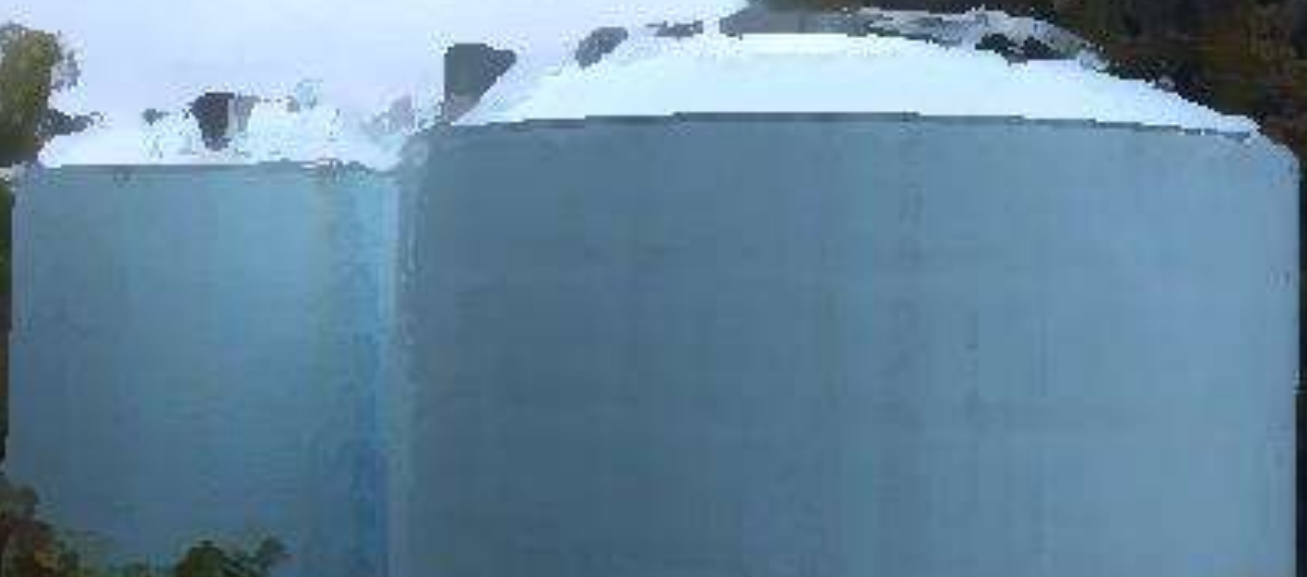


Distribution System TTHM Control Using In-Tank Air Stripping



Columbia
WATER
Company



Agenda

- Background
- Distribution System
- Clearwell Upgrades
- TTHM History
- Custom Designed System
- Package Systems
- Results

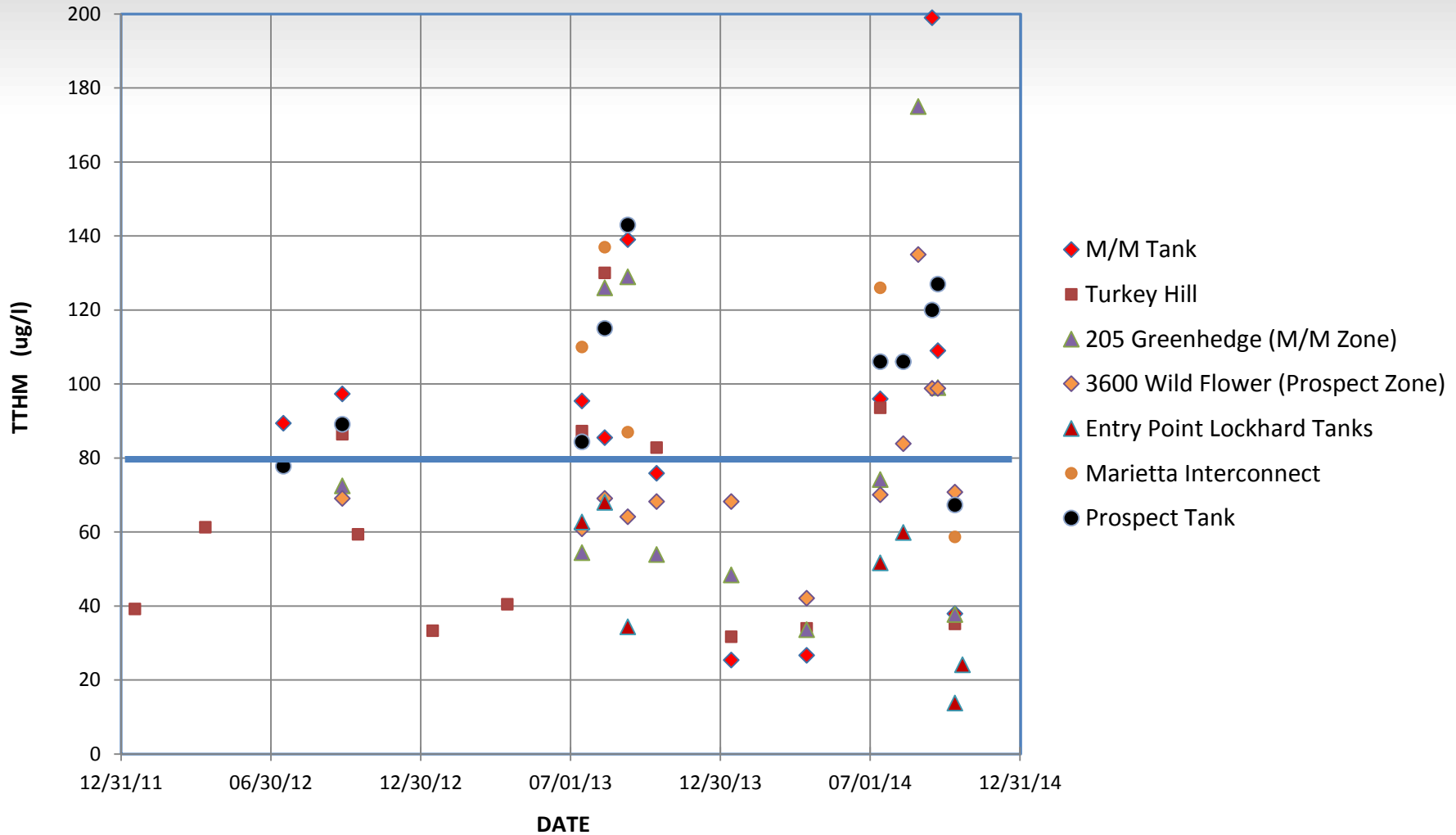


Background

- System Serves 10,000 Customers in 7 Municipalities
- Walnut Street Water Treatment Plant – 4 MGD Capacity
- Source – Susquehanna River
- Treatment – Traveling Screen, Pot Perm, Coag/Floc/Sed, Dual Media Filtration, Corr Inhibit, and Free Chlorine Disinfection



TTHM History



Clearwell Upgrades

- All Flow Passes Thru Tank
- 0.3 Baffling Factor
- 868,000 Gallons CT



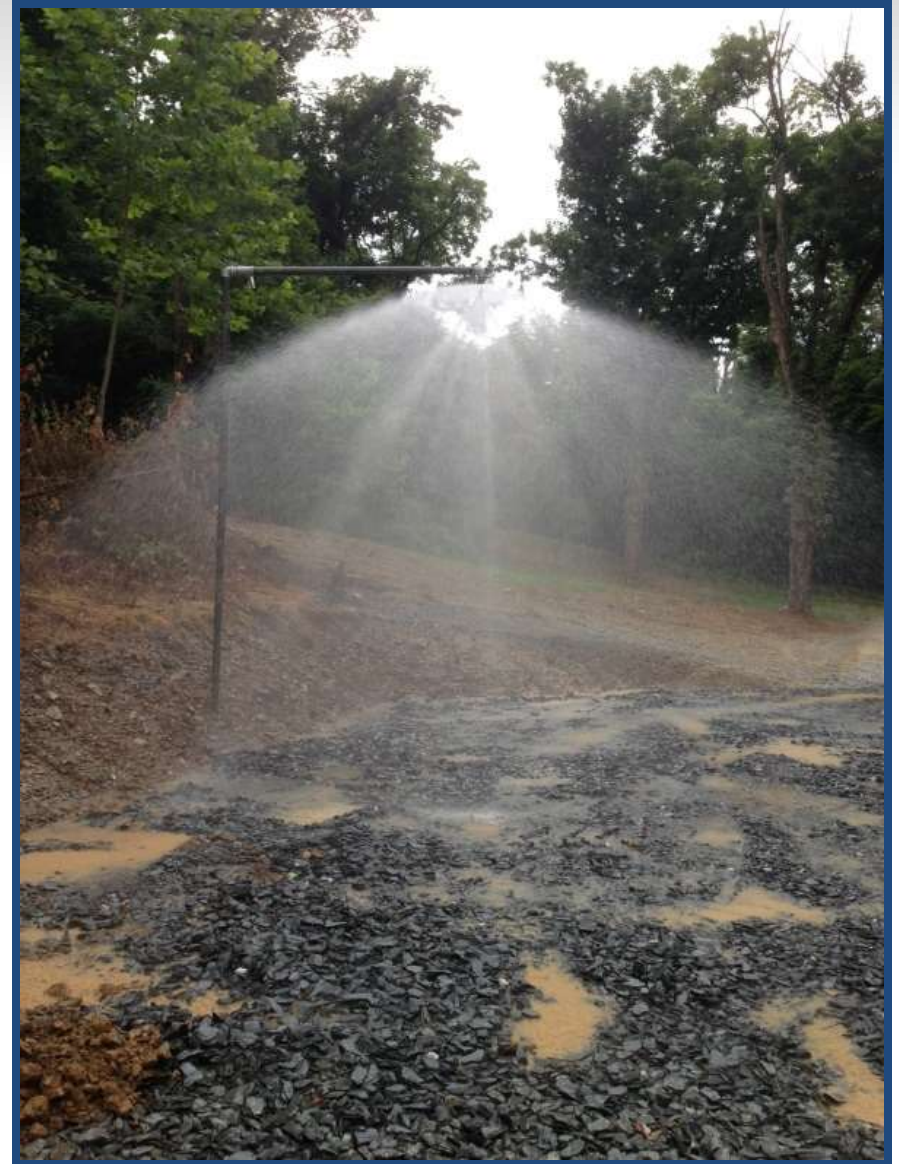
Clearwell Upgrades

- No Room Onsite to Expand Clearwell
- Converted two 1.0 MG tanks and the a 2.0 MG Off-Site Tanks
- Added Separate Influent/ Effluent
- Added Influent and Effluent Headers



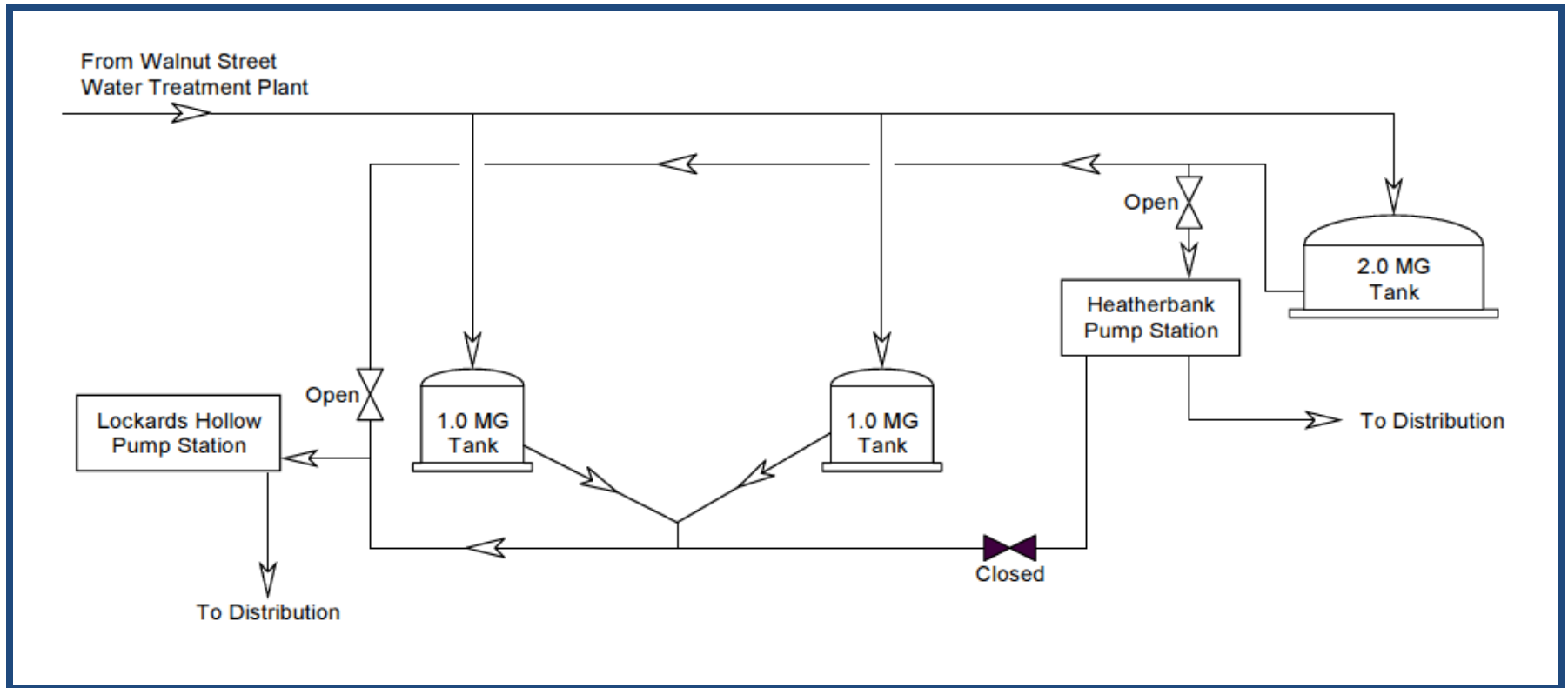
Custom Designed System

- Pilot Tested Spray Nozzles
- Open Air/Single Pass
- >75% Removal of TTHM
- +/- 20% Lose of Cl_2



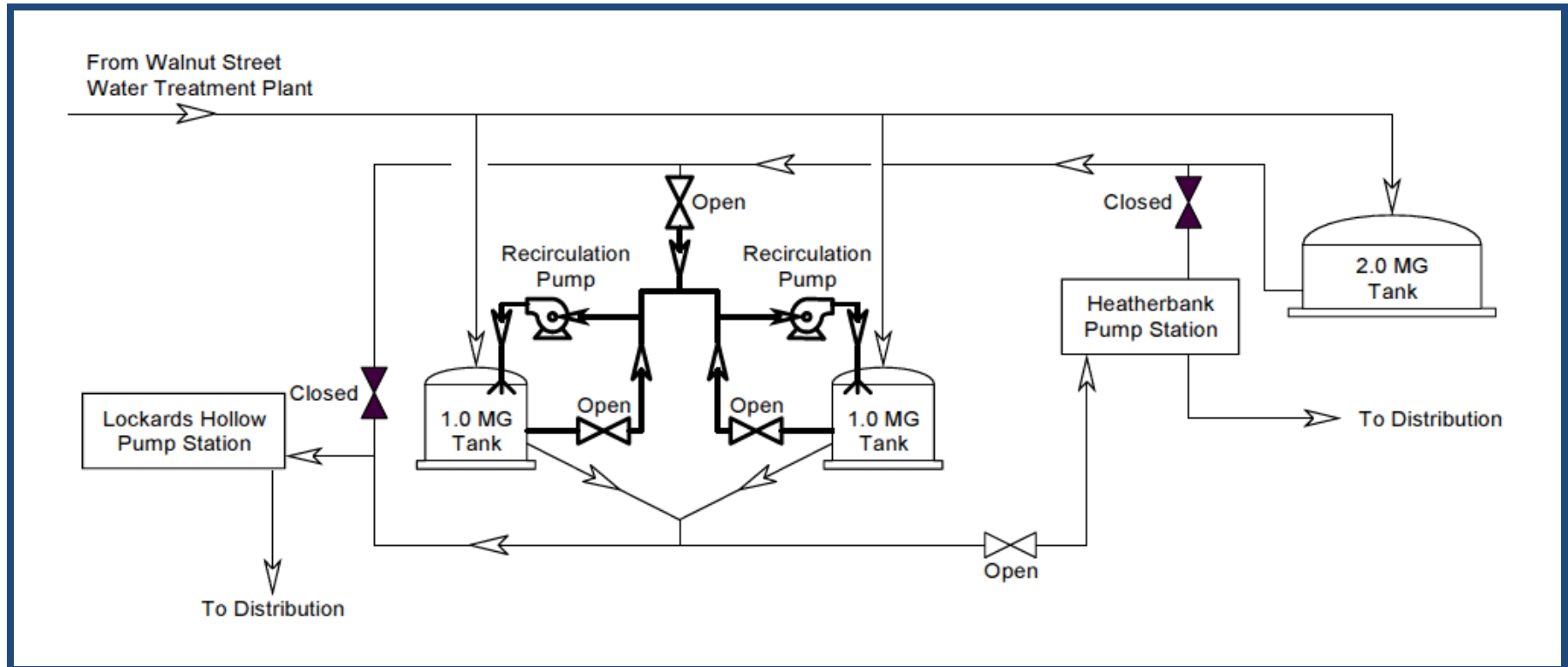
Custom Designed System

Original System



Custom Designed System

Modified System



Custom Designed System

- 40 HP, 1,400 GPM Recirculation Pumps
- 12 Nozzles - On Tank Dome
- 1.5 HP, 3,500 SCFM Blowers
- Additional 16 inch Vents



Custom Designed System

- 4.0 MGD Capacity
- One Pass at Peak Day



Package Systems

- Manor/Mountville Tank - 1.0 MG
- Prospect Tank - 2.0 MG tank
- Existing SolarBee™ Mixing Systems

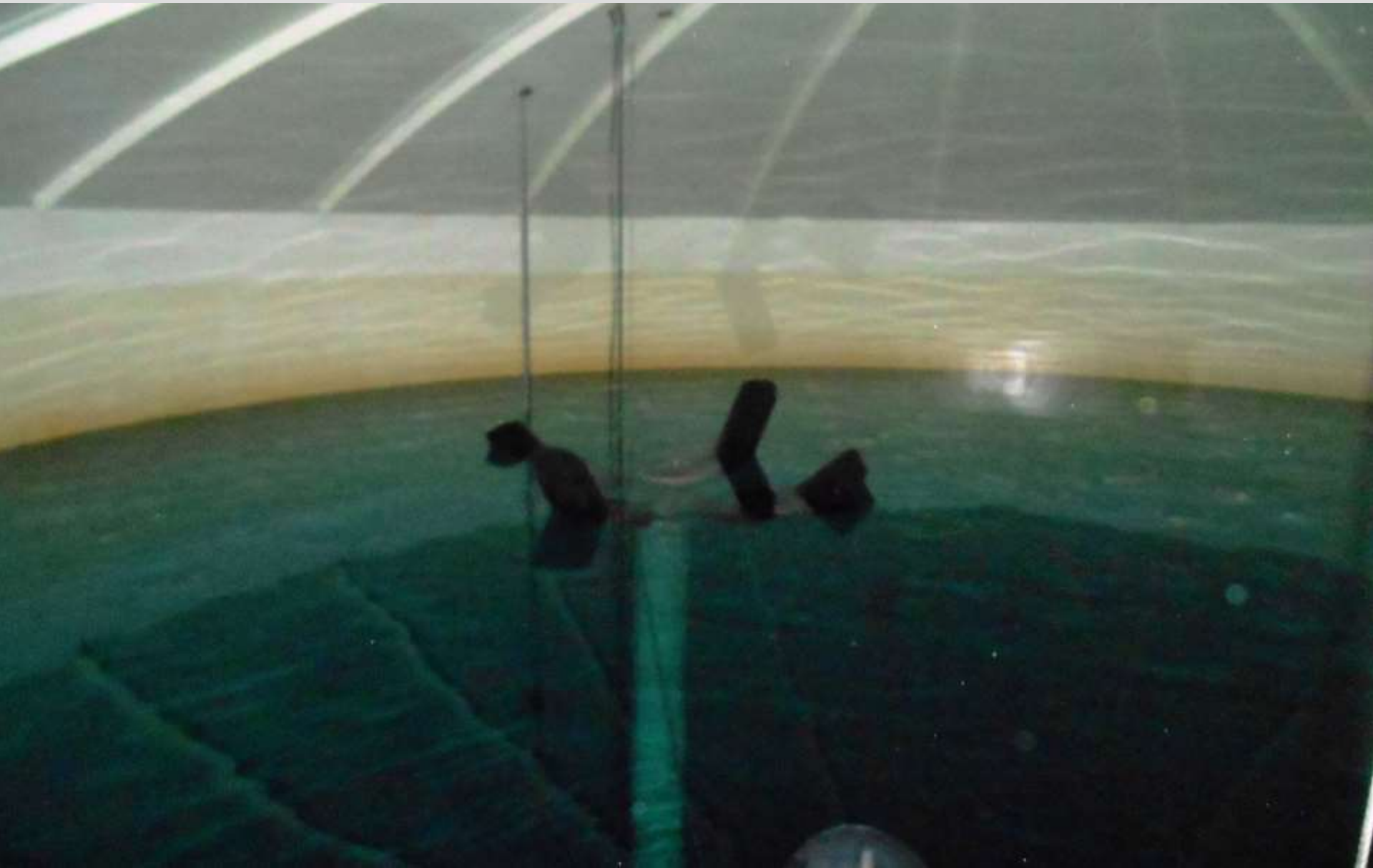


Package Systems

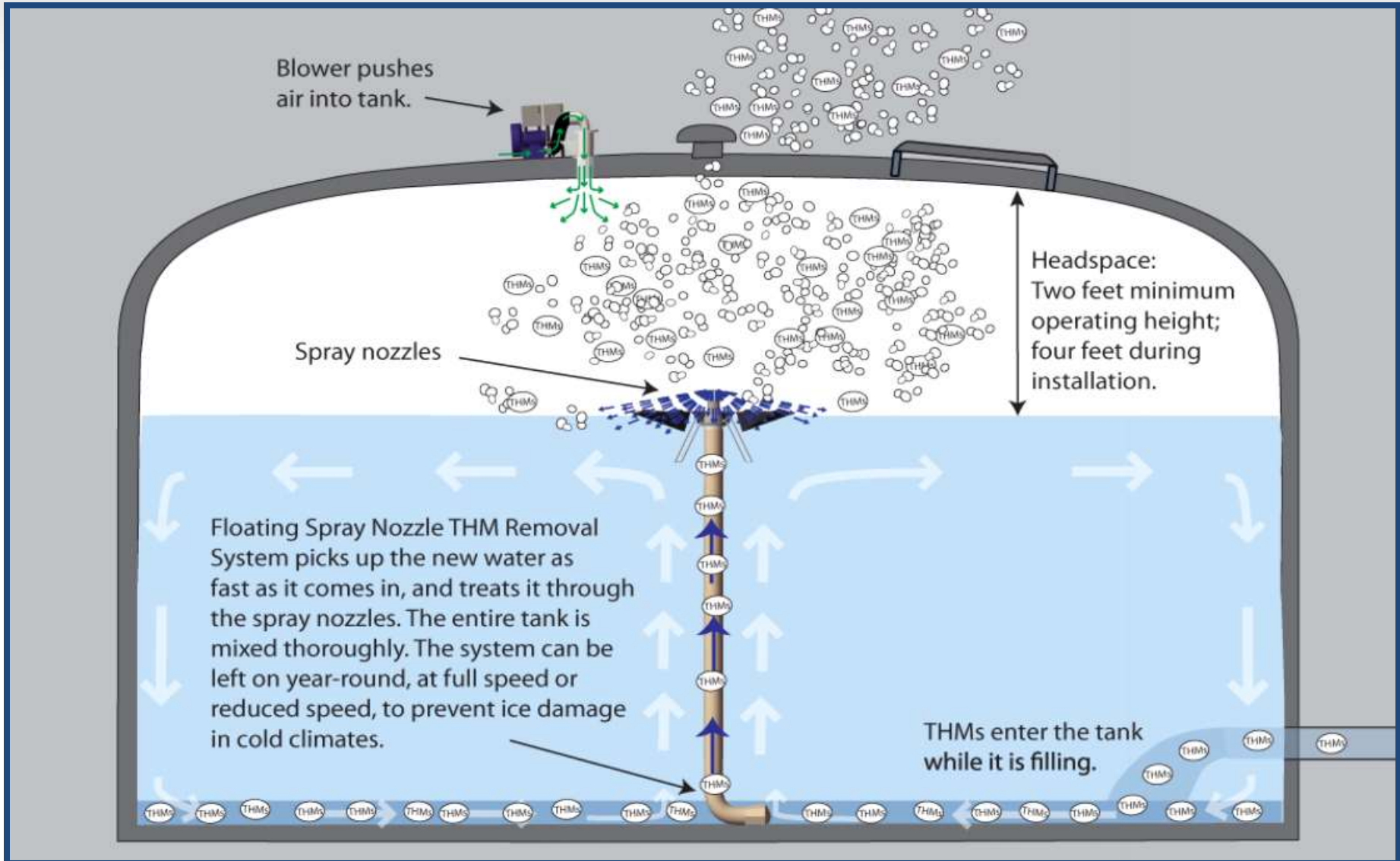
- GridBee™ Trihalomethane Removal Systems
- Guaranteed 40% Removal
- 15 HP Pumps
- 2 HP Blowers
- 1.2 MGD Capacity



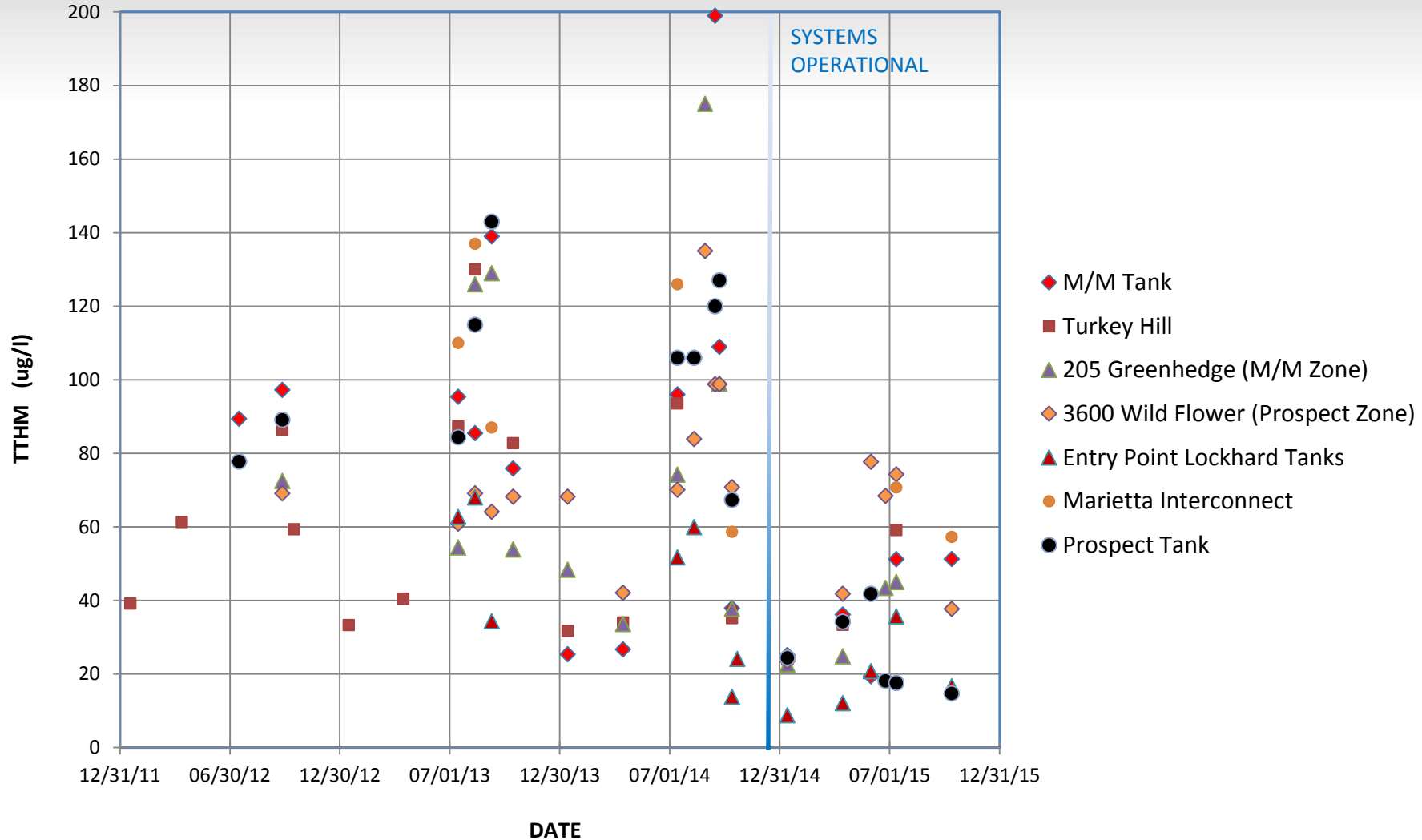
Package Systems



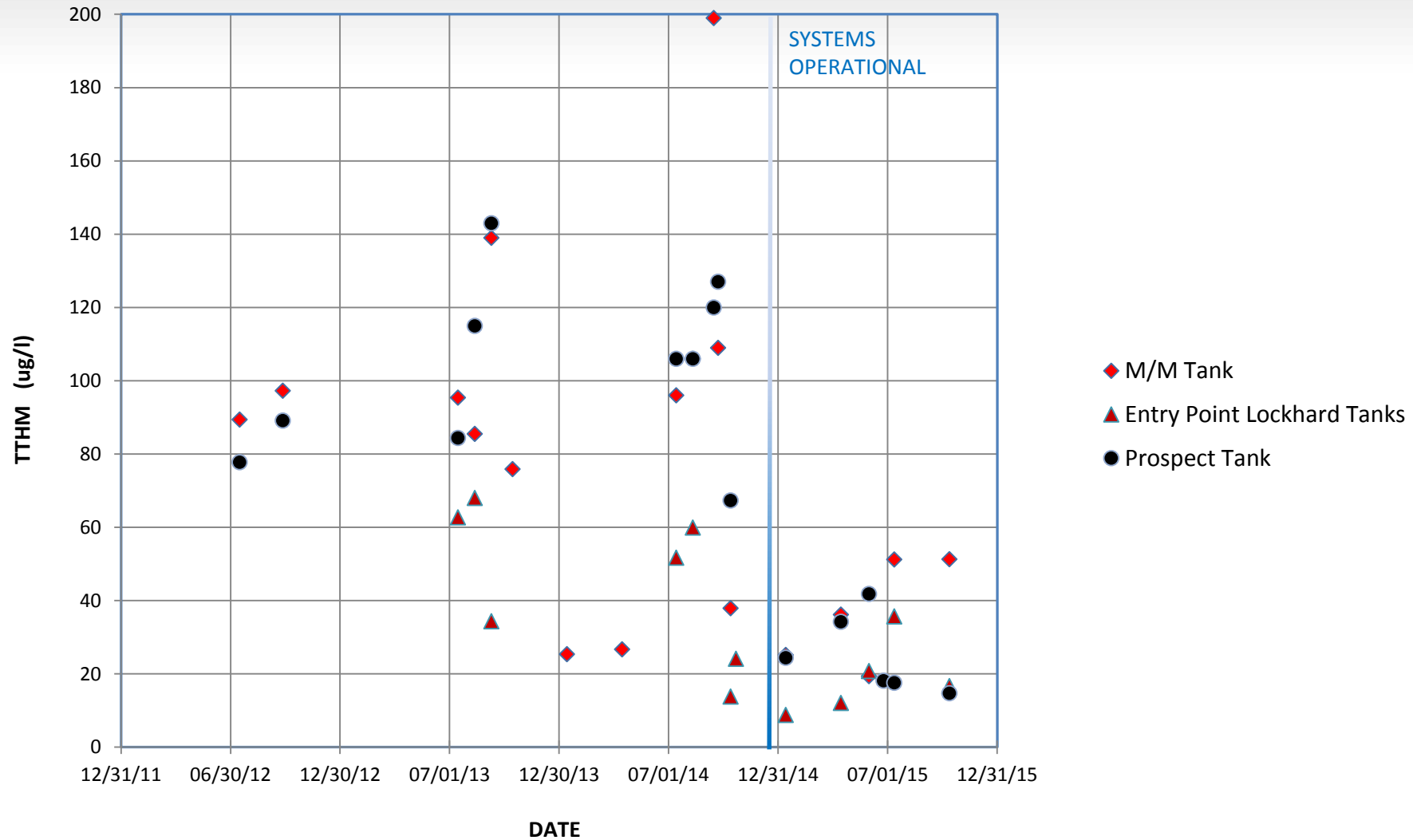
Package Systems



Results



Results



Questions?