

State of Vermont  
Department of Environmental Conservation  
Wastewater Management Division  
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Agency of Natural Resources

Innovative/Alternative System Approval  
General Use per §1-1001 of the  
Wastewater System and Potable Water Supply Rules, effective September 29, 2007

#2001-01-R4 (2011 Renewal)

**Vendor Information**

Orenco Systems, Inc.  
814 Airway Avenue  
Sutherlin, OR 97479

**Contact**

Orenco Systems, Inc.  
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Contact: Sam Carter

**Technology Name**

Advantex® Treatment System  
Models AX20, AX20-RT,  
and AX25-RT (all Mode 1)

**Technology Type**

Textile Based Recirculating Packed  
Bed Filter

**Expiration Date**

September 15, 2013

**Approval**

The AdvanTex treatment system, including Models AX20, AX20-RT, and AX25-RT operating in Mode 1, may be used as part of a subsurface wastewater disposal system approved under the Wastewater System and Potable Water Supply Rules, effective September 29, 2007 under the following conditions:

1. The treatment units must be installed and operated as described in the Innovative/Alternative System application renewal filed with the Agency of Natural Resources (Agency) August of 2009.
2. Unit sizing must be in accord with the technical information submitted with the Innovative/Alternative System application renewal August of 2009. The sizing shall be based on the calculated design flow per §1-808 of the Wastewater System and Potable Water Supply Rules, effective September 29, 2007.
3. This approval is based on treatment only of domestic wastewater of low and moderate strength as specified in §1-915(a)(1)(C) & (D) of the Wastewater System and Potable Water Supply Rules, effective September 29, 2007.

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4. The system may be used for both new and replacement systems.
5. All effluent from the Advantex Treatment System shall be discharged to a filtrate disposal system that conforms to the requirements of §1-916 of the Wastewater System and Potable Water Supply Rules, effective September 29, 2007. If the rules are revised during the term of this approval, this approval shall be revised as needed to conform to the revisions.
6. All treatment modules shall be equipped with anti-flotation countermeasures as recommended by the manufacture unless there is a demonstration that flotation is not a problem on a particular site or that an alternative system has been approved by the Agency.
7. Detailed operating instruction shall be provided in writing to the owner/operator.
8. The vendor shall have an inventory of replacement parts available locally.
9. The vendor shall provide a copy of this approval letter to any landowner who is a prospective purchaser of an Advantex Treatment System prior to the sale of the system and prior to the filing of any application for a site-specific approval by the Agency for the purchaser's property. The application filed with the Agency shall include the landowner's written acknowledgement of this approval letter. Prior to any sale of the property or completion of a sales agreement to sell the property, a copy of the site-specific permit shall be provided to the prospective purchaser.
10. The owner of a property where an Advantex system has been installed shall have a valid maintenance contract in force at all times. The minimum length of any contract shall be for a period of two years. A copy of the initial and each succeeding contract shall be submitted to the appropriate Regional Environmental Office of the Agency. Maintenance shall be performed by, or shall be supervised by, a Licensed Class 1 Designer or a Licensed Class B Designer, approved by the Vendor or their representative, who shall provide written inspection reports detailing the maintenance performed on the specific system, any problems that have occurred since the previous inspection, any modifications made to the system, the date of the inspection, and any work required to ensure the system operates in compliance with this approval.

The inspection shall be performed in accordance with the manufacturer's Operation and Maintenance Manual submitted as part of the Innovative/Alternative System application package. If at any inspection the effluent is cloudy or pungent smelling a sample shall be collected and tested for BOD<sub>5</sub> and TSS. The results of any testing shall be submitted with the annual inspection report.

11. The first inspection shall be completed no later than 6 months after placing the system in service. The second inspection shall be completed no later than 12

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months after placing the system in service. Subsequent inspections shall be completed at least once per year based on the date when the system was first placed in service. More frequent inspections or additional testing, required by the manufacturer to ensure proper functioning of the system, shall be conducted in accordance with the manufacturer's specifications. All reports shall be filed with the appropriate Regional Environmental Office of the Agency and the land owner no later than 30 days after the date of inspection.

12. All systems shall be equipped with an hour meter, an audible alarm, and a visual alarm. These indicators shall be located outside of any buildings and visible to the building users in the normal course of routine occupancy of the building.
13. The vendor shall submit an annual report to the Agency by April 1<sup>st</sup> of each year containing the following information for the previous 12 month period ending December 31<sup>st</sup> of the previous year:
  - A. The number of permitted systems installed in Vermont.
  - B. The address of each installation.
  - C. The name of the owner at the time of installation and any known change in ownership.
  - D. All known problems or failures, with a brief summary of the cause and remedial measures taken.
14. This approval is based on information submitted by the Vendor indicating that the specified models and treatment modes will routinely provide effluent with no more than 30 mg/l of BOD<sub>5</sub> or more than 30 mg/l of TSS.
15. A site specific permit for the use of this system may be revoked if the system fails to function properly or if the property owner fails to have a valid contract for the required maintenance and inspection of the system. Revocation of the permit will require that the use of the building be discontinued unless another wastewater disposal system is installed based on prior written approval by the Agency.
16. This approval is not a representation or guarantee of the effectiveness, efficiency or operation of an Advantex Treatment System.

**Design and Review Conditions**

The following conditions will be used by the Department in reviewing permit applications that include an Advantex Treatment System:

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Equipment

- Advantex Treatment System including models AX20, AX20-RT, and AX25-RT operating in Mode 1.

Design and Application

- The treatment unit shall be installed in accordance with the approved plans and the manufacturer's recommendations. The designer shall assure that the system will properly function in all seasons.
- The designer must assess the structural needs of the unit for the specific application site and place the requirements on the design plans.
- The designer must determine the type of backfill required and any necessary placement specification.
- The designer must assess the ventilation path for the particular application and make any necessary provisions to assure proper flow and control of odor emissions.
- The designer shall include in the design a septic tank effluent filter with easy access for inspection and cleaning.
- The designer must assure routine access to the unit as well as the septic tank effluent filter.
- The designer must address flotation issues if the SHWT will be above the bottom of any of the tanks.

Installation Inspection

- The treatment unit shall be set up under the instruction and guidance of an installer/inspector trained by the manufacturer.
- The treatment unit shall be inspected by a Licensed Class 1 Designer or a Licensed Class B Designer, approved by the Vendor, after construction of the unit and installation of the tanks before backfilling, and after backfilling and grading is complete. The inspection shall include checking for an adequate structural foundation to support the unit, checking for levelness of the tanks, and inspecting for damage and proper assembly.
- Before backfilling, the unit and tankage shall be tested for water tightness by filling the unit or tank with water and holding it at a constant level for 24 hours; there shall be no measurable leakage. During the test the entire unit and tanks shall be inspected for visible leaks. Should the unit or tanks fail the

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test they may be repaired and retested. The testing and repairs shall be conducted under the direction and in the presence of the inspecting Licensed Class 1 Designer or a Licensed Class B Designer.

- The Licensed Class 1 Designer or a Licensed Class B Designer shall inspect all piping for proper installation and water tightness before backfilling.

Start-up

- Start-up of the system and initial operational checks shall be conducted by an installer/inspector trained by the manufacturer, who shall submit a report to the owner, and to the inspecting Licensed Class 1 Designer or a Licensed Class B Designer indicating any problems encountered, their resolution, and affirmation that the system is operating as intended.

Operational Maintenance and Inspection

- The owner shall have a valid maintenance contract in force at all times. The minimum length of any contract shall be for a period of two years. A copy of the initial and each succeeding contract shall be submitted to the appropriate Regional Environmental Office of the Agency. Maintenance shall be performed by, or shall be supervised by, a Licensed Class 1 Designer or a Licensed Class B Designer, approved by the Vendor, who shall provide written inspection reports detailing the maintenance performed on the specific system, any problems that have occurred since the previous inspection, any modifications made to the system, the date of the inspection, and any work required to ensure the system operates in compliance with this approval.

The inspection shall be performed in accord with the manufacturers Operation and Maintenance Manual submitted as part of the Innovative/Alternative System application package. If at any inspection the effluent is cloudy or pungent smelling a sample shall be collected and tested for BOD<sub>5</sub> and TSS. The results of any testing shall be submitted with the annual inspection report.

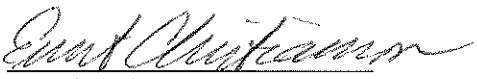
- The first inspection shall be completed no later than 6 months after placing the system in service.
- The second inspection shall be completed no later than 12 months after placing the system in service.
- Subsequent inspections shall be completed at least once per year based on the date when the system was first placed in service.
- All inspection reports shall be filed with the appropriate Regional Environmental Office of the Agency and the landowner no later than 30 days after the date of inspection.

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Permitting

- The permit shall run with the land.
- A copy of the permit shall be provided to any prospective buyers prior to the sale.
- Each new owner of the property shall inform the appropriate Regional Environmental Office of the Agency within 30 days of the transfer of the property and include the name and mailing address of the new owner.

Effective Date: November 10, 2011

By   
Ernest Christianson  
Regional Office Program Manager