

**WASTEWATER SYSTEM AND POTABLE WATER SUPPLY
INNOVATIVE AND ALTERNATIVE (I/A) TECHNOLOGY
GENERAL USE APPROVAL PERMIT****LAWS/REGULATIONS INVOLVED**10 V.S.A. Chapter 64, Potable Water Supply and Wastewater System Permit
Wastewater System and Potable Water Supply Rules, Effective April 12, 2019

Permittee: SludgeHammer Group Ltd.
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Permit Number: 2023-02-R0
Date Issued: 04/20/2023
Date Expires: 05/01/2025

This permit is for the following fixed-film bioreactor I/A technology models:

Product Name	Model Number(s)	Design Flow (gpd)
SludgeHammer ABG	S-400	400
SludgeHammer ABG	S-600	600
SludgeHammer ABG	S-800	800
SludgeHammer ABG	S-1000	1000

The technology listed in this permit is used to treat low-strength effluent to discharge to a soil-based wastewater disposal system. The technology, consisting of a bacterially enhanced, extended-air, fixed-film bioreactor held in a standard two chambered septic, are hereby approved under the requirements of the regulations named above subject to the following conditions.

1. GENERAL

- 1.1 The technologies listed in this permit may be used as part of a soil-based wastewater system permitted under the Rules provided the conditions of this permit are met.
- 1.2 Failure by the Permittee to comply with these conditions is grounds for the Secretary to revoke or not renew the Approval Permit.
- 1.3 The approval shall expire on **May 1, 2025**. Applications for renewal of this Approval Permit shall be submitted to the Division by March 1, 2025, to avoid a lapse in approval. The renewal request shall be submitted on a form prepared by the Secretary and shall include: a description of any changes to the equipment, technical specifications and drawings, installation requirements, and operation and maintenance manuals.
- 1.4 No changes shall be made to the approved technology without prior review and approval by the Secretary.
- 1.5 This Approval Permit is based on the design, operation, and maintenance manuals submitted by the Permittee to the Secretary. Misrepresentation in the application material is grounds for the Secretary to revoke this permit.
- 1.6 If the Rules are revised during the term of this Approval Permit, this permit shall be revised as needed to conform to the revisions.
- 1.7 Site-specific permission for the use of this technology is required in the form of a Wastewater System and Potable Water Supply Permit (WW Permit).
- 1.8 This permit is not a representation or guarantee of the effectiveness, efficiency, or operation of the approved technology.



- 1.9 This General Use Approval Permit is limited to treating septic tank effluent that is characterized as low strength according to §1-805(b) of the Rules.
- 1.10 This approval is based on information submitted by the Permittee indicating that the technology will treat the effluent to reduce the biochemical oxygen demand (BOD₅) to 30 mg/L or less and total suspended solids (TSS) to 30 mg/L or less.
- 1.11 Each Vermont landowner in interest shall be shown a copy of the Wastewater System and Potable Water Supply Innovative and Alternative System General Use Approval Permit, the Operation and Maintenance manuals, and projected maintenance costs prior to the installation of any permitted unit.
- 1.12 All components of the technology shall be warranted for the first 2 years following commencement of use of technology unit. The permittee shall have an inventory of replacement parts available locally or available for delivery within 24 hours.
- 1.13 Second party replacement parts may be used in the repair and maintenance of the technology after the warranty period has elapsed and if there is no change in the level of treatment.
- 1.14 All conditions set forth in WW Permits that include the use of the approved technology shall remain in effect and may surpass the conditions set herein.
- 1.15 A WW Permit that approves the use of a technology approved by this permit remains valid for the use of the technology identified in the WW Permit even if this permit expires.

2. DOCUMENTS

- 2.1 The approval of the I/A technology is based on the following documents submitted by the permittee:

Title	Submission Date	Revision
SludgeHammer Owner's Manual	11/22/2021	None
SludgeHammer Installation Instructions	11/22/2021	None
SludgeHammer Installer's Maintenance Procedures	11/22/2021	None
SludgeHammer Spec Sheets	11/22/2021	None
NSF-40 Certification	11/22/2021	None
VT-ANR Innovative and Alternative Technology Renewal Application	11/22/2021	None

- 2.2 Use of the I/A technology in ways not depicted or described in the documents, and or identified in this permit, is not allowed without prior approval by the Drinking Water and Groundwater Protection Division.

3. SERVICE PROVIDER

- 3.1 The Permittee shall contract with and maintain a minimum of three Service Providers for the State of Vermont (Vermont Service Provider) to perform the inspections, maintenance, and repairs required by this permit and by conditions of the WW Permit. The Vermont Service Providers must be based in Vermont or in a neighboring state or province and be ready and willing to provide service to all installed technologies in Vermont, regardless of where in Vermont a unit is located.
- 3.2 The Permittee shall provide to the Secretary the names, mailing addresses, email addresses, and phone numbers of three or more service providers prior to the Division issuing a WW Permit for use of the technology.
- 3.3 The Permittee shall maintain with the Secretary the names and contact information for all Vermont Service Providers. The Permittee shall notify the Secretary within 30 days of termination of an existing and/or hiring of a new Service Provider. Failure to maintain a minimum of three Vermont Service Providers will result in the Secretary prohibiting the issuance of a WW Permit with the approved technology.

- 3.4 The Permittee shall provide training to each Vermont Service Provider for the proper operation, maintenance, and repair of each approved technology.
- 3.5 Service Providers must follow Permittee and WW Permit conditions for inspection, maintenance, and reporting requirements.
- 3.6 Maintenance and inspections of the approved technology must be performed by a Service Provider trained and authorized by the Permittee. Reports shall be provided to the Permittee, landowner, and Division in a timely manner so that they can ensure conditions of the WW Permits are met.
- 3.7 Maintenance and inspections performed by Service Providers shall be in accordance with the operation and maintenance manual submitted as part of the I/A permit approval application, as provided in trainings by the Permittee, and specified in the WW Permits issued by this Division.
- 3.8 Disposal of used biofilter media by the Service Provider shall be in accordance to rules and statutes in the State of Vermont governing the disposal of biosolids of a hazardous nature.

4. REPORTS

- 4.1 The Permittee shall submit electronically by April 1st of each year an annual report to the Division containing the following information for the previous 12-month period ending December 31st:
 - A. the entities who are distributing the permitted technology in the State of Vermont
 - B. a listing of each permitted technology installed in Vermont during the previous calendar year with the following information:
 - i. assigned WW Permit number;
 - ii. the property's SPAN number;
 - iii. the distributor who sold the installed technology
 - iv. the name of the Vermont-licensed Designer providing the installation certification;
 - v. the name of the contracted and authorized Service Provider inspecting the technology at the time of installation;
 - vi. the date installed, and;
 - vii. the date of initial use of the technology (beginning of 2-year warrantee period).
- 4.2 The Permittee shall ensure the Vermont Service Providers for each of the permitted systems utilizing this technology installed in Vermont are submitting to the Division the following reports;
 - A. an initial report of an inspection conducted within 60 days of initial usage;
 - B. inspection reports of the I/A technology conducted every 6 months for the first two years of usage;
 - C. inspection reports of the I/A technology conducted annually following the initial two years of usage.
- 4.3 Maintenance and inspections reports shall be submitted on the Secretary-approved inspection report form and be signed and dated by the Service Provider.
- 4.4 Inspection reports by the Service Provider shall include but not be limited to a summary of all known problems, damages, and/or failures of the technology to comply with this approval and operating requirements for the technology, including:
 - A. a description of any problems, damages, and/or failures;
 - B. potential/known causes of any problems, damages, and/or failures;
 - C. a statement of system operability including whether or not the technology is operating in compliance with this approval and operating specifications following repairs or corrections of any problems, damages, and/or failures;
 - D. a listing of the required repair/remediation;
 - E. identification of changes to the technology specifications; and

- F. any observed failure of the wastewater system including wastewater exposed to the open air, wastewater pooling on the surface of the ground, wastewater discharging directly to surface water, or wastewater backing up into the building or structure.
- 4.5 Problems, damages, and/or failures of the technology identified during an inspection per condition 4.2 of this permit must be reported by the Service Provider immediately to the landowner and within 30 days to the Division.
- 4.6 Maintenance and inspections shall be performed in accordance with the permitted operation and maintenance manual that are specified in the WW Permits issued by this Division.

5. DESIGN SPECIFICATIONS


- 5.1 The design of a wastewater system using the approved technology shall identify the specific approved -model and shall not be replaced with any other model without an amendment to the WW Permit.
- 5.2 Technologies shall be equipped with anti-flotation devices. The Permittee may specify whether or not the anti-flotation device are required if a designer demonstrates flotation will not occur or the designer proposes in an application for the use of the technology an alternative method to stabilize the technology that complies with the Permittee's requirements for installation.
- 5.3 Technology model choice and sizing shall be in accord with the Permittee's technical requirements approved by the Secretary. Sizing of each unit shall be based on the calculated design flow per §1-803 of the Rules.

6 INSTALLATION SPECIFICATIONS

- 6.1 The approved technology shall be installed under the guidance of a Service Provider and a designer.
- 6.2 The installation of each technology shall be in accordance with the Permittee's technical requirements approved by the Secretary.

Any person aggrieved by this permit may appeal to the Environmental Court within 30 days of the date of issuance of this permit in accordance with 10 V.S.A. Chapter 220 and the Vermont Rules of Environmental Court Proceedings.

Julia S. Moore, Secretary
Agency of Natural Resources

By  Dated April 20, 2023
Cristin Ashmankas, Environmental Analyst VII
Wastewater Systems and Potable Water Supply Program
Drinking Water and Groundwater Protection Division