

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

July 28, 2011

Heidi Rupp
Manager, Filtration Products
Entex Technologies Inc.
400 Silver Cedar Court, Suite 260
Chapel Hill, NC 27514

Subject: Acceptance of the Entex FlowTex Disc Filters as a New Technology for Use in Domestic
Wastewater Treatment Works in Colorado

Dear Ms. Rupp:

The Water Quality Control Division (the Division) has received and reviewed information for the Entex FlowTex Disc Filters 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:

- Entex FlowTex Disc Filters using PA-13 nylon pile cloth fabric media.

This acceptance applies only to the Entex FlowTex Disc Filters using PA-13 nylon pile cloth fabric media 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."*

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

- April 19, 2011 Submittal from Entex Technologies requesting new technology acceptance for FlowTex Disc Filters.
- May 17, 2011 Submittal from Aqua Engineering, providing additional requested information for the new technology review for the Entex FlowTex Disc Filter.
- March 7, 2011 California Department of Public Health Conditional Acceptance of the Entex FlowTex Disc Filter to Comply with California Water Recycling Criteria.

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. Entex FlowTex Disc Filters Design Criteria:

Design Criteria	
<ol style="list-style-type: none"> 1. Design loading rate shall not exceed an instantaneous flow rate of 6 gpm/ft². 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. Site pretreatment processes shall be incorporated into the process train, as required, to ensure that the turbidity of the influent to the cloth media filter does not 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. Testing or analysis (e.g., filter influent TSS, particle size analysis, anticipated loading, lab tests, bench tests, and/or pilot testing) shall be performed for existing facilities to confirm filter effectiveness for the expected wastewater characteristics. 4. When ambient temperatures can be below freezing, the filters shall be installed in a temperature-controlled enclosure. 5. The design must identify how the Entex 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 water and the emergency overflow is directed (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. Filter installations shall have at least two vacuum pumps and drive motors capable of being interconnected to each disk filter (i.e., either installed or available at the site). 	
Additional Operations and Maintenance Criteria	
<ol style="list-style-type: none"> 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. <ol style="list-style-type: none"> 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. C. Individual operations plans shall establish procedures for sludge wasting to prevent excessive solids buildup in the filter vessel. 2. Spare Parts: At least one (1) cloth filter disk must be kept onsite, in addition to design redundancy noted above. 	

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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.

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: Bill Peretti, Water Control Corporation, 2460 W. 26th Avenue, Suite 215-C, Denver, CO 80211-5359
cc: CDPHE-WQCD-ES