



Department of Environmental Protection

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

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REVISION OF APPROVAL FOR REMEDIAL USE

Pursuant to Title 5, 310 CMR 15.00

Name and Address of Applicant:

NORWECO, Inc.
220 Republic Street
Norwalk, OH 44857

Trade name of technology: Singulair Bio-Kinetic Wastewater Treatment System. Models: Singulair 960 -500, 960-600, 960-750, 960-1000, 960-1250 and 960-1500, Singulair TNT-500, TNT-600, TNT-750, TNT-1000, TNT-1250 and TNT-1500, Singulair Green (plastic tank): 960 Green-500, 960 Green-600, Green TNT-500 and Green TNT-600. All models are hereinafter called the "System". Schematic drawings illustrating the models, a design and installation manual, an owner's manual, an operation and maintenance manual, and an Inspection checklist are part of this approval.

Transmittal Number: X252291
Revision Date: November 07 2012

Authority for Issuance

Pursuant to Title 5 of the State Environmental Code, 310 CMR 15.000, the Department of Environmental Protection hereby issues this Approval for Remedial Use to: NORWECO, Inc., 220 Republic Street, Norwalk, OH 44857 (hereinafter "the Company"), approving 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, the Service Contractor/ Operator and the System Owner with the terms and conditions set forth below. Any noncompliance with the terms or conditions of this Approval constitutes a violation of 310 CMR 15.000.

David Ferris, Director
Wastewater Management Program
Bureau of Resource Protection

November 07, 2012
Date

Description of the Technology

The System is installed between the building sewer and the Soil Absorption System (SAS) or disposal field. Systems designed for facilities in excess of 1,000 GPD typically require installation of a pretreatment or septic tank sized in accordance with the Company's requirements and constructed in accordance with 310 CMR 15.223 through 15.226.

The Singulair Wastewater Treatment System, which includes both the Singulair 960 and Singulair TNT models with concrete tank and the Green models with plastic tank, is an extended aeration process providing flow equalization, pretreatment, aeration and clarification for treating sanitary wastewater. The Singulair treatment process takes place in a three-compartment precast concrete tank or similarly sized three-compartment plastic tank (Green models). The initial chamber removes gross solids, grease and oil from the wastewater by settling and flotation. The clarified liquid is aerated in the second chamber using a fractional horsepower, 1725 RPM aerator, operated with timer typically set at 30 min on and 30 min off, to mix and aerate the liquid and promote aerobic treatment. The TNT models are designed to be capable of also reducing total nitrogen in the wastewater with aeration timed to operate 60 min on and 60 min off. The third chamber contains the Bio-Kinetic unit, which provides additional filtration and settling using non-mechanical flow equalization. Sludge that settles in the third chamber is returned to the aeration chamber using a Bio-Static sludge return installed in an opening between the second and third compartments.

The System includes a weather-tight enclosed control panel with aerator controls, manual reset circuit breaker, on-off automatic selector switch, adjustable timer mechanism and an audible/visual warning system to report malfunctions. The panel also contains the high water level override and high water alarm. The alarm and control circuits are each connected to an independent power source run from the main power source of the facility. The control panel is mounted in a location always accessible to the System operator.

Conditions of Approval

The term "System" refers to the STU in combination with the other components of an on-site treatment and disposal system that may be required to serve a facility in accordance with 310 CMR 15.000.

The term "Approval" refers to the technology-specific Special Conditions, the conditions applicable to all STU's with Remedial Use Approval, the General Conditions of 310 CMR 15.287, and any Attachments.

For Secondary Treatment Units that have been issued Remedial Use Approval for the upgrade or replacement of an existing failed or nonconforming system, the Department authorizes reductions in the effective leaching area (310 CMR 15.242), the depth to groundwater (310 CMR 15.212), and/or the depth of naturally occurring pervious material (310 CMR 15.240(1)) subject to the conditions that apply to all Secondary Treatment Units Approved for Remedial Use and subject to the Special Conditions applicable to the Technology.

Special Conditions

1. The System is a Secondary Treatment Unit Approved for Remedial Use. In addition to the Special Conditions contained in this Approval, the System shall comply with all the “Standard Conditions for Secondary Treatment Units Approved for Remedial Use”, except where stated otherwise in these Special Conditions.
2. This Approval for Remedial Use authorizes the use of the System only where the design flow for the facility is less than 1,500 gallons per day (GPD).
3. The System is approved for facilities where the local approving authority finds that:
 - a) there is no increase in the actual or proposed design flow;
 - b) the System is for the upgrade of a failed, failing or nonconforming system; and
 - c) a conventional system with a reserve area, designed in accordance with the standards of 310 CMR 15.100 through 15.255, cannot feasibly be built on-site.
4. The System, shall be installed between the building sewer and the effluent pump chamber for disposal in the SAS of a system designed and constructed in accordance with 310 CMR 15.100 - 15.279, subject to the provisions of this Approval.
5. The maximum burial depth for the Singulair Green model shall not exceed 16.5 inches. For deeper burials the System Designer shall consult with NORWECO, Inc. and their ‘Deeper Burial Requirements’ for the Green plastic tank model.
6. All proposed Singulair installations, including the Green model, shall require buoyancy calculations in locations with high groundwater elevation. Tie downs and associated anchors, such as the anti-flotation beams available from NORWECO, Inc, may be required to prevent tank floatation. The buoyancy calculations shall be included on the Title 5 septic system plan for each System installation. System buoyancy calculations shall include consideration of the high groundwater elevation developed as required by 310 CMR 15.100 through 15.105. Design plans prepared in accordance with 310 CMR 15.220 shall include System anchoring and backstay details when necessary.
7. Singulair Green model installations with plastic tank are not designed for traffic loading. No Green System shall be located or installed in a vehicle traffic area. Siting of the Green models (960 Green-500, 960 Green-600, Green TNT-500 and Green TNT-600) in a location subject to vehicular loading is specifically prohibited by this Approval. Where vehicles can possibly access an installed Singulair Green System site, suitable warnings shall be installed.
8. Singulair models 960-1000, 960-1250, 960-1500, TNT1000, TNT1250 and TNT1500 all require separate septic tanks. These models must meet Title 5 septic tank requirements in accordance with 310 CMR 15.223 through 15.226.

All other Singulair models covered by this Approval are exempt from the requirements for a standard Title 5 septic tank designed in accordance with 310 CMR 15.223(1) and 15.224. The record drawings, on file with the local approving authority, shall clearly indicate an area for a

septic tank meeting the requirements of Title 5 and the drawings shall indicate that the area is for the sole purpose of installing a Title 5 septic tank in the future, if necessary. The System Owner shall not construct any permanent buildings or structures or disturb the site in any manner that would prevent the installation of a Title 5 septic tank in the future.