North Hampton Select Board Meeting
July 23, 2018

AQUARION Water Company

John Herlihy, Vice-President, Water Quality & Environmental Management

Dan Lawrence, Director Engineering & Planning

Carl McMorran, Operations Manager

Agenda

- Well 22
- Mill Road Main Replacement
- Mill Road Water Treatment Plant
- PFAS

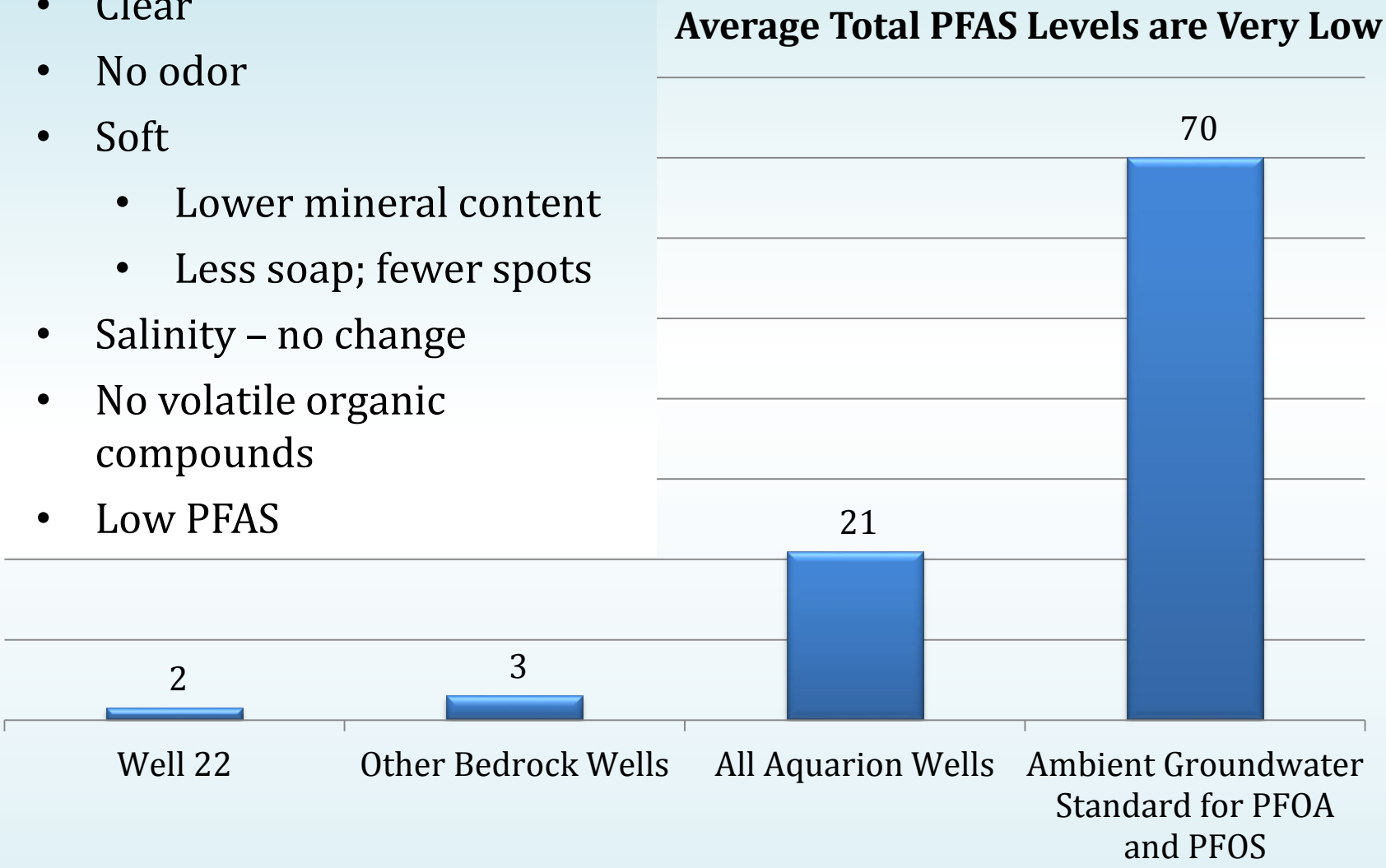
Well 22

- Pumping Test from June 20 to July 17
  - Average pumping rate: 840 gpm 1.2 MGD 32 million gal
  - 20 private wells are being monitored for both water levels and water quality
    - Only 10 wells have shown any water level response to the pumping from Well 22
  - This water is treated and flows into the distribution system

- Well 22
  - 1/3 of water production volume
- Well 6 production reduced by ~2/3rds

Well 22 Water Quality

- Very Good
  - Clear
  - No odor
  - Soft
    - Lower mineral content
    - Less soap; fewer spots
  - Salinity – no change
  - No volatile organic compounds
  - Low PFAS

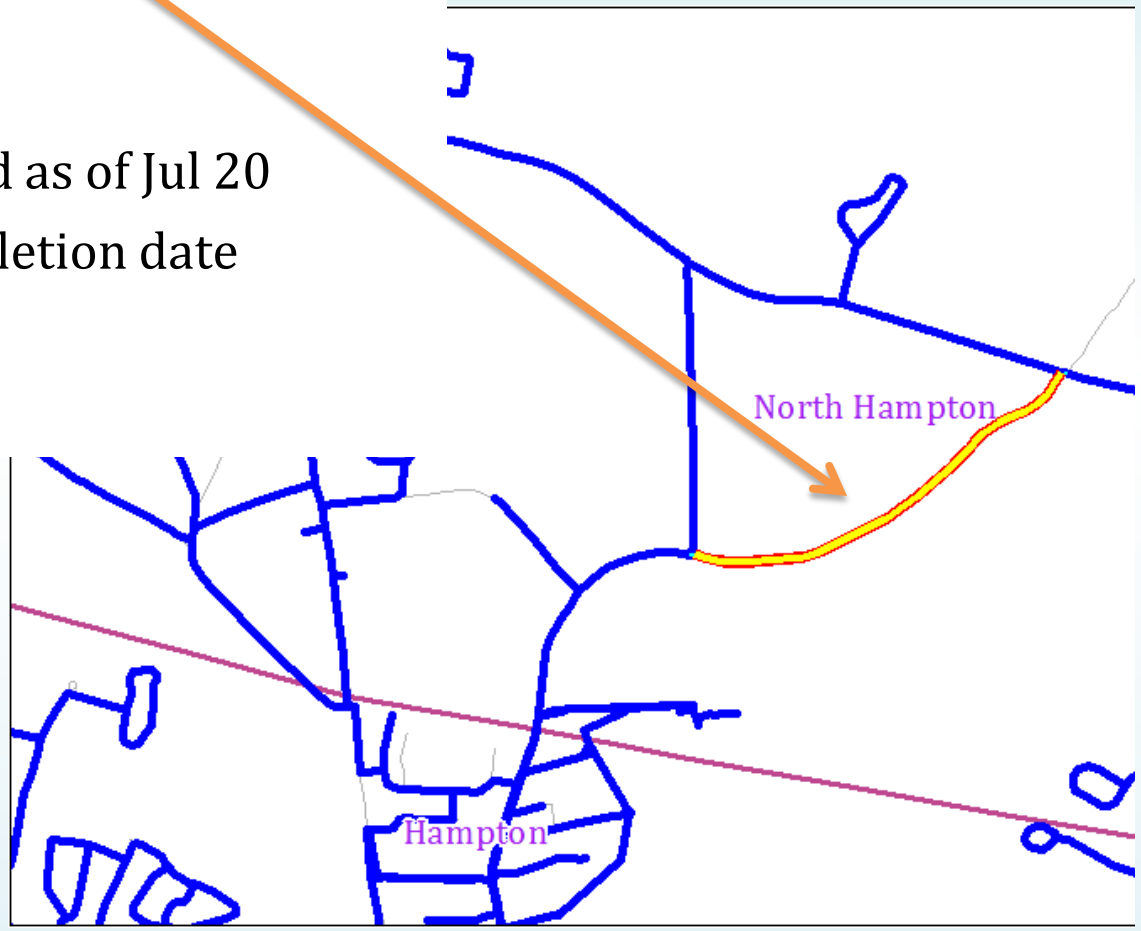


Well 22 Large Groundwater Withdrawal Permit

- Final application by late summer
- Public Hearing – to be scheduled
- Final permit from DES by year end
- Installation of permanent pump, pipes, etc.
- Power and chemical treatment upgrades

Mill Road Main Replacement

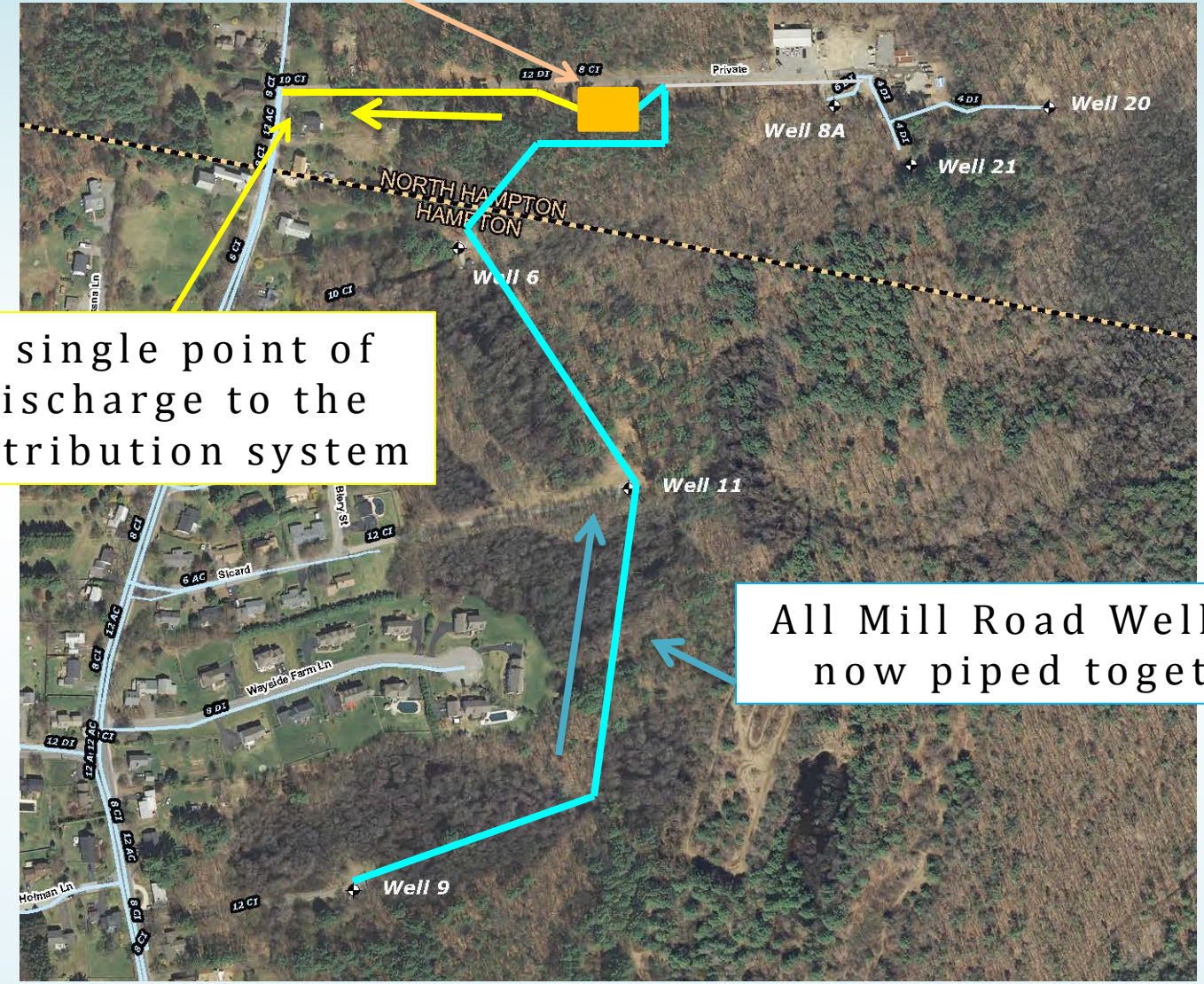
- Replacement of 4,200 feet from Pine Road to Atlantic Avenue
- Construction
  - Started June 11
  - All mains installed as of Jul 20
  - Mid-August completion date
- Cost Projection
  - $1,216,000



Mill Road Water Treatment Plant (Centralized)

- A centralized chemical treatment facility for
  - Improved chemical storage and safety
  - Improved operational efficiency
  - Reduction in maintenance requirements (consolidating 5 treatment systems into 1)
- Construction of pipelines completed
- 900-feet of new distribution main on Mill Road
- Building construction on hold pending resolution of North Hampton Zoning Board appeal

Mill Road Water Treatment Plant Site



A single point of discharge to the distribution system

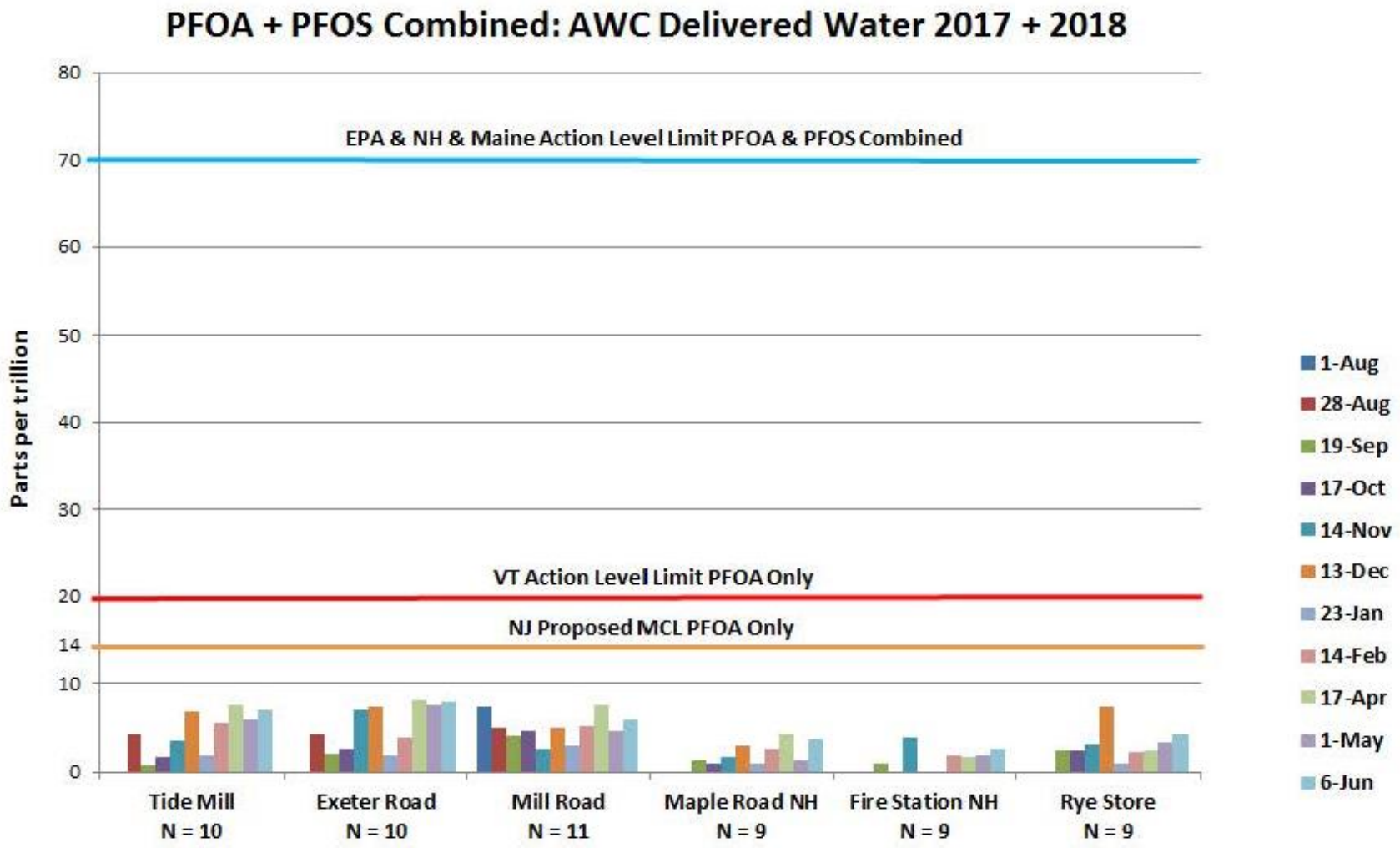
All Mill Road Wells are now piped together

Per- and Poly-Fluoro-Alkyl Substances (PFAS)

- PFAS Monitoring
  - AWC Wells: stable PFAS levels
  - Continue minimizing PFAS levels through source selection strategy
  - Tap water PFAS levels remain below current and anticipated standards
- PFAS Health Standards Development
  - EPA, NHDES, NJ, MADEP, CTDPH activities
  - EPA Regional Community PFAS meeting
- Current regulatory uncertainty will be resolved when DES issues drinking water standards; expected by January 1, 2019
- Groundwater Pollution Abatement and Remediation
  - Car Wash discharge to groundwater has been stopped by NHDES
  - NHDES Private Well Study

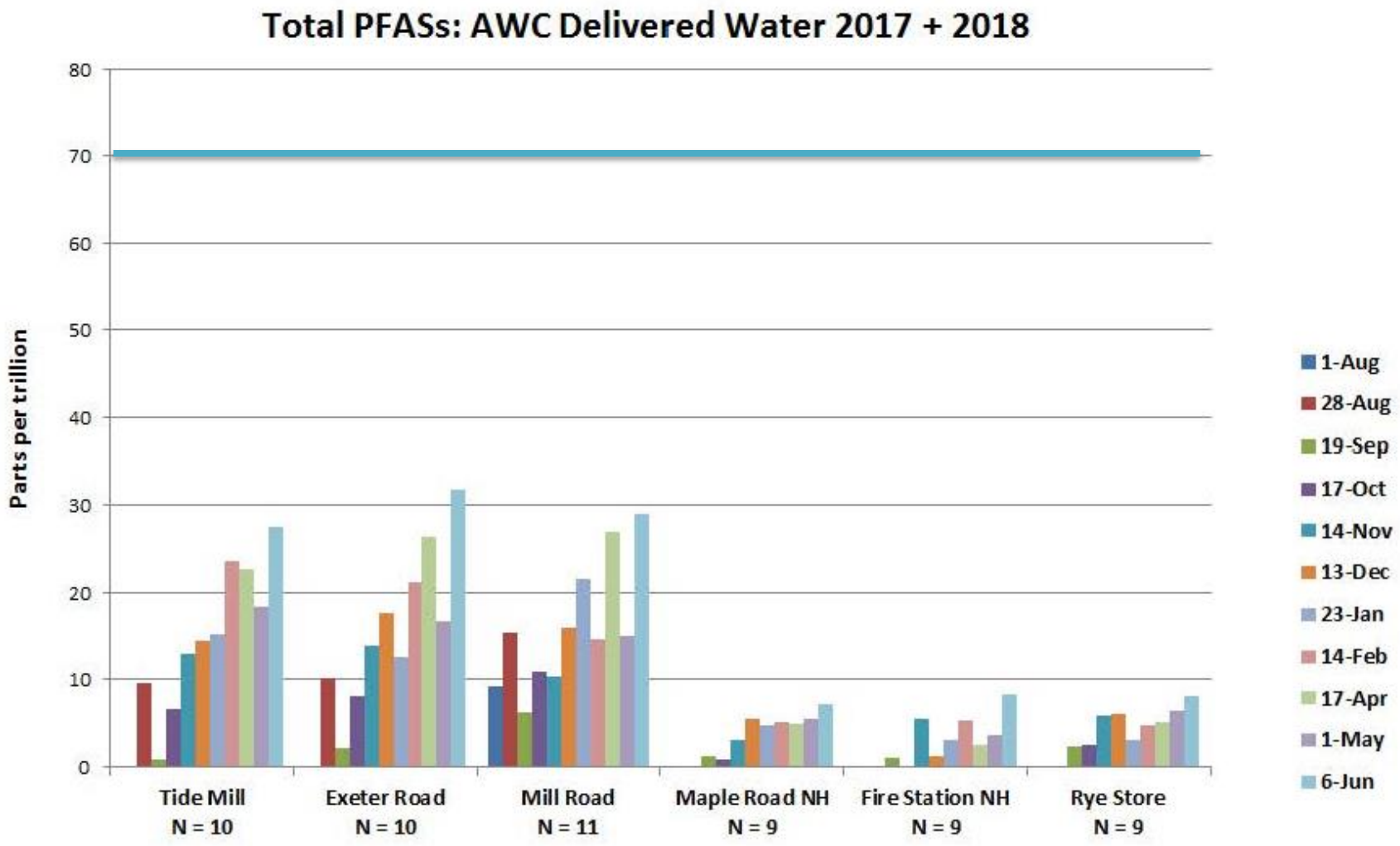
Per- and Poly-Fluoro-Alkyl Substances (PFAS)

PFOA and PFOS levels in tap water are lower than any current drinking water standards.



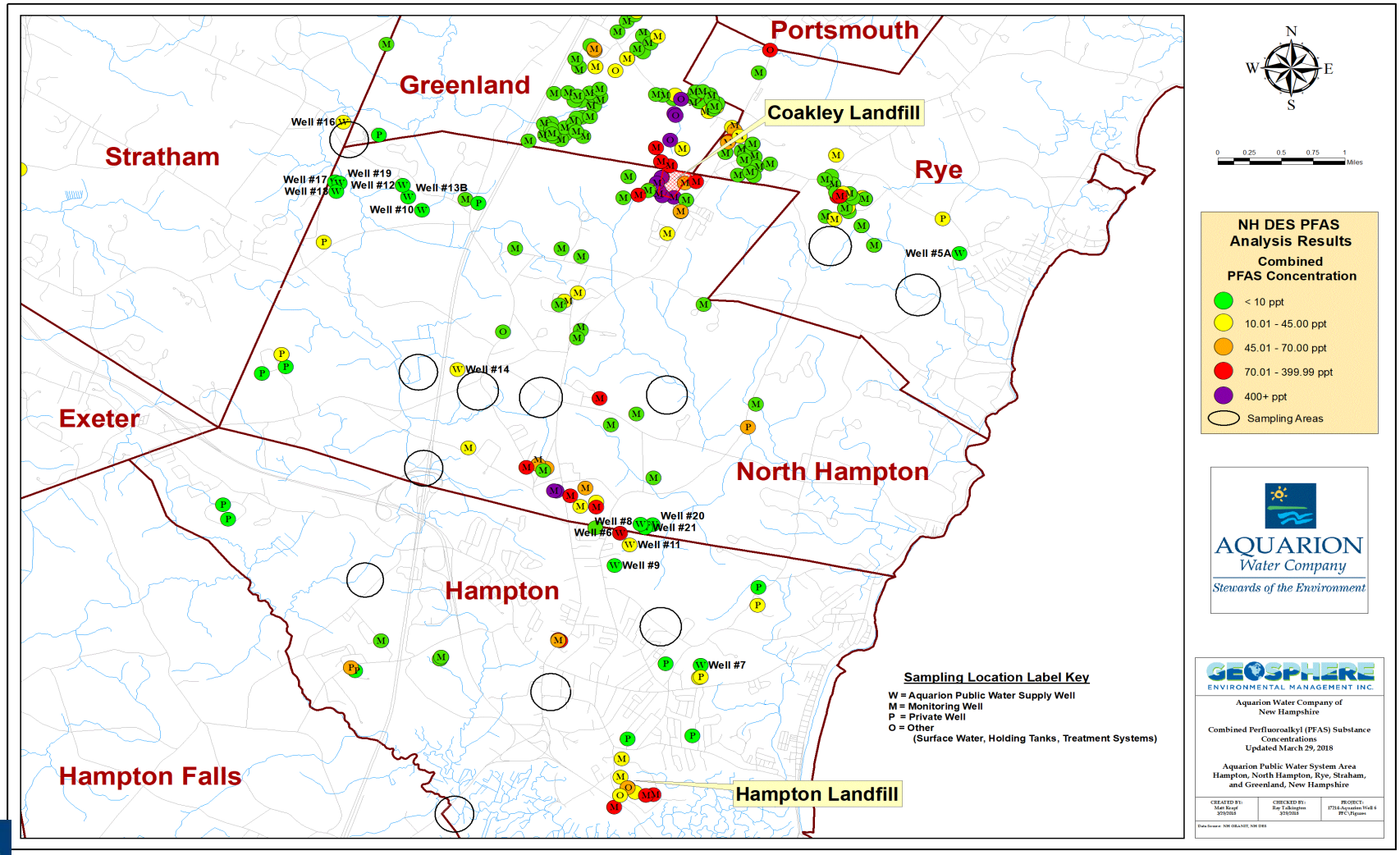
Per- and Poly-Fluoro-Alkyl Substances (PFAS)

Total PFAS levels in tap water are lower than 70 ppt



Per- and Poly-fluoroalkyl Substances (PFAS)

Green dots between Aquarion wells and Coakley Landfill show many wells that have little or no PFAS. There are other sources of PFAS along the Route 1 corridor.
Coakley Landfill is not contributing PFAS to any of Aquarion's wells.



Mill Road Wellfield – Bench Scale Testing for PFAs Treatment

- Recommendations and Conclusions
  - Granular Activated Carbon (GAC) and Ion Exchange (IX) filters were both evaluated for PFAS removal
    - Both filters can remove most PFAS, but shorter chain PFAS breakthrough faster than expected
      - IX does not remove PFBA
    - GAC was more effective than IX
    - Faster breakthrough shortens filter run times. This would require more frequent replacement of filters and increase operating costs
  - A larger scale pilot test should be conducted to provide better estimates of filter performance and probable costs

Mill Road Wellfield – Bench Scale Testing for PFAS Treatment

- Summary of Capital and Operating Costs and Ranges in Rate Increases
  - Source Selection – reduce Regulated PFAS to 15 ppt
    - Capital Cost $0
    - Annual Operating Costs $0
    - Range in Rate Increase 0%
  - Well 6 – reduce Regulated PFAS to 9 ppt
    - Capital Cost $3.7 M
    - Annual Operating Costs $0.1M to $0.2M
    - Range in Rate Increase 8% to 9%
  - Well 6, 9 and 11 – reduce Regulated PFAS to less than 4 ppt (quantification limit)
    - Capital Cost $6.1 M
    - Annual Operating Costs $0.6M to $1.8M
    - Range in Rate Increase 14% to 35%

Regulated PFAS: drinking water standards for PFHxS, PFOA, PFOS and PFNA to be set by NH DES by January 2019

North Hampton Select Board Meeting
July 23, 2018

AQUARION
Water Company

Thank you