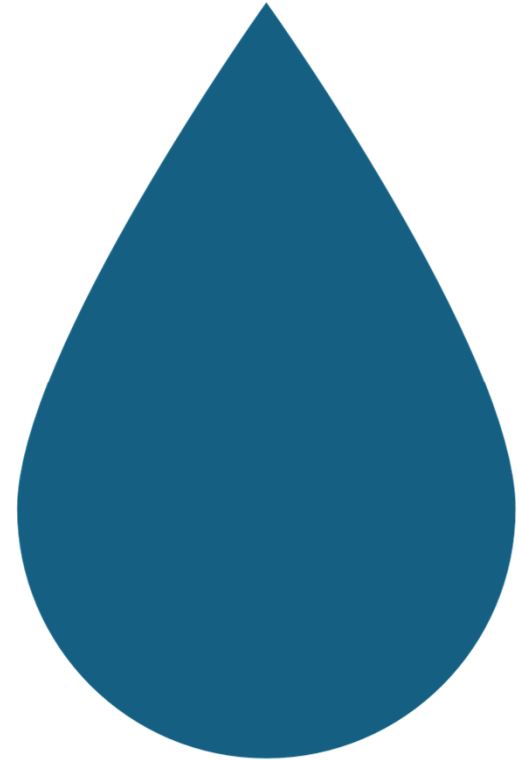


City of Kotzebue
Water Treatment
Plant



Successes and Challenges

- Culmination of 12 years of planning, design, and construction
- Six different grant agreements
- Construction started in March 2020, the month Covid changed the world
- Construction Change Orders have been roughly 4% of the contract.

Challenges

- Significant deterioration in Raw Water Quality Since Design
- Pre-treatment systems were removed during design because of funding restrictions
- Tetra Tech is completing considerable work at no cost to the City right now
- Difficulty keeping our construction contractor engaged, which is necessary for quickly executing whatever construction is required

Treatment Challenges

- Mn Removal and discoloration are biggest challenges
- Other challenges include
 - Plant automation and ongoing maintenance contract needs
 - Finalizing existing work in existing contracts
 - Chemical storage racks
 - Building hvac systems
 - Backwash tank

Financial Overview

- Swalling Contract- \$21,781,498/ \$22,200,161
- Tetra Tech Contract- \$2,220,000/\$2,220,000
- Anticipated Change Orders- \$152,219.24
- Grant Funding Remaining- -\$24,533.43
- Project did cover \$40K Forklift, and \$97K Highlift

Financial Challenge

•Project will need more money

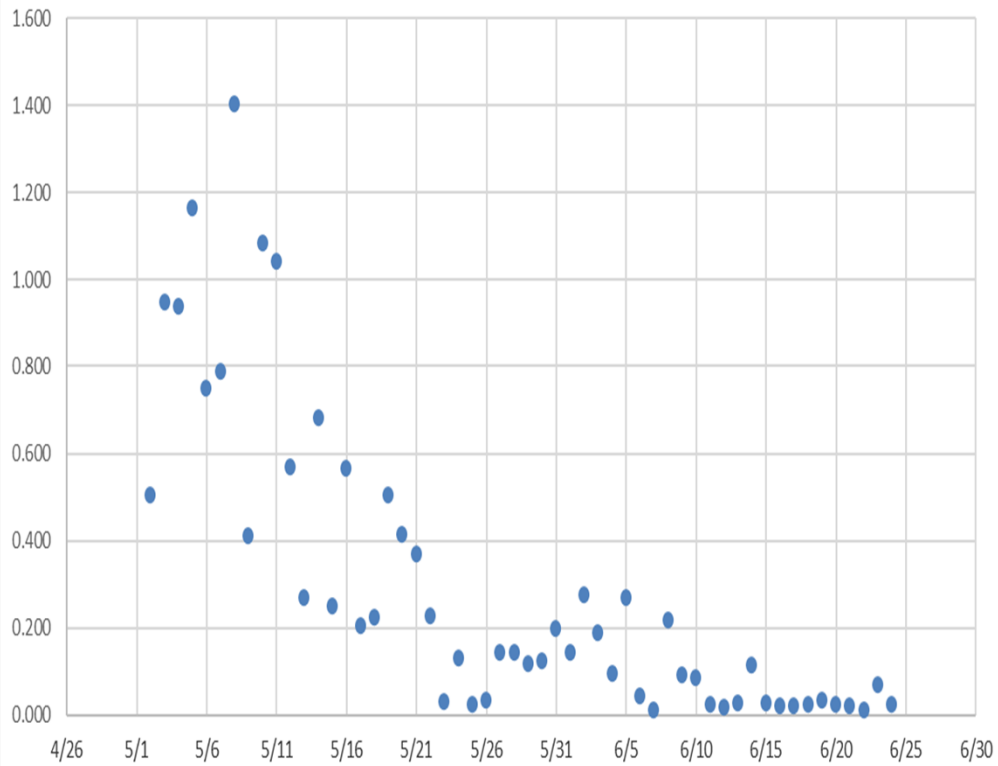
- ANTHC appears to not have more available funding
- USDA EGWAG is a possibility
 - Grant application submitted
- SOA ADEC SRF is a possibility
 - Grant application submitted

Short Term and Long Term Action Plans

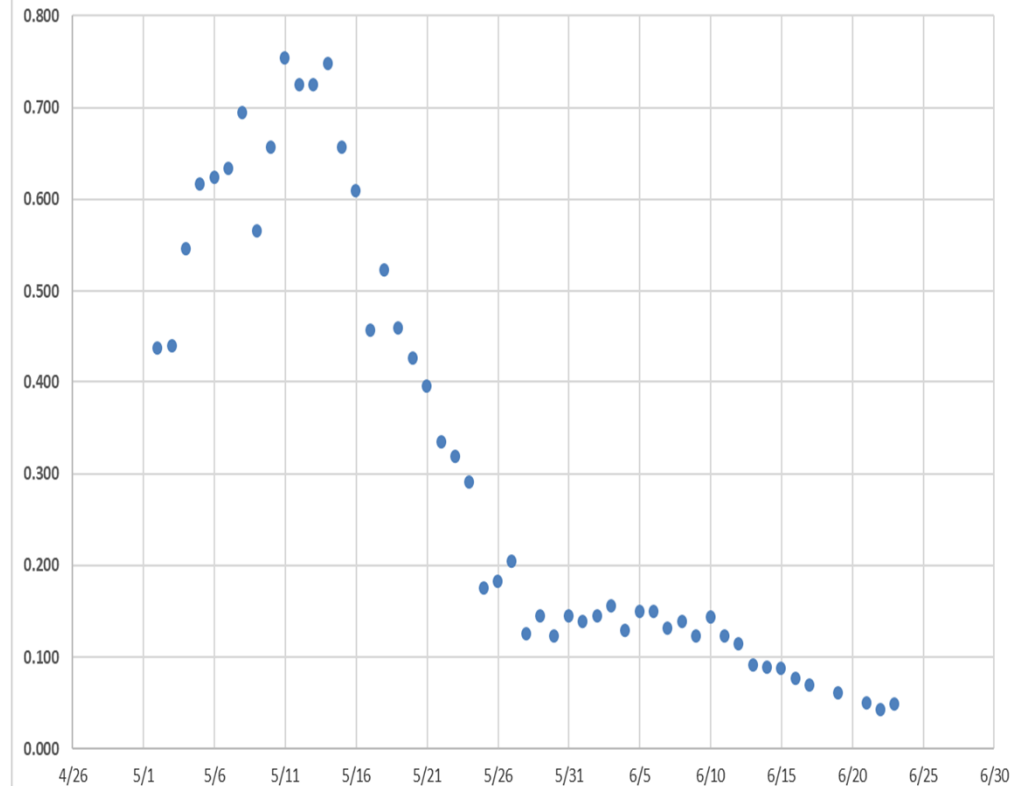
- Tetra Tech

Continued Positive Results from the Plant

Mn - NF Permeate, May 1 - June 24

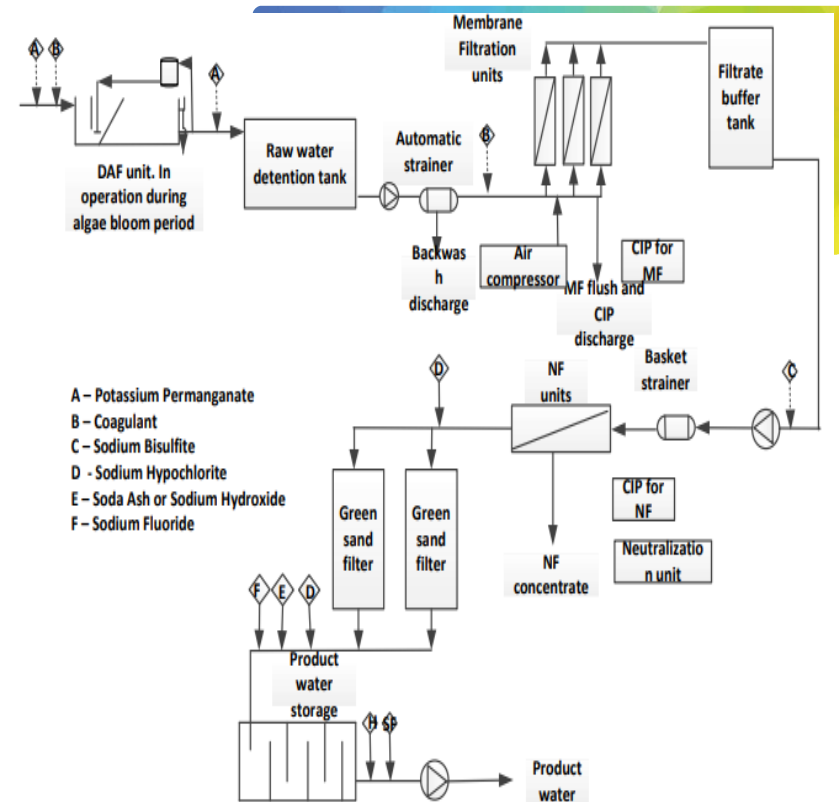


Mn - Loop Supply, May 1 - June 25



Short-Term Action Items

- Continue to maintain pH at 8.0 to 8.5 prior to the UF by:
 - Modify Sodium Hydroxide Storage & Feed systems
 - Install pH, Potassium Permanganate and TOC Analyzers
 - Revise the chemical monitoring & programming
- Optimize the UF and NF Operations by:
 - Work with contractor and the programmer to be able to maintain a constant raw water flow into the UF system
 - Work with contractor and the programmer to operate the UF system with all three trains operating during normal flows and two trains during a backwash on one train. This will help to balance the flows to the UF.
- Membrane Evaluation
 - Determine if UF & NF membranes can meet the flow requirements with Winter/Spring 2023 water quality.
 - Evaluate if additional UF membranes should be added on the three trains where there is space set aside already.
 - Evaluate if any NF membranes need to be replaced.



Long Term Action Items

- Evaluate equipment options for treating raw water quality upstream of UF Filters:
 - Greensand Filters
 - Pyrolusite Filters
 - Dissolved Air Flotation (DAF)
 - Solid Contact or High- Rate Clarifiers
 - Evaluation considers effectiveness, backwash requirements, delivery schedule and guarantee/warranty
 - Evaluation provided to City and Contractor for review
- Evaluate equipment options for adding treatment after the NF Filters:
 - Greensand Filters
 - Pyrolusite Filters
 - Evaluation considers effectiveness, backwash requirements, delivery schedule and guarantee/warranty
 - Evaluation provided to City and Contractor for review

