

DeWRS for Residual Management and ZLD

A real time, fully automated, chemical free, extremely low energy, Ceramic Membrane Process to De-Water solids. The **DeWRS** process allows for full recovery of both the water and solids. The solids can be organic (DOC), biomass, bacteria, and/or metals in any combination from which the water is removed until the solid forms a slump. The recovered water or filtrate is available for its end use such as drinking water.

Chemical Free

There are no chemicals, consumables or labor involved in the **DeWRS** process which eliminates most costs (>95%) associated with traditional concentrate wastewater management and disposal methods. **DeWRS** can operate continuously or on demand and has a 25-year design life. It can be a stand-alone process or integrated with other processes.

Residuals Management

The solids produced by **DeWRS** becomes at best a viable product with commercial value or at worst a very small solid waste handling disposal requirement which can be landfilled, or land applied as per regulations.

ZLD

Zero Liquid Discharge (ZLD) is achievable. **DeWRS** solves the technical and purification challenge when transitioning from a water phase to a solid phase. It is adapted to specific needs (configurable) and is used to dewater and recover metals, DOC, oil & solvents, organics, inorganics and municipal sludge as essentially neat product.

Carbon Capture

DeWRS is a Carbon Capture process with a very small footprint and very low electrical energy requirement.

Capability

The solids / residuals are recovered at nominally 20% solids. **DeWRS** is applied in high (multi MGD) and low flow applications.

Applications

Drinking Water Filtration Plants
Concentrating DAF Waste & Clarifier Bottoms
Product Recovery, Mining of Water for Metals & Nutrients
Filter Reject / Backwash Waste Dewatering



Municipal Sludge Concentration
Algae & Pathogen Removal
Replaces Filter Presses & Centrifuges





Process

DeWRS recovers fluids such as water that are rich in solid contaminants or second phase constitute. Contaminates are filtered or phase separated to a sludge with a slump or as neat product to customer requirements. The heart of **DeWRS** consists of proprietary ceramic membrane technology using dynamic shock.

Eliminates

Conventional Solutions for dewatering require chemicals (polymer), labor, consumables and high maintenance which are eliminated with the **DeWRS** process. The elimination of these obsolete process inputs further contributes to the unmatched reduction in the operating and capital cost structures of the **DeWRS** process vs alternatives.

Operating Cost and Performance

ZLD costs \$0.64 / day at a 1MGD **Cuf** drinking water plant in operation since 2015.

Certification / Compliance

LT2ESWR; ANSI61; > 4 Log LRV; NEC – UL508A

Solids, Different Water, Composition & Set Points



Watch **DeWRS** Technology <https://www.youtube.com/watch?v=3CiBB3s7IEs>

Watch **DeWRS** Operating: <https://www.youtube.com/watch?v=Ds9a2-kvla4>

Watch **Cuf** with **DeWRS** <https://www.youtube.com/watch?v=bs1vtEjZjbw&t=22s>

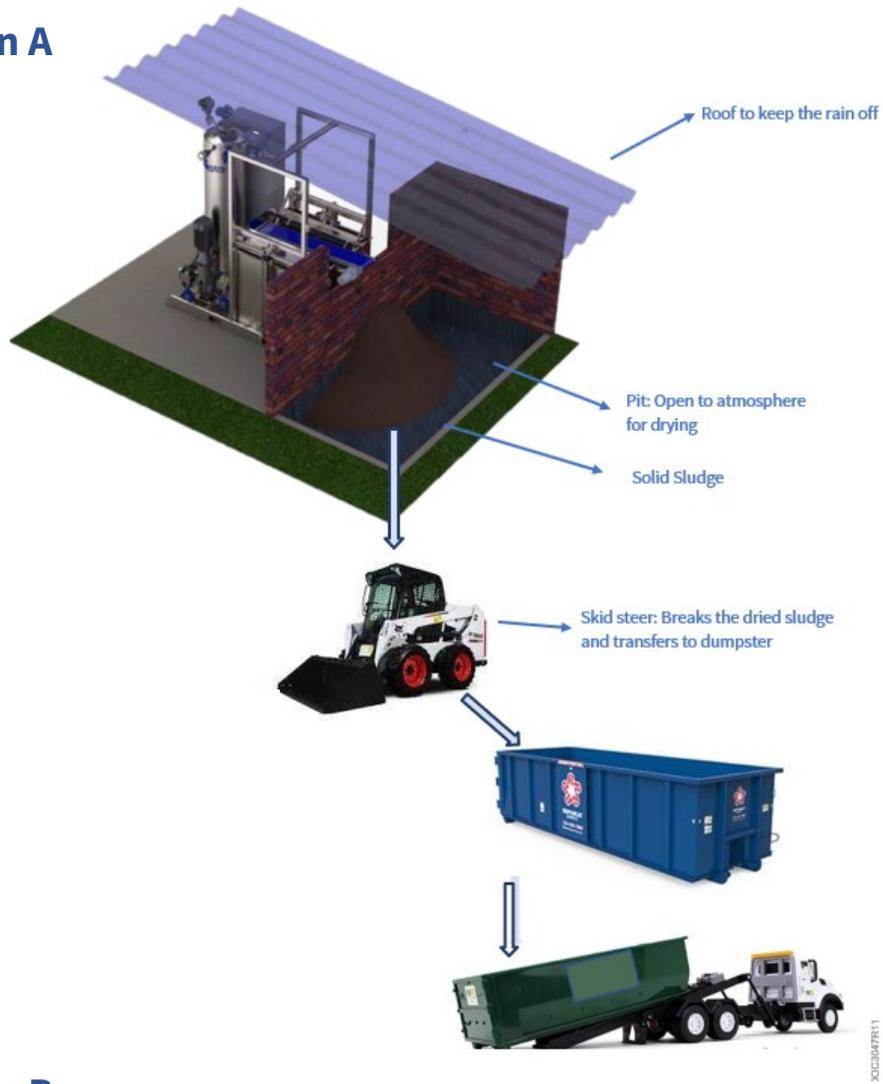
Available in M4, M40, M80 & M160



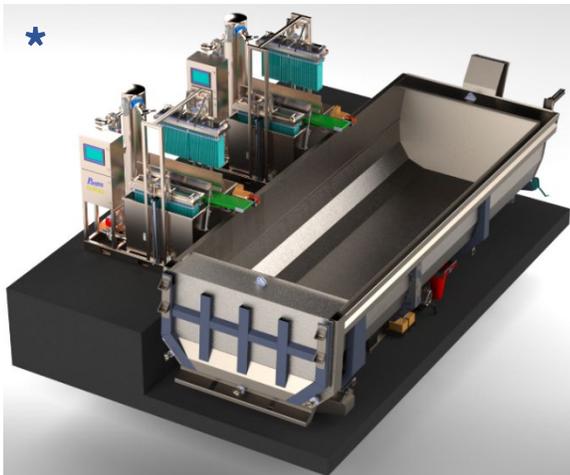


Solids Management Options

Option A



Option B

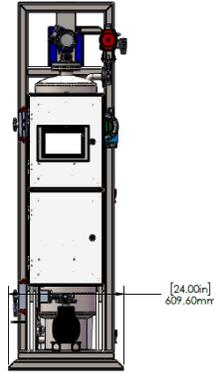
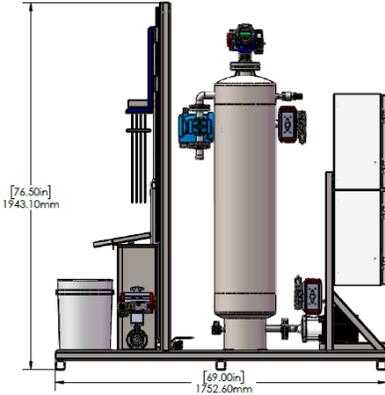


*Plastic or Cardboard Lined Dumpster





DeWRS Pilot Verification



Performance and Equipment Specifications *

Duty	>99%	Membrane Life	20 Years
Automatic Turndown	0-100% Flow & Power	Wetted Material	Stainless Steel
Filtrate Loss	0%	TMP Suction Range	0-10 PSI, 0-0.7 Bar
Operating Modes	Demand Flow	Gasket Material	Viton Or EPDM
Filtration Mode	Outside In	NEC	NFPA70, NFPA79 NFPA496, UL508A
Concentrate	~ 20% Solids	Remote	Internet / WiFi

Application Engineering Data

Power	480 Volt, 3Ø, 50/60Hz 6 FLA std (other options avail)	Concentrate Inlet	1" Camlock
Network	ProFinet	Filtrate Outlet	1" Camlock
Instrument Air	1 cfm Oil Free 100 PSI, 6 Bar	Solids	Tray → Bucket
Weight Dry/Wet	550 lbs	Air Supply	1/2" NPT

