



# COLORADO

Department of Public  
Health & Environment

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March 23, 2015

Mr. Jim King  
Eljen Corporation  
125 McKee Street  
East Hartford, CT 06108

Subject: Eljen Geotextile Sand Filter, **Proprietary Distribution Product** - Acceptance  
For Use in Colorado On-site Wastewater Treatment Systems

Dear Mr. King:

Pursuant to section 43.13 of the On-site Wastewater Treatment System Regulation 5 CCR 1002-43 (Regulation 43), the Water Quality Control Division (Division) has reviewed drawings and specifications for the Eljen Geotextile Sand Filter proprietary distribution technology product noted below.

This acceptance addresses the following model:

- Eljen Geotextile Sand Filter, A42 module over 6 inches of sand for distribution, at treatment level TL1

This acceptance applies only to OWTS with design capacity less than 2,000 gallons per day (gpd). **Review and approval for the design of any OWTS proposing to use this technology will be reviewed by the local public health agency.** As individual local public health agency regulations may be more stringent than Regulation 43, the Division cannot ensure the acceptance of a distribution technology within any given jurisdiction.

Any modifications to the physical attributes or characteristics of this technology must be submitted to this office for review and acceptance by the Division prior to sale in Colorado. The Division will review modifications, any additional third party verification reports and issue a revised acceptance letter, or denial, as appropriate.



**Table 1. Design Criteria for Eljen Geotextile Sand Filter as a Distribution Product: TL1**

Design Criteria
<ol style="list-style-type: none"><li>1. A septic tank consistent with section 43.9(A) and 43.9(B) and an effluent screen consistent with section 43.3(44) and 43.9(l) must precede the distribution media. Surge volume may be needed for some applications based on manufacturer recommendations. Pretreatment for non-residential kitchens must include adequate separate grease separator tank(s) prior to the primary septic tank(s) as required in section 43.9(J) of Regulation 43.</li><li>2. The design of an OWTS utilizing the Eljen A42 Module for TL1 distribution shall adhere to the following criteria:<ol style="list-style-type: none"><li>a. The required design flow shall be determined based on daily flow requirements defined in local OWTS regulations consistent with section 43.6(A) of Regulation 43.</li><li>b. The total soil treatment area square footage required shall be determined consistent with section 43.10(C) of Regulation 43 for TL1.</li><li>c. To determine the number of Eljen A42 modules: For bed installations, the calculated soil treatment area as determined from item 2b above is divided by 24 sq.ft./module. For trench installations, the calculated soil treatment area as determined from item 2b above is divided by 12 sq.ft./module. However, the number of Eljen A42 modules installed in all OWTS shall be no less than the equivalent of 6 modules for each 150 gallons per day of flow (1 module for 25 gpd of flow).</li><li>d. Eljen A42 modules shall be installed end-to-end lengthwise with the distribution piping on top of the modules. For bed installations designed for TL1, the bed may not be greater than 12 feet wide to comply with Section 43.10(E)(2)(h) of Regulation 43.</li><li>e. As per section 43.12(C)(2)(a)(3)(iv) of Regulation 43 for bed designs, <i>“The separation distance between parallel distribution lines must not exceed six feet, and a distribution line must be located within three feet of each filter sidewall.”</i></li><li>f. In a bed design, a minimum of 6” of sand media shall be installed between the edge of each A42 module and the sidewall of the excavation. A minimum of 12” of sand media shall be installed between the edge of parallel A42 modules.</li><li>g. Trench designs shall include a minimum separation distance of at least 9 feet from distribution line to distribution line. This will provide for the required 6’ of undisturbed soil between trench sidewalls as defined in Section 43.10(E)(3)(g) of Regulation 43. This also provides for a minimum 6” of sand between the sidewall of the trench and the edge of the module.</li><li>h. A minimum of 6” of ASTM C33 sand with less than 10% passing the #100 sieve, and less than 5% passing the #200 sieve shall be installed below each module. The same sand media shall be installed adjacent to each module as defined in these criteria.</li><li>i. Geotextile cover fabric provided by Eljen shall be placed over the top and sides of the module rows in accordance with manufacturer requirements.</li><li>j. A final soil cover over the A42 modules of 12” - 18” of a Soil Type 1 or Soil Type 2 material is recommended, crowned to promote surface runoff.</li><li>k. System ventilation, per manufacturer’s specifications, shall be provided for all systems where the A42 modules have more than 18” of cover material. The maximum depth to the base of the 6” of sand beneath the modules is 48”.</li><li>l. Vertical separation distances for the soil treatment area as defined in section 43.7 of Regulation 43 shall be measured from the bottom of the 6-inch sand layer underlying the module. Horizontal separation distances for the soil treatment area as defined in section 43.7 of Regulation 43 shall be measured from the nearest sidewall of the bed or trench excavation.</li></ol></li></ol>

3. In addition to these design criteria, other provisions of Regulation 43 and local regulations also apply to a specific design as well as good OWTS design practice. The Division does not approve manufacturer design manuals. Manufacturer provisions shall not be applicable if those provisions are not consistent with Regulation 43, these design criteria, and the regulations adopted by the local board of health for the design location. Local public health agencies will review proposed designs to confirm consistency with Regulation 43, these design criteria, the local board of health regulations adopted pursuant to Regulation 43, and good OWTS design practice.
4. Design criteria shall provide for access at grade to any distribution or drop boxes as described in section 43.9(E) and (F). All risers and lids shall be watertight and secure. Design shall follow distribution requirements in section 43.10(D) of Regulation 43 including, but not limited to, line lengths, bed widths, inspection ports, cleanouts, etc.
5. Reductions in soil treatment area size shall be as described in section 43.10(C)(4) of Regulation 43. The design may include distribution of effluent by gravity or pressure dosing. Use of the distribution product in a design claiming a higher level treatment designation is dependent on a separate treatment product prior to the distribution product and the rating identified in the acceptance for the separate treatment product. A separate acceptance letter has been issued for the Eljen geotextile sand filter to be used as the higher level treatment product. Reductions in soil treatment area size or separation distances based on higher level treatment may not be applied unless the local public health agency has a maintenance oversight program in place as described in section 43.14.D of Regulation 43. In locations where the local public health agency has not adopted a maintenance oversight program, the Eljen geotextile sand filter on 6 inches sand may be used as a distribution system but only with soil treatment area size and separation distances consistent with treatment level TL1 requirements.
6. Design flow shall be for maximum occupancy. Design flow for single-family residential designs may vary based on the regulations adopted by the local board of health for the design location. Design flow values and strengths for multi-family and commercial systems shall be consistent with section 43.6(A)(4). Therefore, all design criteria in this acceptance are based on total gallons per day and the assumption of residential strength wastewater.

The owner of the OWTS is responsible for arranging proper design, operation, and maintenance of the OWTS facility.

If you have any questions regarding the Division's review or findings, please contact me at (303) 692-2366 or [chuck.cousino@state.co.us](mailto:chuck.cousino@state.co.us).

Sincerely,

Charles J. Cousino, REHS  
On-site Wastewater Treatment System Coordinator  
Engineering Section  
Water Quality Control Division  
Colorado Department of Public Health and Environment

cc: Files