



State of Delaware  
Department of Natural Resources & Environmental Control  
Division of Water Resources  
Ground Water Discharges Section  
(302) 739-9948

**Innovative and Alternative System Approval**

**ISSUED TO:** SludgeHammer Group, Ltd.  
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**FROM:** Hilary Moore – Environmental Engineer  
Ground Water Discharges Section

**FOR:** SludgeHammer®

**APPROVAL DATE:** February 23, 2005  
**AMENDED DATES:** June 6, 2006  
September 6, 2007 – Conditional Use Removed  
November 5, 2007 – Name Change

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In accordance with the Regulations Governing the Design, Installation, and Operation of On-Site Wastewater Treatment and Disposal Systems (Regulations), an application dated December 26, 2005, has been submitted by Pirana ABG Inc. (SludgeHammer, Ltd.) for approval of the SludgeHammer® system as an Innovative & Alternative On-Site Wastewater Treatment Unit.

Based on the review of the application, the Department hereby grants conditional approval for the use of the SludgeHammer® system as an Innovative & Alternative On-Site Wastewater Treatment Unit. **Installations may occur under this approval and are subject to the conditions, limitations, and requirements set forth herein:**

## **1. Product Description**

The SludgeHammer® consists of a 12 inch diameter plastic tube within which is a four inch diameter plastic tube. The space between the tubes is filled with plates of cusped plastic sheeting. A remote air pump feeds air to a diffuser beneath the cusped plates. A biological film is generated which adheres to the cusped plates and provides treatment to the water borne contaminants. The SludgeHammer is inserted into DNREC approved septic tanks and proprietary inoculant is introduced at specified intervals.

## **2. Claim**

The SludgeHammer® system is not an aerobic or other advanced treatment unit subject to NSF 40 requirements. Manufacturer information submitted indicates the specified model will routinely provide effluent quality not exceeding 30 mg/l of BOD<sub>5</sub>, and 30 mg/l of TSS.

## **3. Approved Units**

The following units have been approved for use: S-46 and S-86.

## **4. Use and Design Criteria**

- a. Determination that a SludgeHammer® system is suitable for installation at a site shall be made on an evaluation conducted using the SludgeHammer Site Checklist. All applicable criteria for installation shall be satisfied prior to device installation.
- b. The SludgeHammer® system may be installed for new and replacement systems with conventional and innovative and alternative disposal systems.
- c. The SludgeHammer® system may only be installed in DNREC approved septic tanks.
- d. The SludgeHammer® system may be used for systems up to **1,000** gallons per day or as approved by the Department.
- e. An on-site wastewater treatment and disposal system permit application incorporating a SludgeHammer® system shall be designed in accordance with the Regulations, and manufacturer's specifications. The design shall be completed by a DNREC Class C Design Engineer unless otherwise approved by the Department. The permit application shall include proper unit specifications.

- f. The designer must assure that the SludgeHammer® system has above grade access. The control panel and blower must be accessible.
- g. The SludgeHammer® system shall not be installed within areas subject to traffic loads unless specially designed on a case by case basis in accordance with the Regulations.
- h. The manufacturer is responsible for providing the Department a list of all local distributors and their associated contact information. This list must be kept current and shall be submitted to the Department on a yearly basis.

## **5. Installation Procedures**

- a. The SludgeHammer® system shall be installed by a DNREC Class E System Contractor under the supervision of a manufacturer's representative, or by a DNREC Class E System Contractor who has been certified for unit installation. Proof of certification shall be provided in writing to the Department.
- b. Start up of the system and initial operational checks shall be conducted by the Class E System Contractor (trained by the manufacturer), Design Engineer, and a Ground Water Discharges Section (Large System Branch) representative. If the Class E System Contractor is not certified, a manufacturer's representative shall perform the operational checks of the system at start up. If the manufacturer's representative can not be on site at the time of start up, they must provide final start up approval to the Department in writing.

## **5. Operation and Maintenance**

- a. The SludgeHammer® system shall be operated and maintained in accordance with the manufacturer's specifications.
- b. The manufacturer or manufacturer's representative shall comply with all Department mandated requirements as specified in permit conditions. This shall include operation and maintenance requirements.
- c. Throughout the life of the system, the permittee shall maintain a service agreement with a DNREC approved service provider.
- d. The system shall be inspected at a minimum of twice a year or more frequently as to ensure the proper operation and maintenance of the system.
- e. A copy of the service contract must be submitted to the Department prior to the Certificate of Completion being granted; and must be renewed at a minimum of annually.

## **6. Sampling and Approval**

The Department reserves the right to sample any unit at any time.

## **7. General Conditions**

- a. Use of the system for wastes other than residential shall be on a case by case.
- b. In the event that the product fails to perform as claimed by the applicant, and it is found that the system is installed and working as designed, and there is not toxicity in the waste; the use of the units for new installations shall cease. Use of the units shall not resume until such time the applicant and the Department have reached an acceptable agreement for resolving the situations.
- c. Any changes that deviate from the specifications as submitted with this approval shall be approved by the Department prior to use.