reporting the results of such monitoring to the Permittee. Such records shall be made available by the Permittee to the Secretary upon request.

d. Authorize the Permittee's authorized representatives to enter into, upon, or through the premises of any industry discharging into the Permittee's treatment works to have access to and copy any records, to inspect any monitoring equipment or method required by this permit, and to sample any discharge into the Permittee's treatment works.

8. Emergency Pollution Permits

a. 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 Condition II.D.3.

10 V.S.A. § 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, the holder 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:

- (i) 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;
- (ii) the denial of an emergency pollution permit would work an extreme hardship upon the applicant;
- (iii) the granting of an emergency pollution permit will result in some public benefit;
- (iv) the discharge will not be unreasonably harmful to the quality of the receiving waters; and
- (v) the cause or reason for the emergency is not due to willful or intended acts or omissions of the applicant.

b. Application shall be made to the Secretary at the following address: Agency of Natural Resources, Department of Environmental Conservation, One National Life Drive, Davis 3, Montpelier VT 05620-3522.

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:

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

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. Change in Introduction of Pollutants to the WWTF

- a.** The Permittee, within 30 days of the date on which the Permittee is notified of such discharge, shall provide notice to the Secretary of the following:

(i) Any new introduction of pollutants into the treatment works from a source which would be a new source as defined in § 306 of the Clean Water Act if such source were discharging pollutants;

(ii) 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 § 301 of the Clean Water Act if such source were discharging pollutants; and

(iii) 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.

b. 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.

3. 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.

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.

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.

A. 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 § 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.

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.

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 $TN (mg/L) = TKN (mg/L) + NOx (mg/L)$.

Ultimate Oxygen Demand (UOD) – UOD shall be reported in pounds and calculated with the following formula: $UOD (lbs/day) = [(BOD5 (lbs/day) \times 1.43) + (TKN (lbs/day) \times 4.57)]$

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.

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.

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.

IV. TABLE OF PERMITTED DISCHARGE POINTS					
Discharge ID	Discharge Activity	Discharge Status	Receiving Water	Latitude	Longitude
001	Industrial Waste Outfall – Comingled Process Water	A	METTAWEE RIVER	43.40190° N	73.24270° W

DRAFT

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

FACT SHEET
(August 2022)

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

PERMIT NO: 3-1575
PIN: N/A
NPDES NO: VT0120100

NAME AND ADDRESS OF APPLICANT:

MHG Solar
PO Box 1204
Manchester Center, VT 05255

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Button Falls Solar Project
1308 Button Falls Rd
Pawlet, VT

FACILITY CLASSIFICATION: Unclassified Industrial Non-Major
OPERATOR LICENSE REQUIREMENT: None
FACILITY LAT/LONG: 43.40097, -73.2416
OUTFALL LAT/LONG: 43.40190, -73.24270
RECEIVING WATER: Mettawee River

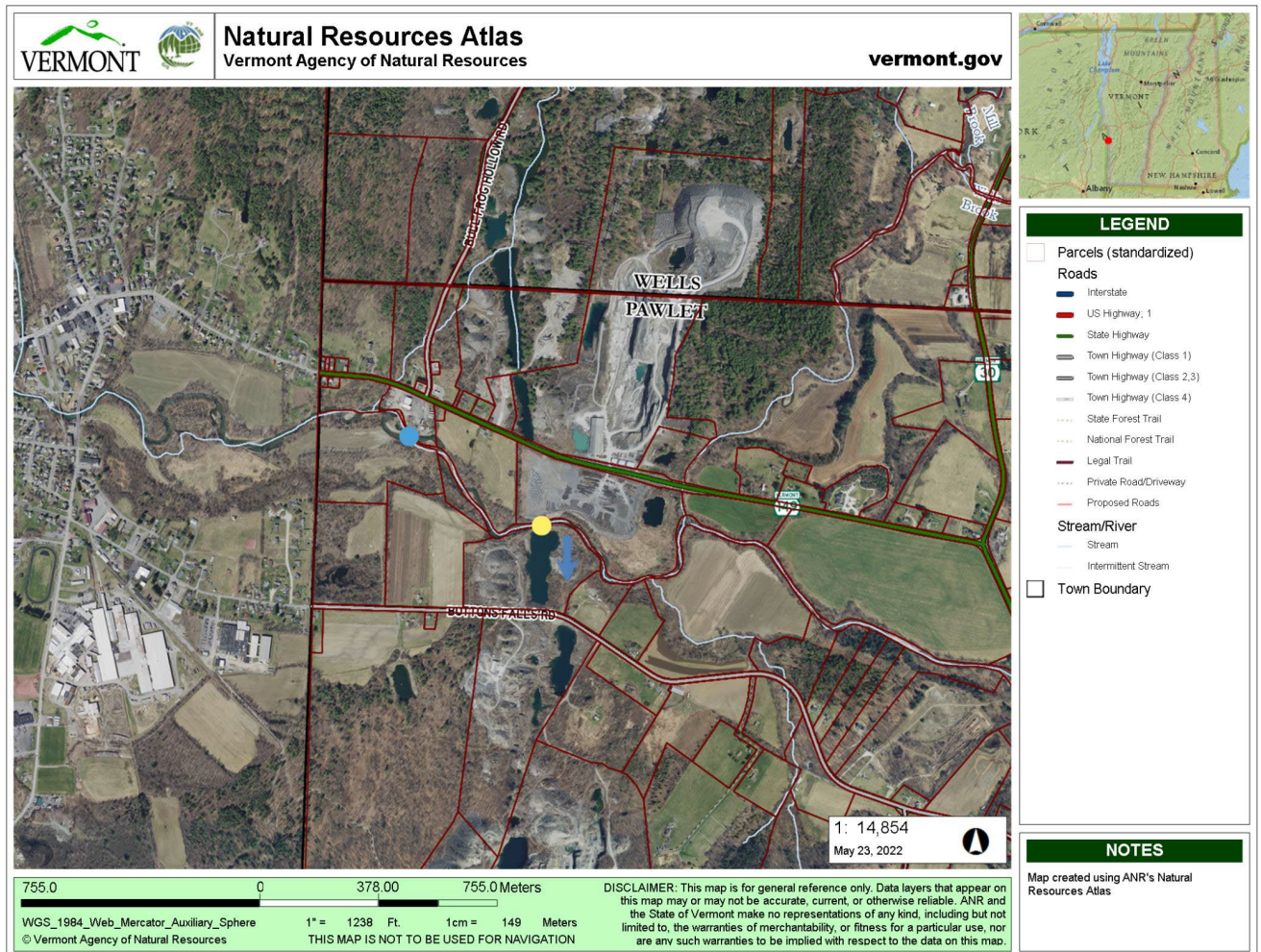
CLASSIFICATION: Class B(2). Class B(2) waters are suitable for swimming and other forms of water-based recreation and irrigation of crops and other agricultural uses without treatment; good aesthetic value; aquatic biota and wildlife sustained by high quality aquatic habitat; suitable for boating, fishing, and other recreational uses; acceptable for public water supply with filtration and disinfection.

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

The Vermont Agency of Natural Resources (Agency) received an application for the permit to discharge into the designated receiving water from the above-named applicant on February 14, 2022 and the application was technically complete on March 8, 2022. At this time, the Secretary has made a tentative decision to issue the discharge permit.

MHG Solar, LLC owns the Button Falls Solar Project. They intend to dewater an existing slate quarry so that the tailing piles on the project property can be placed into the quarry to create a level lot for the installation of a solar array. The quarry contains process water comingled with stormwater and groundwater (comingled process water). No treatment is proposed, but if the pH of the quarry water is found to exceed the Vermont Water Quality Standard of 8.5 then pH adjustment will be required. Discharge is planned for approximately 10 days. After the completion of grading the quarry will refill with water and be very similar to the existing conditions, just shallower and smaller in area. This quarry does not have a surface water source or outlet. The stormwater that drains to the quarry is from the immediately adjacent surfaces and is not transported from other parcels.

A location map is shown below. The approximate direct discharge location is represented by a yellow circle and the facility location is denoted by the blue arrow. The blue circle represents a water quality monitoring station.



A copy of the Reasonable Potential Determination is attached as Attachment A.

II. Description of Discharge

This permit authorizes the discharge of comingled process water from a defunct slate quarry.

III. Limitations and Conditions

The effluent limitations of the draft permit, the monitoring requirements, and any implementation schedule (if required), may be found on the following pages of the draft permit:

Effluent Limitations:	Pages 2-4 of 23
Monitoring Requirements:	Pages 2-4 of 23

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

The Reasonable Potential Determination for this facility 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.

This is a new permit application, and this facility has never had an NPDES Direct Discharge Permit. Therefore, the anti-backsliding provisions of the CWA are not applicable at this time.

V. Receiving Water

The Mettawee River downstream of the Button Falls Solar Project discharge is a Class B (2) water and is designated as Cold Water Fish Habitat. At the point of discharge, the river has a contributing drainage area of 111.0 square miles. No Waste Management Zone or Mixing Zone are proposed. The 7Q10 flow of the river is estimated to be 8.8 cubic feet per second (CFS) and the Low Median Monthly flow is estimated to be 24.4 CFS. Discharge will only be allowed when the flow at the discharge point is at least 53.4 CFS based upon the discharge at the Middle Granville, NY, USGS Station 04280450 being at least 80.3 CFS.

VI. Antidegradation Policy

Section 29A-105 of the Vermont Water Quality Standards (VWQS) describes the Antidegradation Policy. The Secretary implements this policy in accordance with the Agency's "Interim Anti-Degradation Implementation Procedure," dated October 12, 2010 (Procedure).

Among other circumstances, the Secretary applies the Antidegradation Policy and Procedure during the review of applications for a new discharge under an individual NPDES direct discharge permit issued pursuant to 10 V.S.A. §1263 and the Vermont Water Pollution Control Permit Regulations, as in this case.

Under the Antidegradation Policy and Procedure, the Secretary must first determine the applicable water quality review Tier:

- Tier 3 - Protection of water quality in outstanding resource waters
- Tier 2 - Protection and maintenance of water quality in high quality waters
- Tier 1 - Determination and protection of existing uses

The Mettawee River is not classified as an Outstanding Resource Water in the 2017 VWQS (Tier 3). The Procedure requires the Secretary to presume that all waters are high-quality waters for at least one criterion for some portion of the year (Tier 2). Procedure at VII.E.1.c. Because the Secretary has not received credible and relevant information to the contrary, the Tier 2 approach of protecting designated and existing uses is the focus of this antidegradation review.

Tier 2 review requires the Secretary to determine:

- (1) whether the proposed discharge will result in a limited reduction in water quality; and
- (2) after an analysis of alternatives, any limited reduction in water quality satisfies the socioeconomic justification test set forth in the Procedure.

An analysis of the impacts of the proposed discharge on the receiving water was conducted in the attached Reasonable Potential Determination using information provided with the application as well as monitoring data from the Mettawee River collected by VT DEC. This analysis found that there will be no lowering of the water quality in the receiving water.

Predicted changes did not create conditions that exceed VWQS at appropriate critical conditions. Due to the short-term nature of this discharge (expected to last 10 days), the low concentration of solids, BOD5, COD and nutrients, and lack of toxins in toxic amounts, this discharge will not have an impact on total pollutant loadings or assimilative capacity. The proposed discharge will be limited to less than 3% of the receiving water flow and erosion control will be required at the outfall. This is more restrictive than the 5% flow contribution limitation included in the VWQS for Class A1 and B1 waters. This is a Class B2 water, but this limitation has been included in lieu of requiring a site specific flow study. All available data indicates that this reach of the Mettawee River fully supports all designated uses and that a one-time partial dewatering of the quarry will not result in a limited lowering of water quality.

The cumulative impacts of this discharge have also been considered. Procedure VII.E.2.e. Effluent limits have been set for Turbidity and pH at the VWQS for the fishery type in order to avoid any impacts to aquatic biota. The proposed effluent does not contain any toxic metals measured at levels that will exceed VWQS when mixed with the receiving water. The receiving water is not listed on the 303(d) list and the available macroinvertebrate data indicates that the macroinvertebrate population is supportive of VWQS. This short-term discharge will not have cumulative impacts that result in a limited lowering of water quality.

Based upon the above analysis, the Secretary finds that the proposed effluent from this facility will not reduce water quality in the receiving water, and that therefore it is not necessary to further analyze cumulative negative impacts to water quality or the socio-economic benefit to the region and state.

VII. Discharge Policy

The proposed permit for this facility has been drafted to comply with the Discharge Policy contained in the Vermont Water Quality Standards (Environmental Protection Rule, Chapter 29-106). The proposed discharge is in conformance with all applicable provisions of these rules as described below.

§ 29A-106 Discharge Policy (a) Discharge Criteria. In addition to the other provisions of these rules, new discharges of wastes may be allowed only when all the following criteria are met:

(1) The proposed discharge is in conformance with all applicable provisions of these rules including the classification of the receiving waters adopted by the Secretary as set forth in Appendix F of these rules.

The proposed discharge is in conformance with all applicable provisions of these rules including the classification of the receiving waters adopted by the Secretary as set forth in Appendix F of the Vermont Water Quality Standards.

(2) There is neither an alternative method of waste disposal, nor an alternative location for waste disposal, that would have a lesser impact on water quality including the quality of groundwater, or if there is such an alternative method or location, it would be clearly unreasonable to require its use.

There is no feasible alternative method or location of disposing of the water in the quarry. Due to the large volume of dewatering proposed, trucking or pumping the water to another location would be cost prohibitive and emissions intensive. Due to the relatively small size of the lot and depth of the quarry, subsurface disposal would result in the water returning to the quarry and is therefore not feasible.

(3) The design and operation of any waste treatment or disposal facility is adequate and sufficiently reliable to ensure the full support of uses and to ensure compliance with these rules and with all applicable state and federal treatment requirements and effluent limitations.

The effluent for this project has been sampled, and the data reported on the updated Schedule B form has been analyzed in the RPD memo and found to not require treatment. Daily turbidity and pH monitoring will be required, and the discharge must be stopped if an exceedance is measured.

If an exceedance of turbidity is measured, it will be necessary to either wait until the quarry water has cleared or to move the influent pipe. A passing sample will need to be obtained prior to the continuation of discharge.

If an exceedance of pH is measured, it will also be necessary to immediately halt discharge. A treatment plan must be submitted to the Secretary for review and approval prior to the continuation of discharge. The treatment system will be required to be adequate and sufficiently reliable to ensure the full support of uses and to ensure compliance with these rules and with all applicable state and federal treatment requirements and effluent limitations.

Erosion control devices with required inspections, and daily confirmation of the receiving water flows will be required and will help to prevent exceedances of VWQS or highly altered flow patterns.

(4) Except as provided for in 10 V.S.A. § 1259(d) and (f), the discharge of wastes other than nonpolluting wastes and stormwater runoff is prohibited in Class A(1) and A(2) waters regardless of the degree of treatment provided.

This is a Class B water.

(5) Except as provided for in 10 V.S.A. § 1259, the discharge of wastes that, prior to treatment, contained organisms pathogenic to human beings into waters is prohibited.

This facility will discharge a mixture of stormwater, groundwater and process water (comingled process water) in order to partially dewater an existing slate quarry. No pathogenic organisms are known or expected to be in the effluent source.

(6) The receiving waters will have sufficient assimilative capacity to accommodate the proposed discharge.

The effluent from this site will meet the VWQS for the receiving water and will be conditioned to be less than 5% of the flow. The addition of a small quantity of water meeting the VWQS will not have any impact requiring a measurable amount of assimilation by the receiving water.

(7) Assimilative capacity has been allocated to the proposed discharge consistent with the classification set forth in Appendix F of these rules.

Assimilative capacity will not be impacted. Effluent limits for this discharge have been set that are consistent with the classification set forth in Appendix F of the VWQS and that are supportive of all designated uses.

(8) The discharge of wastes to the thermocline or hypolimnion of any lake in manner that may prevent the full support of uses is prohibited.

This facility will not discharge wastes into either the thermocline or hypolimnion of any lake.

(9) The discharge of sewage into Class B(1) or B(2) waters shall not pose more than a negligible risk to public health. Compliance with this criterion shall include an assessment of both the level and reliability of treatment achieved and the impact of the discharge on the water quality of the receiving waters.

This facility will not discharge sewage or pose a risk to the public health from human pathogens.

(b) Assimilative Capacity. The capacity of waters to assimilate both the discharge of wastes and the impact of other activities that may adversely affect water quality, and at the same time to be maintained at a level of water quality that is compatible with their classification, is finite. The Secretary may hold a portion of the assimilative capacity in reserve to provide for future needs, including the abatement of future sources of pollution and future social and economic development. Accordingly, the assimilative capacity of waters shall be carefully allocated in accordance with the “Wasteload Allocation Process” as adopted by the Secretary.

This facility will not affect assimilative capacity in the receiving water. The water in the quarry does not contain detectable toxic metals and the measured BOD5 and COD values are low. Total phosphorus was found at concentrations lower than the numeric thresholds in the VWQS and TN was lower than the receiving water concentrations. It is not necessary to develop a wasteload allocation for this facility.

(c) Compliance Schedules. A permit issued pursuant to Vermont’s federally-delegated National Pollutant Discharge Elimination System (NPDES) program may, when appropriate, specify a schedule leading to compliance with the Vermont and Federal Clean Water Acts and regulations. The purpose of a schedule of compliance generally is to afford a permittee adequate time to comply with one or more permit requirements or limitations that are based on new, newly interpreted or revised water quality standards that became effective after both issuance of the initial permit for a discharge and July 1, 1977. For a permit requirement or limitation that is based on such a new, newly interpreted, or revised water quality standard, the Secretary may include a schedule of compliance in a permit at the time of permit reissuance or modification where the permittee either cannot comply with the permit requirement or limitation, or there is insufficient information available to determine whether the permittee can comply with the permit requirement or limitation. A schedule of compliance shall require compliance at the earliest possible time, as determined by the Secretary. A schedule of compliance shall include dates for specified tasks or activities leading to compliance and may include interim effluent limitations, as the Secretary deems appropriate. This provision does not limit the Secretary’s authority to include compliance schedules in permits as provided by state law.

This facility will not require a compliance schedule. All limits and conditions will be applicable beginning the permit effective date.

VIII. Facility History and Background

The Button Falls Solar Project is located at the site of the former Clay Quarry (MRDS ID W023070), a slate quarry that was previously operated by the Somich Brothers Slate Co. Quarrying operations resulted in the creation of a deep quarry and large piles of tailings. The quarry is currently full of a combination of stormwater, groundwater and co-mingled process water. Dewatering would have been required in order to operate the quarry.

The Button Falls Solar Project will construct a level area for the installation of solar panels. A portion of the tailings from the previous slate mining operations will be placed back into the quarry. The quarry is currently filled with comingled process water which is non-turbid and

which will meet VWQS when discharged into the Mettawee River. When the tailings are placed into the quarry the turbidity will be increased by an unknown amount expected to exceed VWQS. In order to avoid an uncontrolled discharge of this water during the grading operations the quarry will be partially dewatered prior to placing materials back into the quarry.

The Agency has determined that the commingled discharge of process generated wastewater from this operation is subject to 40 CFR Part 436. The term "process generated wastewater" shall mean any wastewater used in the slurry transport of mined material, air emissions control, or processing exclusive of mining. The term shall also include any other water which becomes commingled with such wastewater in a pit, pond, lagoon, mine, or other facility used for the treatment of such wastewater. This quarry contains comingled process water based on the assumption that the residual processing water and wastes were present in the quarry when last operated.

After the completion of this project the quarry will refill with a combination of storm and ground water. The quarry will appear largely the same as the existing conditions but will be slightly smaller and shallower.

IX. Permit Basis and Explanation of Effluent Limitation Derivation (S/N001)

A. Flow – The permit contains a monitoring and reporting requirement for flows discharged from this facility. Continuous monitoring is required with daily average and monthly total reporting requirements. Additionally, discharge from this facility is conditioned to only occur when the receiving water contains a minimum of 53.4 cfs in order to minimize the impacts of the additional flows from the facility. A condition is included to verify this flow by observation of a downstream USGS Station.

B. Conventional Pollutants

pH – The pH limitation is 6.5 - 8.5 Standard Units as specified in Section 3-01 B.9. in the Vermont Water Quality Standards. Since the applicant indicated that effluent will meet the VWQS of 6.5 to 8.5 no mixing zone is needed. Monitoring is required daily.

Total Suspended Solids (TSS) – The draft permit does not contain a limit or monitoring requirements for TSS. The proposed effluent contains 4 mg/l of TSS. The permit does contain a requirement to monitor for Turbidity on a daily basis. This requirement is based on best professional judgement and upon Section 3-03.A and Appendix A (Fish Habitat Designation) of the 2017 Vermont Water Quality Standards. The receiving waters are designated as Cold Water Fish Habitat. Compliance with the Turbidity limit is expected to result in a minimal discharge of TSS.

C. Non-Conventional and Toxics

Turbidity – The draft permit requires an instantaneous maximum limit of 10 NTU. Monitoring is required daily. This requirement is based upon Section 3-04.A and Appendix A (Fish Habitat Designation) of the 2017 Vermont Water Quality Standards.

Total Nitrogen– The draft permit does not contain monitoring requirements or a limit for Total Nitrogen. The proposed effluent contains very low levels of Total Nitrogen and the proposed discharge will be of short duration. The receiving water is in compliance with the VWQS for TP.

Total Phosphorus (TP) – The draft permit does not contain monitoring requirements or a limit for Total Phosphorus. The proposed effluent contains very low levels of TP and the proposed discharge will be of short duration. The receiving water is in compliance with the VWQS for TP.

X. Discharge Special Conditions

A. Erosion Control Measures and Inspections Requirement – The draft permit requires that the erosion control measures depicted on the project plans be constructed and utilized. The splash pool and geotextile must be inspected a minimum of three times per day when discharging, and records of these inspections must be included in the monthly report. If turbidity in excess of 10 NTU or erosion of the riverbank is observed, then flow must be discontinued and a plan to mitigate the erosion must be submitted to the Secretary for review and approval prior to further discharge.

B. Requirement to cease discharge if pH or Turbidity exceedance occurs – The draft permit requires that the discharge of effluent be halted immediately upon a pH or Turbidity measurement that exceeds the permit limits.

For Turbidity discharge may not resume until a passing sample is obtained that is representative of the proposed discharge. The influent point may be moved to a less turbid location.

If a pH exceedance occurs a plan must be submitted to the Secretary for review and approval. Any treatment system required must be in place and operational prior to the resumption of discharge.

C. Flow at Middle Granville, NY USGS Station 04280450 – The draft permit requires that the flow rate at this USGS Station be checked each day and recorded prior to beginning pumping operations. The flow rate in Middle Granville must be at least 80.3 cfs. That flowrate will ensure that the flow available in the Mettawee River at the point of the Button Falls Solar Project's discharge will be 53.4 cfs and that the discharge will be less than 3% of the total flow. This condition has been included in order to ensure that the any hydraulic impacts from the discharge are minimized.

D. Prohibition of discharge after initiation of grading activities – The draft permit prohibits discharging additional dewatering water after tailings have started to be placed in the quarry. This condition is meant to prevent the discharge of sediment and turbidity that may be created by the grading activities.

XI. Procedures for Formulation of Final Determinations

The public comment period for receiving comments on this draft permit is from **August 12, 2022 through September 20, 2022** during which time interested persons may submit their written views on the draft permit. All written comments received by 4:30 PM on **September 20, 2022** will be retained by the Secretary and considered in the formulation of the final determination to issue, deny or modify the draft permit. The period of comment may be extended at the discretion of the Secretary.

The Secretary will hold a public meeting on **Tuesday, September 13, 2022**, from **5:00 – 6:00 PM** at the Agency of Natural Resources Annex Building located at 190 Junction Road, Berlin, Vermont 05602. You may also attend via Microsoft Teams meeting at: <https://tinyurl.com/ycyjvndm> or call in (audio only) +1 802-828-7667, United States, Montpelier Phone Conference ID: 731 916 658#

Per Vermont Act 150, public comments concerning draft permits must be submitted via the Environmental Notice Bulletin (ENB) for all applications deemed administratively complete after January 1, 2018. In addition to providing a portal for submitting public comments, the ENB website presents details on the processing history, draft permit documents for review, and can be used to request public meetings. The ENB public site is <http://enb.vermont.gov> and the DEC ENB information page is <http://dec.vermont.gov/permits/enb>.

NPDES permits are considered Type 1 permits under Act 150 and are subject to a 30-day public comment period. All comments received within the period described above will be considered by the Department of Environmental Conservation in its final ruling to grant or deny authorization to discharge. Any person who has commented on the draft permit may, within 30 days of the final ruling by the Department of Environmental Conservation to grant or deny authorization to discharge, appeal the ruling to the Environmental Court pursuant to 10 V.S.A. Chapter 220.

Vermont Agency of Natural Resources
Department of Environmental Conservation
Watershed Management Division
1 National Life Drive, Davis 3
802-828-1115

MEMORANDUM



Prepared by: John Merrifield, Wastewater Program (WWP)

Cc: Pete LaFlamme, Director, WSMD
Amy Polaczyk, Manager, WWP
Michelle Kolb, Manager, WWP Direct Discharge Section
Bethany Sargent, Manager, MAP

Date: August 1, 2022

Subject: Reasonable Potential Determination for the Button Falls Solar Project

I. Facility Information:

Button Falls Solar Project
1308 Button Falls Rd
Pawlet, VT
Permit No. 3-1575
NPDES No. VT0120100
Facility Location: 43.40097, -73.2416 (NAD 83)
Approximate Outfall Location: 43.40190, -73.24270 (NAD 83)

II. Hydrology:

Receiving water: Mettawee River
Facility Design Flow: 1.440 MGD = 2.228 CFS
Estimated 7Q10¹ = 8.8 CFS
Estimated LMM² = 24.4 CFS
Minimum River Flow during Discharge³ = 53.4 cfs (80.3 cfs at USGS Station 04280450)

¹ Using daily mean streamflows, the flow of the receiving water equal to the minimum mean flow for seven consecutive days, that has a 10% probability of occurring in any given year.

² "Low Median Monthly Flow". Using daily mean streamflows, the median monthly flow of the receiving water for that month having the lowest median monthly flow.

³ The project has proposed only discharging when the effluent will represent less than 5% of the downstream flow. This will be accomplished through observation of the Middle Granville, NY, USGS Station 04280450.

Instream Waste Concentration at 7Q10 Flow (IWC-7Q10) = 0.202 (>10%)

Instream Waste Concentration at Low Median Monthly Flow (IWC-LMM) = 0.084 (>1%)

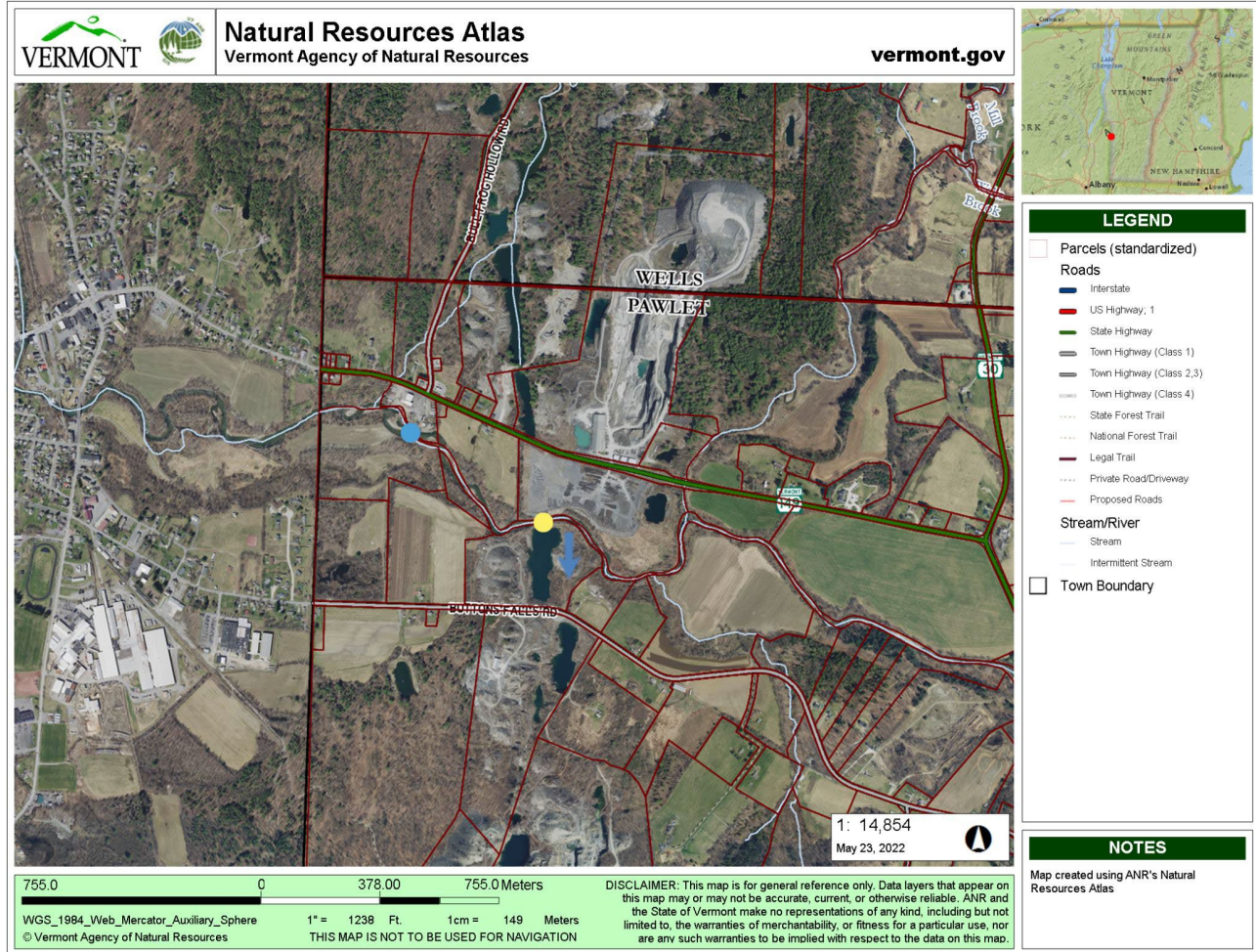
Instream Waste Concentration at Minimum River Flow during Discharge = 0.0259 (>1%)

III. Facility Description:

MHG Solar, LLC owns the Button Falls Solar Project. They intend to partially dewater an existing slate quarry so that a portion of the tailing piles on the project property can be placed into the quarry to create a level lot for the installation of a solar array. No treatment is proposed, but if the pH of the quarry water is found to exceed the Vermont Water Quality Standard of 8.5 then pH adjustment will be required. Discharge is planned for 10 days. After the tailings have been placed in the partially dewatered quarry, a mixture of storm and ground water will refill the quarry and it will appear very similar to the existing conditions but will be smaller and slightly shallower.

The Mettawee River downstream of the Button Falls Solar Project discharge is a Class B (2) water and is designated as Cold Water Fish Habitat. At the point of discharge, the river has a contributing drainage area of 111.0 square miles. No Waste Management Zone or Mixing Zone are proposed.

Figure 1. Mettawee River near the Button Falls Solar Project. The facility location is represented by a blue arrow. The proposed outfall (S/N 001) is represented by a yellow dot. The nearby monitoring station at RM 20.0 is shown west of the facility as a blue dot. Figure produced with the Vermont Integrated Watershed Assessment System on the VT Agency of Natural Resources Atlas (<https://anrweb.vt.gov/DEC/IWIS/>).



This memo is organized into the following sections:

- Summary of Effluent Data for the Button Falls Solar Project
- Summary of Instream Ambient Chemistry Data and Macroinvertebrate Data for the Mettawee River
- Assessment of Reasonable Potential of the Button Falls Solar Project discharge to exceed Vermont Water Quality Standards (VWQSs)

IV. Effluent Data for the Button Falls Solar Project

The Button Falls Solar Project intends to partially dewater an existing slate quarry. The water was sampled on 12/20/2021 and the results are presented below in Table 1.

Table 1. Effluent Data for the Button Falls Solar Project included with the application.

Test results submitted with Application		
Parameter	Value	Units
BOD5	3.9	mg/l
COD	<10	mg/l
Dissolved Oxygen	10.5	mg/l
Dissolved Oxygen Saturation**	84.5	%
TSS	4	mg/l
Turbidity	1.84	mg/l
Settleable Solids	<0.5	mg/l
Oil and Grease	2.8	mg/l
Total Phosphorus	0.013	mg/l
Total Kjeldahl Nitrogen	0.2	mg/l
Nitrite	<0.02	mg/l
Nitrate	0.044	mg/l
Total Ammonia Nitrogen	<0.08	mg/l
Total Nitrogen**	<0.264	mg/l
Total Hardness	225	mg/l
Color	5	CoPT
Materials Affecting Taste and Odor	N/A	mg/l
Temperature Range	41-41	Deg. F
pH range*	8.09-8.24	SU
Arsenic	<0.001	mg/l
Cadmium	<0.002	mg/l
Chromium (+6)	<0.02	mg/l
Chromium (+3)	<0.005	mg/l
Copper	<0.02	mg/l
Cyanide	<0.009	mg/l
Iron	0.062	mg/l
Lead	<0.001	mg/l
Manganese	0.17	mg/l
Mercury	<0.0002	mg/l
Nickel	<0.005	mg/l
Selenium	<0.002	mg/l
Silver	<0.01	mg/l
Zinc	<0.02	mg/l
Magnesium	17	mg/l
Antimony	<0.002	mg/l
Beryllium	<0.001	mg/l
Calcium	62	mg/l
Notes:		
* pH was initially submitted as 11.03. This measurement has been determined to be erroneous. See attach memo titled Re: pH Monitoring for Button Falls Quarry, Pawlet VT		
** Calculated value based on provided information.		

V. Receiving water monitoring data

A. Biological Assessments and Ambient Chemistry Data for the Mettawee River upstream and downstream of the Button Falls Solar Project

MAP maintains the VTDEC assessment database, an EPA-required database which describes the conditions of Vermont's surface waters with respect to their attainment of VWQS. For the Mettawee River segment to which this facility discharges, the database indicates the receiving water does support all designated uses.

Biological Assessments:

Biological assessments were conducted downstream of the facility at RM 20.0 on 9/30/2019. The biological assessment meets VWQS for aquatic biota uses for the Class B(2) Medium High Gradient stream type. Macroinvertebrate monitoring data is summarized below in Table 2. It should be noted that this data does not reflect the influence of the unconstructed solar project but does provide information about the existing water quality than can be used to help predict the impact of the short-term quarry dewatering.

Table 2. Results of the Biological Monitoring for Macroinvertebrates on the Mettawee River, (RM 20.0), near the Button Falls Solar Project outfall.

Macroinvertebrate Site Summary - Mettawee River RM 20.0									
Date	Density	Richness	EPT Richness	PMA-O	B.I.	Oligo.	EPT/EPT + Chiro	PPCS-F	Community Assessment
9/30/2019	4888	66.0	36.0	87.2	3.86	0.08	0.92	0.58	Meets VWQS
Scoring Guideline for a MHG Stream of Water Quality Class B(2)									
	≥ 300	≥ 30	≥ 18	≥ 45	≤ 5	≤ 12	≥ 0.45	≥ 0.4	Full Support
	≥ 250	≥ 28	≥ 16	≥ 40	≤ 5.15	≤ 14.5	≥ 0.43	≥ 0.35	Indeterminate
	< 250	< 28	< 16	< 40	> 5.15	> 14.5	< 0.43	< 0.35	Non-Support

B. Ambient Chemistry Data:

The most recent ambient chemistry data available from VT DEC sampling is from 9/30/2019, when surface waters were sampled downstream of the outfall at River Mile (RM) 20.0. The downstream sampling location is 0.35 miles downstream from the outfall (Figure 1).

Data representativeness are assessed by evaluating the observed flow conditions from field sheets, whether measured or qualitatively described, at which samples were collected. Other contemporaneous streamflow data, such as the U.S. Geological Survey stream gage network, are also taken into consideration where proximal and representative of the hydrologic conditions at the time (e.g., unimpacted by artificial flow regulation). The downstream sampling location at this site is the most sensitive location, and the sampling results are determined to be representative of low flow based on a review of available streamflow observations. Thus, the data presented below are relevant for inclusion in this analysis.

Water chemistry measures of relevant parameters for this assessment are summarized in Table 3.

Data used to evaluate in-stream chemistry is collected under low flow conditions (typically August or September) when turbidity is low, and no precipitation has been observed for 3 days.

Table 3. Surface-water quality data downstream of the Button Falls Solar Project.

Visit Date	Location ID	Mettawee River	
9/30/2019	522739	RM	20.0
Parameter		Unit	Value
Alkalinity		mg/l	109
Conductivity		umho/cm	298.8
Dissolved Oxygen		mg/l	10
DO Saturation		%	100.5
pH		None	7.98
Temperature		deg C	13.8
Total Aluminum		ug/l	20
Total Calcium		mg/l	37.64
Total Chloride		mg/l	13.8
Total Color measured using the visual method		PCU	10
Total Hardness		mg/l	122.15
Total Iron		ug/l	50
Total Magnesium		mg/l	6.84
Total Manganese		ug/l	15.07
Total Nitrate/Nitrite Nitrogen		mg/l	0.411
Total Nitrogen		mg/l	0.52
Total Phosphorus		ug/l	10
Total Potassium		mg/l	1.64
Total Sodium		mg/l	8.96
Total Sulfate		mg/l	12.16
Turbidity		NTU	0.27

VI. Assessment of Reasonable Potential of the Button Falls Solar Project discharge to exceed Vermont Water Quality Standards

A. Total Residual Chlorine:

This facility does not treat human waste or have any requirements for disinfection. No chlorine use has been indicated on the application and no limits or monitoring requirements should be included in the permit.

B. Whole Effluent Toxicity:

This facility will be dewatering an existing slate quarry that is in close proximity to the Mettawee River. The chemical analysis of the quarry water provided in the application did not indicate concentrations of metals which will be toxic when mixed into the receiving water at 7Q10. Metals are considered the most likely toxin present at this facility due to the presence of metals in rock deposits. The quarry dewatering is proposed to last for 10 days

during a time of relatively high flow, so actual dilution will be greater than that provided at 7Q10. Turbidity and pH limits will be set at the VWQS values for the receiving water type, and no appreciable BOD5 or COD loading is anticipated. Due to the nature of the quarry pond water and the short duration of discharge proposed, no WET limits or testing are proposed for this facility.

C. Flow:

This facility proposed to discharge 4,645,402 gallons from the existing slate quarry to the Mettawee River over a period of 10 days using a 1000 gpm pump. For evaluation purposes, the pump's average flow rate should be used (1000 gpm = 1.44 MGD). Using the average pump rate rather than the expected volume allows for a more conservative evaluation and also provides flexibility in the event that groundwater inflow into the quarry is greater than anticipated.

The permit should contain a daily average flow limit of 1.44 MGD (1000 gpm) and a monthly total monitor only condition.

Additionally, several special conditions should be included in the permit related to flow.

The first special condition is a restriction of discharge to times when the project's effluent flows represent approximately 5 percent of the total flow. The applicant prepared a memo titled "Re: Mettawee River 7Q10 Analysis - Button Falls Quarry, Pawlet VT" (attached) which explains the rationale behind this in anticipation of the Anti-Degradation analysis found in the Fact Sheet. The permit should contain a condition that requires that the permittee check the flows at the Middle Granville, NY, USGS Station 04280450 and verify that the flow is at least 80.3 cfs prior to discharging. The watershed at Middle Granville is 167 square miles, the watershed at the effluent point is 111 square miles, and assuming a proportional flow relationship, a flow of 80.3 cfs in Middle Granville is correlated with a flow of 53.4 cfs at the effluent point. Records of these flow checks should be included as an attachment to the monthly data report. The analyses for this RPD have been performed using the required 7Q10 and LMM flows, and information is included about this additional flow restriction for information purposes only.

The second special condition is a restriction on additional dewatering once material has started to be placed in the quarry. This condition is necessary to reduce the possibility of high turbidity discharges. This condition should require that the permittee provide notification via email at the time that discharge ceases and prior to placing material in the partially dewatered quarry pit.

The third special condition is related to the possibility that the discharge can cause erosion and water quality problems at the discharge point. The project plans (Sheet C-100 dated 3/8/22) include details and notes for erosion prevention. The permit should include a requirement that the splash pool be inspected daily to ensure that it is operating correctly and that there is no erosion of the Mettawee River bank. These inspections should also make note of any turbidity created in the river by the discharge and cease discharge if there is a violation of VWQS in the receiving water.

D. pH:

The draft permit should contain a daily sampling requirement for pH. Effluent should be limited to between 6.5 and 8.5 in order to match VWQS. The revised application indicated that the effluent will be in this range.

However, the initial application indicated that the pH was 11.03. A review of the laboratory report indicated that this value was measured outside of the holding time for pH and was also outside of the calibrated instrument range. This value was discussed with the applicant's consultant and new pH measurements were collected on site using a freshly calibrated pH meter. A memo describing this is attached.

The discharge should be stopped immediately upon a pH measurement less than 6.5 or greater than 8.5. If the pH exceeds the VWQS then the applicant must submit a treatment plan for approval by the Secretary that must be implemented prior to continuing the discharge.

E. Total Suspended Solids:

The quarry water sampling indicates that it contains 4 mg/l of total suspended solids (TSS). Based upon best professional judgement and upon Section 3-03.A and Appendix A (Fish Habitat Designation) of the 2017 Vermont Water Quality Standards this discharge does not have a reasonable potential to negatively impact the receiving water due to total suspended solids, and therefore no monitoring or limit is proposed. The permit will contain a limit and monitoring for turbidity which is generally considered an acceptable surrogate for TSS.

F. Turbidity:

The draft permit should contain a Turbidity limit equal to the VWQS for Cold Water fisheries (Instantaneous Maximum limit of 10 NTU). Monitoring should be conducted daily. This requirement is based upon Section 3-04.A and Appendix A (Fish Habitat Designation) of the 2017 Vermont Water Quality Standards. If an exceedance is measured, then the discharge should be stopped immediately and not resumed until a passing turbidity sample is obtained. The pump inlet may be moved, but the sample must be representative of the effluent (i.e. a sample cannot be taken from the far side of the quarry if the area near the pump inlet has become turbid).

G. Metals

The quarry water was tested for priority pollutant metals and the results are shown in Table 1 and below in Table 4. No priority pollutant metals were above the detection limit. The measured concentrations are compared to the Vermont Water Quality Standards as calculated using the hardness of the receiving water.

Only Arsenic and Mercury were calculated to potentially exceed the VWQS when the design flow was mixed into the 7Q10 flow.

Arsenic was calculated to have the potential to exceed the Human Health Criteria for Consumption of Water and Organisms. It was not calculated to have an exceedance of the criteria for Consumption of Organisms Only. The Mettawee River is a Class B(2) river, and according to the VWQS, the management objectives for the public water source use of this water is: Waters shall be managed to achieve and maintain a level of quality that is suitable for use as a public water source with filtration and disinfection or other required treatment. The Federal arsenic standard for drinking water is 10 ug/l, or at least 10 times greater than the measured concentration.

Due to the short-term duration of this discharge, and the ability of a public drinking water system to remove Arsenic prior to distribution, it is not necessary to monitor Arsenic in the effluent.

Mercury was also calculated to have the potential to exceed the Chronic Criteria for Aquatic Biota when mixed into the 7Q10 flows. At the proposed river flow of 53.4 cfs this potential disappears. Due to the short-term nature of this discharge, and the prohibition on discharging when the river provides less than 53.4 cfs of dilution water it is not necessary to monitor for Mercury in the effluent.

It should be noted that the criteria for Arsenic and Mercury that exceeded the VWQS either in the pond or at 7Q10 flows are very low and are not measurable using normal analytic methods. For the purposes of this memo the full numeric value of the non-detect was used in the calculations despite that being an excessively conservative practice.

Table 4 Comparison of Select Parameters with VWQS as calculated for the receiving water conditions.

Constituent	Consumption of Water and Organisms	Consumption of Organisms Only	Maximum Allowable Concentration - Acute Criteria	Allowable Average Concentration - Chronic Criteria	Quarry Water Sample	Mixed Contribution at 7Q10	Proposed Mixed Contribution when Qs=53.4 cfs	Notes
Note: Total Ammonia Nitrogen as N criteria were calculated at a pH of 7.98 and temperatures of 5 and 20 Degrees C (Winter/Summer).								
Total Ammonia Nitrogen as N (winter) (mg/L)			5.83	4.62	<0.08	<0.016	<0.002	Below VWQS in quarry before mixing with river.
Total Ammonia Nitrogen as N (summer) (mg/L)			4.05	2.00				
Free Cyanide (ug/L)	4	400	22	5.2	<9	<1.818	<0.236	Below VWQS when mixed at 7Q10.
Total Arsenic (ug/L)	0.02	1.5	340	150	<1	<0.202	<0.026	Below all criteria except HH Consumption of Water and Organisms in quarry prior to mixing.
Total Antimony (ug/L)	5.6	640			<2	<0.404	<0.052	Below VWQS in quarry before mixing with river.
Total Beryllium (ug/l)					<1	<0.202	<0.026	No VWQS for this metal.
Total Iron (ug/L)	300			1000	62	12.53	1.63	Below VWQS in quarry before mixing with river.
Note: Hardness Dependent Metals Criteria were calculated at a Total Hardness of 122.15 mg/l as CaCO3.								
Total Cadmium (ug/L)			2.47	1.03	<2	<0.404	<0.052	Below VWQS when mixed at 7Q10.
Total Chromium III (ug/L)			6722	118	<20	<4.040	<0.525	Below VWQS in quarry before mixing with river.
Total ChromiumVI (ug/L)			16	11	<5	<1.010	<0.131	Below VWQS in quarry before mixing with river.
Total Copper (ug/L)			17.61	11.53	<20	<4.040	<0.525	Below VWQS when mixed at 7Q10.
Total Lead (ug/L)			138	5.4	<1	<0.202	<0.026	Below VWQS in quarry before mixing with river.
Total Nickel (ug/L)			557	62.0	<5	<1.010	<0.131	Below VWQS in quarry before mixing with river.
Total Mercury (ug/L)			1	0.012	<0.2	<0.040	<0.005	Below all criteria under proposed discharge conditions.
Total Silver (ug/L)			6.28		<10	<2.020	<0.262	Below VWQS when mixed at 7Q10.
Total Zinc (ug/L)			145	144	<20	<4.040	<0.525	Below VWQS in quarry before mixing with river.
Dissolved Selenium (ug/L)	170	4200		5	<2	<0.404	<0.052	Below VWQS in quarry before mixing with river.
Total Thallium (ug/L)	0.24	0.47			<1	<0.202	<0.026	Below VWQS when mixed at 7Q10.

H. Nutrients

Table 1 shows the values for Nitrogen and Phosphorus that were submitted with the application. Table 5 below shows the mass balance for the proposed discharge.

This facility is located in the Lake Champlain basin and will discharge to the South Lake B Segment which is impaired for Total Phosphorus. The results for Nitrogen and Phosphorus do not suggest the need for Water-Quality Based Effluent Limits, and due to the short-term duration of the discharge and low TP/TN concentrations additional monitoring for TP and TN is not necessary for this permit.

a. Total Nitrogen:

TN is the sum of nitrate, nitrite, ammonia, soluble organic nitrogen, and particulate organic nitrogen. The quarry water has a TN concentration of <0.264 mg/l and the Mettawee River just downstream of the proposed discharge had a TN concentration of 0.52 mg/l on 9/30/2019. The discharge of the quarry water will not contribute to an exceedance of VWQS for TN or its constituent parts. As shown in Table 5 below, the current data indicates that this discharge is likely to slightly reduce downstream TN concentrations.

TN is a calculated value based on the sum of NO_x and TKN, and, shall be reported as pounds, calculated as:

Average TN (mg/L) x Total Daily Flow (MGD) x 8.34 = Pounds TN/day
 where, TN (mg/L) = TKN (mg/L) + NO_x (mg/L)

Per 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). For this facility the information provided with the application is considered sufficient for these purposes.

Total Ammonia:

This facility does not process organic wastes which have the potential to contain TAN, and there is no reasonable potential for effluent TAN concentrations to cause or contribute to an excursion above any narrative or numeric water quality criteria. A comparison of the reported TAN value and the seasonal VWQS along with diluted concentrations is presented above in Table 4. No TAN monitoring is required.

b. Total Phosphorus:

As shown in Table 1 this facility's proposed effluent contains 13 ug/l of phosphorus. The available data for the Mettawee River in Table 3 indicates that TP concentrations at the time of observations was 10 ug/l. Both values are less than the numeric criteria for a Medium High Gradient Class B2 Stream of 15 ug/l. Because the quarry pond water and the receiving water contain less Total Phosphorus than the numeric criteria for this stream type, and because this portion of the Mettawee River fully supports the phosphorus response variables including macroinvertebrates, a permit limit and additional monitoring are not required for the proposed permit.

The potential impacts of phosphorus discharges from this facility to the receiving water have been assessed in relation to the narrative criteria in §29A-302(2)(A) of the 2017 VWQS, which states:

In all waters, total phosphorous loadings shall be limited so that they will not contribute to the acceleration of eutrophication or the stimulation of the growth of aquatic biota in a manner that prevents the full support of uses.

To interpret this standard, the Secretary relies on a framework which examines TP concentrations in relation to existing numeric phosphorus criteria and response criteria in §29A-306(a)(3)(c) of the VWQS, for streams that can be assessed using macroinvertebrate biocriteria. Under this framework, a positive finding of compliance with the narrative standard can be made when nutrient criteria are attained, or when specific nutrient response variables; pH, Turbidity, Dissolved Oxygen, and aquatic life use, all display compliance with their respective criteria in the Water Quality Standards. To assist in determining whether this facility's TP discharge is in compliance with VWQS the analysis is broken into an analysis of the TP numeric standard and an analysis of the Nutrient Response Conditions needed to determine compliance with the narrative standard.

Total Phosphorus Numeric Analysis:

The TP concentrations in the Mettawee River are less than the 2017 nutrient criteria threshold of 15 ug/L Total Phosphorus in a Class B Medium, High-Gradient stream. After mixing with the proposed quarry water discharge the concentration will remain under that threshold. The calculated change in the in-stream TP concentration attributable to the Button Falls Solar Project is 0.25 ug/l. Table 5 below shows the mass balance for the proposed discharge.

Table 5. Mass Balance of Nutrients of Concern around the Button Falls Solar Project.

	Total Phosphorus (ug/l)	Total Nitrogen (mg/l)	Notes
Qs (cfs)	24.42		<i>Estimated LMM flow</i>
Qe (cfs)	2.228		<i>permitted effluent discharge</i>
Qr = Qs + Qe (cfs)	26.65		<i>Qs+Qe</i>
LMM IWC	0.0836		<i>Qe/(Qs+Qe)</i>
Cs	10.00	0.52	<i>upstream pollutant concentration (average)</i>
Ce	13	0.3	<i>maximum effluent pollutant concentration observed</i>
Cr = (CsQs+CeQe)/Qr	10.3	0.50	<i>calculated resultant downstream pollutant concentration without TSD factor of safety</i>
Cr (mg/L) (IWC)	2.2	4.2	<i>calculated resultant downstream pollutant concentration using instream waste concentration method</i>
Stream Type	B2 Medium, High-Gradient		
Calculated Instream Contribution from Effluent without TSD method	0.3	-0.02	<i>difference between observed upstream concentration and calculated resultant downstream concentration. Without TSD method</i>
VWQS Criteria (2017)		None for Streams	
Threshold Criteria	15		
Threshold Exceeded without TSD method?	No		

Total Phosphorus Nutrient Response Conditions Analysis:

The Combined Nutrient Response Conditions for Aquatic Biota and Wildlife in Rivers and Streams at RM 20.0 on 9/30/2019 meets VWQS for pH, meets VWQS for Turbidity, meets VWQS for Dissolved Oxygen and meets VWQS for Aquatic Biota as shown below in Table 6. Therefore, the narrative standard presented in §3-01.B.2 of the VWQS is supported and the receiving waters are in compliance with VWQS for Total Phosphorus but may still be subject to limits prescribed by VSA 1266a or a Phosphorus TMDL.

Table 6. Assessment of Phosphorus Response Variables around the Button Falls Solar Project

Response variable (VWQS reference)	Target Value for Cold Water Fish Habitat	River-mile: 20.0 9/30/2019
pH (§3-01.B.9)	6.5-8.5 s.u.	7.98
Turbidity (§3-04.B.1)	< 10 NTU at low mean annual flow	0.27
Dissolved Oxygen (min) (§3-04.B.2)	>6 mg/L and 70% saturation	10 (100.5%)
Aquatic biota, based on macroinvertebrates.	Attaining an assessment of good, or better.	Meets VWQS

Total Phosphorus Reasonable Potential Determination:

The quarry water and Mettawee River water sample TP concentrations were both below the numeric threshold for this water body and would remain below that threshold when mixed under LMM flows. The nutrient response criteria for TP are also satisfied, and therefore this facility does not have reasonable potential to violate VWQS for TP.

This facility is subject to 10 V.S.A. 1266a, which reads “No person directly discharging into the drainage basins of Lake Champlain or Lake Memphremagog shall discharge any waste that contains a phosphorus concentration in excess of 0.80 milligrams per liter on a monthly average basis. Discharges of less than 200,000 gallons per day, permitted on or before July 1, 1991, shall not be subject to the requirements of this subsection.” This facility will not discharge quarry dewatering water in excess of this concentration and due to the measured TP concentration and short duration of discharge, no monitoring or limit is suggested.

This facility was not assigned a WLA in the 2016 Lake Champlain Phosphorus TMDL. It is not clear that TP discharged from this location would remain suspended long enough to be deposited into the lake. This facility is anticipated to discharge approximately ½ pound of TP. The South Lake B segment to which this facility discharges has a total Wastewater WLA of 3,575 lbs TP of which only 18.3% was discharged during the period between March 2021 and March 2022. These numbers can be seen below in Table 7. Due to the small amount of TP proposed for discharge, the large amount of unutilized Wastewater WLA and the uncertainty in whether TP from this facility reaches the lake, it is not necessary to monitor for TP or have a limit in the permit.

Table 7. Assessment of Total WWTF Phosphorus loading for South Lake B segment

Facility	WLA from 2016 Lake Champlain TP TMDL		Lbs TP Discharged 3/21-3/22
	Metric Tons TP	Lbs TP	
Benson	0.122	268	129.22
Castleton	0.397	875	118.22
Fair Haven	0.414	912	56.61
Poultney	0.414	912	71.24
West Pawlet (Pawlet)	0.276	608	277.65
Total	1.623	3575	652.94
Percent of Wastewater WLA Discharged:			18.3%
Anticipated lbs TP from Button Falls Solar = $8.34 \times 0.013 \text{ mg/l} \times 4.645 \text{ MG} =$			0.50

VII. Summary of Reasonable Potential Determinations

The data available for this facility does not indicate that it has a reasonable potential to violate VWQS. Limits for the effluent should be set to comply with VWQS at the outlet pipe for turbidity and pH.

A. Recommended Biological and Water Quality Monitoring:

No biomonitoring is proposed for inclusion in the permit.

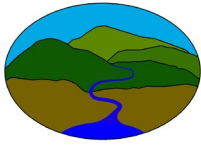
B. Recommended Effluent Monitoring:

The following monitoring is suggested for inclusion in the permit:

- Daily pH monitoring should be included in the permit with minimum and maximum limits of 6.5 and 8.5.
- Daily Turbidity monitoring should be included in the permit with an instantaneous max limit of 10 NTU.
- Continuous flow monitoring with a daily average limit of 1.44 MGD (1000 gpm) and a monthly total monitor only condition should be included in the permit.
- A special condition requiring that discharge stop immediately upon measurement of an exceedance of either pH or Turbidity. If Turbidity is exceeded discharge may resume once a passing turbidity sample representative of the proposed effluent is obtained. If pH is exceeded, then an operational plan to treat the effluent so that it is less than 8.5 and greater than 6.5 must be submitted to the Secretary for review and approval prior to continued discharge.
- A special condition prohibiting the discharge of effluent from this facility once material has started to be placed in the partially dewatered quarry. This condition should require email notification that discharge has stopped, and material placement has begun.
- A special condition that requires daily monitoring of the USGS Station 04280450 and prohibits discharge if the flow is less than 80.3 cfs. This flow rate has been prorated based on watershed area to correlate with a flow of 53.4 cfs at the effluent point. See "Re: Mettawee River 7Q10 Analysis - Button Falls Quarry, Pawlet VT" (attached) That flow check should be documented and included as an attachment to the monthly report.
- A special condition requiring erosion control devices at the point of discharge and daily inspections with documentation.

C. Conclusion:

After review of all available information, it has been determined that there is not a reasonable potential for the discharge to cause or contribute to a water quality violation.



March 7, 2022

John Merrifield
Vermont Department of Environmental Conservation
Direct Discharge Analyst
1 National Life Drive, Davis 3
Montpelier, VT 05620-3522

Re: pH Monitoring for Button Falls Quarry, Pawlet VT

Dear John:

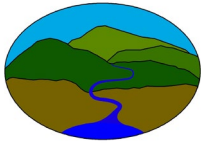
Fitzgerald Environmental Associates (FEA) was hired as a sub-consultant to Krebs & Lansing Consulting Engineers to assist with water quality sampling at the quarry pond site on Button Falls Road in Pawlet, VT. FEA completed an initial round of water quality grab sampling on 12/20/2021 and delivered the samples to Endyne Laboratory in Williston, VT on the same day. The analyzed samples were within the expected ranges, except for pH. The lab sample was reported at 11.03, which is highly basic and well outside of the expected range. We had numerous discussions with yourself and with the Endyne Laboratory manager and concluded that this sample was likely an error. The sample was collected from shore in an area that was approximately 2-feet deep, it is possible that a locally high pH value was present due to shoreline contamination. The laboratory QC report notes that the value "exceeded the analytical calibration range", also the sample was not processed until the following day, approximately 24 hours after it was collected. There is no official hold time listed for Method SM 4500-HB, however it is recommended that samples be processed "immediately". We suspect that the combination of a 24 hour hold time and the value outside the calibration range produced an invalid result for the pH sample.

I completed a follow up site visit on 2/22/2022 and directly measured pH at 4 locations along the shoreline using a YSI Pro 1030 handheld unit (see attached map). The YSI unit was rented from Geotech Environmental and was calibrated approximately 3 hours prior to sampling. Field measurements of pH were collected by chiseling a hole through the ice and lowering the sensor approximately halfway down the water column. Readings were collected at depths ranging from 1 to 6 feet deep. Field measured pH values ranged from 8.09 to 8.24. The field measured values are within the acceptable range described in the Vermont Water Quality Standards.

We anticipate that project mobilization will occur in late fall of 2022 or winter or 2023. The Project Team will verify pH in the quarry pond a minimum of two times prior to dewatering. We propose to follow the sampling protocol described above approximately 2 months prior to pumping and again 1 week prior to pumping. The contractor shall be responsible for measuring pH daily during pumping.

Sincerely,

Joe Bartlett, CFM
Watershed Scientist



March 7, 2022

John Merrifield
Vermont Department of Environmental Conservation
Direct Discharge Analyst
1 National Life Drive, Davis 3
Montpelier, VT 05620-3522

Re: Mettawee River 7Q10 Analysis - Button Falls Quarry, Pawlet VT

Dear John:

We completed a 7Q10 analysis for the Mettawee River to determine appropriate pumping rates for partially dewatering the quarry pond on Button Falls Road in Pawlet, VT. The USGS operates a stream gage on the Mettawee in Middle Granville, NY (Station 04280450). The station has been in continuous operation since 1990. The drainage area at the USGS gage is 167sqmi, the drainage area at the quarry pond is 111sqmi. Annual low flow values range from 13.3cfs to 54cfs. We assume a drainage area adjusted 7Q10 flow for the project of 8.8cfs ($13.3\text{cfs} \times (111\text{sqmi}/167\text{sqmi})$). The lowest annual flows consistently occur between late August and early October.

The project requires daily dewatering of approximately 464,540 gallons from the pond into the Mettawee River for 10 days. A 1,000gpm (2.67cfs) pump is proposed for dewatering. The Vermont Water Quality Standards specify that the natural flow regime for B1 waters shall not be diminished by more than 5% of the 7Q10 for water withdrawal. We are targeting an increase of no more than 5% to the flow rate of the Mettawee River. We propose to monitor the daily flow rates at the USGS gage and operate the pump when the flow rate at the gage is no less than 80.3cfs, which equates to 53.4cfs at the project site. This will ensure that the maximum pump rate represents less than 5% of the receiving waterbody.

Sincerely,

Joe Bartlett, CFM
Watershed Scientist

FEA staff collected water quality grab samples from the quarry pond on 12/20/2021. Dissolved Oxygen was measured directly with a YSI Pro-ODO handheld meter, all other samples were collected into bottles provided by Endyne Laboratories. All samples except pH were delivered within specified holding times to Endyne Laboratories on 12/20/2021. pH samples have a maximum hold time of 15 minutes, which was not feasible for this project (2 hours from the closest analytical lab). Sampling results were compared to the Vermont Water Quality Standards (VTDEC, 2017). All sampling results were well below the values for general criteria, human health, and aquatic biota (chronic exposure), except for pH (Table 1). The field sampled pH value of 11.03 is strongly basic and exceeds the General Criteria Applicable to all Waters range of 6.5 to 8.5. It is worth noting that VTDEC biomonitoring in the Mettowee River immediately downstream of the quarry recorded a slightly basic pH of 7.98 in 2019. We completed a followup visit on 2/22/2022 to directly measure pH with a YSI Pro 1030 and found values ranging from 8.09 to 8.24, falling within the VWQ standards.

Table 1: Vermont Water Quality Criteria and field sampling results

Analyte	VWQS Water Quality Criteria (Class B, Cold-Water)				2021 Sampling
	General	Human Health	Aquatic Biota Acute	Aquatic Biota Chronic	
BOD5					3.9 mg/L
COD					<10 mg/L
Turbidity	10				1.84 NTU
Settleable Solids	*				<0.5 mg/L
Oil and Grease	*				2.8 mg/L
Total Dissolved Solids					284 mg/L
Total Suspended Solids	*				4 mg/L
Total Phosphorus	.054				0.013 mg/L
Total Kjeldahl N					0.2 mg/L
Nitrite					<0.02 mg/L
Nitrate	5.0				0.044 mg/L
Ammonia					<0.08 mg/L
Color	**				5 CoPT
pH	6.5-8.5				8.2***
Dissolved Oxygen	6				10.5 mg/L
Total Hardness					225 mg/L
antimony		5.6			<0.002 mg/L
arsenic		.02	340	150	<0.001 mg/L
beryllium					<0.001 mg/L
cadmium			0.94	0.43	<0.002 mg/L
calcium					62 mg/L
chromium 6			16	11	<0.02 mg/L

Table 1: Vermont Water Quality Criteria and field sampling results

Analyte	VWQS Water Quality Criteria (Class B, Cold-Water)				2021 Sampling
	General	Human Health	Aquatic Biota Acute	Aquatic Biota Chronic	
chromium Total			322	42	<0.005 mg/L
copper			7.0	4.95	<0.02 mg/L
cyanide			22	5.2	<0.009 mg/L
Iron				1,000	0.062 mg/L
lead			30.1	1.17	<0.001 mg/L
magnesium					17 mg/L
manganese					0.17 mg/L
mercury			1.4	.012	<0.0002 mg/L
nickel			260	29	<0.005 mg/L
selenium				5	<0.002 mg/L
silver			1.02		<0.01 mg/L
thallium		.24			<0.001 mg/L
zinc			65	65	<0.02 mg/L

*None in such concentrations or combinations that would prevent the full support of uses

**No change from the natural condition that would prevent the full support of uses

***pH was sampled directly with a handheld meter (YSI Pro 1030) on 2/22/2022