DC Tillman AWPF Pilot Project

One Water Meeting

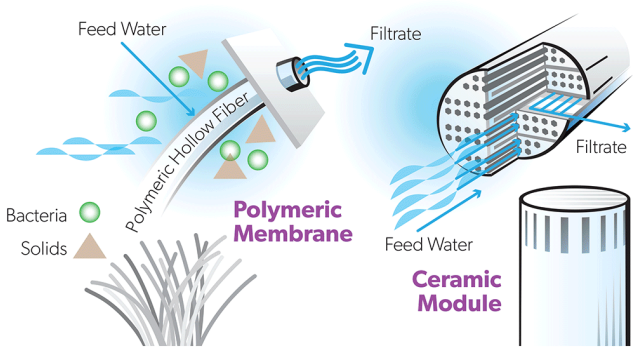
June 29, 2016

AWPF Pilot Testing Objectives

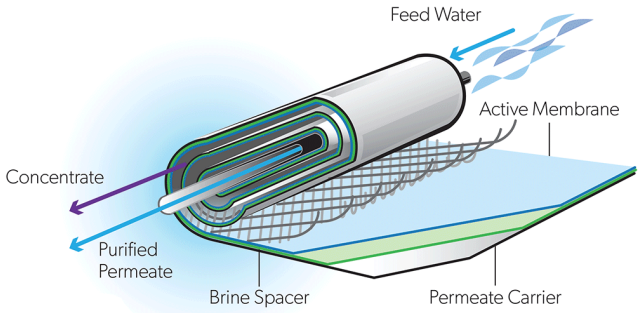
- Increase recovery of the product water
- Provide the most economical solution while meeting all regulatory requirements and public acceptance
- Accelerate project schedule
- Plan for the future
  - eg. Direct Potable Reuse (DPR)

Treatment Process

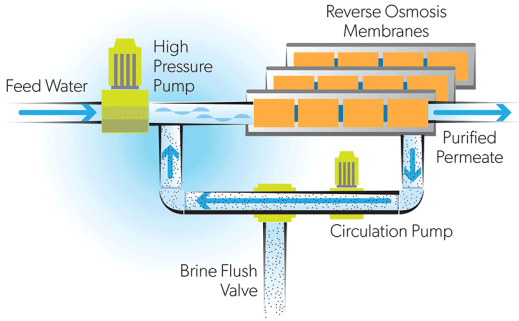
Microfiltration | Ultrafiltration



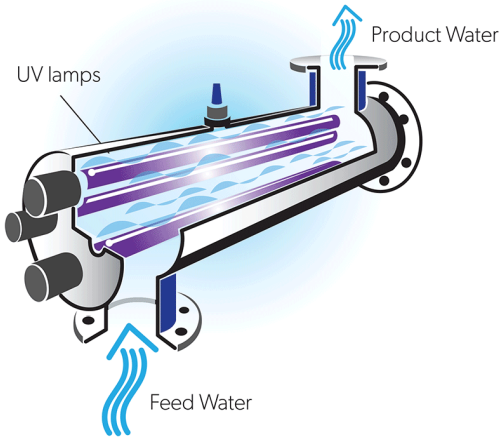
Reverse Osmosis



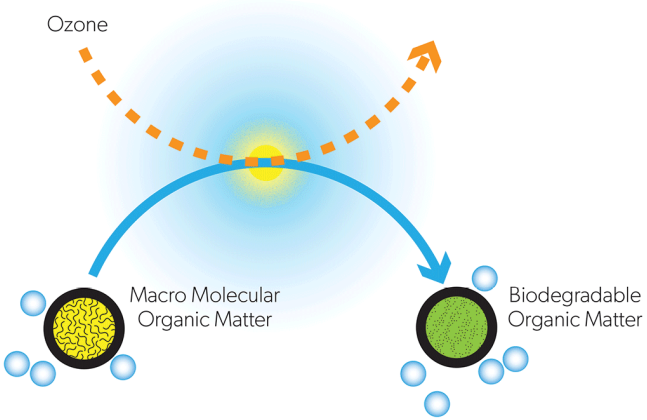
Closed Circuit Desalination



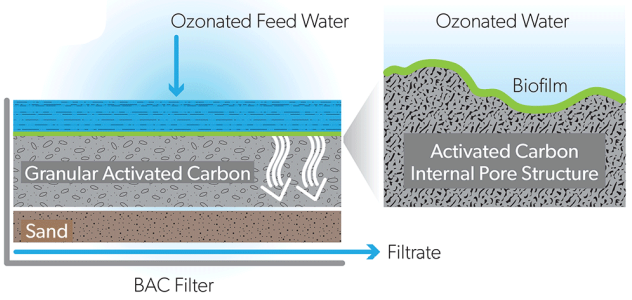
Advanced Oxidation Process



Ozone



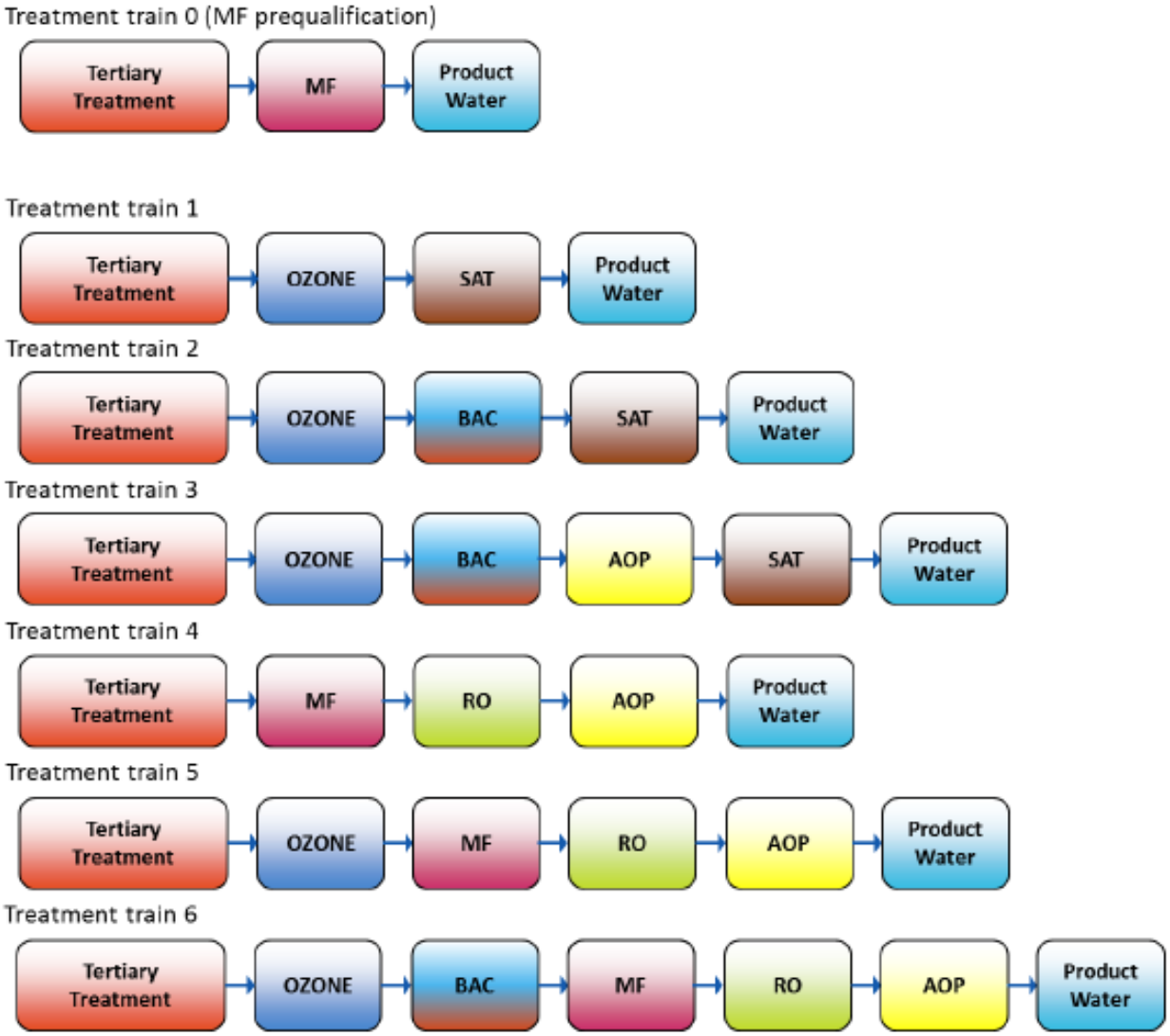
Biologically Active Carbon



AWPF Treatment Options

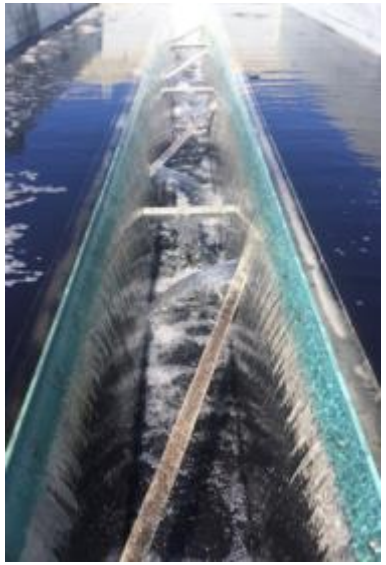
- **Full Advance Treatment** (Microfiltration, Reverse Osmosis and Advanced Oxidation)
  - Most effective in removal of contaminants
  - Most costly
  - Lowest production yield
  - Not a regulatory requirement for spreading application
- **Alternative Advanced Treatment** (Ozonation/Biologically Activated Carbon, Soil Aquifer Treatment)
  - Least expensive
  - No brine or concentrate generated
  - Volume to be spread may be limited
  - Can be expanded in the future to fit a DPR treatment train

Treatment Trains



Increase Recovery

- Alternative treatment train (O_3/BAC) has ~100% recovery
- Closed Circuit Desalination
  - RO Based
  - Increase RO recovery up to 93-95%



Accelerate Project Schedule

- Prequalification of manufacturers for full scale implementation
- Establish design criteria
- Develop preliminary equipment layout

METAWATER

PALL

evoqua
WATER TECHNOLOGIES

GE Power & Water
Water & Process Technologies

Pilot Project Schedule

- Project Schedule:

Task	Completion Date
MF Membrane Prequalification	August 2015
Test Protocol Development	September 2015
Pilot Design, Layout, and Installation	January 2016
Pilot Testing Operation	January 2017
Final Report	March 2017

Questions?