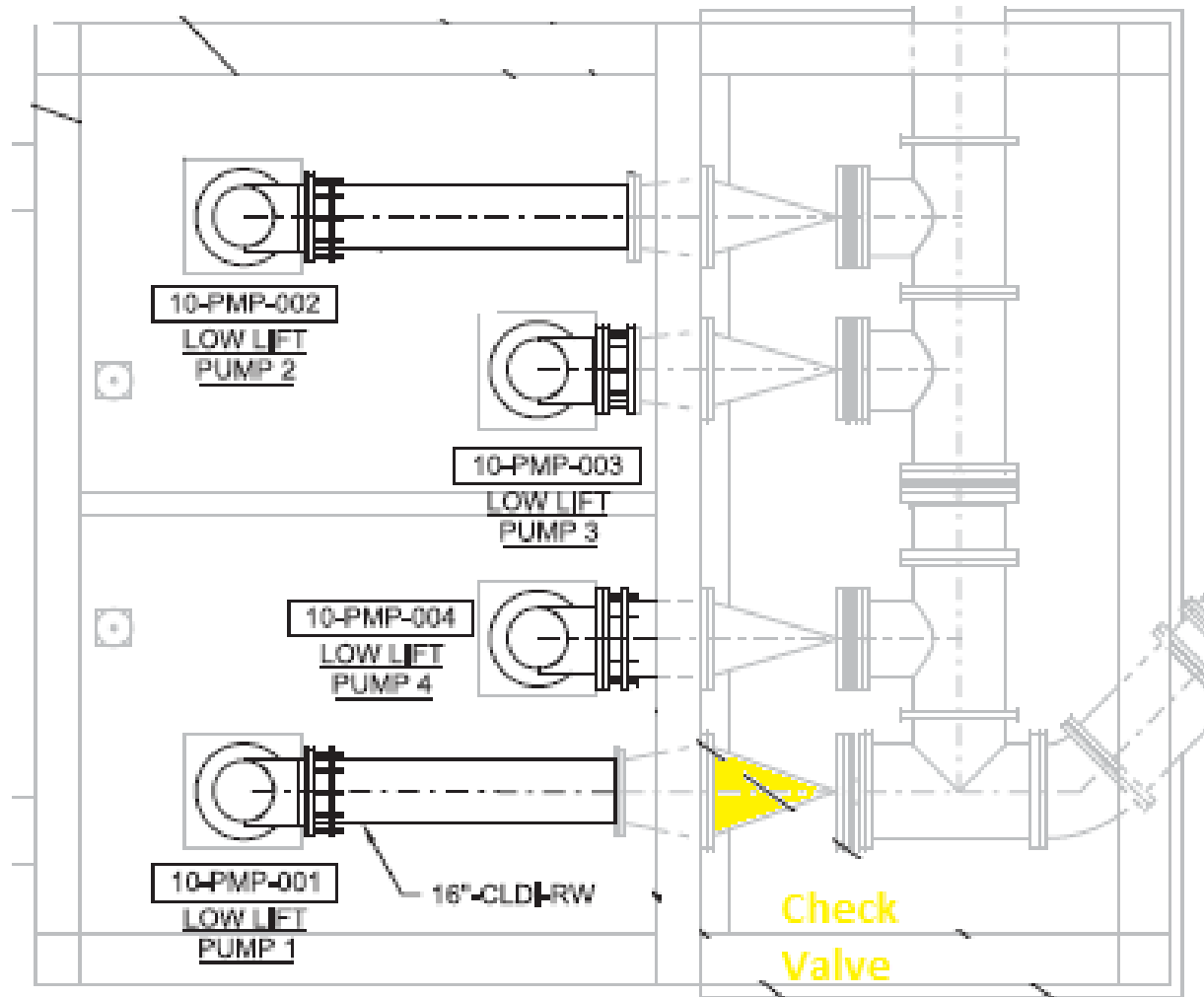


# WATER BOARD MEETING

June 5, 2018

# LOW LIFT PUMPING STATION



# LOW LIFT PUMPING STATION



# LOW LIFT FIX

- **Remove and Replace Valve**
  - New Valve \$54,900 13 weeks
  - Miscellaneous parts \$20,000
  - Remove and Replace access door
  - Disassemble valve and remove
  - Disassemble new valve and install

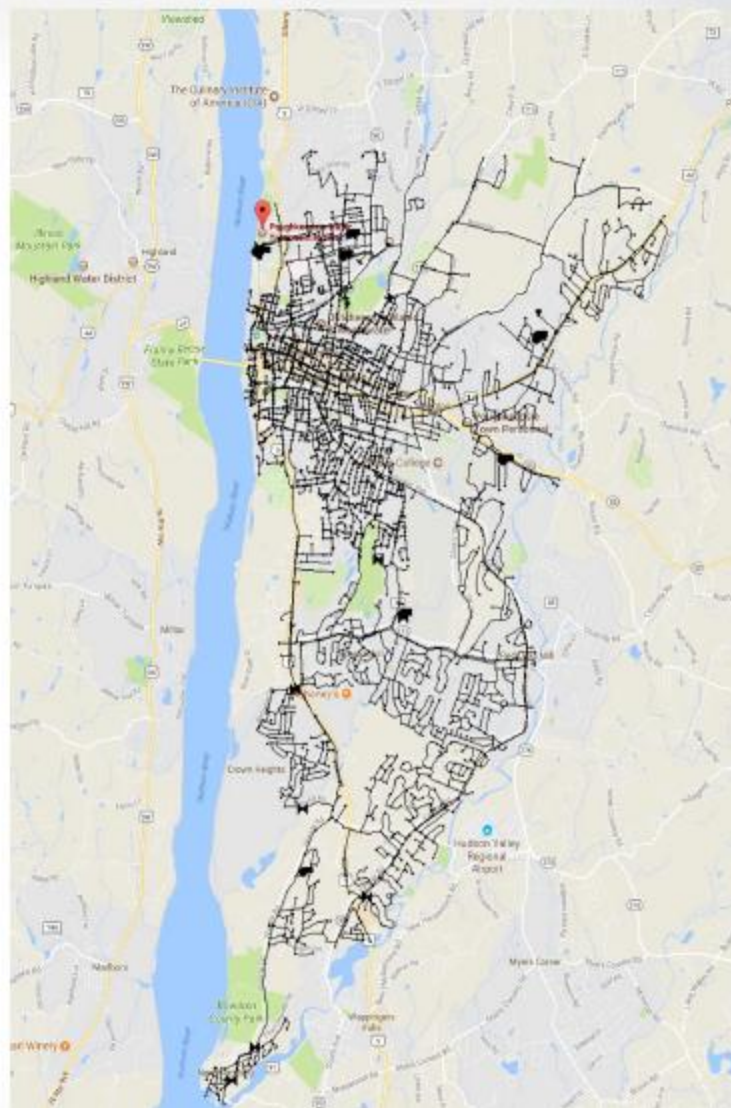
# EPA EMERGENCY STUDY



## Latest Update on Poughkeepsie Drinking Water System Resilience Evaluation

*Regan Murray, Kate Klise, Terra  
Haxton*

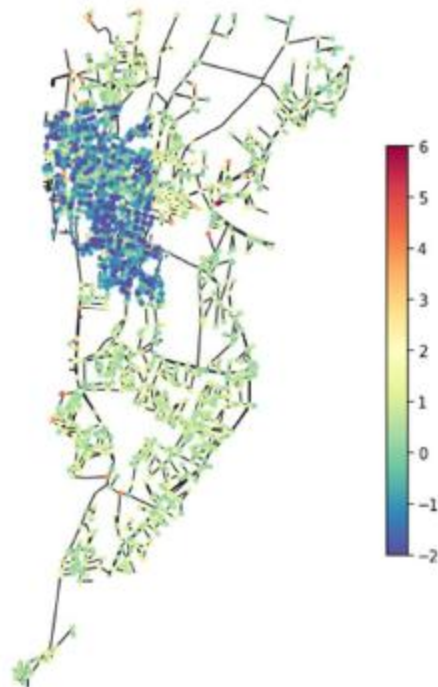
May 22, 2018



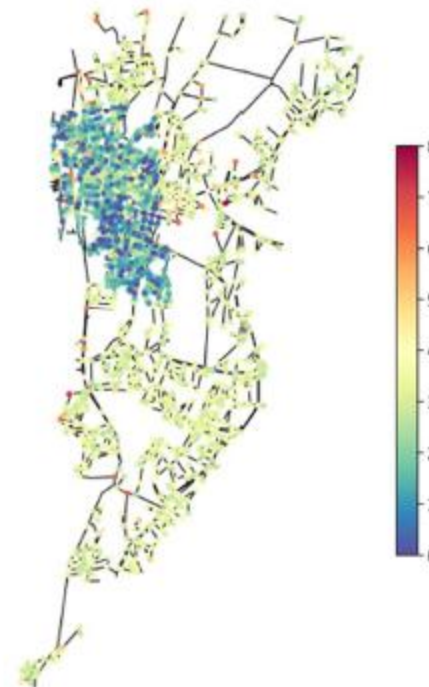
## Basic Properties of System

- **Average expected demand (MGD): 10.02**
- **Storage capacity: 23 million gallons (includes pipes and tanks)**
- **Population: 80000**

Average expected demand (gpm, log scale)



Population (log scale)





## Scenarios and Resilience Analysis

- **Loss of source water:** Identify how long the system can maintain service if water is not supplied from the treatment plant. This scenario could occur due to river contamination, treatment plant failure, winter storm freezing intake, or power outage
- **Pipe break analysis:** Identify the impact of individual pipes breaks on firefighting capacity and water quality in the system



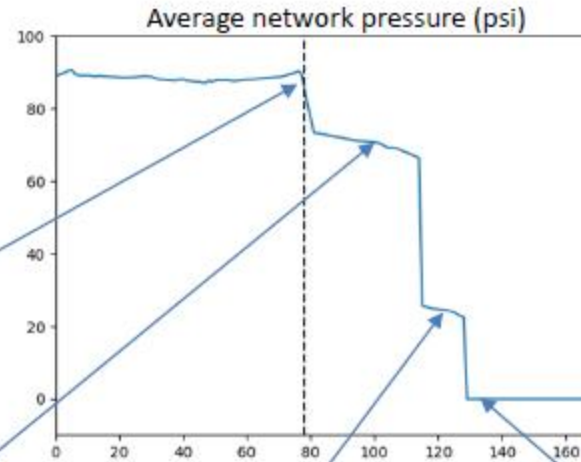


## Loss of Source Water

- **At hour 78 in the simulation (when all tanks are full or nearly full), shut off water supply from the treatment plant**
- **Added check valves (CVs) to prevent water from entering reservoir (i.e., treatment plant)**
- **Turned off Fairview pump station (1404)**
- **Shut down water service to large industrial user**
- **After the shutoff, Spackenkill pump station (1409) started emptying Spackenkill Tank (1394)**

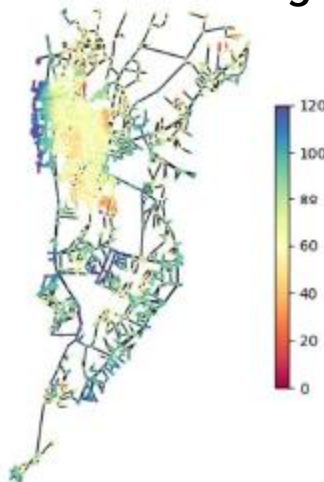
- Pressure at nodes over time

## Event Starts at Hour 75



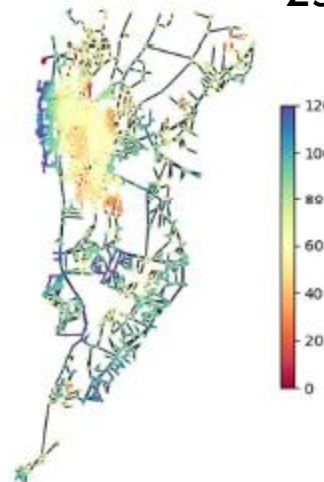
Node pressure (psi), Hour 78

3 hr



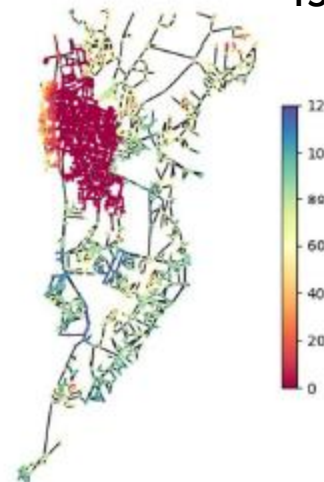
Node pressure (psi), Hour 100

25 hr



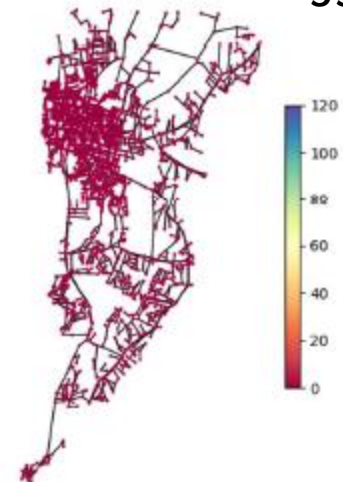
Node pressure (psi), Hour 120

45 hr



Node pressure (psi), Hour 130

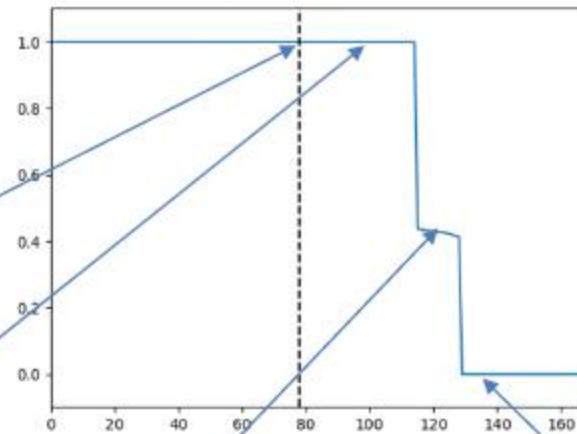
55 hr



- Water service availability (WSA) over time

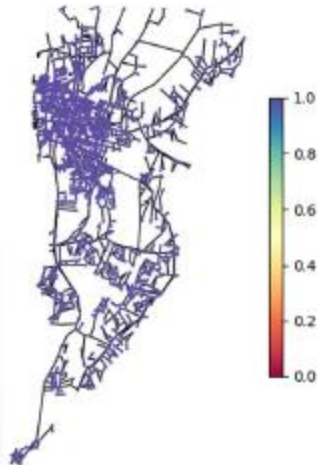
Event Starts at Hour 75

Average network WSA



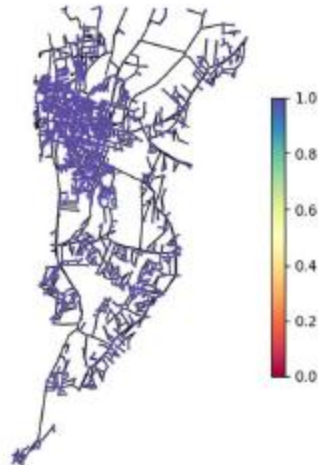
WSA, Hour 78

3 hr



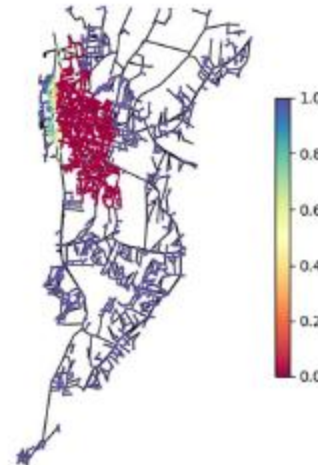
WSA, Hour 100

25 hr



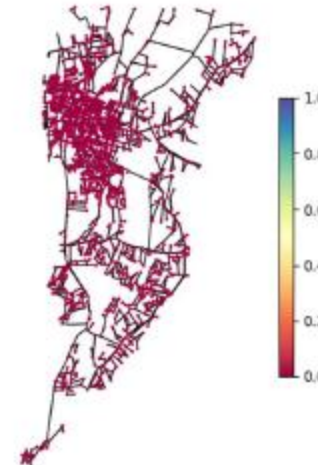
WSA, Hour 120

45 hr



WSA, Hour 130

55 hr





## Loss of Source Water - Results

- **Impacts without conservation efforts**
  - **Fairview/Route 44 Tank emptied after about 50 hours**
  - **Spackenkill Tank emptied after about 32 hours**
  - **College Hill tank emptied after about 34 hours**
  - **Able to maintain pressure/water in City for about 42 hours**
  - **Able to maintain pressure/water in Town for about 52 hours**
- **Impacts with conservation efforts**
  - **With shutoff to large industry user, able to extend service by about 10 hours**
  - **With shutoff to large industry user and 15% water conservation, able to extend service about 18 hours**

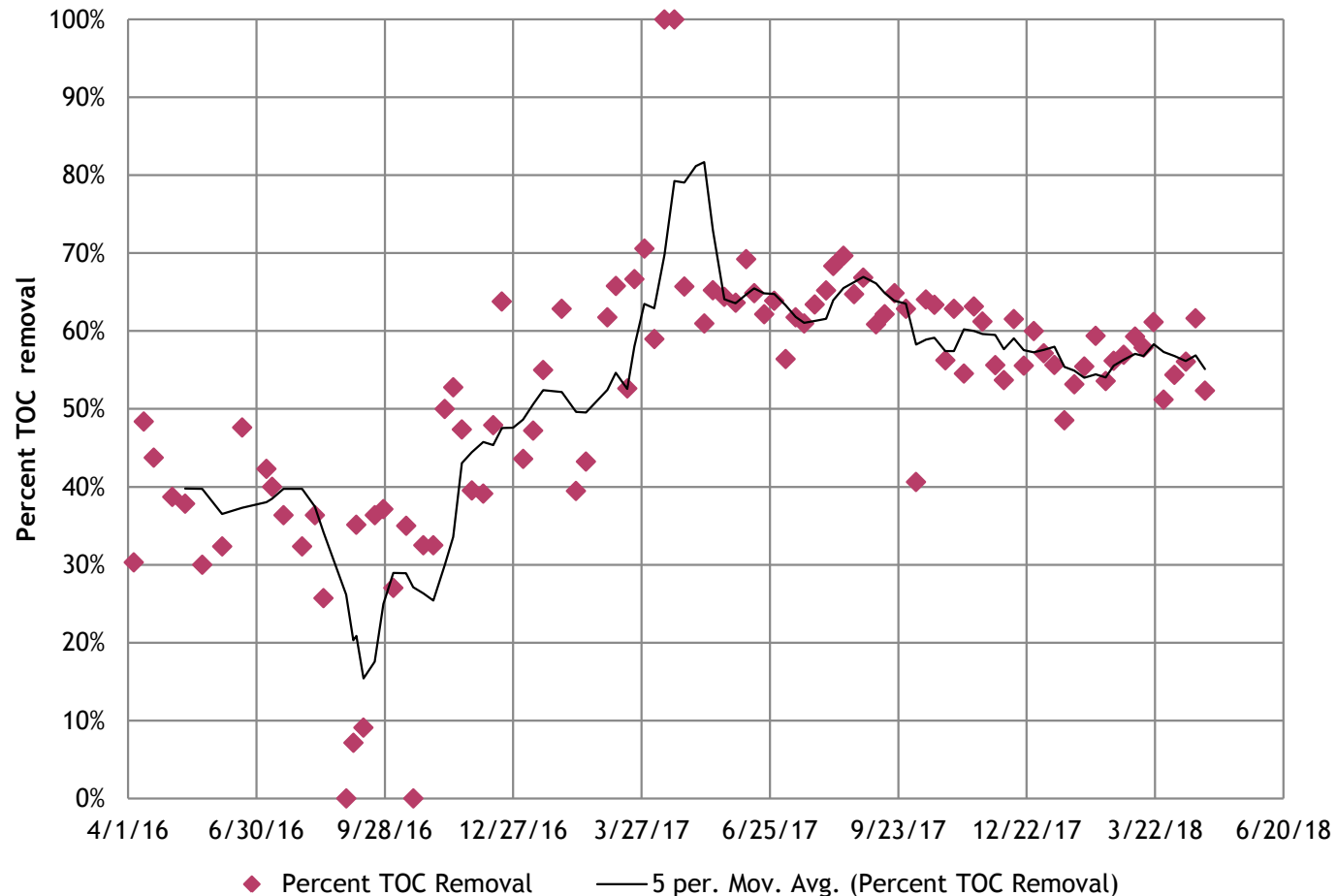
# EMERGENCY RESPONSE PREPAREDNESS

- ◉ **Strengthen Intake**
  - Awareness
  - Screening
  - Upgrade original intake
- ◉ **Strengthen Response Actions**
  - Temporary Pumping
  - Customer Contact Time

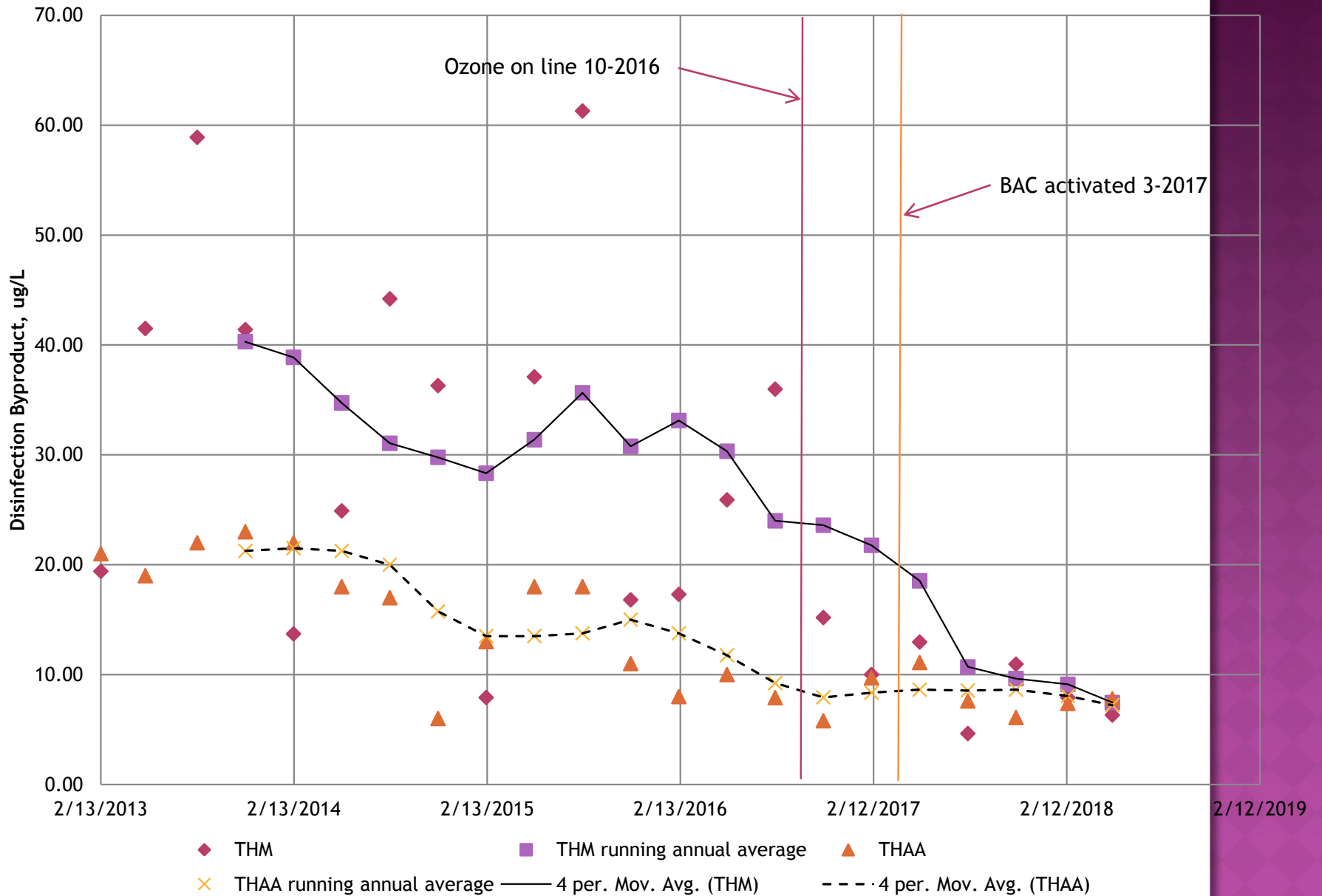
# BIOLOGICALLY ACTIVATED FILTRATION

# FILTERS ARE OPERATED TO ENCOURAGE BIOLOGICAL GROWTH IN FILTERS AND CONSUME ORGANICS

## PWTF TOC Removal



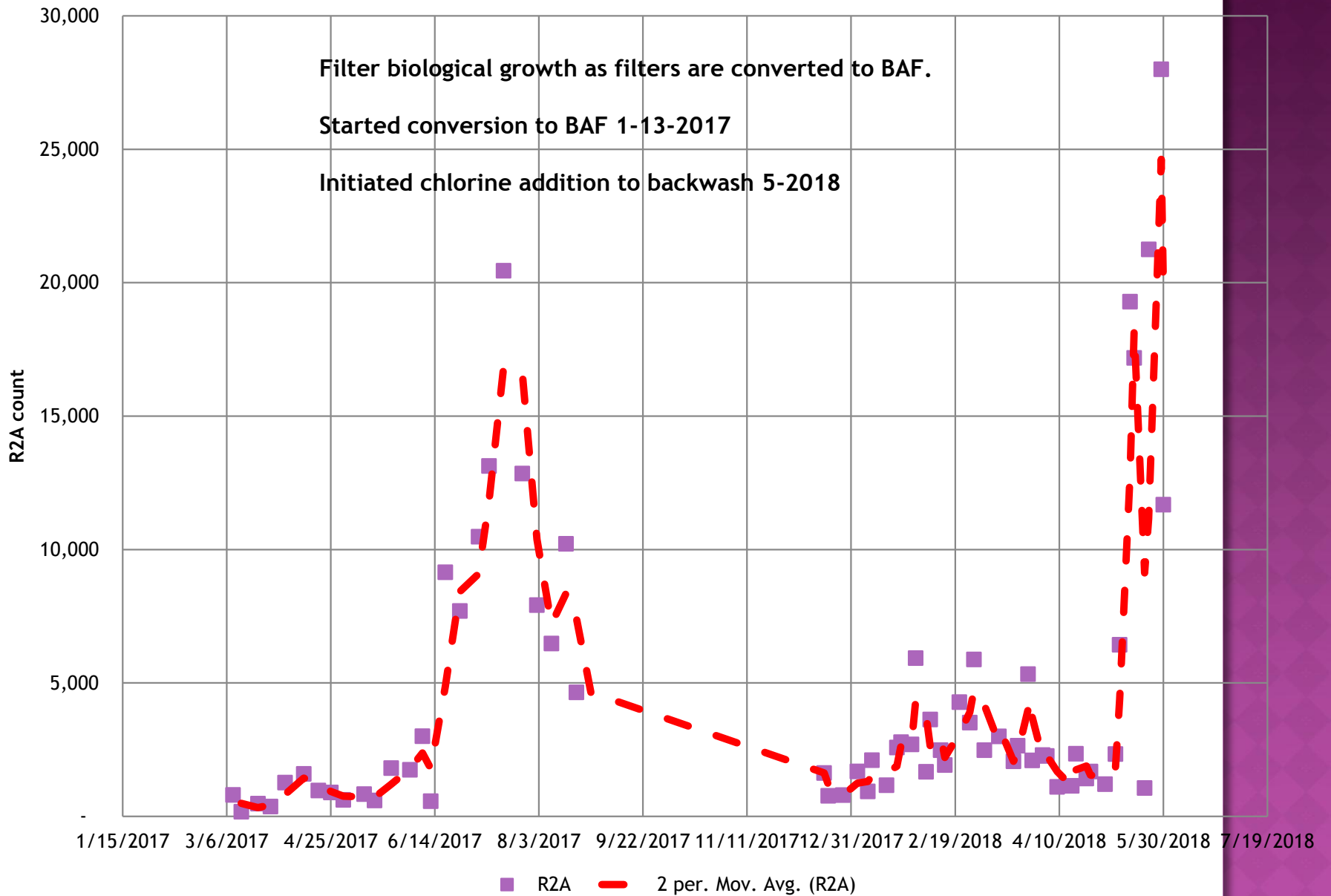
# PWTF Historical Disinfection Byproducts



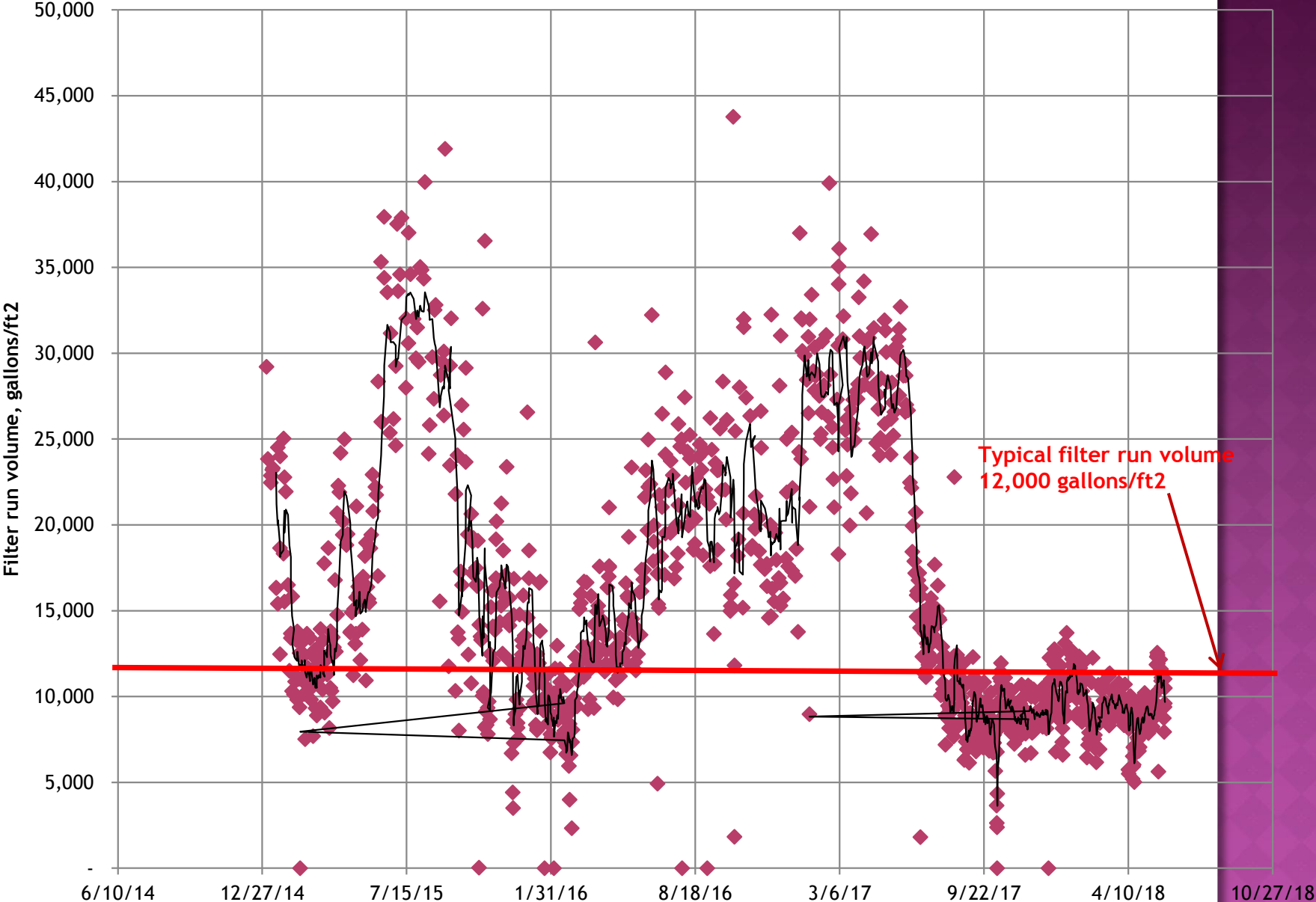


BIOLOGICAL GROWTH  
APPEARS TO BE PLUGGING  
FILTERS

# Filter R2A average



# PWTF Backwash Volumes



# STUDY TO OPTIMIZE FILTERS

- ◉ Started adding chlorine to backwash water in May 2018
- ◉ Tighe Bond Proposal \$27,000  
(Does not include Chemical Addition \$25,000)

# UV /OZONE EVALUATION

- Current UV system including Uninterruptible Power Supply is currently inefficient, reached useful life and parts are being phased out
- UV replacement \$1,300,000
- UPS Replacement \$750,000
- Annual UV System parts and electric \$200,000
  
- Ozone system could be used for disinfection and eliminate UV System

# EVALUATE UV VS OZONE FOR DISINFECTION

- Tighe Bond Evaluation \$50,000  
(Includes \$5,000 for hydraulic evaluation)

# INITIAL RECOMMENDATION

- Contract with Tighe Bond
  - Bio-filtration Evaluation - \$27,000  
(do not include Chemical addition)
  - Ozone and UV evaluation - \$50,000  
(Includes \$5,000 for hydraulic evaluation)
- **Total \$77,000**

# BUDGET ADJUSTMENTS

- ⦿ Contingency \$30,000
- ⦿ Budget Reductions \$52,000
  - Eliminate Maintenance Work Order System \$14,000
  - Reduce Filter Turbidimeters \$12,000
  - Eliminate 2 Sludge Pumps \$14,000
  - Eliminate Centrifuge Nozzles \$12,000
- ⦿ Total Reduction **\$82,000**