

Contract Awarded; 4 MGD Drinking Water System

Purifics has been contracted to manufacture and deliver a 4 million gallon per day (16 MLD) Continuous Ultra-Filtration (CUF) drinking water system to purify surface water from Lake Houston via the San Jacinto River Authority's canal.

The CUF drinking water purification plant will replace Newport Municipal Utility District (MUD) conventional surface water plant and provide increased capacity. The CUF technology **eliminates** pre-treatment and all the associated cost & environmental impacts required for conventional drinking water plants.

CUF is a Silicon Carbide (SiC) ceramic membrane process that employs a patented in-situ Concentrated Sweep Floc (CSF) coagulation process. The CSF process is 3 times more efficient than traditional coagulation technology, generating the greatest organic (ie. TTHM & HAA precursor) removal with the lowest coagulant dosage, achieving **Better Water at Lower Cost**.

The proven technological advancements of the CUF process reduces both capital and operating cost structures and reduces footprint by more than 50% through the **elimination** of clarifiers and other conventional equipment needs. The existing conventional plant requires operators to frequently monitor and adjust chemical addition due to changing water quality. The CUF process, using CSF, operates continuously at a fixed coagulant dosage, which never changes regardless of variances in turbidity, pathogens, color, temperature, organic load due to changing seasons, weather events or time of day, as demonstrated in a 90 day CUF pilot.

The CUF plant will have 99.99% water efficiency, which increases water recovery from the 70% water efficiency of the existing plant. CUF mitigates water scarcity issues by eliminating liquid waste. Purification time is reduced from many hours to less than 5 minutes.

CUF's Zero Liquid Discharge (ZLD) is achieved using Purifics' chemical and labor free DeWRS technology to dewater all filtered residuals into 20% solids, which eliminates polymer, drying beds, filter presses and again other conventional dewatering equipment needs.

The efficiency of CUF and its in-situ CSF process significantly reduces Chlorine demand by up to 75% because it effectively removes the reactive components to chlorine which are





pathogens, heavy metals and organics. In many applications the cost savings from this reduced Chlorine demand is greater than the OPEX of the CUF process.

The CUF process has TCEQ (state) regulatory approval for up to 5.7 log pathogen removal for LT2ESTWR compliance. CUF uses a patented Marker Based Direct Integrity Test (DIT) technology which is simpler than traditional pressure decay methods and is a direct membrane mini Challenge Test.

The complete purification plant will have a nominal footprint of only 50' X 60'. As shown below, the only thing that is required is a concrete pad and small building over it.



Purifics, represented in Texas by WWaterTech Inc, (www.wwatertechinc.com) have worked with Newport MUD's consultant, Lockwood, Andrews and Newman Inc. (LAN) on the pilot verification and full-scale design. The CUF plant start-up is 1st quarter 2024.

Company Background

The CUF process commercially applied since 2013, uses a true 100% ceramic membrane, and should not be confused with composites (ceramic/polymeric membranes). Purifics and its principals have been designing and applying ceramic membrane technology and processes for 30 years, with over 30 patents and patents pending. Visit www.purifics.com to learn about





other Water/Fluid Purification projects in the Municipal, Industrial and Government markets using CUF, DeWRS, Photo-Cat and other proprietary fluid purification technologies.

