



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

One Winter Street Boston, MA 02108 • 617-292-5500

DEVAL L. PATRICK
Governor

TIMOTHY P. MURRAY
Lieutenant Governor

RICHARD K. SULLIVAN JR.
Secretary

KENNETH L. KIMMELL
Commissioner

REMEDIAL USE APPROVAL

Pursuant to Title 5, 310 CMR 15.00

Name and Address of Applicant:

Presby Environmental, Inc.
143 Airport Road
Whitefield, NH 03598

Trade name of technology and models: **Advanced Enviro-Septic®** (hereinafter called the “System”). The Advanced Enviro-Septic Design & Installation Manual, System Installation Form and Inspection Checklist are part of this Certification.

Transmittal Number: X255470
Date of Issuance: Revised December 17, 2013

Authority for Issuance

Pursuant to Title 5 of the State Environmental Code, 310 CMR 15.000, the Department of Environmental Protection (the ‘Department’ or ‘MassDEP’) hereby issues this Remedial Use Approval to: Presby Environmental, Inc., 143 Airport Road, Whitefield, NH 03598 (hereinafter ‘the Company’), certifying the System described herein for Remedial Use in the Commonwealth of Massachusetts. The sale, design, installation, and use of the System are conditioned on compliance by the Company, the Designer, the Installer and the System Owner with the terms and conditions set forth below. Any noncompliance with the terms or conditions of this Certification constitutes a violation of 310 CMR 15.000.

David Ferris, Director
Wastewater Management Program
Bureau of Resource Protection

December 17, 2013
Date

Technology Description

The Advanced Enviro-Septic System (the 'System' or 'AES') is an alternative subsurface Soil Absorption System (SAS) that replaces a conventional SAS designed in accordance with 310 CMR 15.000. The System consists of an 11 5/8-inch diameter corrugated, high-density plastic pipe with a 9.5-inch interior diameter and a standard length per unit of 10 feet. The pipe is perforated with eight holes equally distributed around its inner circumference at each corrugation. Each hole has a plastic skimmer extending inwards. The exterior of the pipe has ridges on the peak of each corrugation and is wrapped with three geotextile fabric materials. The inner layer is a Bio-Accelerator fabric against the bottom exterior of the plastic pipe, aligned between the 4 o'clock and 7 o'clock positions. The Bio-Accelerator fabric is covered by a thick coarse, randomly oriented polypropylene fiber mat which is wrapped completely around the pipe. An additional outer layer of a thinner non-woven geotextile polypropylene fabric is also wrapped around the pipe. Connectors designed to connect pipe units together are available and required. The System also incorporates a sand layer surrounding the pipe units, specified as concrete sand meeting the ASTM C-33 specification, also called System Sand. The System Sand must be placed with a minimum thickness of 12 inches below, six inches above and six inches to the sides of the AES pipe units.

The System includes a Sampling Device having a sloped plastic trough collector and a sampling port, installed below the System Sand allowing for observation and field testing/sampling of treated wastewater. A separate Inspection Port is also installed within the disposal field as required by Title 5, 15.240(13) extending to in-situ soils below the Sampling Device elevation.

The System has demonstrated the ability to meet secondary treatment standards as specified and required in the Standard Conditions for Secondary Treatment Units, Section II, Condition 1.

Conditions of Approval

The term "System" refers to the Alternative Soil Absorption System in combination with the other components of an on-site treatment and disposal system that may be required to replace an existing failed, failing or nonconforming system in accordance with 310 CMR 15.000.

The System is approved for residential installations with design flows up to 880 gallons per day (gpd).

The term "Approval" refers to the technology-specific Special Conditions herein, the Standard Conditions for Alternative Soil Absorption Systems (available at <http://www.mass.gov/eea/docs/dep/water/wastewater/o-thru-v/stdconda.pdf>), the General Conditions for Use of Alternate Systems of 310 CMR 15.287, and any Attachments. In the event of a conflict between the conditions of this Approval and the Standard Conditions for Alternative Soil Absorption Systems, this Approval shall control. A copy of the Standard Conditions for Alternative Soil Absorption Systems is attached.

The phrase "upgrade of a system" or the term "upgrade" or the term "remedial site" refers to any repair, modification, or replacement of a whole system or a component of an existing failing, failed or nonconforming system where there is no increase in the actual or design flow to the system.

The Approval is subject to and limited by the following Special Conditions applicable to this Alternative Technology.

Special Conditions

1. The System is approved as an Alternative Soil Absorption System Patented Sand Filter providing Treatment with Disposal and is categorized as such by the Title 5 I/A Program. In addition to the Special Conditions contained in this Approval, the System shall comply with the *Standard Conditions for Alternative Soil Absorption Systems*, except where stated otherwise in these Special Conditions.
2. This Approval applies to the installation of a System for the upgrade or replacement of an existing failed or nonconforming system, provided that the facility meets the siting requirements for upgrades, as provided in Section II, paragraphs 7, 9 and 10(d) of the *Standard Conditions for Alternative Soil Absorption Systems*. The proposed use of the System shall also comply with any other of these Standard Conditions which pertain wholly or in part to upgrades of existing systems, including the Deed Notice requirement of paragraph II(23) and the transferee notification requirements of paragraph IV(1) of the *Standard Conditions for Alternative Soil Absorption Systems*.
3. The separation distance to the estimated seasonal high groundwater elevation shall be measured from the bottom of the System sand below the Advanced Enviro-Septic System.
4. The System shall only be installed in bed or field configuration, as described in 310 CMR 15.252. The System shall not be installed in trench configuration and no sidewall area shall be considered in the total effective leaching area provided. The effective leaching area shall be the bottom area only (length times width) of the sand bed.
5. Systems shall be installed with differential venting for aeration and inspection access at end of each run of pipe, section or serial bed and whenever the System is installed under impervious surfaces.
6. Serial distribution laterals shall be limited to no more than 500 gpd with each lateral a maximum of 100 feet, and must be laid level. Multi-level systems shall not be allowed.
7. System component material specifications for the pipe, plastic components, fabric and sand shall comply with the specifications identified in the initial Enviro-Septic I/A technology approval. The specification and use of the additional Bio-Accelerator layer must maintain the same material specification as was installed with the completed testing conducted by NSF, BNQ and Massachusetts On-Site System Test Center. Prior approval from the Department for any change from these specifications shall be requested in writing.
8. Any changes to the approved plans must receive Local Approving Authority (LAA) approval prior to any changes. Before a Certificate of Compliance can be issued by the LAA the System Designer must include any changes to the approved plan into the as-built plans.

9. SAS and System Design – For Systems sited in soils with a percolation rate of 60 minutes or less per inch, the size of the SAS shall be sized with 50% less effective leaching area than required when using the loading rates for gravity systems of 310 CMR 15.242(1)(a). For soils with a recorded percolation rate of between 60 and 90 minutes per inch, the size of the SAS shall be sized with 50% less effective leaching area than required when using the loading rate of 0.15 gpd/square foot as specified by 310 CMR 15.245(4).

No reduction greater than 50% in the required effective leaching area is allowed, including any reductions under a LUA or a variance.

The 400 square feet minimum effective leaching area as required in the *Standard Conditions for Alternative Soil Absorption Systems* is not applicable.

Operation and Maintenance Requirements

10. The first 50 Advanced Enviro-Septic Systems installed (total including both the General and Remedial Use approvals) shall be monitored and inspected at least twice per year each for three (3) years, with visits occurring between January and March, and October and December (exclusive of alarm responses or other maintenance visits). In addition to the requirements in paragraph 13 below, effluent samples shall be analyzed for BOD5 and TSS. After each System completes this three year period, monitoring may be reduced to annual field testing in accordance with paragraph 13. Results of monitoring of first 50 Systems shall be reported to the MassDEP in one report provided annually by February 15th.

For additional System installations after the first 50, monitoring shall be one time per year according to paragraph 13 below.

All monitoring shall meet the following requirements.

11. To ensure proper operation and maintenance (O&M) of the System, the System Owner shall enter into an O&M Agreement with a qualified Service Contractor whose name appears on the Company's current list of Service Contractors and has been certified, at a minimum, at Grade Level II (two) by the Board of Registration of Operators of Wastewater Treatment Facilities, in accordance with Massachusetts regulations 257 CMR 2.00. Prior to commencement of construction of the System, the System Owner shall provide to the local Approving Authority a copy of a signed O&M Agreement.
12. From start up and thereafter, the System Owner and Service Contractor shall be responsible for the proper operation and maintenance of the System in accordance with this Certification, the Designer's O&M requirements, the Company's O&M requirements, and the requirements of the local Approving Authority. The System Owner and Service Contractor shall be responsible for compliance with all monitoring and inspection requirements. All inspection, operation, maintenance, and monitoring requirements remain in effect until the conditions are modified, terminated, or superseded by a new Approval.

13. The System shall comply with the following monitoring requirements and effluent limits. The required O&M Agreement with the Service Contractor shall include the following monitoring schedule, at a minimum, subject to modifications that may be required by the conditions of this Approval:

Parameter	Monitoring Frequency	Sample Type	Location	Effluent Limits
pH	See paragraph 10	grab	effluent of treatment unit	6 to 9
turbidity		measure	effluent of treatment unit	≤ 40 NTU
settleable solids		measure	effluent of treatment unit	Measure and record ml/l only
color		visual observation	effluent of treatment unit	Record, observation only
dissolved oxygen (D.O.)		measure	effluent of treatment unit	≥ 2 mg/l
Depth of Ponding within SAS	Annually, see paragraph 20	measure	Inspection port to bottom of SAS	See paragraphs 20 and 21
Thickness of floating grease/scum layer	Once every 3 years	measure	Septic tank or other process tank where solids are retained	Pump out, as necessary
Depth of Sludge and distance to effluent tee outlet	Once every 3 years	measure	Septic tank or other process tank where solids are retained	Pump out, as necessary

14. Systems installed under this Approval shall be subject to the following Performance Requirements:
- a) Whenever field tests indicate a pH outside the specified range, an exceedance of the turbidity limit, or D.O. below the desired minimum, the Service Contractor shall make

adjustments and/or repairs to the System, as deemed necessary during the inspection, and collect an effluent sample for laboratory analysis for BOD₅ and TSS;

- b) For an individual household, if laboratory analyses indicate an exceedance of 30 mg/L BOD₅ or 30 mg/L TSS, the Service Contractor shall conduct a follow-up inspection and field-testing within 90 days of the original inspection date. Should the follow-up field-test indicate a pH outside the specified range, an exceedance of the turbidity limit, or D.O. below the desired minimum, the Service Contractor shall make adjustments and/or repairs to the System, as deemed necessary during the inspection, and collect another effluent sample for laboratory analysis for BOD₅ and TSS; and
- c) Whenever two consecutive sampling rounds include at least one exceedance of the limits for BOD₅ or TSS, the System Owner shall be responsible for submitting to the local Approving Authority, within 90 days of the second exceedance of the limits for BOD₅ or TSS, a written evaluation with recommendations for changes in the design, operation, and/or maintenance of the System. The written evaluation with recommendations shall be prepared by the Service Contractor or a Designer and the submission shall include all monitoring data, inspection reports, and laboratory analyses since the last annual report to the local Approving Authority.

Recommendations shall be implemented, as approved by the local Approving Authority, in accordance with an approved schedule, provided that all corrective measures are implemented consistent with the Alternate SAS Standard Conditions, paragraph IV(4).

15. Each time an Alternative System is visited by a Service Contractor the following shall be recorded, at a minimum:

- a) date, time, air temperature, and weather conditions;
- b) observations for objectionable odors;
- c) observations for signs of breakout of sanitary sewage in the vicinity of the Alternative System;
- d) depth of ponding within the SAS, if measured;
- e) identification of any apparent violations of the Approval;
- f) since the last inspection, whether the septic tank had been pumped with date(s) and volume(s) pumped;
- g) septic tank sludge depth and scum layer thickness, if measured;
- h) when responding to alarm events, the cause of the alarm and any steps taken to address the alarm and to prevent or reduce the likelihood of future similar alarm events;
- i) field testing results when performed as part of the site visit;
- j) samples taken for laboratory analysis, if any;
- k) any cleaning and lubrication performed;
- l) any adjustments of control settings, as recommended or deemed necessary;
- m) any testing of pumps, switches, alarms, as recommended or deemed necessary;
- n) identification of any equipment failure or components not functioning as designed;
- o) parts replacements and reason for replacement, whether routine or for repair; and

- p) further corrective actions recommended, if any.
16. Unless directed by the local Approving Authority to take other action, the System Owner shall immediately cease discharges or have wastewater hauled off-site, if at any time during the operation of the Alternative System the system is in failure as described in 310 CMR 15.303(1)(a)1 or 2, backing up into facilities or breaking out to the surface.
 17. Measuring the depth of ponding within the SAS above the interface with the underlying unsaturated pervious soils shall be performed once per year by means of the inspection ports and any other available access to the distribution system.
 18. Whenever an SAS inspection port measurement indicates the ponding level within the SAS is above the invert of the distribution system, an additional measurement shall be made 30 days later. If the subsequent reading indicates the elevation of ponding within the SAS is above the invert of the distribution system, the System Owner shall be responsible for submitting to the local Approving Authority, within 60 days of the follow up inspection, a written evaluation with recommendations for changes in the design, operation, and/or maintenance of the System. The written evaluation with recommendations shall be prepared by the Service Contractor or a Designer and the submission shall include all monitoring data, inspection reports, and any laboratory analyses for the previous year.

Recommendations shall be implemented, as approved by the local Approving Authority, in accordance with an approved schedule, provided that all corrective measures are implemented consistent with the Alternate SAS Standard Conditions, paragraph IV(4).