

REINHOLD ENVIRONMENTAL Ltd.



2015 Wastewater-Ash Round Table Presentation

September 22, 2015, in Charlotte, NC / Hosted by Duke Energy

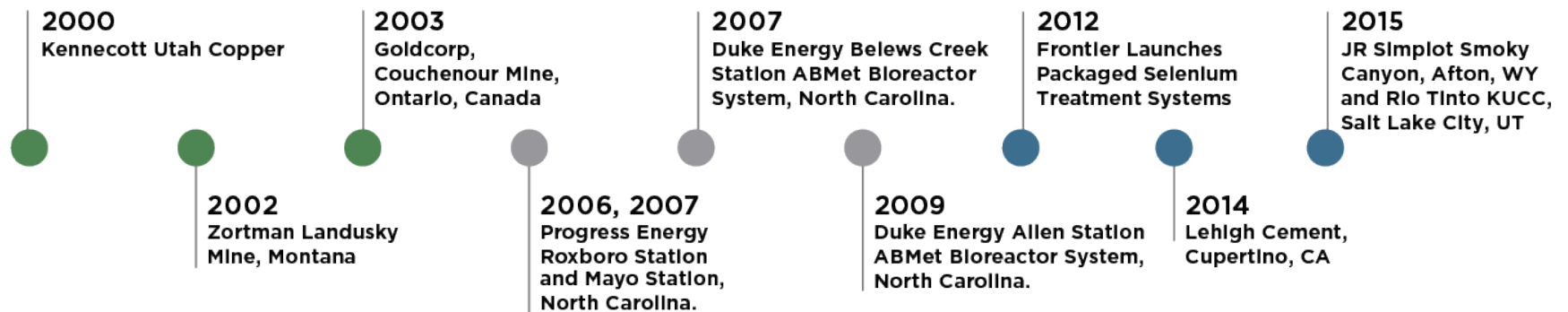
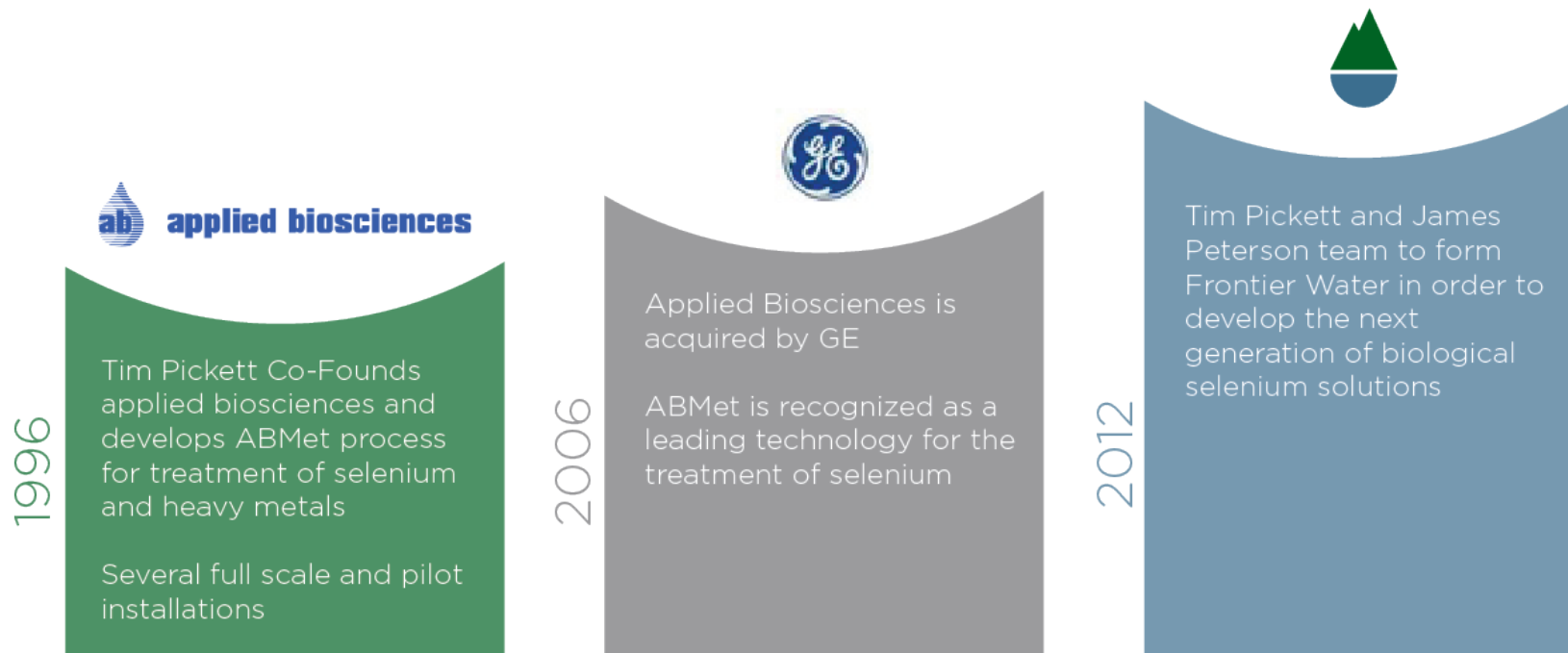
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Update for Selenium Treatment

Tim Pickett - timpickett@frontierwater.com

Focused on Development of Leading Biological Selenium Treatment Solutions



Development Challenges & Opportunities

Pretreatment

- Softening
- Metals Precipitation
- Solids Removal

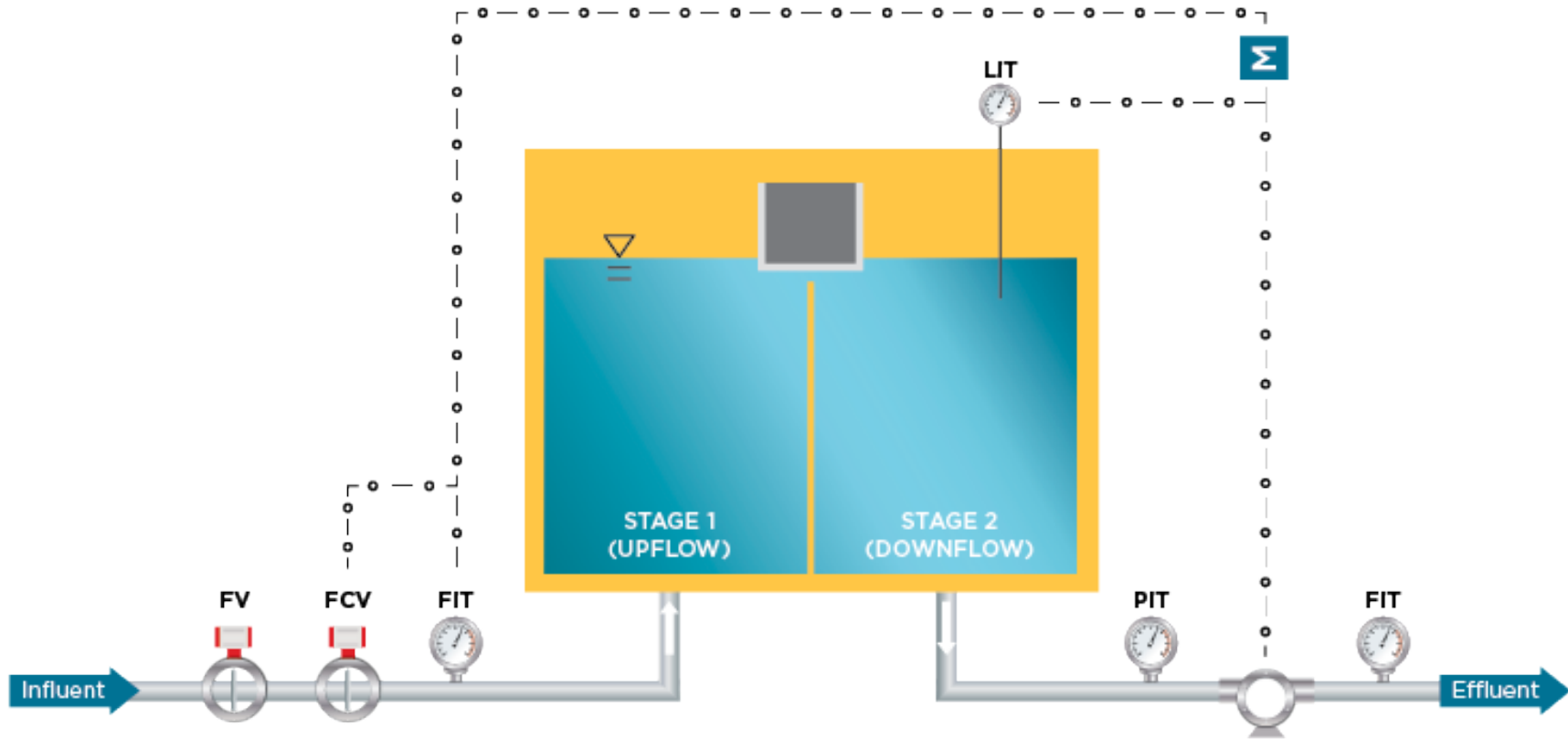
Bio Stage

- Oxidant Control
- Temperature control
- Gas Management
- Filtration

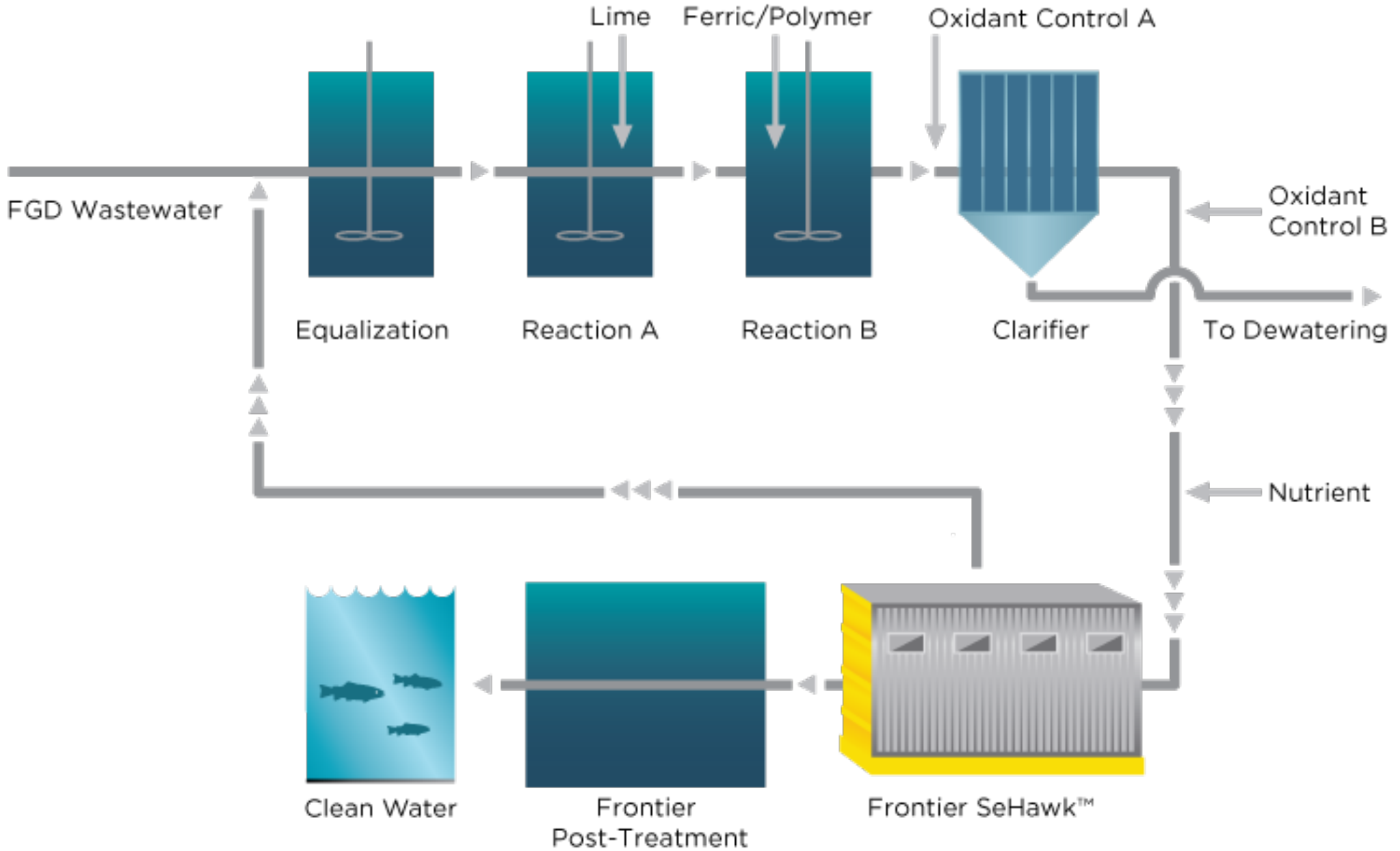


- Lower Hydraulic Retention Time
- Smaller Footprint
- Modular Equipment Package

How It Works



FGD Process Flow



500 gpm Installation with Enclosure - 2013



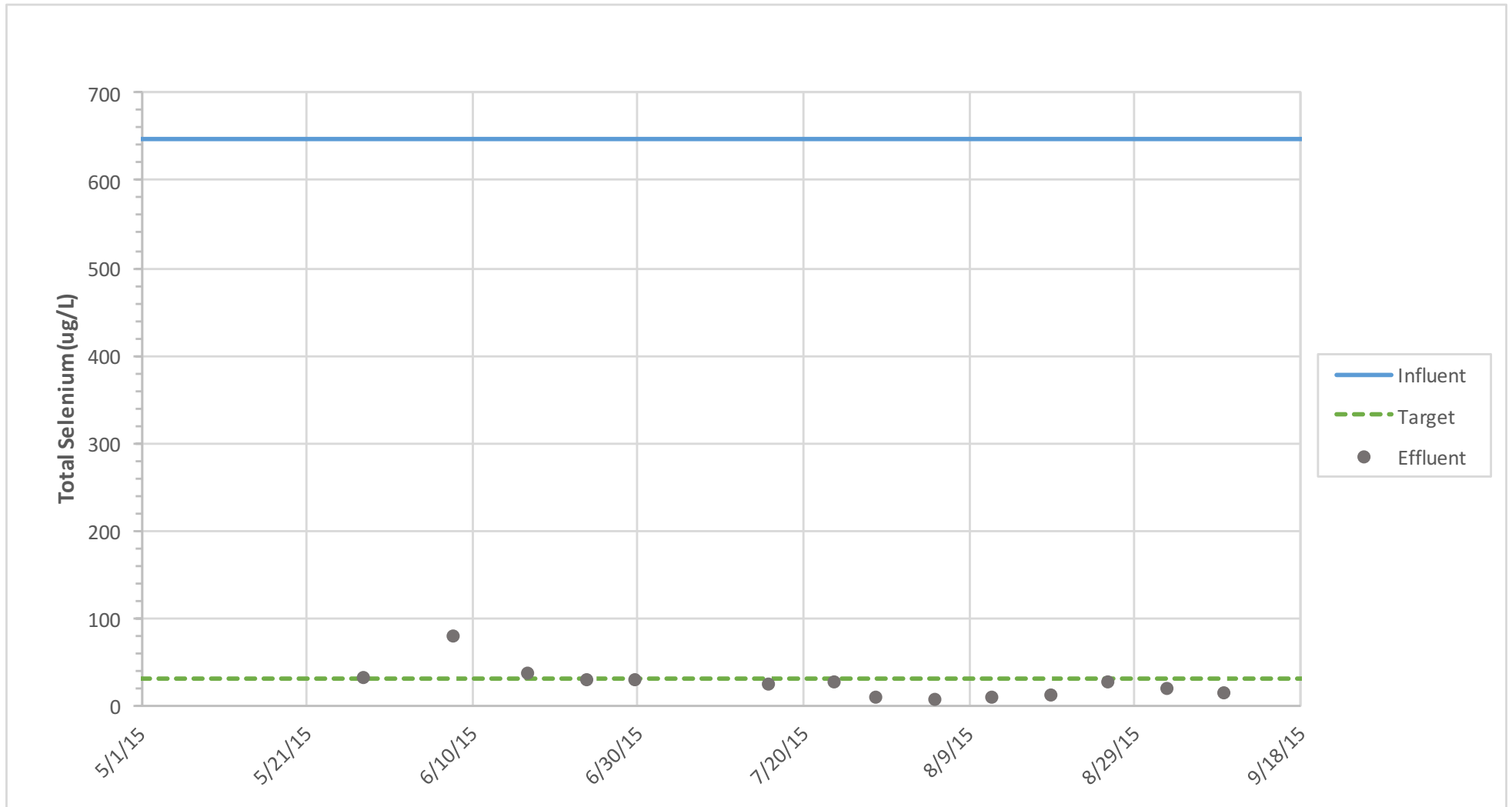
250 gpm Selenium Treatment Plant, Salt Lake City, Utah



250 gpm Selenium Treatment Plant, Magna, Utah



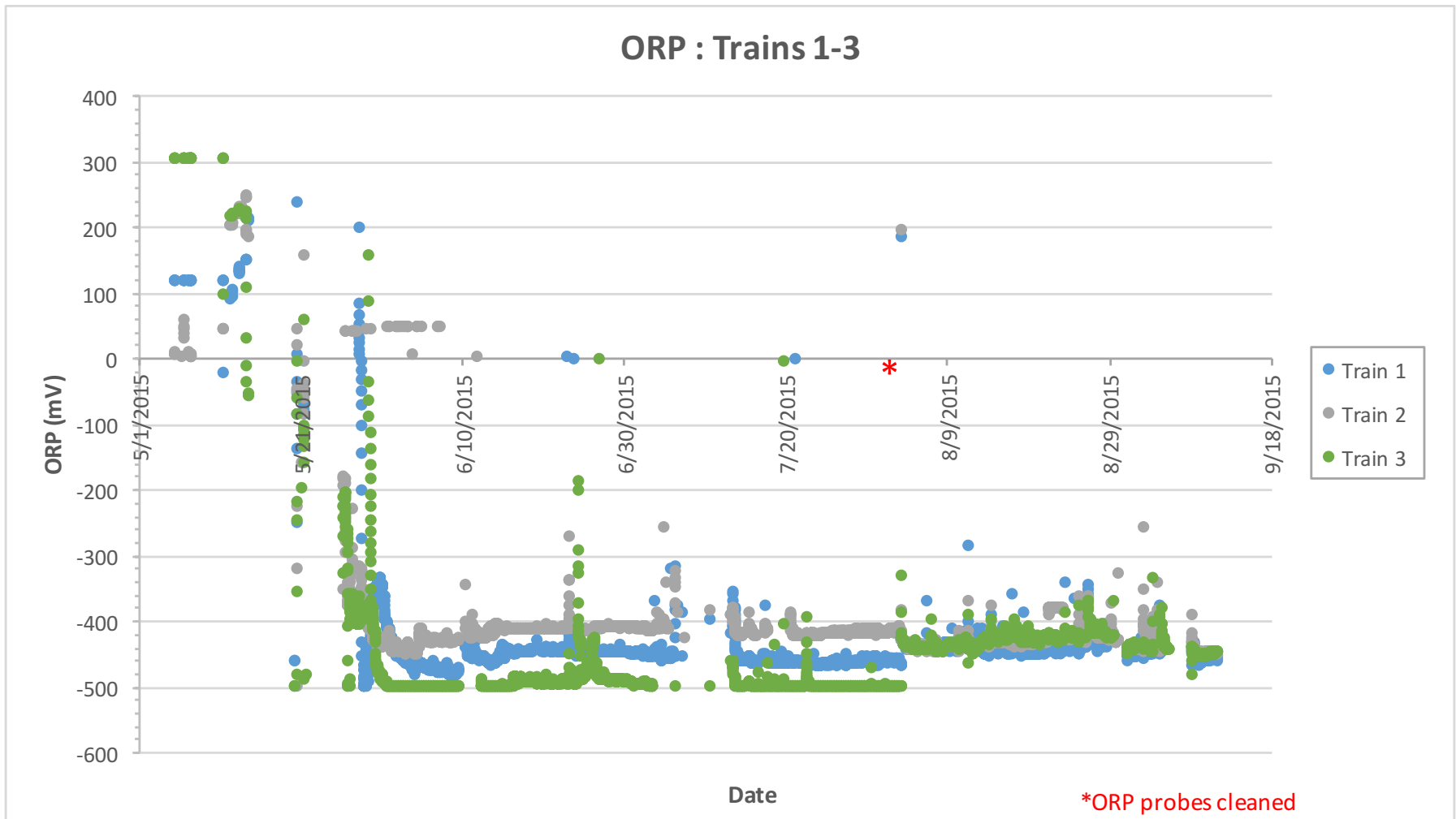
Full Scale Performance, Magna Utah 250, gpm



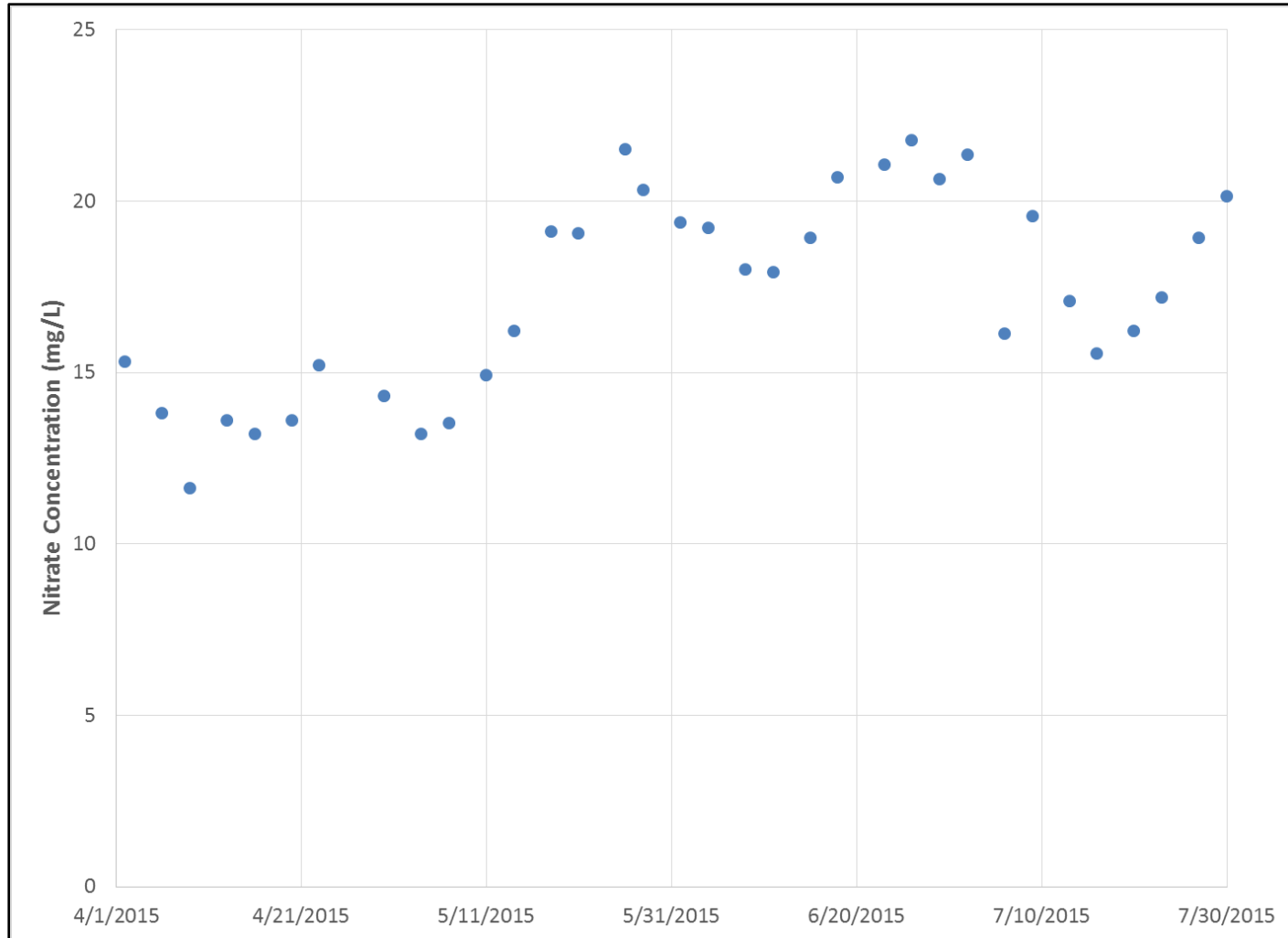
Stage 1- Fluidized Bed Bioreactor



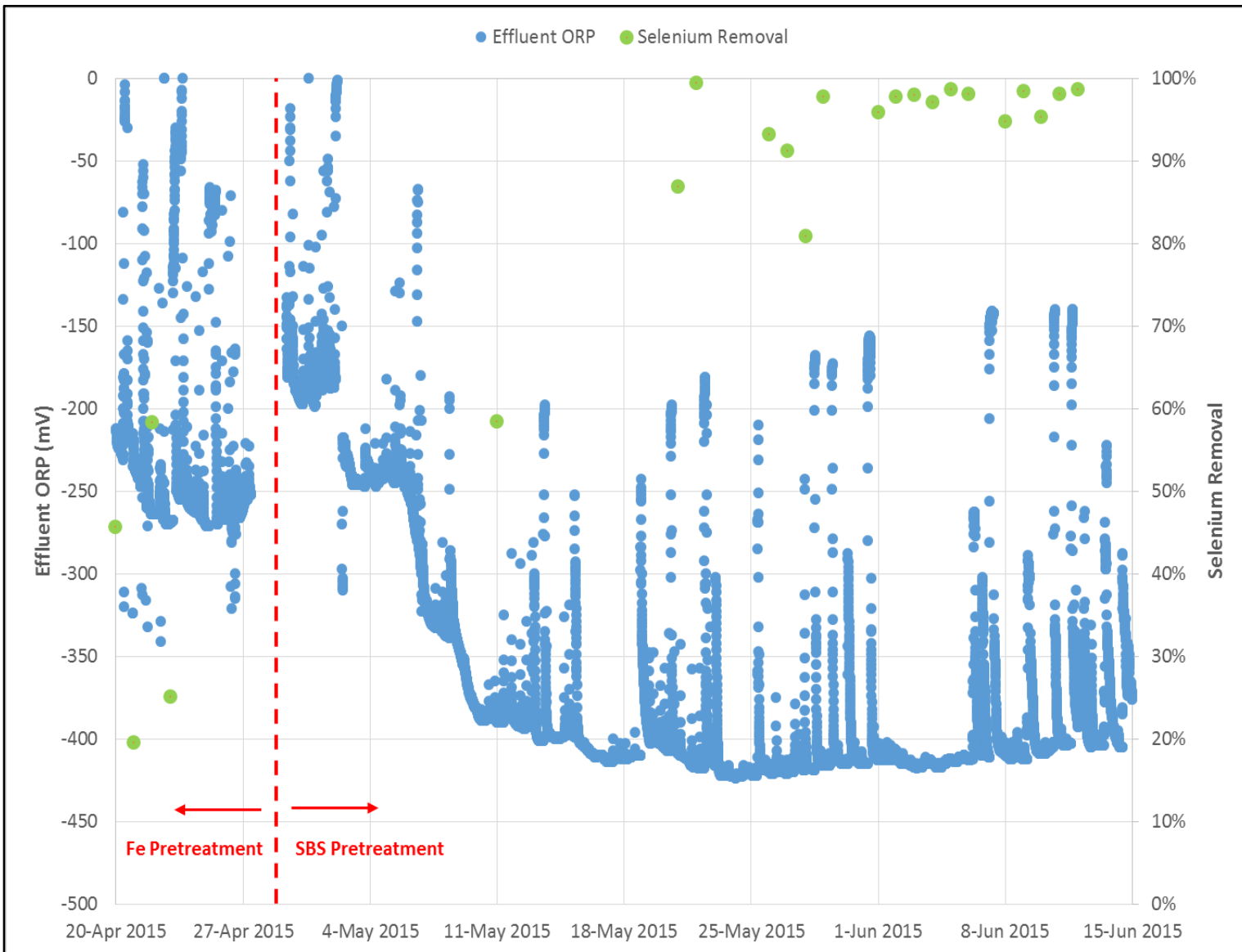
Oxidation Reduction Potential Profile



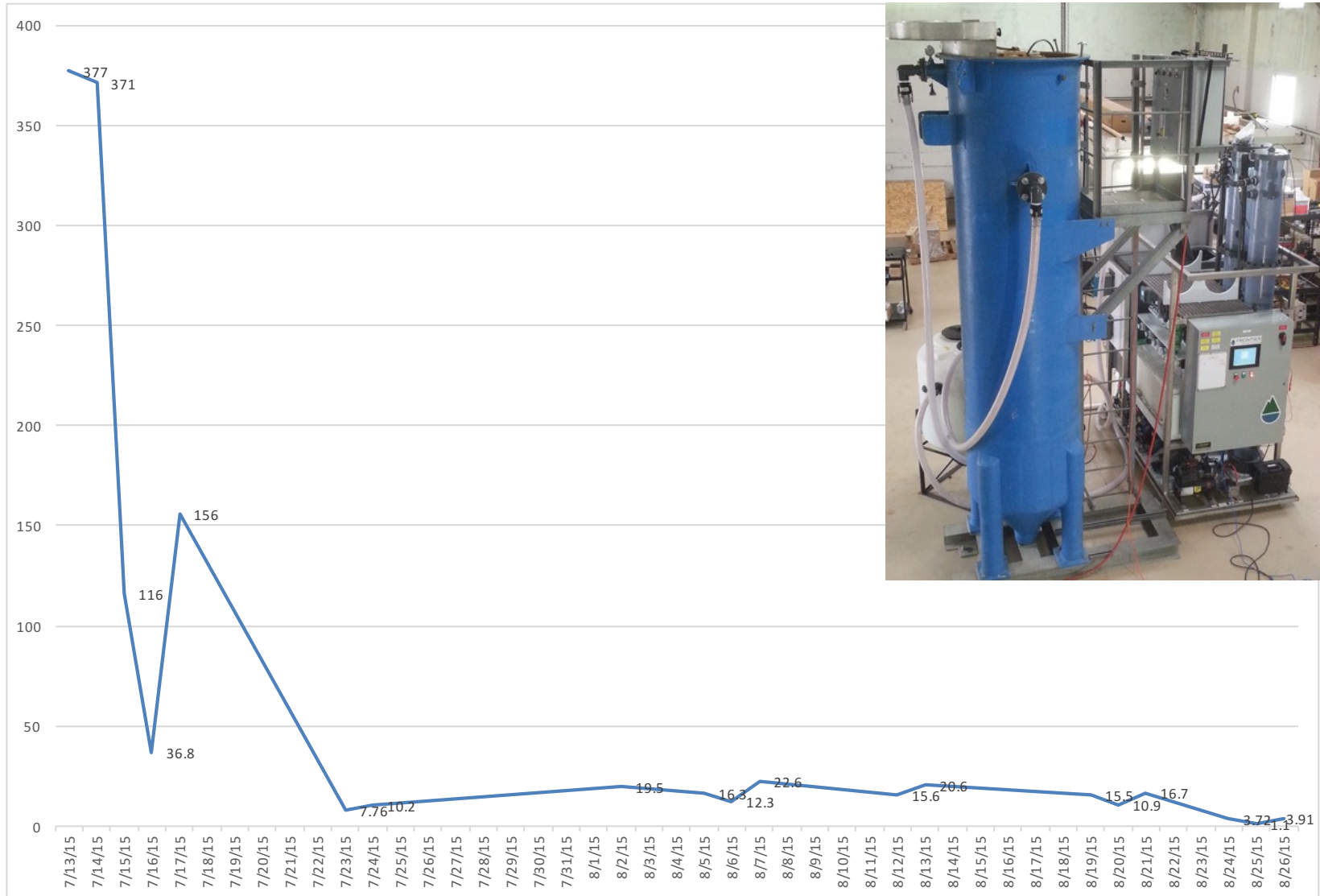
FGD - Nitrate Removal



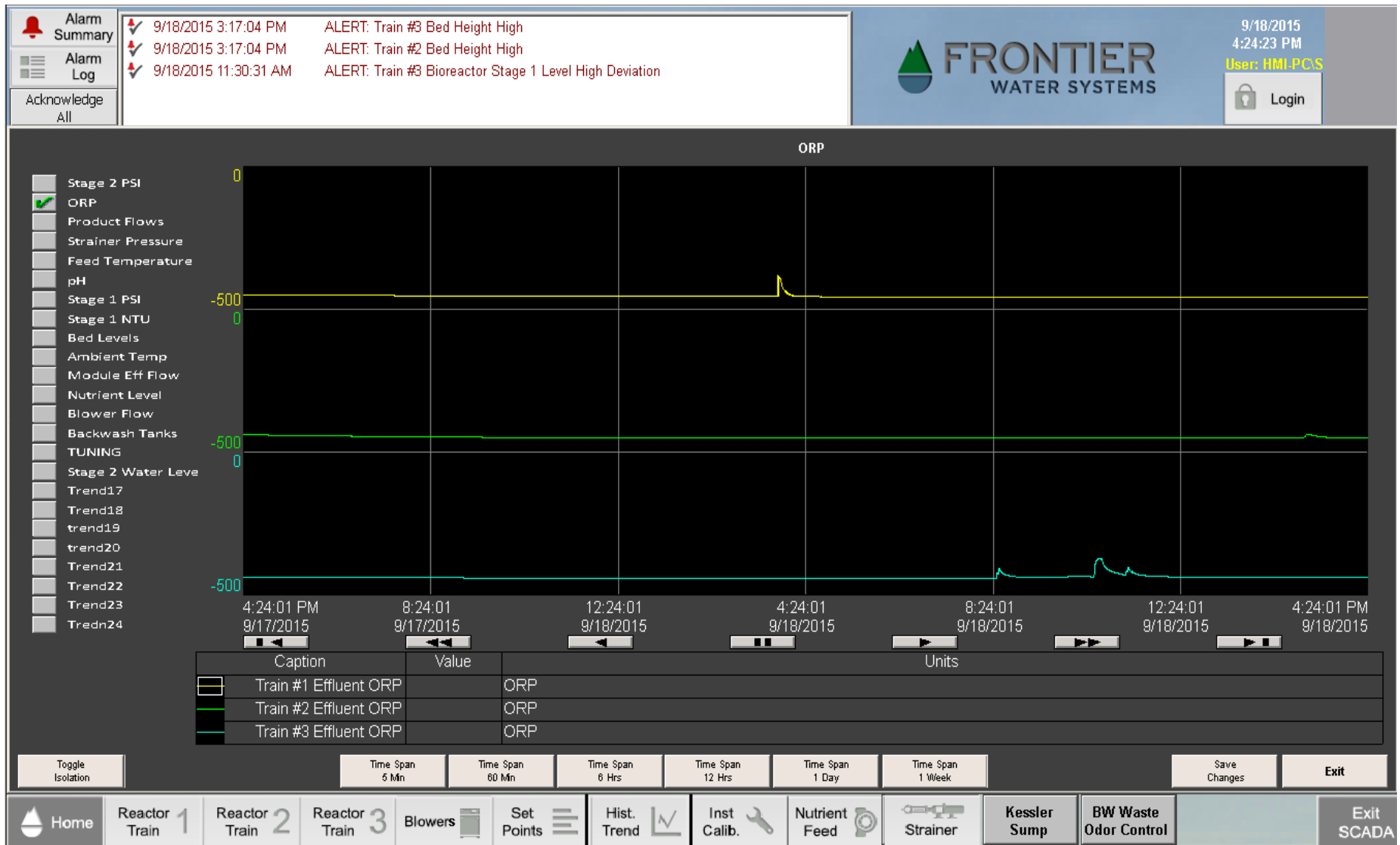
FGD Selenium Removal with Pretreatment



FGD – Selenium Removal with Pretreatment



HMI- Oxidation Reduction Potential Trending, Trains 1-3



Questions?

