

# BWR Condensate Filter Demineralizer Waste Processing Improvement

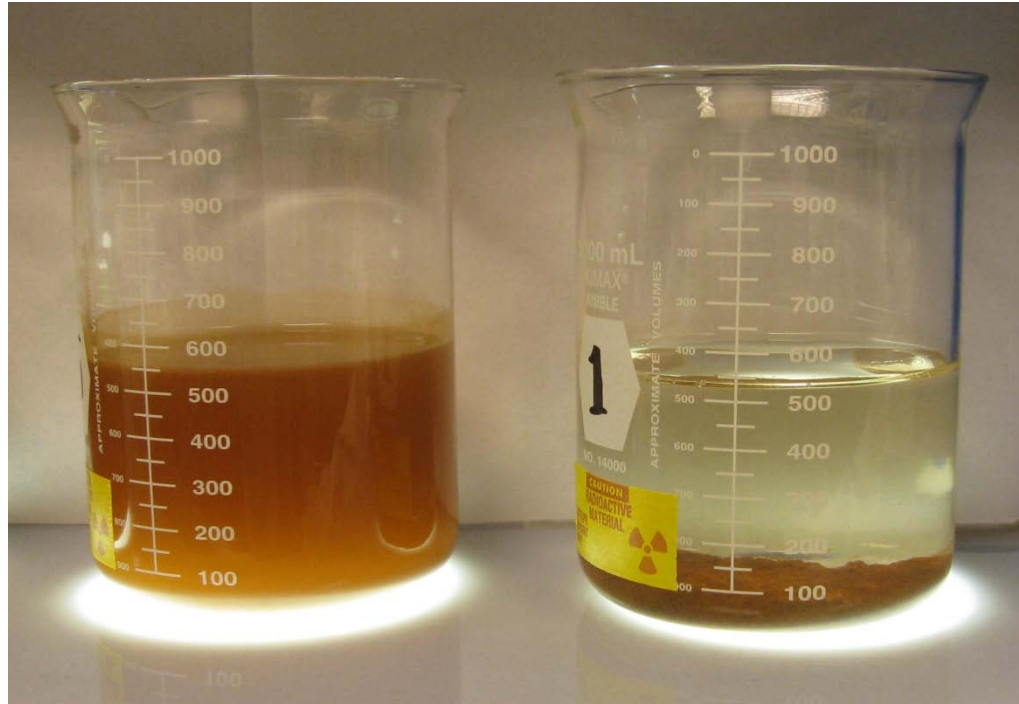
# Plant Information

- ▶ Dual Unit Plant
- ▶ 100% condensate filtration
- ▶ Inlet iron ranges between 10 and 15 ppb
  - ▶ Pleated filters remove essentially all of the iron
  - ▶ 1300 – 1900 lbs Fe per unit per year
- ▶ Precoated with 144 dry pounds resin per precoat
  - ▶ Average filter run length = 35 days
  - ▶ 15,000 lbs precoat per unit per year
- ▶ Filter backwash water = 7000 gal/backwash
  - ▶ 730,000 gallons of backwash water per unit per year

# Issue

- ▶ CF/D backwash water causes significant challenge to radwaste processing
  - Small iron particles do not settle out of CF/D backwash waste
- ▶ High resin usage needed to process CF/D waste significantly increases plant O&M costs

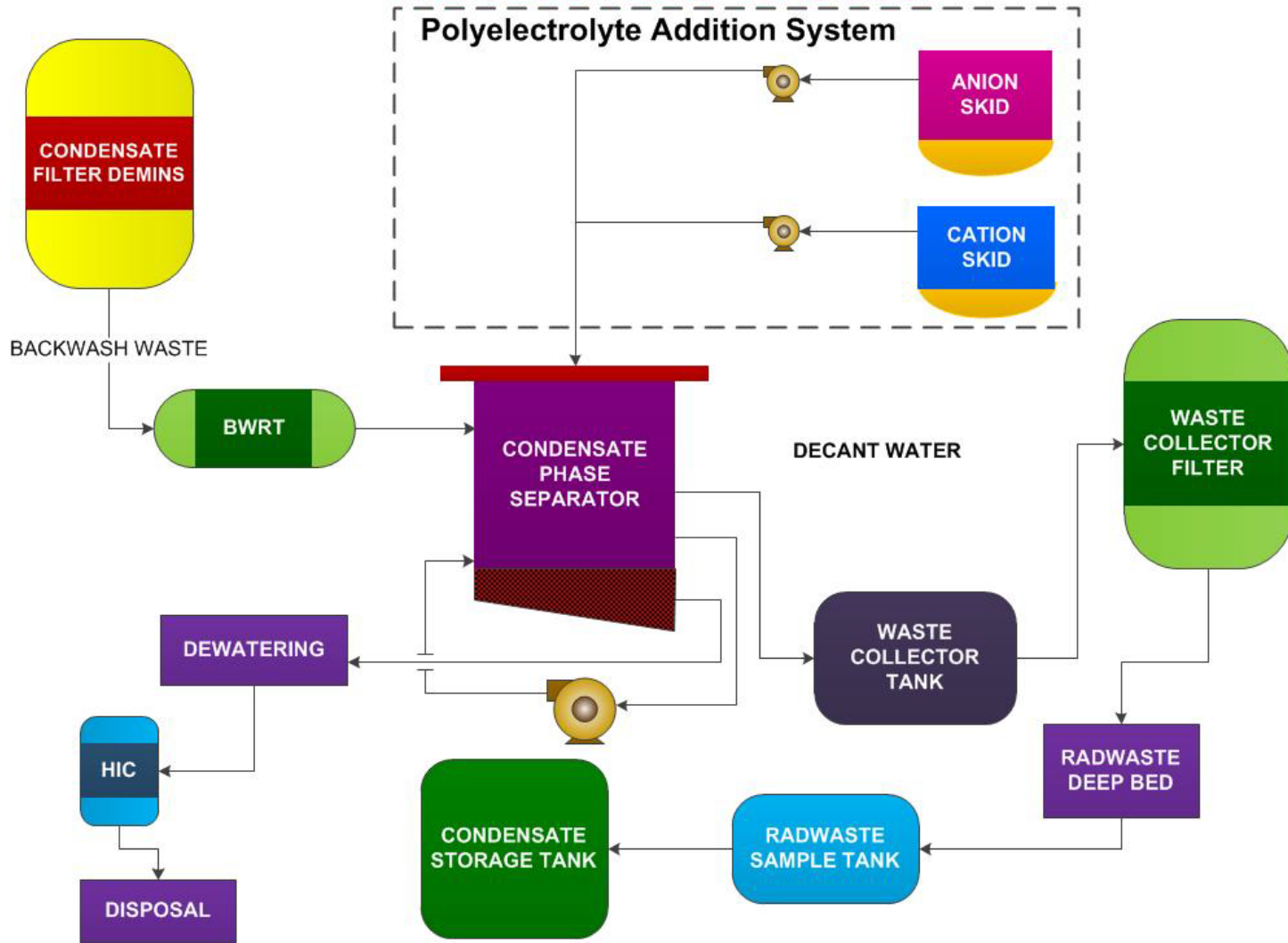
# Solution: Polyelectrolyte Addition



**Before**

**After**

# PROCESS FLOW DIAGRAM



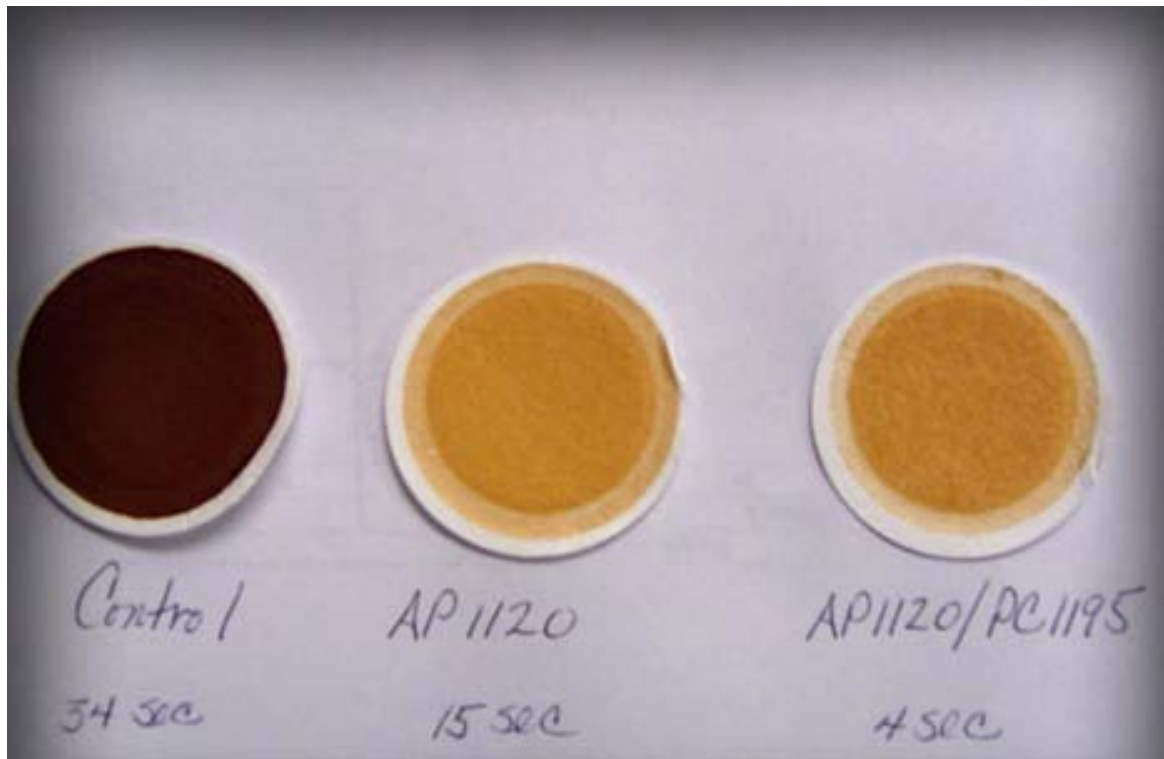
# Polymer Injection Skid



# Mixing Tank Internals



# Filterability Test Results





# Conclusion

- ▶ Implementation of polyelectrolyte addition to condensate filter demineralizer backwash waste has resulted in a significant reduction in O&M costs associated with radwaste processing.