State of Delaware
Department of Natural Resources & Environmental Control
Division of Water Resources
Ground Water Discharges Section

Innovative and Alternative System Approval

ISSUED TO: Fuji Clean USA, LLC
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FOR: Fuji Clean CEN-Series Advanced Treatment Unit

APPROVAL DATE: 1/29/16

In accordance with the Regulations Governing the Design, Installation, and Operation of On-Site Wastewater Treatment and Disposal Systems (Regulations), an application dated September 8, 2015, has been submitted by Fuji Clean USA, LLC, for approval of the Fuji Clean Advanced Treatment Unit as an Innovative & Alternative On-Site Wastewater Treatment Unit.

Based on the review of the application, the Department hereby grants approval of the use of the Fuji Clean advanced treatment unit as an Innovative & Alternative On-Site Wastewater Treatment Unit subject to the conditions, limitations, and requirements set forth herein:

1. **Product Description**

   Fuji Clean's "contact filtration" consists of a controlled, circuitous flow train through anaerobic and aerobic chambers during which time the wastewater is in direct contact with assorted proprietary fixed film media on which biological digestion of organic matter occurs. The media is also designed and positioned to

provide mechanical filtration of wastewater. Nitrogen removal is accomplished through a series of aerobic-anaerobic bio-degradations, which result from recirculating the waste stream through aerobic and anaerobic chambers multiple times. Four distinctive steps (chemical and mechanical) are involved. The first is the anaerobic hydrolysis reaction for protein and amino acid to decompose and form ammonium nitrogen. The second is in an aerobic chamber where oxygen is introduced and bacteria oxidize ammonium nitrogen to form nitrite and then nitrate ions. In the third step, which is mechanical, liquid containing nitrite and nitrate ions is returned, via an airlift, to the anaerobic chamber. In the fourth step, these ions are reduced in an anaerobic chamber, by anaerobic bacteria and organic substances, to form nitrogen gas.

The various models have the treatment capacities shown in the following table:

Model	Capacity (gallons per day)
CEN5	450
CEN7	630
CEN10	900
CEN21	1900

2. Claim

Approval is based on information submitted by the Manufacturer indicating the specified model will routinely provide effluent quality not exceeding 30 mg/l of BOD_5, 30 mg/l of TSS, and 20 mg/l of Total Nitrogen (TN) assuming influent loading does not exceed the treatment capabilities of the units.

This unit has been certified under NSF Standard 40 NSF 245 standards.

3. Use and Design Criteria

a. The Fuji Clean unit may be installed for new and replacement systems with conventional and innovative and alternative disposal systems.
b. An on-site wastewater treatment and disposal system permit application incorporating a Fuji Clean unit 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.
c. The designer must assure that all access risers and observation/sampling ports have above grade access. The design also must ensure that the control panel and blower are accessible.
d. The Fuji Clean unit shall not be installed within areas subject to traffic loads unless specially designed on a case by case basis in accordance with the Regulations and in accordance with manufacturer's specifications.

e. 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.

4. Installation Procedures

a. The Fuji Clean unit 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. The blower must be installed on a factory base and enclosure and located no more than 30 feet from the tank
c. 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 Fuji Clean unit shall be operated and maintained in accordance with the manufacturer's specifications.
b. The manufacturer shall comply with all Department mandated requirements as specified in permit conditions. This shall include operation and maintenance requirements.

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 basis.
b. In the event that the product fails to perform as claimed by the applicant, 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.