

**WASTEWATER SYSTEM AND POTABLE WATER SUPPLY  
 INNOVATIVE AND ALTERNATIVE (I/A) TECHNOLOGY  
 PILOT 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

<b>Permittee:</b>	Rich Earth Institute 355 Old Ferry Road Brattleboro, VT 05346 (802) 490-8853 www.richearthinstitute.org	<b>Permit Number: P-2020-08-R0</b> <b>Date Issued: 10/19/2020</b> <b>Date Expires: 05/01/2022</b>
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This permit is for the following urine diversion I/A technology models:

<b>Product Name</b>	<b>Model Number(s)</b>	<b>Design Flow (gpd)</b>
<b>Plumbed Urine Diversion Gravity System</b>	Configuration A	0.4 g urine/person/day 0.8 Gal urine + water/person/day
<b>Plumped Urine Diversion Pumped System</b>	Configuration B	0.4 g urine/person/day 0.8 Gal urine + water/person/day
<b>Plumped Urine Diversion Pumped System</b>	Configuration C	0.4 g urine/person/day 0.8 Gal urine + water/person/day
<b>Plumped Urine Diversion Gravity System</b>	Configuration D	0.4 g urine/person/day 0.8 Gal urine + water/person/day
<b>Plumped Urine Diversion Pumped System</b>	Configuration E	0.4 g urine/person/day 0.8 Gal urine + water/person/day

The technologies listed in this permit are used as part of a system to treat urine-based effluent to discharge to a soil-based wastewater disposal system. The technologies, consisting of plumped diversion of urine-based effluent to a storage structure for collection and transport to a treatment facility for repurposing as fertilizer, 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, 2022**. Applications for renewal of this Approval Permit shall be submitted to the Division by March 1, 2022, 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 Pilot Use Approval Permit is limited to treating urine-based effluent that is characterized as low strength according to §1-805(b) of the Rules.
- 1.10 This Pilot Use Approval Permit is limited to 25 installations of the technology in the State of Vermont as per §1-403(c) of the Rules.
- 1.11 This approval is based on information submitted by the Permittee indicating that the technology will treat the effluent prior to discharge to a soil-based dispersal system.
- 1.12 Each Vermont landowner in interest shall be shown a copy of the Wastewater System and Potable Water Supply Innovative and Alternative System Pilot Use Approval Permit, the Operation and Maintenance manuals, and projected maintenance costs prior to the installation of any permitted unit.
- 1.13 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.
- 1.14 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, so long as there is a State-approved collection, hauling, and treating entity. At the time that there is no longer a State-approved collection, hauling, and treating entity, the technology must be removed from the site and the Division informed of such within 15 days.

## 2. DOCUMENTS

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

<b>Title</b>	<b>Submission Date</b>	<b>Revision</b>
<b>Rich Earth Tech Info Sheets (A-E)</b>	05/13/2020	08/12/2020
<b>Rich Earth Float, Dosing, and Pump Schematics</b>	05/13/2020	05/18/2020
<b>VT-ANR Innovative and Alternative Technology Approval Application</b>	05/18/2020	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 be the sole Service Provider 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 Provider must be based in Vermont and be ready and willing to provide service to the technologies in Vermont.
- 3.2 The Permittee shall provide training to each individual employed by and acting on its behalf as a Vermont Service Provider for the proper operation, maintenance, and repair of each approved technology.
- 3.3 Service Providers must follow Permittee and WW Permit conditions for inspection, maintenance, and reporting requirements.

- 3.4 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.
- 3.5 An Operations and Maintenance manual must be developed and submitted prior to this approval expiring. Maintenance and inspections performed by Service Providers shall be in accordance with the to be submitted manual, as provided in trainings by the Permittee, and specified in the WW Permits issued by this Division.

#### 4. REPORTS

- 4.1 The Permittee shall submit electronically by December 31<sup>st</sup>, 2020, a report to the Division containing the following information for all installations of this technology made prior to the issuance of this approval:
  - A. A listing of each technology installed in Vermont prior to the approval being issued with the following information:
    - i. the property's SPAN number;
    - ii. if there is currently an assigned WW application or permit number;
    - iii. the name of the Vermont-licensed Designer applying for the WW;
    - iv. the date installed
    - v. any current metrics on frequency of pumping;
    - vi. any known issues with the installation.
- 4.2 The Permittee shall submit electronically by April 1<sup>st</sup> of each year an annual report to the Division containing the following information for the previous 12-month period ending December 31<sup>st</sup>:
  - A. 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 name of the Vermont-licensed Designer providing the installation certification;
    - iv. the date installed, and;
    - v. the date of initial use of the technology (beginning of 2-year warranty period).
- 4.3 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 15 days of initial usage;
  - B. inspection reports of the I/A technology conducted every month for the first 6 months of usage;
  - C. inspection reports of the I/A technology conducted biannually following the initial 6 months of usage.
- 4.4 Maintenance and inspections reports shall be submitted on the Secretary-approved inspection report form and be signed and dated by the Service Provider.
- 4.5 Inspection reports by the Service Provider shall include but not be limited to a summary of lab analyzes of effluent quality, water metering data, pump and trucking volume and dates, 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.
- 4.6 Problems, damages, and/or failures of the technology identified during an inspection per condition 4.5 of this permit must be reported by the service provider immediately to the landowner and within 15 days to the Division.

## 5. DESIGN SPECIFICATIONS


- 5.1 The design of a wastewater system using the approved technology shall identify the specific approved -model/configuration and or combination of configurations and shall not be replaced with any other model/configuration and or combination of configurations without an amendment to the WW Permit.
- 5.1 Technologies shall be equipped with anti-flotation devices. The Permittee may specify whether or not the anti-flotation devise 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. The technology may not be used in installations where the design flow is calculated per seat. It may be used for design flows that are calculated with an expected occupancy.

## 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.

Peter Walke, Commissioner  
Department of Environmental Conservation

By  Dated October 19, 2020  
Cristin Ashmankas, Environmental Analyst VI  
Regional Office Program  
Drinking Water and Groundwater Protection Division