Purifics

SRU Drinking Water case History
Zero Liquid Discharge

Solid Recovery Unit

Background

A well for drinking water has significant color from a high concentration of Tannins and Iron. The TSS and Metals are removed using ***Cuf*** (Continuous Ultra Filtration). The concentrate from the ***Cuf*** process is sent to the ***SRU*** (De-Watering Recovery System). ***SRU*** removes and recovers the water and produces a concentrated sludge. ***SRU*** is a proprietary ceramic membrane process.

Application

The feed to the drinking water plant is 700 gpm which is filtered, and a 2.5 gpm concentrate waste stream is sent to the ***SRU***. The ***SRU*** filters this 2.5 gpm (20 gpm capacity) and produces a sludge with nominally 20% solids. The recovered water is sent directly to the clear well for distribution as it has the same quality as the ***Cuf*** process. The ***SRU*** operates whenever the water plant is called upon to produce water. ***SRU*** is NSF/ANSI/CAN 61-372 compliant.

Process

Concentrate water from the ***Cuf*** is supplied to the ***SRU*** tank where the water is removed by ceramic membranes. A thickened sludge accumulates on the membrane. At a preset condition the ceramic membrane is automatically removed from the tank and subjected to a dynamic shock which immediately causes the thick sludge to lift off and fall onto a conveyor belt. The conveyor allows for movement to the disposal bin. In this application the thickened sludge is shown above.
There is no vacuum pump, chemicals, consumables or labor in this process.

True ZLD Operational Performance

The ***SRU*** operates nominally 8 hrs/day, 7 days per week and is cycled on/off 6 to 8 times per day. It has had no down time, with no loss of flux in operational life to date since October 2015.

The sludge output is about 200 lbs per day @ 33% duty and nominally 20% solids.

This labor free process draws 0.8kW which gives it an operating cost structure of $0.64/day at a power cost of $0.08/kWhr. The Sludge Transfer Dumpster is emptied twice per week, and the Main Dumpster (shown at right) is emptied a couple of times per year.

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Rev: 23-07-2025

Sludge Disposal or Reuse?

The sludge is dewatered sufficiently for landfill disposal with disposal cost of about $4/day. Land application is currently being assessed.

Benefits

The ***SRU*** process offers a significant reduction to the carbon footprint due to its low energy requirement and the elimination of:

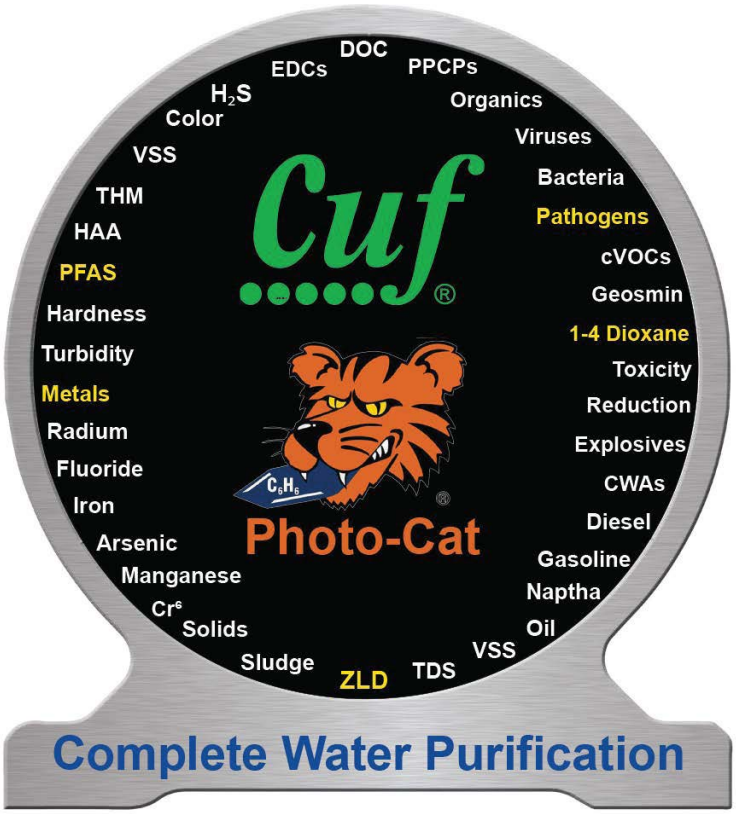
- Chemicals
- Materials
- Hauling
- Disposal

Facility Tour

The Water District conducts plant tours. Contact Purifics at least one week in advance to arrange your tour.

Reference Documents

- ***SRU*** Residuals
- Drinking Water Purification for THM Prevention & DOC Removal



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