



# COLORADO

Department of Public  
Health & Environment

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

February 26, 2015

Lindsay Housley, P.E.  
WesTech Engineering, Inc.  
3665 S. West Temple  
Salt Lake City, UT 84115

**Subject:** Acceptance of the WesTech Engineering, Inc. AltaFilter skid utilizing the Toray HFU-2020N membrane filtration module as an Alternative Filtration Technology to meet the *Colorado Primary Drinking Water Regulations* requirements for *Giardia lamblia* and *Cryptosporidium* Removal

Dear Ms. Housley;

The Colorado Department of Public Health and Environment's Water Quality Control Division ("the Department") has received and reviewed the information for the WesTech Engineering, Inc. AltaFilter AF series filtration skids utilizing the previously-accepted Toray HFU-2020N Ultrafiltration Module in accordance with Section 11.8(2)(b)(ii) and 11.10(5)(j) of the *Colorado Primary Drinking Water Regulations* (Regulation 11), 5 CCR 1002-11. The technical specifications and conditions of acceptance for the WesTech ultrafiltration skids are outlined in Table 1 as well as Section 4.3.8 of the DCPWS. The specifications for the Toray HFU-2020N module are included in the May 23, 2014 letter (or latest version) titled, "Acceptance of the Toray HFU-2020N Ultrafiltration Membrane Module as an Alternative Filtration Technology to meet the Colorado Primary Drinking Water Regulations requirements for *Giardia lamblia* and *Cryptosporidium* Removal."

This acceptance addresses the following items:

- WesTech AltaFilter Ultrafiltration Skids utilizing the Toray HFU-2020N modules
  - AltaFilter AF18
  - AltaFilter AF22
  - AltaFilter AF\_ (various sizes)

This acceptance applies only to the WesTech AltaFilter skid utilizing the Toray HFU-2020N membrane filtration module and does not constitute construction approval for installation at any public water system. Each individual submittal to the Department must demonstrate conformance with Section 4.3.8 of the DCPWS for each installation of the filters. **Review and approval for the design of any public water system proposing to use this technology will be handled on a case-by-case basis by the Department as required by Section 11.4 of Regulation 11.**

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

- WesTech Engineering, Inc., Technical Submission for Review by CDPHE, February 3, 2015

Any addenda that will modify the skid must be submitted to the Department for review and acceptance prior to use in Colorado by a regulated public water system. This requirement includes any changes made to the WesTech skid layout, materials of construction, or associated interfaces with process piping. The Department will review any additional third party verification reports and issue a revised acceptance letter if appropriate.



**Table 1: Pre-Accepted Skids Conditions of Acceptance:**

Skid Type	WesTech AltaFilter utilizing the Toray HFU-2020N membrane filtration module		
	AF18	AF22	AF_
Maximum Daily Production (gallons per minute) Based on Toray HFU-2020N flux of 57 gfd @ 1 deg C	540 (gpm)	660 (gpm)	Varies
Cross connection control (DCPWS 4.3.8.8(b)(vii))	Verified; Valves AV-x02A, AV-x02B (block valves) and Valve AV-x20 (bleed)		
Individual Skid Effluent Turbidity (DCPWS 4.3.8.10(a)and (d))	Verified on P&ID. - Valve AV-x14 turbidity sample.		
Flow Control (DCPWS 4.3.8.10 (c) and (e))	Verified on P&ID - 4" flow meter (FIT x21) on filtrate controlled by feed pump pacing (assuming VFD pump installation).		

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:

Tyson Ingels, 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 Tyson Ingels at 303-692-3002.

Sincerely,

Tyson Ingels, P.E.  
 Lead Drinking Water Engineer  
 Engineering Section  
 Water Quality Control Division  
 Colorado Department of Public Health and Environment