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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Bob Frost

Technology Name & Model Numbers:
Norweco Singulair Model DN 500 (600 GPD), 750 (800 GPD), 1000 (1000 GPD), 1250 (1250 GPD), and 1500 (1500 GPD)

Norweco Singulair Green® DN 500 HDPE (600 GPD)

Technology Type:
Class Two Approval (Waste Strength and Nitrogen Reduction)
Total Nitrogen ≤ 19 mg/L
TSS ≤ 30 mg/L
BOD ≤ 30 mg/L
Oil & Grease ≤ 5 mg/L

Pretreatment Category:
Category 2: Not Timed-Dosed

Design Authority:
Cl-II & III Designers

Certification Dates:
Approved: May 24, 2022
Expires: May 24, 2027

CERTIFICATION

The Rhode Island Department of Environmental Management (RIDEM) hereby renews the Class Two Alternative Technology approval for Norweco's Singulair Model DN aerobic wastewater treatment systems hereafter referred to as the "System".

The System consists of a three-chambered concrete tank; the first chamber provides pretreatment, the second is an aeration chamber with an infused air system on a 30-minute/hour timed run cycle. Where site conditions and design flow accommodate, the Norweco Singulair Green® 500 HDPE tank may be used in place of a concrete tank. Air is introduced to the aeration chamber by an aeration system, which spins a hollow aspirator shaft, drawing air into the hollow shaft, through four intake ports located beneath the aerator handle; the aerator vent through which the air is drawn is integral to the access cover above the aerator. Settling takes place in the clarification chamber following aeration and current generated by the spinning aerator draw sludge form the clarification chamber back to the aeration chamber. The Bio-Kinetic filter within the clarification chamber filters wastewater prior to discharge to a PVC recirculation well that follows the three chambered treatment tank, where a small electric pump recirculates wastewater for 10 seconds per minute, recirculating 10-15% of the design flow back to the first chamber or to the inlet pipe. Treated effluent is discharged to a leachfield. All functions are monitored through a phone line via the Norweco Service PRO Monitoring, Compliance and Diagnostic (MCD) control panel.

Based upon information contained in the renewal application submitted by Norweco, Inc., hereafter referred to as the Vendor, the RIDEM hereby renews the System's placement on the RIDEM Alternative/Experimental Technology List.

The RIDEM recognizes the System as capable of achieving effluent concentrations of ≤ 19 mg/L Total Nitrogen. The RIDEM also recognizes the System as a Category 2 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 2 technologies are advanced treatment units that are not timed-dosed and have been classified by the RIDEM to at least meet effluent standards of ≤30 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 for all approved Models.

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 waste strength reduction and nitrogen reduction of residential-strength wastewater with a design flow not to exceed 1,500 GPD. See Vendor's design manual for appropriate model-specific design flows.
2. The System employs the use of a three-chambered tank. The System is not preceded by a septic tank unless it is proposed for use where the design flow will be ≥ 1,000 GPD. If the design flow will be ≥1,000 GPD the System must be preceded by a septic tank appropriately sized for the specified design flow in accordance with the Vendor's design manual and it must meet the requirements of the OWTS Rules and be fitted with a RIDEM approved effluent filter/screen.
3. Design shall be in strict conformance with the RIDEM-approved Design Manual dated: **December 21, 2017.**
4. Installation shall be in strict conformance with the RIDEM-approved Installation Manual dated **December 21, 2017.**
5. Aeration is to be set for a thirty (30) minute on and thirty (30) minute off run cycle. This setting is adjustable and may be adjusted as necessary to achieve required treatment performance.
6. 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.
7. Designs incorporating this System and a conventional leachfield shall be allowed a 40% 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.
8. 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.
9. 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.
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.

    The System is not approved or recognized for pathogen removal.

II. Training

1. The Vendor shall make training available for designers, installers, and service providers.
2. 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. This Class Two certification shall be effective until its expiration and may be renewed according to the provisions of the OWTS Rules, as amended.
2. The Vendor shall submit a manual detailing design, installation, operation and maintenance requirements for the System.
3. 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).
4. 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.
5. 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.
6. 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 Operation and Maintenance Manual dated **December 21, 2017**.
2. The RIDEM approved O&M Manual 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 owner functioning as service provider is exempt from this for the System and any components of the treatment train for which the owner 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.

e) The service provider or system owner 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 all commercial systems.

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

9. The Vendor shall make available to the public the names of at least two qualified and properly trained service providers.

V. 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.

for

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

5-24-22

Issuance Date