Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
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REVISION OF APPROVAL FOR REMEDIAL USE
Pursuant to Title 5, 310 CMR 15.00

Name and Address of Applicant:

Smith & Loveless, Inc.
14040 Santa Fe Trail Drive
Lenexa, KS 66215

Trade name of technology and models: Modular FAST (hereinafter called the "System"). Schematic Drawings illustrating each System, a design and installation manual, an owner's manual, an operation and maintenance manual, and an inspection checklist are part of this Approval.

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Transmittal Number:	W 042189
Date of Issuance:	June 4, 2004 (modified January 24, 2008);
Revision date:	November 05, 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: Smith & Loveless Inc., 14040 Santa Fe Trail Drive, Lenexa, KS 66215 (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, 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.

November 05, 2012

David Ferris, Director
Wastewater Management Program
Bureau of Resource Protection

Date

Technology Description

The System, a fixed film aeration treatment process, is an aerobic process in which the media is 100-percent submerged. In the submerged application, the aeration and mixing are provided by an airlift mechanism. A draft tube, in the center of the System, extends through the media. Air is pumped into the draft tube by a compressor; wastewater is pumped from below the media to the top of the submerged media. The pumped liquid impacts the splash plate, which directs the wastewater across the top of the submerged media. The splash plate also creates a break-up of the wastewater into droplets to increase the surface area of the liquid to enhance the aeration of the wastewater. The oxygenated wastewater then passes down, through the media, where the bacterial activity takes place. The System uses both fixed film and suspended bacteria in the degradation of the organic material.

The System is designed to allow the plastic or epoxy-coated steel modular inserts, the treatment unit with the media, to be installed in an appropriately sized precast or cast-in-place concrete tank. The inserts are constructed of PVC or high-density polyethylene plastic in modular units with the number of units and the tank size governed by the wastewater design flow and characteristics.

The System is designed with storage volume beneath the media to provide sludge storage of excess solids, which slough off the media. The sludge storage zone must be periodically pumped, based on sludge accumulation. Prior to or at the time the excess sludge is being removed, the air scour system should be activated to loosen and remove solids attached to the media. The removed solids will settle to the bottom of the tank and be removed with the sludge.

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 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. 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.