Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

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CERTIFICATION FOR GENERAL USE
Pursuant to Title 5, 310 CMR 15.000

Name and Address of Applicant:

Eljen Corporation
125 McKee Street
East Hartford, CT 06108

Trade name of technology: Mantis 5.1, Mantis 5.1 LowPro (LP), Mantis 5.2, and Mantis 5.2 LowPro (LP) (hereinafter the "System"). The Massachusetts Design & Installation Manual and Schematic Drawings illustrating each System model are a part of this Certification.

Transmittal Number: X262135
Date of Issuance: August 21, 2014

Authority for Issuance

Pursuant to Title 5 of the State Environmental Code, 310 CMR 15.000, the Department of Environmental Protection hereby issues this Certification to: Eljen Corporation, 125 McKee Street, East Hartford, CT 06108 (hereinafter "the Company"), for General Use of the System described herein. The sale, design, installation, and use of the System are conditioned on compliance by the Company, the Designer, the Installer 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

August 21, 2014
Date

I Technology Description

The Mantis M5 (the 'System') is a passive graveless wastewater disposal system replacing a conventional Title 5 pipe and stone aggregate SAS. The System is designed to increase the long term acceptance rate of wastewater by maintaining the biological growth within the System and off the in-situ native soils. The System is composed of preassembled Mantis M5 units surrounded by 6inches specified sand layer (ASTM C-33) added on-site. Each M5 unit is 5 feet in length and has 5 evenly spaced filter support modules (FSM) each 4 inches thick. The FSM's provide void space helping direct wastewater to the vertical sidewalls and bottom area of each FSM, with the wastewater then exiting to the 6 inches of specified sand followed by the in-situ soils.

Mantis 5.1 and Mantis 5.2 have 6 inches invert high; Mantis 5.1LP and Mantis 5.2 LP have 2 inches invert high. The distribution pipe is a smooth wall High Density Polyethylene pipe meeting the specifications of ASTM F810 and has 3 one inch holes at the 12, 5, and 7 o'clock positions at each FSM.

The specified sand envelope around the Mantis M5 series (6 inches minimum underneath, 6 inches minimum on the sides, 1 inch minimum on top, and 8 inches between the support modules) is a medium to coarse textured, washed, silica sand with less than 10% passing a #100 sieve and less than 5% passing a #200 sieve based on a wet sieve analysis. The FSM's are wrapped in a Bio-Matt geotextile fabric, except for the bottom which is left open.

II. Design Standards

When installed in trench configuration, the System must be installed in accordance with the trench requirements of 310 CMR 15.251. When installed in a bed configuration, the System must comply with 310 CMR 15.252. The effective leaching area for trench or bed shall be as presented in the Company's "*Mantis Wastewater System M5 Series System Design & Installation Manual*" for Massachusetts, August 2014 version.

III. Conditions of Approval

1. The term "Approval" refers to the technology-specific *Special Conditions*, the *Standard Conditions for Alternative SAS with General Use Certification and/or Approved for Remedial Use* ('Standard Conditions'), the General Conditions of 310 CMR 15.287, and any Attachments. Mantis M5 System installations shall meet the Standard Conditions specified for 'Disposal-Only' technologies and specifically Section II, paragraph 11, items (a) through (d).

2. The System is an approved Alternative SAS technology that have been issued General Use Certification for the installation of Systems to serve facilities where the site meets the requirements for new construction, as well as 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), subject to the Standard Conditions that apply to all approved Alternative SAS technologies, subject to the Special Conditions below applicable to this Technology.

IV. Special Conditions

1. The System is an approved technology for use as a Disposal-Only Alternative Soil Absorption System. In addition to the Special Conditions contained in this Approval, the System shall comply with the *Standard Conditions for Alternative SAS with General Use Certification and/or Approved for Remedial Use* (the 'Standard Conditions') except where stated otherwise in these Special Conditions.

2. The System is approved for new construction where a conventional system with a reserve area exists or can be built on-site in full compliance with new construction requirements of 310 CMR 15.000, or for the installation of a System to upgrade or replace an existing failed or nonconforming system. All proposed Systems require approval by the local approving authority.

3. System installations are approved for residential sites up to 2,000 GPD. Commercial sites (those generating non-residential wastewater), and all facilities over 2,000 GPD, are not allowed under this Approval.

4. The separation distance to the estimated seasonal high groundwater elevation shall be measured from the bottom elevation of the System specified sand.

5. The System is approved for installation without aggregate-crushed stone. If installed with aggregate-crushed stone the effective leaching area required by Title 5 for a conventional system shall apply to the System, and shall not be reduced as provided in the Standard Conditions.

6. Systems installed under impervious surfaces and when installed with greater than 18 inches of soil cover as measured from the top of the Mantis M5 units require differential venting. If a pump dosed system is specified with greater than 18 inches of cover, an additional two inch diameter minimum airline must be extended from the D-box as required by the System Design and Installation Manual.

7. For Systems constructed in fill and installed without aggregate, the System shall be installed as specified in 310 CMR 15.255: *Construction in Fill*, except the minimum 15 foot horizontal separation distance to be provided between the soil absorption area and the adjacent side slope shall be measured horizontally from the top of System (top of Mantis Module).

8. System component material specifications for the pipe, plastic components, fabric and sand shall not be changed as specified/identified in the Alternative technology application. Prior approval from the MassDEP for any change from these specifications shall be requested in writing.

9. The System is exempt from 310 CMR 15.287, specifically items: (5) requiring written notification of alternative system prior to property transfer, (6) need for a

certified operator, (9) need for an operation and maintenance contract with an operator and (10) deed notice requirement.

10. Any changes to the approved plans must receive prior Local Approving Authority (LAA) approval. Before a Certificate of Compliance can be issued by the LAA the System Designer must include any changes to the approved plan into the as-built plans.