

STATE OF COLORADO

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Dedicated to protecting and improving the health and environment of the people of Colorado

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Colorado Department
of Public Health
and Environment

May 15, 2012

Lucas I. Magrini
Regional Product Manager
Kruger Inc.
401 Harrison Oaks Blvd., Suite 100
Cary, NC 27513

Subject: Acceptance of the Kruger Hydrotech Discfilter as a New Technology for Use in Domestic
Wastewater Treatment Works in Colorado

Dear Mr. Magrini:

The Water Quality Control Division (the Division) has received and reviewed information for the Hydrotech Discfilter in accordance with Section 1.6.1 of *Design Criteria Considered in the Review of Wastewater Treatment Facilities Policy 96-1* (Wastewater Design Criteria). The filter design is accepted for use as a New Technology subject to the design criteria in Table 1.

This acceptance addresses the following item:

- Hydrotech Discfilter using woven polyester monofilament cloth fabric media with 10 micron mesh. A filter unit consists of a single center drum having multiple discs each with 14 sets of dual filter panels completing a full disc.

This acceptance applies only to the Hydrotech Discfilter using woven polyester monofilament cloth fabric media with 10 micron mesh (i.e., PET, monofilament, 2:2 twill weave, 523.2 n/inch mesh count, 60-micron thickness, weight rating of 1.48 oz./sq.yd. with a stabilized finish) and does not constitute construction approval for installation in domestic wastewater treatment facilities. **Review and approval for the design of any domestic wastewater facility proposing to use this technology will be further reviewed on a site-specific basis by the Division** as required by Section 22.11(1) of the *Site Location and Design Approval Regulations for Domestic Wastewater Treatment Works 5CCR 1002-22* (Regulation 22) and the Colorado Water Quality Control Act (Act), Section 25-8-702, C.R.S. which states in part that: "No person shall commence the construction of any domestic wastewater treatment works or the enlargement of the capacity of an existing domestic wastewater treatment works, unless the site location and the design for the construction or expansion have been approved by the division."

Any modifications to the physical attributes or characteristics of this treatment technology must be submitted to this office for review and acceptance by the Division prior to sale in Colorado. This condition includes changes made to the filter fabric or manufactured filter model (e.g., filter media, piping, mechanisms). The Division will review any additional third party verification reports and issue a revised acceptance letter, or denial, as appropriate.

Table 1. Kruger Hydrotech Discfilter Design Criteria:

Design Criteria	
1.	Design loading rate shall not exceed an instantaneous flow rate of 6 gpm/ft ² . Design loading shall be calculated with one installed disk out of service. Pretreatment shall be incorporated into the design, as required, to account for and minimize the impacts of periodic influent loadings from side-stream processes.
2.	Cloth media filters are primarily intended for filtering secondary clarifier quality effluent. Pretreatment processes shall be incorporated into the process train, as required, to ensure that the turbidity of the influent to the cloth media filter is not intended to exceed 10 NTU, approximately 27 mg/L TSS, more than five percent of the time within a 24-hour period and never exceeds 15 NTU, approximately 40 mg/L TSS.
3.	Design for existing facilities shall include testing or analysis (e.g., filter influent TSS, particle size analysis, anticipated loading, lab tests, bench tests, and/or pilot testing) performed to evaluate filter effectiveness and the need for pretreatment for the expected wastewater characteristics.
4.	For facilities where ambient temperatures can be below freezing, the filter unit design shall include adequate cold weather provisions such as heat trace lines, and/or installation in a temperature-controlled enclosure.
5.	The design must identify how the Hydrotech Discfilter alarm signal will notify operators of high level alarm activations, when the facility is attended and unattended.
6.	The design must indicate where and how both the backwash trough outlet (i.e., backwash water) and the bypass overflow (i.e., emergency high level overflow) is redirected (e.g., to headworks, clarifier, by pipe, channel, pump).
7.	Design Redundancy: Filter installations shall have at least one installed extra disc as identified in item 1 above. If filters are necessary to meet effluent limits, filter installations shall have at least two filter units (i.e., single center drum with multiple discs) installed (e.g., two units each with 50% design capacity).
Additional Operations and Maintenance Criteria	
1.	An Operations and Maintenance (O&M) Manual will be provided for all installations. The document should be available for review by the Division during compliance inspections.
A.	Individual operations plans shall establish backwash procedures and durations to ensure solids removal from both 'in' and 'on' the cloth media.
B.	Individual operations plans shall include scheduled inspections and assessments of the cloth condition as an operational safeguard. This plan for scheduled inspections and assessments should include a routine visual inspection at least monthly, and a more detailed assessment of the cloth condition at least annually. Inspection frequencies may change with time as media condition changes and performance experience is gained.
2.	Spare Parts: At least three sets of dual cloth filter disc panels must be kept onsite, in addition to design redundancy noted above.

Please be aware that any point source discharges of water from treatment facilities are potentially subject to a discharge permit under Colorado's State Discharge Permit System. Any point source discharges to state waters without a permit are subject to civil or criminal enforcement action.

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As part of this review, the Division has evaluated the following documents:

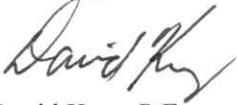
- May 3, 2012 Submittal from TST Inc. of Denver providing additional information for the new technology review for the Hydrotech Discfilters.
- June 15, 2011 Submittal from Schmueser Gordon Meyer (SGM) Inc., requesting new technology acceptance for Hyrotech Discfilters.
- October 2, 2003 California Department of Public Health Conditional Acceptance of the U.S. Filter Kruger Product's Hydrotech Discfilter to Comply with California Water Recycling Criteria.
- Design submittals received by the Division from 2006 to 2012.
- Various additional correspondences.

Please direct any further correspondence regarding this acceptance to:

David Kurz, P.E.
Colorado Department of Public Health and Environment
Water Quality Control Division
4300 Cherry Creek Drive South
Denver, CO 80246

If you have any questions or comments, please call David Kurz at 303-692-3552.

Sincerely,



David Kurz, P.E.
Lead Wastewater Engineer
Engineering Section
Water Quality Control Division

cc: CDPHE-WQCD-ES