



MARK B HORTON, MD, MSPH  
Director

State of California—Health and Human Services Agency  
California Department of Public Health



ARNOLD SCHWARZENEGGER  
Governor

(Corrected Copy)

December 3, 2009

Mr. Brad K. Hansen, P.E.  
WestTech, Inc.  
3625 South West Temple  
Salt Lake City, UT 84115

Subject: Use of the WestTech CLEARLOGIC® Membrane Bioreactor to  
comply with California Water Recycling Criteria

Dear Mr. Hansen:

By transmittal letter dated September 30, 2009, Eco-Logic Engineers requested Departmental acceptance of the WestTech CLEARLOGIC® Membrane Bioreactor (MBR) filtration treatment unit as an acceptable filtration technology for compliance with the State of California Water Recycling Criteria (Title 22). Accompanying this request was a study report entitled "Clearlogic® MBR Validation Report" prepared for WestTech dated September 2009. The Department has reviewed this request and finds it to be acceptable.

The CLEARLOGIC® MBR filtration treatment system utilizes a submerged Hollow Sheet™ PVDF membrane with a nominal pore size of 0.2 micron as manufactured by Alfa Laval. As tested, the membrane was preceded by a coarse screen and 2 mm perforated plate fine screen. The permeate flows either by gravity or low negative pressure via a permeate pump.

The California Water Recycling Criteria recognize membrane filtration as an acceptable filtration technology provided prescribed performance requirements (i.e. turbidity) are reliably met. The turbidity performance criteria require that the filtered wastewater not exceed any of the following:

1. 0.2 NTU more than 5 percent of the time within a 24-hour period; and
2. 0.5 NTU at any time.

Demonstration studies conducted using the CLEARLOGIC® MBR filtration treatment system which utilizes the Alfa Laval PVDF Hollow Sheet™ membrane with a nominal pore size of 0.2 micron have sufficiently demonstrated the ability to produce an oxidized wastewater and the membranes ability to comply with the above stated turbidity performance requirements. Therefore, the Department of Public Health accepts the use of this membrane, identified as the WestTech CLEARLOGIC® MBR filtration treatment system utilizing a submerged PVDF hollow sheet membrane module with a nominal pore size of 0.2 micron as a filtration technology for use in compliance with the Water Recycling Criteria.

The acceptance of this technology is specific to the Alfa Laval PVDF Hollow Sheet™ membrane with a nominal pore size of 0.2 micron as described in your submittal. Any proposed changes made in the physical attributes or character of this membrane treatment system shall be reviewed in advance by the Department to determine whether the modifications will require additional testing.

The Department will continue to review all proposed projects on a case-by-case basis to determine full compliance with all applicable treatment and reliability features required by the Water Recycling Criteria. This will include the collective review of all treatment unit processes, operational controls (e.g. loading rates, TMP, 'O&M' procedures, etc).

If you have any questions concerning this letter, please contact the undersigned at (805) 566-9767.

Sincerely,



Jeffrey L. Stone, Chief  
Recycled Water Unit  
Division of Drinking Water

cc: Yulya Borroum, P.E., Eco-Logic Engineers  
Recycled Water Committee