

# Collaborative Engineering in the Indian Health Service



# Indian Health Service - Overview



- Established 1955 as part of the Public Health Service
- Provides 2.5 million AI/AN comprehensive health service delivery system of 574 Federally recognized tribes across the US
- Clinical, Referred Care, Preventive Health, Urban Health, Public Health and **Environmental Health & Engineering**



- <https://picottecenter.org/>

# Office of Environmental Health and Engineering - Overview



- 5 Divisions, 4 of which are Engineering related
  - Division of Health Care Facilities Planning and Construction
  - Division of Facility Operations
  - Division of Engineering Services
  - Division of Sanitation Facilities Construction (DSFC)
- DSFC established in 1959

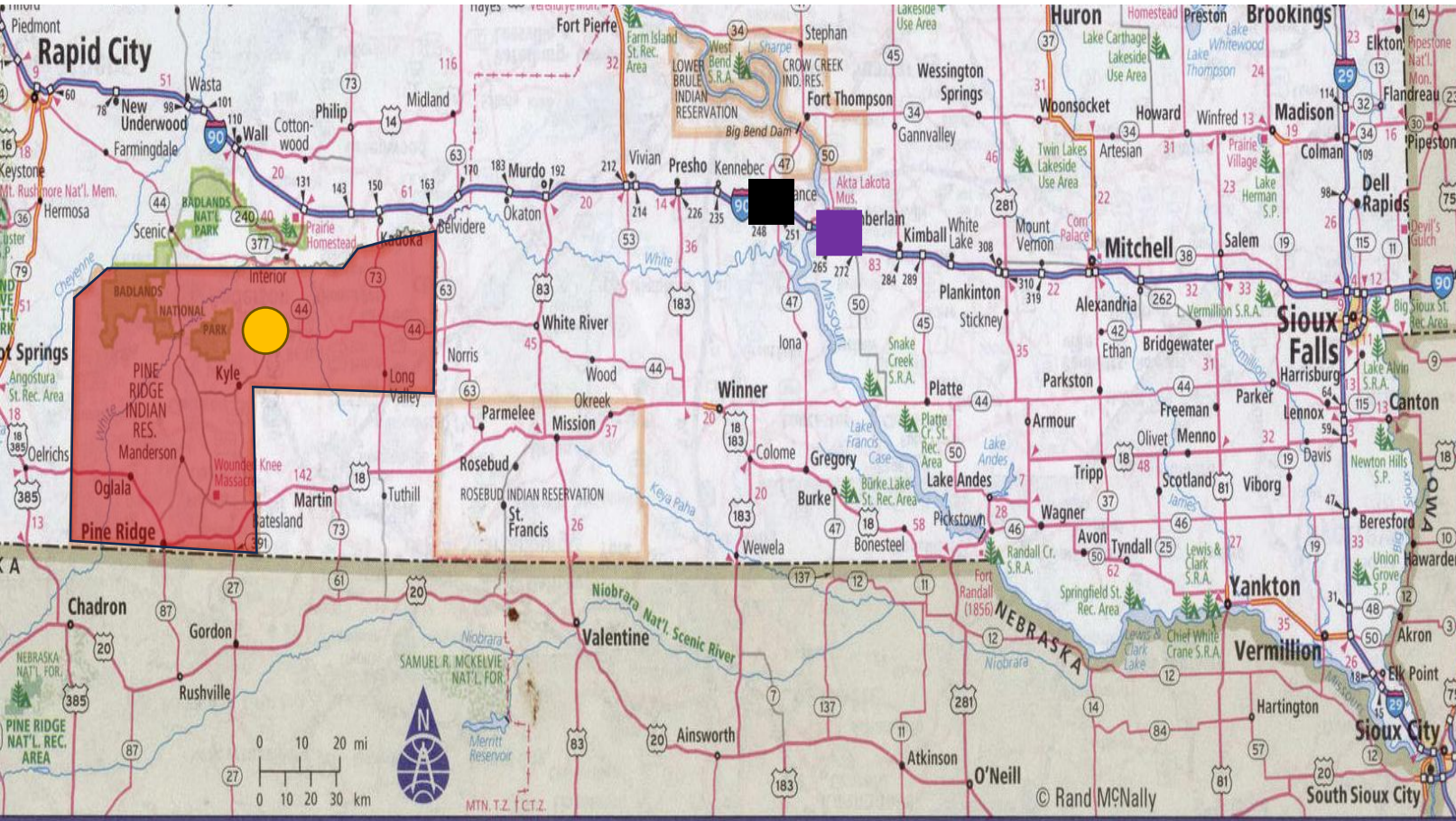


# Great Plains Area Sanitation Facilities Construction

Current [Projects](#)



# Biography

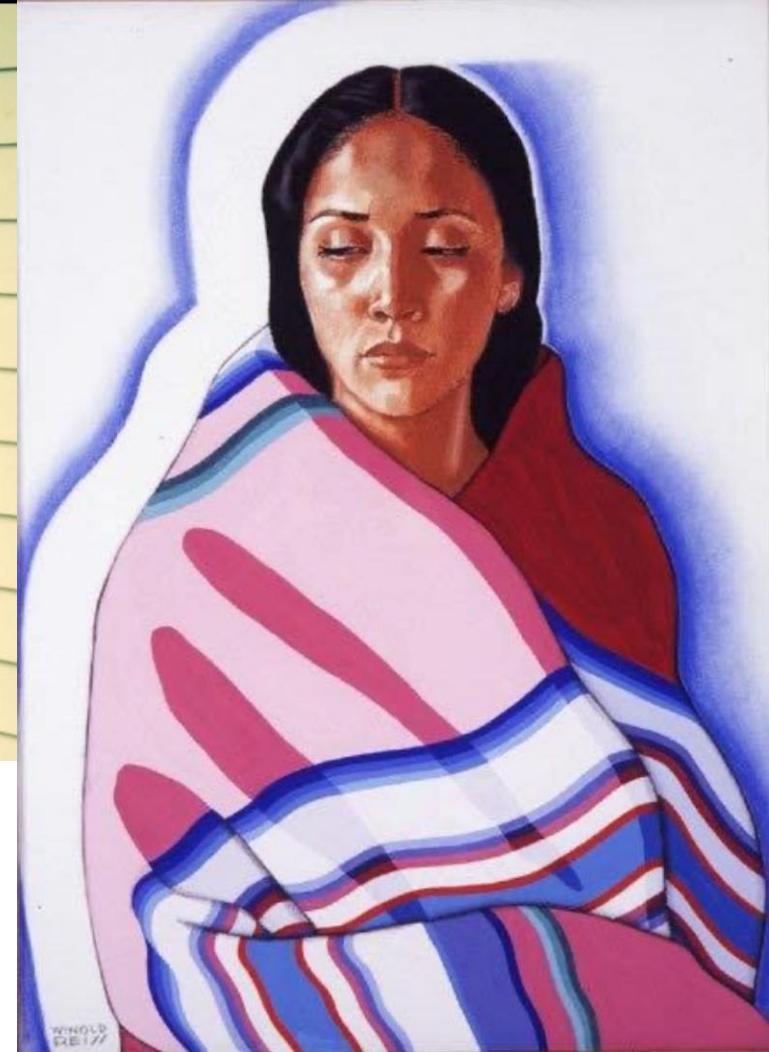




# Career Path



- I.H.S. 2005-2007 Field Engineer
- E.E.C. 2007-2009 Staff Engineer
- I.H.S. 2009-2012 Sr. Field Engineer
- I.H.S. 2012-2015 Engineering Consultant
- I.H.S. 2015-2023 Sr. Engineering Consultant
- South Dakota Mines, MS in Construction & Engineering Management, 2023
- 2023-Present, District Engineer

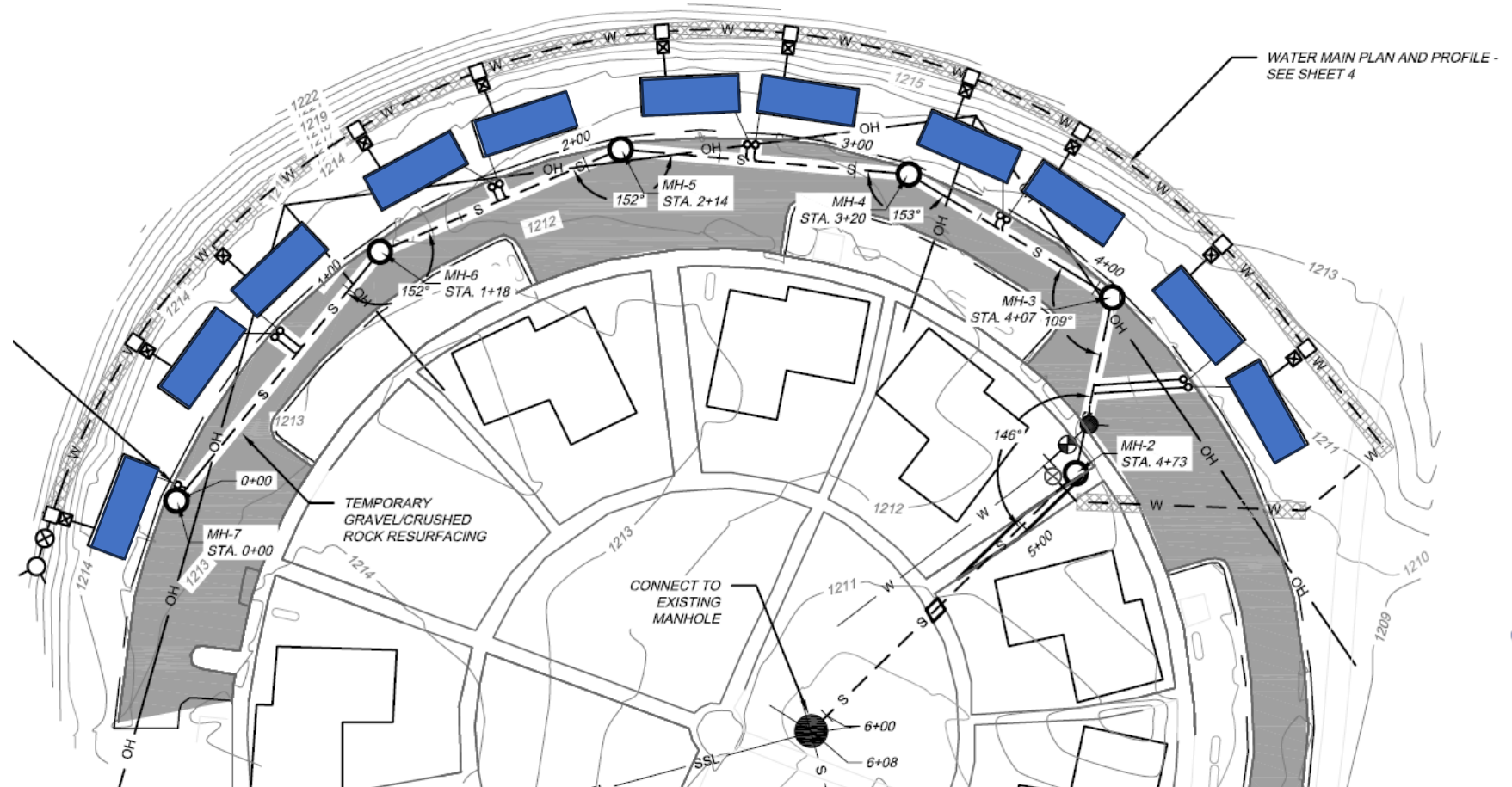


# Collaborating with Tribes and Members

## Senior Circle



- Tribal Housing Authority Request during COVID
- Issue: housing need, new subdivision lacking water and sewer
- Services provided to Tiny Homes
  - Applications
  - Community water main
  - Community sewer main
  - Community sewer service
  - Community water service



# Collaborating with Tribes and Members Senior Circle



# Collaborating with Tribes and Members Senior Circle





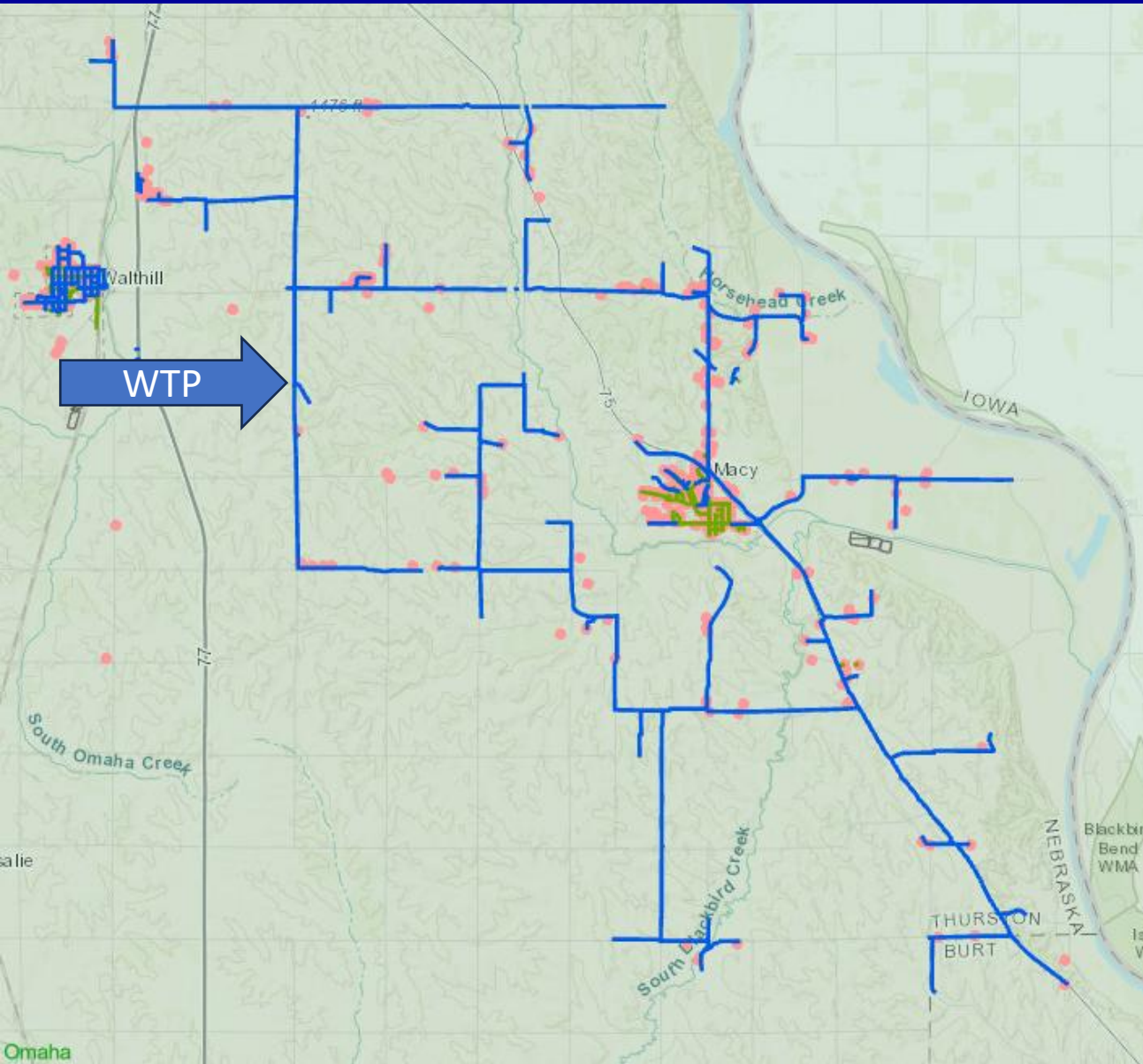
# Collaborating with Tribes Water Leaks



- Issue: leaks causing excessive water loss
  - 450,000 gpd loss or 312 gpm
  - Consequences?
    - Water loss
    - Energy loss
    - Loss of system pressure
    - Boil water advisory
    - Customer trust



# Collaborating with Tribes Water Leaks



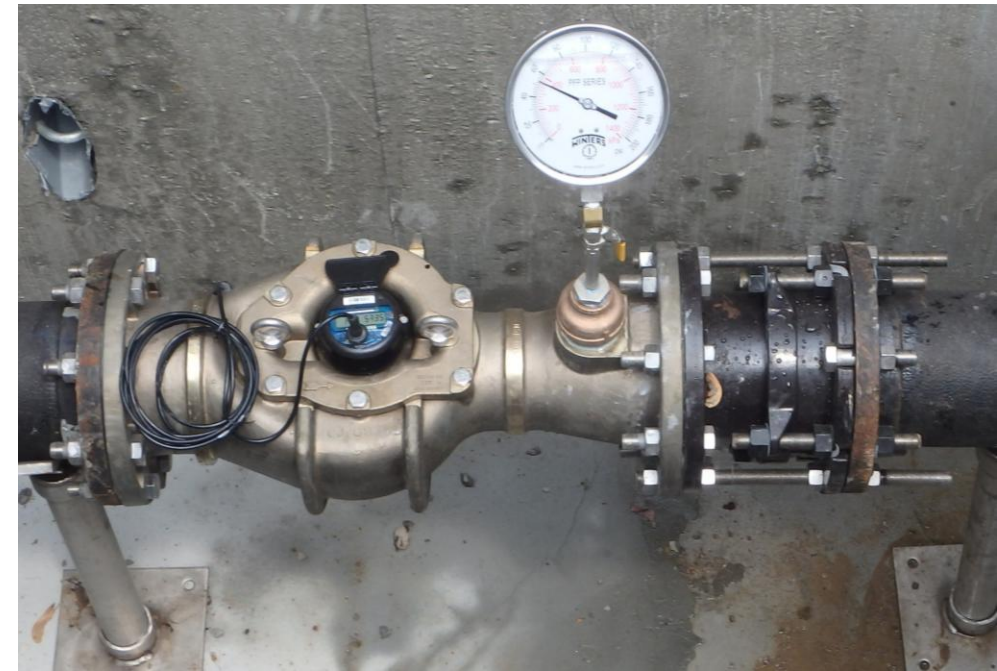
- 80 miles of pipeline
- 420 service connections

# Collaborating with Tribes Water Leaks



What we installed:

- Residential Water Meters
- Non-residential water meters
- Mainline meters



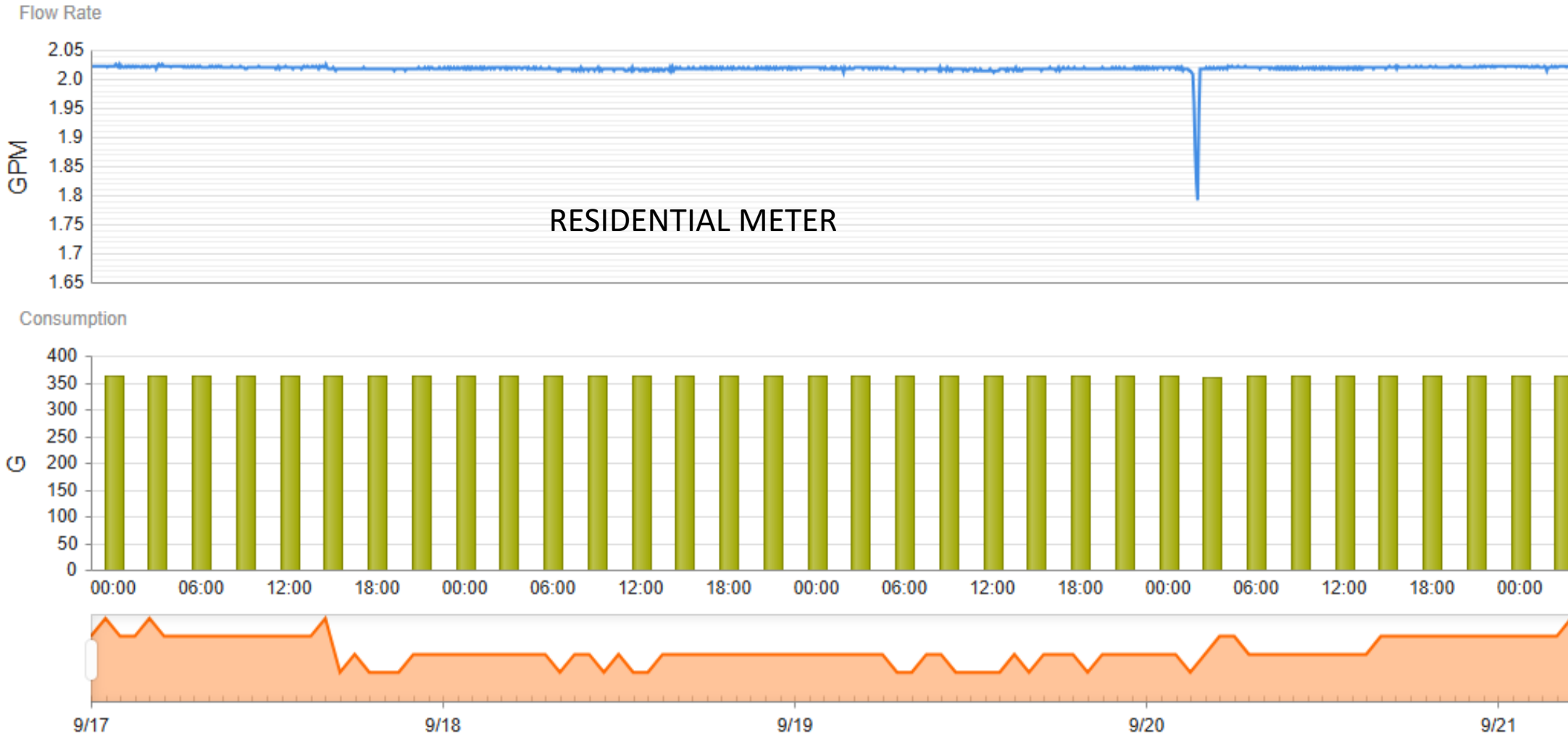
# Collaborating with Tribes

## Water Leaks



Water Use Management: WaterScope™

- Identify high use services

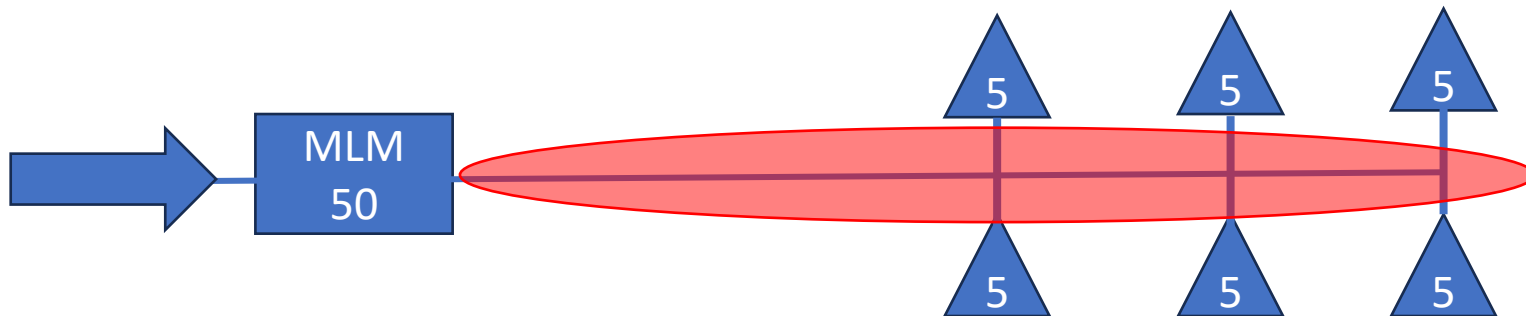
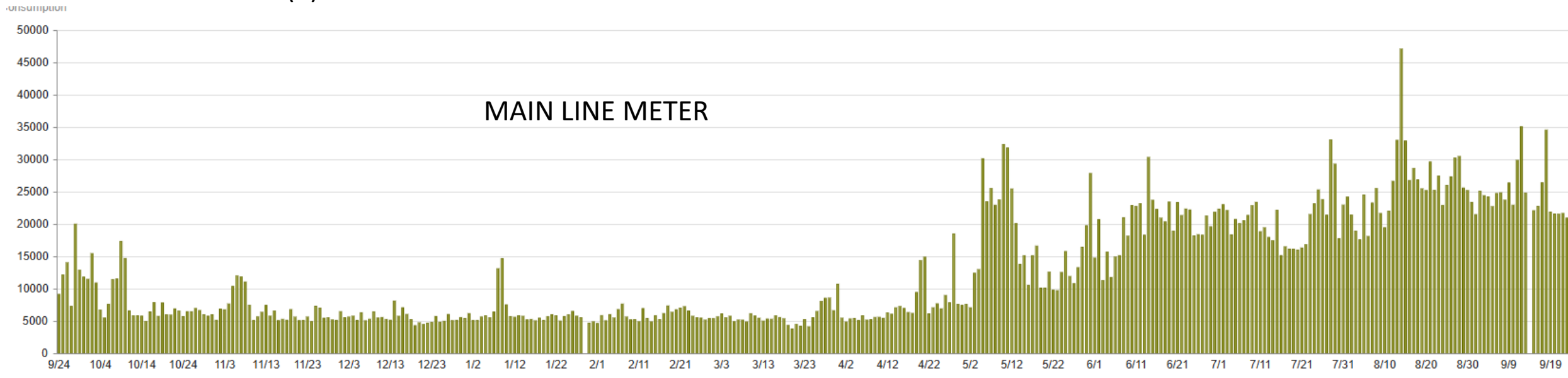


# Collaborating with Tribes Water Leaks



Water Use Management: WaterScope™

- Water balance, i.e., mainline subtract downstream services  $50 - 5(6) = 20$



# Collaborating with Tribes Water Leaks

## Positive Outcomes

- Water conservation
  - Producing 200,000-250,000 gpd
- Ensuring reliable and safe drinking water
  - No more boil orders
- Utility management
  - Billing customers based on water useage
- Operations efficiencies
  - Less field time locating leaks
- Job creation
  - Meter Manager
- Homeowner education and buy-in



# Collaborations with Tribes



Compactor/Garbage Truck

- Prerequisite: Solid Waste Management Plan





SARGENT  
Drilling  
BROKEN BOW, NE

G150  
1804

CAT

CAT

SARGENT DRILLING  
BROKEN BOW, NE





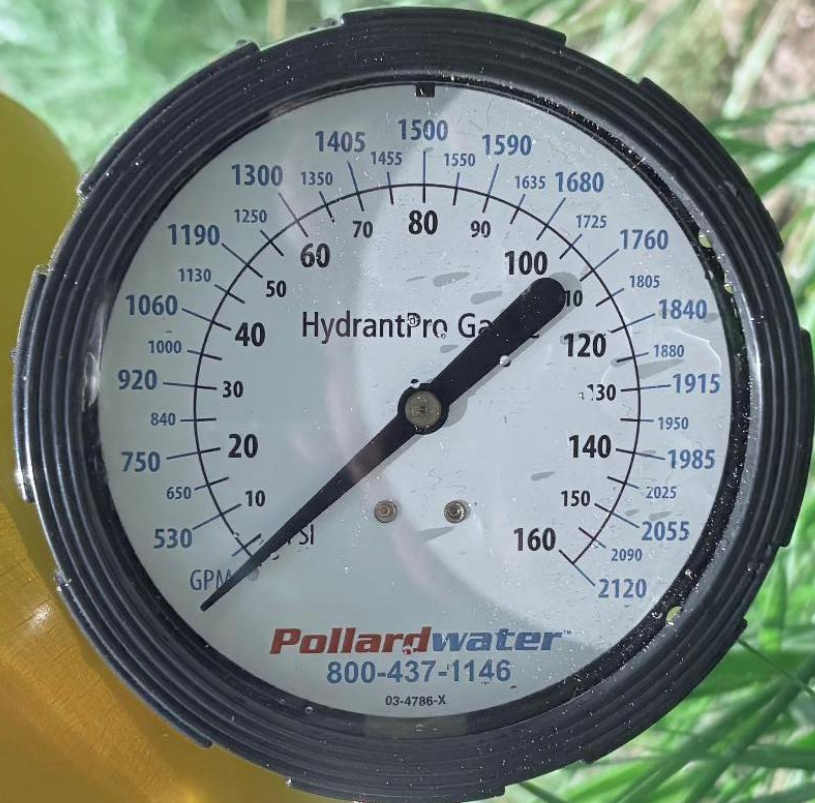
Ni Waxube  
Sacred Water

Kish-Paw-Ni Waxube  
Onkaha Sacred Water  
Treatment Facility  
No. 91



March 10, 2026





# Collaborations with Tribes

[We are hiring!](#)

[SFC 65th Anniversary Omaha](#)





# Piláms!