RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 Promenade Street, Providence, Rhode Island 02908

Alternative/Experimental OWTS Technology Program

Vendor Information:
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Technology Name & Model Numbers:
AdvanTex® AX-20 Residential Treatment System (Mode 1)

AdvanTex® AX-20 Residential Treatment System (Mode 3)

Pretreatment Category:
Category 1: Timed-Dosed

Design Authority:
CI-II Licensed Designers & RI-PEs

Technology Type:
Class One Approval (Mode 1)
TSS ≤ 20 mg/L
BOD ≤ 20 mg/L
Oil & Grease ≤ 5 mg/L

Class One Approval (Mode 3)
Total Nitrogen ≤ 19 mg/L
TSS ≤ 20 mg/L
BOD ≤ 20 mg/L
Oil & Grease ≤ 5 mg/L

Certification Dates:
Approved: November 5, 2020

CERTIFICATION

The Rhode Island Department of Environmental Management (RIDEM) hereby renews the Class One Alternative Technology approval for the Orenco Systems, Inc.'s, hereafter referred to as the "Vendor", AdvanTex AX-20 Treatment System for residential applications. Based upon information contained in the application the RIDEM hereby approves the System for listing on the RIDEM Alternative and Experimental (A/E) Technology List as a Class One Technology for TSS, BOD, Oil & Grease removal in Mode 1, and TSS, BOD, Oil & Grease, and Total Nitrogen removal in Mode 3.

The System is a packed bed textile filter inside a waterproof container. It receives effluent from a two-compartment septic tank where it is recirculated between the septic tank and the treatment filter pod for additional treatment prior to discharge to a leachfield. Untreated wastewater enters the first compartment of the two-compartment septic tank where it receives primary treatment. Following primary treatment in

the septic tank, effluent is dosed to the treatment filter pod. In Mode 1, for TSS, BOD, and Oil & Grease removal, filtrate from the System is recirculated to the second compartment of the septic tank. In Mode 3, for TSS, BOD, Oil & Grease, and Total Nitrogen removal, filtrate from the System is recirculated to the first compartment of the septic tank.

The RIDEM recognizes the System as a Category 1 pre-treatment technology as defined in the Rules Establishing Minimum Standards Relating to Location, Design, Construction and Maintenance of Onsite Wastewater Treatment Systems (the OWTS Rules), as amended. Category 1 technologies are advanced treatment units that are timed-dosed and have been classified by the RIDEM to at least meet effluent standards of ≤20 mg/L for TSS and BOD and ≤5 mg/L for Oil and Grease. The RIDEM recognizes the System as capable of achieving these treatment levels when configured in Mode 1. The RIDEM recognizes the System as capable of achieving effluent concentrations of ≤20 mg/L for TSS and BOD, ≤5 mg/L for Oil and Grease, and ≤ 19mg/L Total Nitrogen when configured in Mode 3.

Design and installation of the System shall be in accordance with the following terms and conditions:

I. General Design Requirements

1. The System is approved for treating residential strength wastewater with model- specific design flow only. See Vendor's Advantex AX-20 residential design manual for appropriate model-specific design flows.
2. Design shall be in strict conformance with the RIDEM-approved AdvanTex AX-20 Residential Design Manual dated: **October 2019**.
3. Installation shall be in strict conformance with the RIDEM-approved AdvanTex AX-20 Residential Installation Manual dated **March 2017**.
4. The System is preceded by a septic tank, or two septic tanks in series; the tank or tanks must meet the requirements in the AdvanTex AX-20 design manual and conform to the requirements contained in the OWTS Rules.
5. The control panel must incorporate an event counter, an elapsed-time meter and a visible and audible pump/power failure warning indicator in a NEMA approved cabinet installed exterior to the building.
6. Designs incorporating this System and a conventional leachfield shall be allowed a 50% reduction in the required leachfield size. This reduction is based upon the ability of the System to remove BOD and suspended solids as demonstrated by the data presented in the Vendor's submittal. No reduction in leachfield size shall be allowed for non-conventional leachfields unless the leachfield is approved as a Class One alternative component and such reduction is not prohibited by the Class One alternative component Certification. Deep leaching chambers and any conventional leachfield using more than one foot of stone below shall be prohibited with or without the reduction.
7. System tanks, dosing chambers, pumping chambers, and riser assemblies shall be certified watertight by the manufacturer or field-tested and certified watertight using procedures set forth in the OWTS Rules. Riser assemblies and access manholes shall be installed and maintained at grade.
8. Design and installation shall be in strict conformance with the RIDEM-approved System design and installation manuals and shall only be performed by a Rhode Island licensed designer/installer who has received training and is authorized in writing by the Vendor to design/install the System.
9. In addition to other approved leachfield options allowed by regulation, the effluent from the System may be discharged to a pressure-dosed shallow-narrow drain field provided the latter is designed in accordance with the OWTS Rules.
10. Each System design shall meet all other applicable OWTS standards and receive prior approval by the RIDEM pursuant to the regulations in effect at the time of application.

II. Training

1. The Vendor shall make training available for designers, installers, and service providers.
2. The Vendor shall notify the RIDEM of the date and time of each training seminar and submit to the RIDEM a detailed agenda, material to be distributed to attendees and a list of presenters specifying their credentials at least six weeks in advance of the date of the scheduled seminar. Please consult the RIDEM-issued requirements for Vendors' system training available on the RIDEM website in the A/E technology section.
3. The Vendor shall make available to the public, a means of verifying individuals, by name and category, who have received training and are authorized in writing by the Vendor to design, install, and maintain the System.

III. General Certification Requirements

1. The Vendor shall submit a manual detailing design, installation, operation and maintenance requirements for the System.
2. The Vendor is responsible for providing any revisions to the design, installation, operation and maintenance manual(s) for all models applicable to this certification to RIDEM for review and approval within thirty (30) days of RIDEM request. All manuals must be provided to the RIDEM in electronic portable document format (pdf).
3. The Vendor shall notify the RIDEM in writing of any changes to the System, including its discontinuation. Modifications deemed by the RIDEM to be substantial, may require re-application to the alternative/experimental program.
4. The Vendor shall notify the RIDEM at least 30 days prior to any proposed transfer of ownership of the System. Notification shall include the name and address of the new owner and a written agreement between the existing and new owner specifying a date for transfer of ownership, responsibility, and liability for the System. All provisions of this approval shall be applicable to any new owners.
5. The Vendor shall provide any purchaser of the System with a copy of this approval prior to the sale of the System.

IV. Operation and Maintenance Requirements

1. Operation and maintenance of the System shall be performed in strict conformance with the RIDEM approved AdvanTex AX-20 Residential Operation and Maintenance Manual Part 1 dated **March 2014** and AdvanTex AX-20 Residential Operation and Maintenance Manual Part 2 dated **May 2008**.
2. The RIDEM approved O&M Manuals shall be provided to the Owner/Operator.
3. Installations of the System shall be maintained according to the manufacturer's specifications.
4. For seasonally used installations of the System, the Vendor shall provide specifications for protection of the System and the biological component from freezing, and conditions under which power to the System may be turned off.
5. The Vendor must offer for sale a minimum two-year service contract, which must include as an option, service to all components of the treatment train in addition to the System.
6. The Applicant/Owner shall record copies of the OWTS construction permit issued by RIDEM and the initially executed O&M contract(s) for the System, and all other A/E components in the treatment train, in the land evidence records of the applicable city or town prior to the RIDEM issuing the Certificate of Conformance for each installation.
7. a) The owner shall retain a public or private maintenance entity (service provider) for the life of the System and all other A/E components of the treatment train; a Vendor-authorized homeowner functioning as service provider is exempt from this for the System and any components of the treatment train for which the homeowner is providing service.

b) No agreement with a maintenance entity shall be for less than two years. A service contract must remain active during the life of the system.

c) Service providers must be trained and authorized in writing by the appropriate Vendor to perform O&M on the System and all other A/E components of the treatment train for which they will be performing O&M.

d) System owners who are authorized by the appropriate Vendor(s) to perform O&M on their own system's components must file a Vendor-authorization for each component for which they are performing O&M service

e) The service provider or homeowner providing O&M on his or her own System shall:

(1) Receive training as approved by the Vendor.

(2) Be available to perform required preventative maintenance, perform repairs, respond to System emergency situations, and conduct performance monitoring when required by this Certification or by permit.

(3) Perform an inspection of the treatment System at least twice annually for residential systems with an approved design flow of $\leq$ 2,000 gallons per day. Inspections must be performed quarterly for any residential strength systems with an approved design flow of $\geq$ 2,000 gallons per day.

8. The Vendor shall have an inventory of System replacement parts available locally.

V. Monitoring and Reporting Requirements

1. For permits issued utilizing the System with an approved design flow of $\geq$ 2,000 gallons per day the system owner is responsible for compliance with the following additional requirements. Wastewater effluent must achieve concentrations of $\leq$ 19 mg/L for Total Nitrogen prior to discharge to the soil treatment area when required by the OWTS Rules. Wastewater effluent must achieve the following effluent concentrations of $\leq$ 20 mg/L for TSS and BOD and $\leq$ 5 mg/L for Oil and Grease prior to discharge to the soil treatment area in all areas of the State of Rhode Island. Wastewater flow shall be monitored and recorded to ensure the approved design flow is not exceeded. In addition, sampling and testing shall be conducted quarterly for the following parameters: Dissolved Oxygen (mg/L), Effluent Temperature (°F), pH (s.u.), Biochemical Oxygen Demand – 5-Day (mg/L), and Total Suspended Solids (mg/L), Oil and Grease (mg/L), and Alkalinity (mg/L). Sampling and testing shall be conducted quarterly for Total Nitrogen (mg/L) when Nitrogen reduction is required by the OWTS Rules. All monitoring results including wastewater flow data shall be submitted to the RIDEM in the form of an annual report. The annual report is due February 15th of each year. The annual report must summarize all monitoring results and corrective actions implemented during the previous calendar year. A clear determination regarding the compliance status of the OWTS must be made as part of the annual report. The annual report must include a copy of the most recent Operation and Maintenance contract as proof of compliance with the requirement to maintain an active contract throughout the life of the OWTS.

VI. Rights of the RIDEM

1. The RIDEM may suspend, modify or revoke this approval for cause, including but not limited to: non-compliance with any of the provisions or conditions of this Certification, misrepresentation or failure to disclose fully all relevant data, or receipt of new information indicating that the use of the System is contrary to the public interest, public health or the environment.

2. The design, installation, and operation and maintenance manuals referenced herein are approved upon the date of approval of this Certification.

3. The RIDEM reserves the right to suspend or revoke this Certification if updated design, installation, and O&M manuals are not provided to the RIDEM within thirty (30) days of

RIDEM request or one hundred and eighty (180) days prior to the expiration date of this Certification. All revisions must be reviewed and approved by the RIDEM.

4. This approval does not represent an endorsement of the System by the RIDEM. This letter of approval may be reproduced only in its entirety.

Mohamed J. Freij, PE, PLS
Supervising Sanitary Engineer, OWTS Program

11-5-2020
Issuance Date