Fort George G. Meade

Operable Unit No. 4
Interim Remedies Performance Summary

Restoration Advisory Board Meeting
November 20, 2014

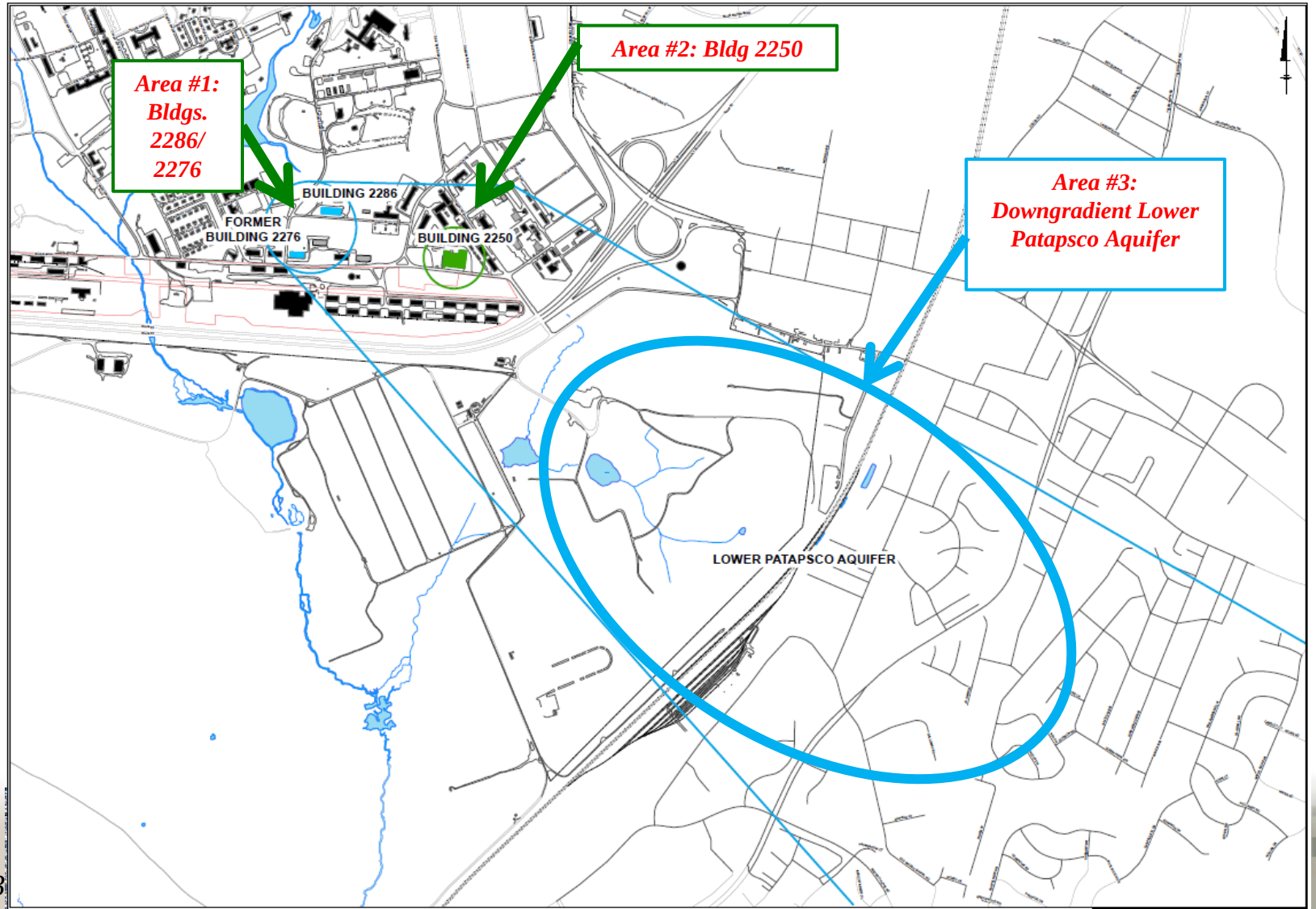
Presentation Agenda

TOPICS

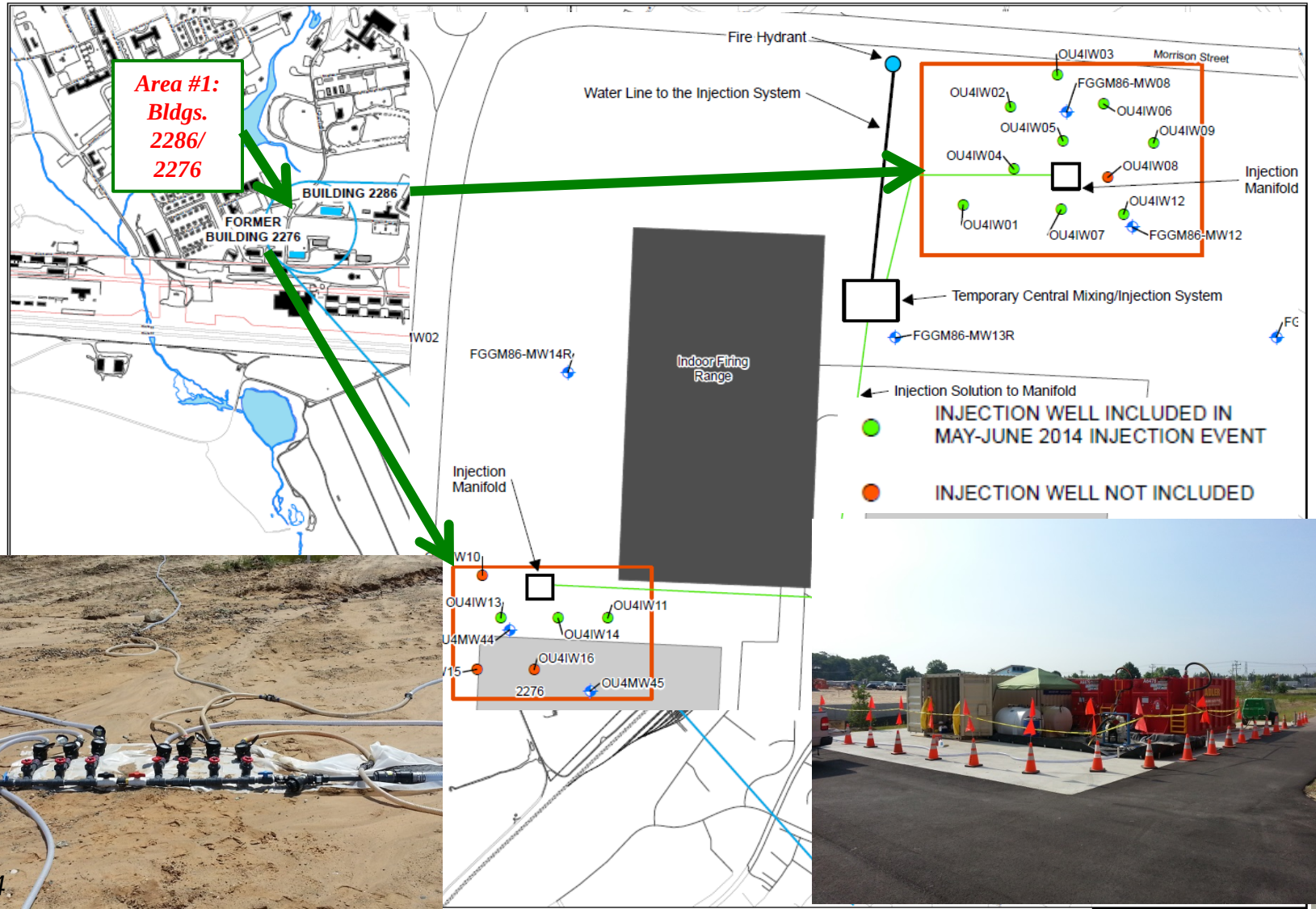
Update on the performance of the three OU-4 groundwater remedies:

- Area of Concern (AOC) 1 - Building 2286/Former Building 2276 Interim Remedy
- AOC 2 - Building 2250 Interim Remedy
- AOC 3 - Lower Patapsco Aquifer Interim Remedy

OU-4/LPA Site Location



AOC 1 – Source Treatment using In-Situ Chemical Oxidation (ISCO)



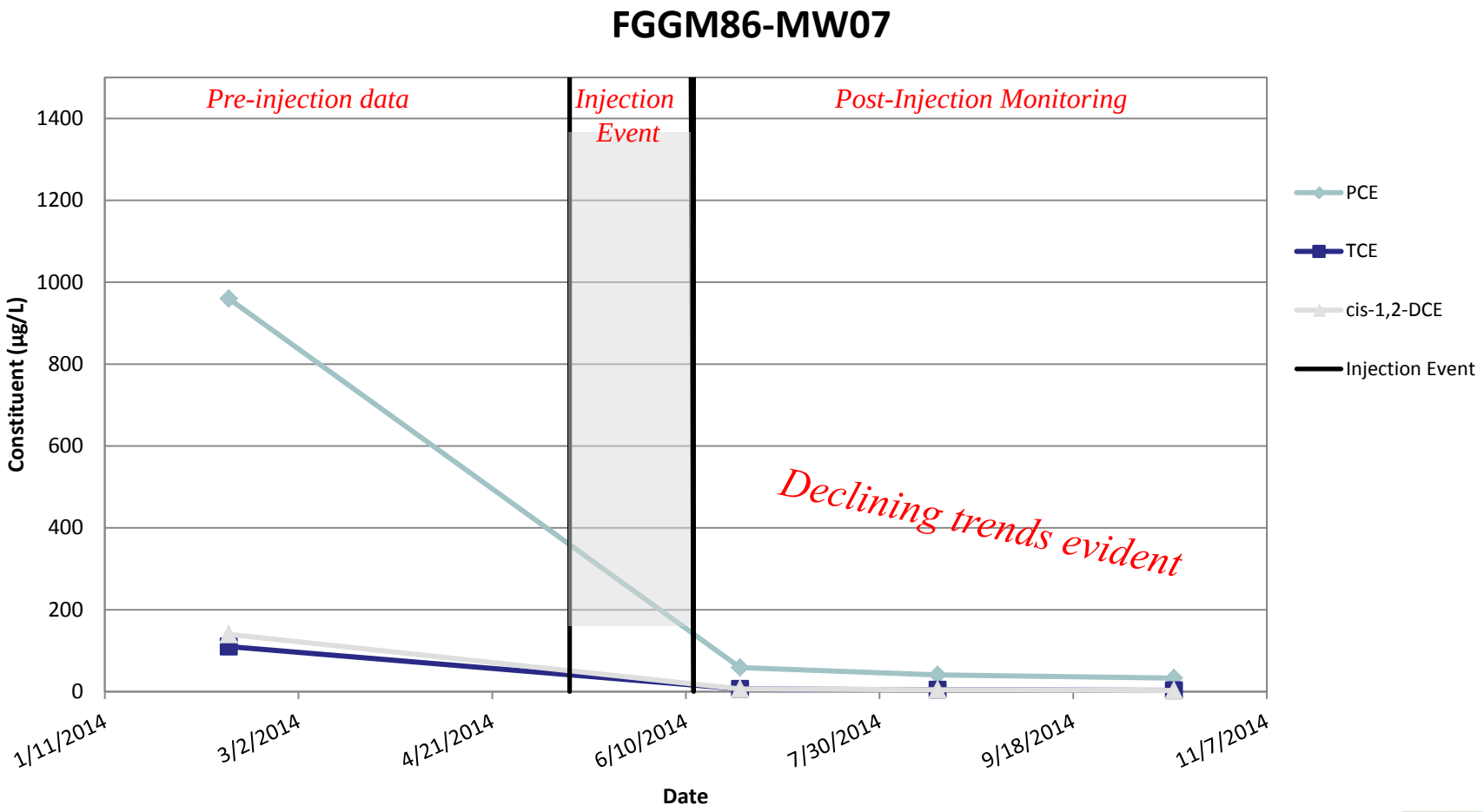
AOC 1 – Source Treatment using In-Situ Chemical Oxidation (ISCO)

Completed activities

- Pre-design ISCO injection test completed (June 2013)
  - 4,128 gallons injected at 1 injection well.
- Baseline groundwater sampling (February 2014)
- Full-scale ISCO Injections (May/June 2014)
  - 130,096 gallons injected into 12 injection wells.
- Quarterly Performance Monitoring
  - Q2 (June 2014)
  - Q3(August 2014 – Semi-annual event)
  - Q4(October 2014)

Future Activities – Second injection anticipated in early 2015.

AOC 1 – Performance Summary



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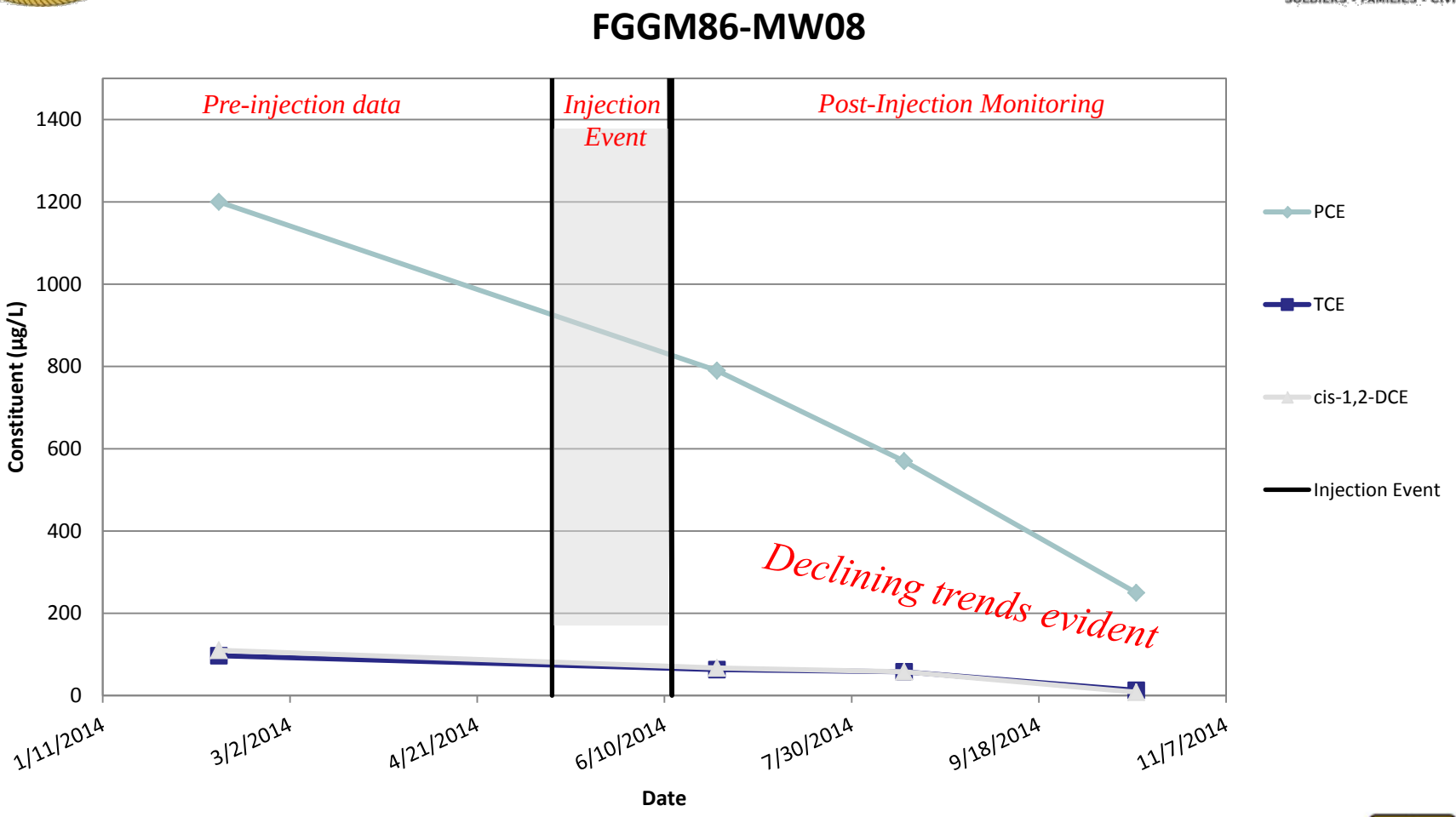

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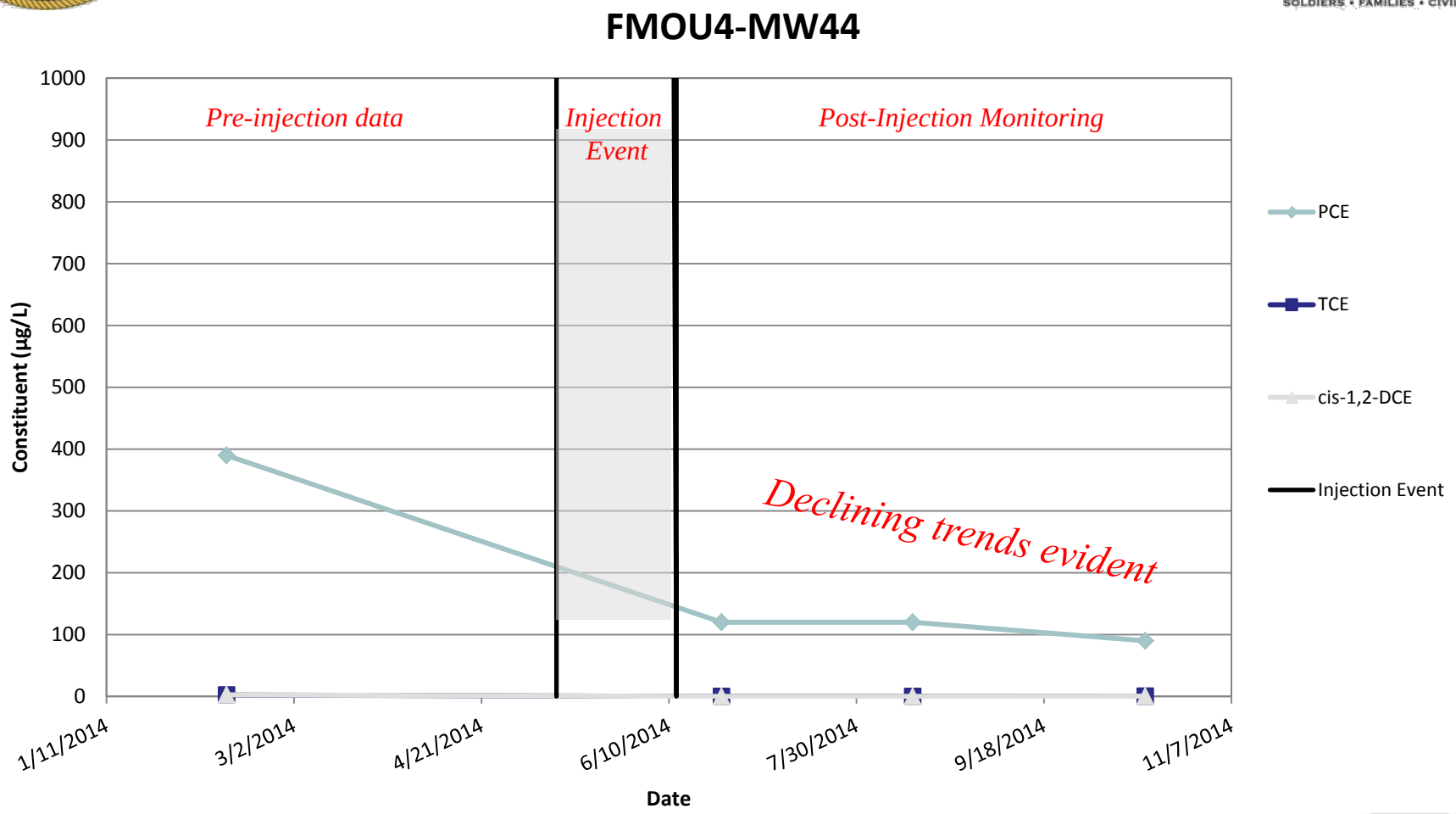

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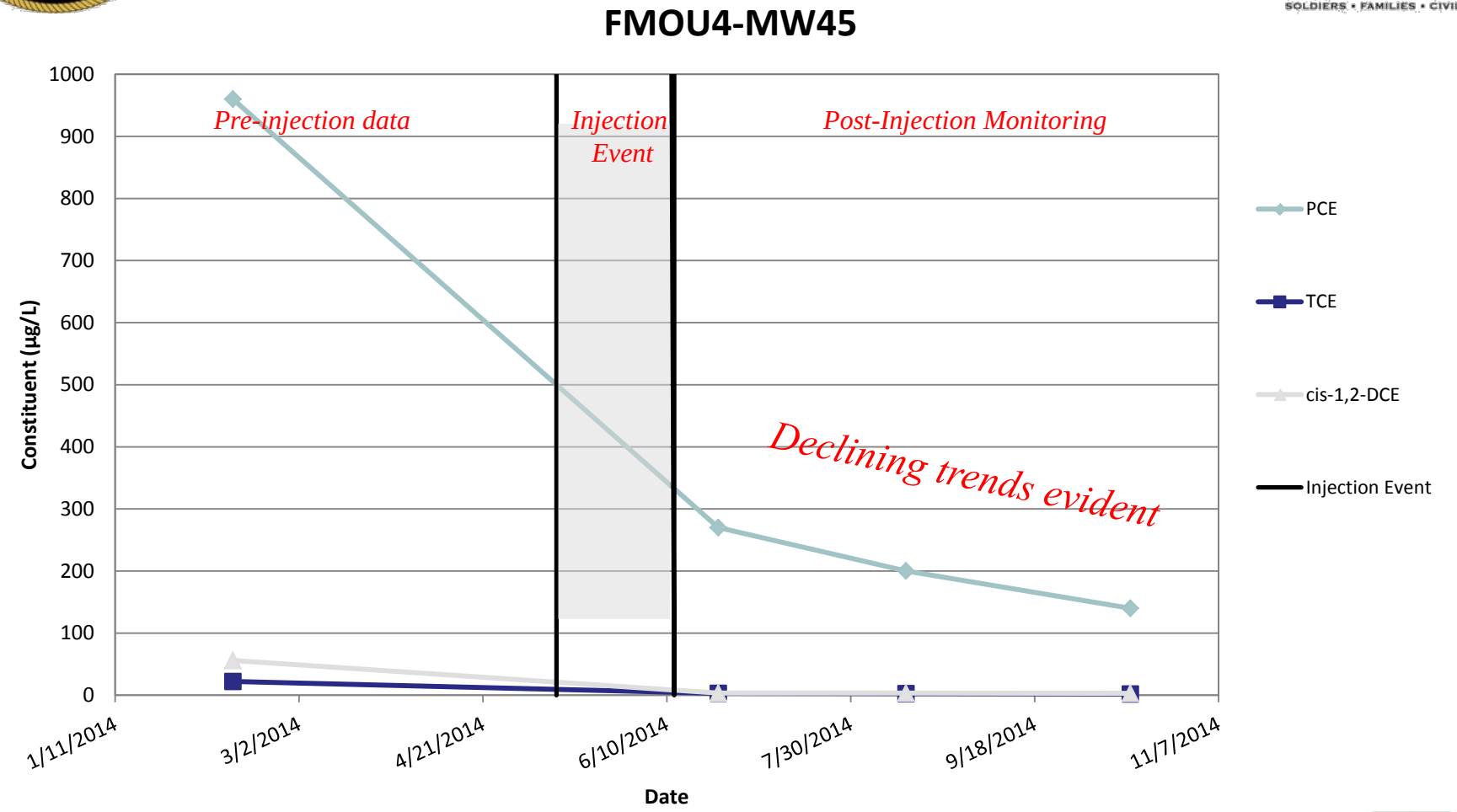
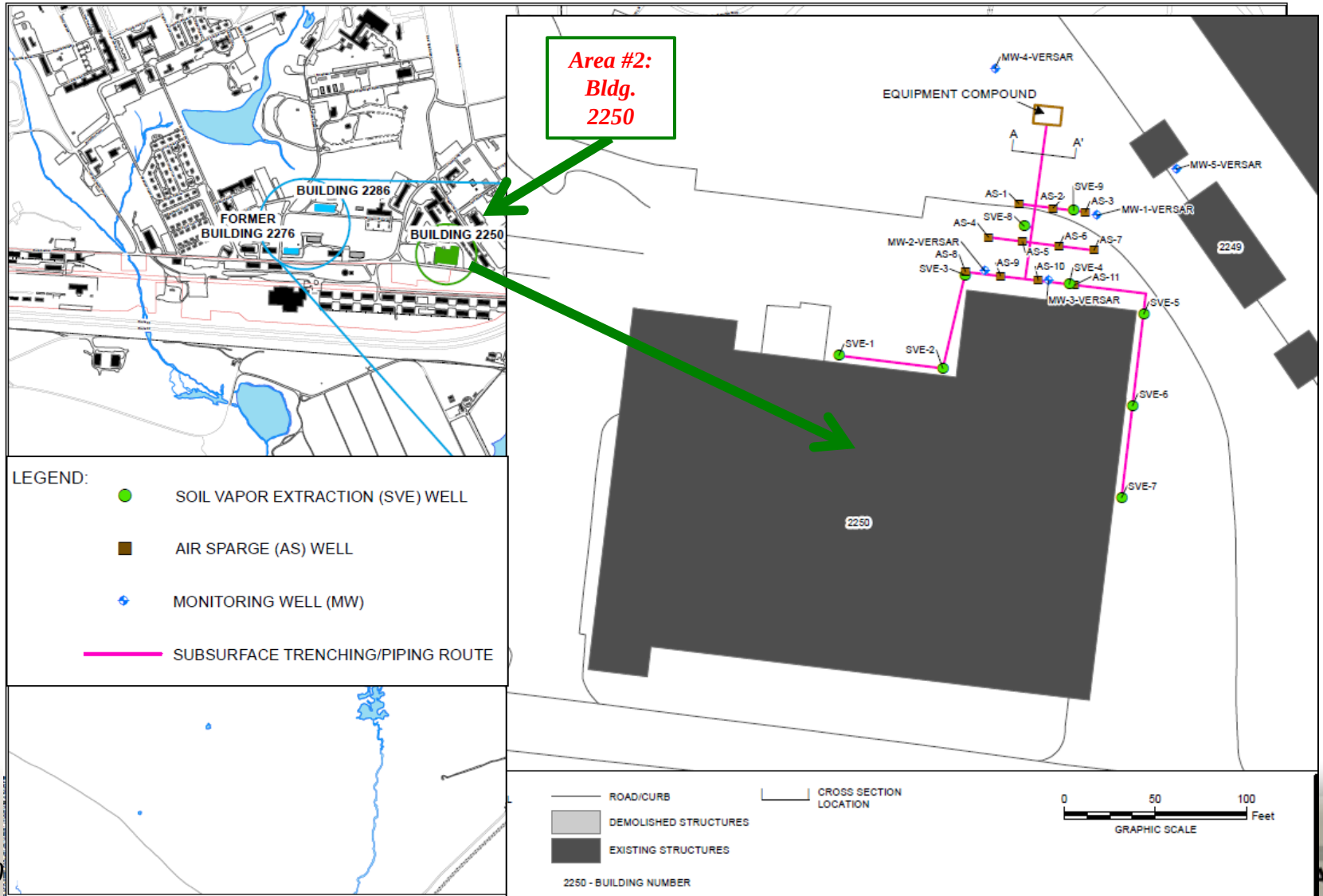


AOC 2 – Air Sparge / Soil Vapor Extraction (AS/SVE) System



AOC 2 – Air Sparge / Soil Vapor Extraction (AS/SVE) System

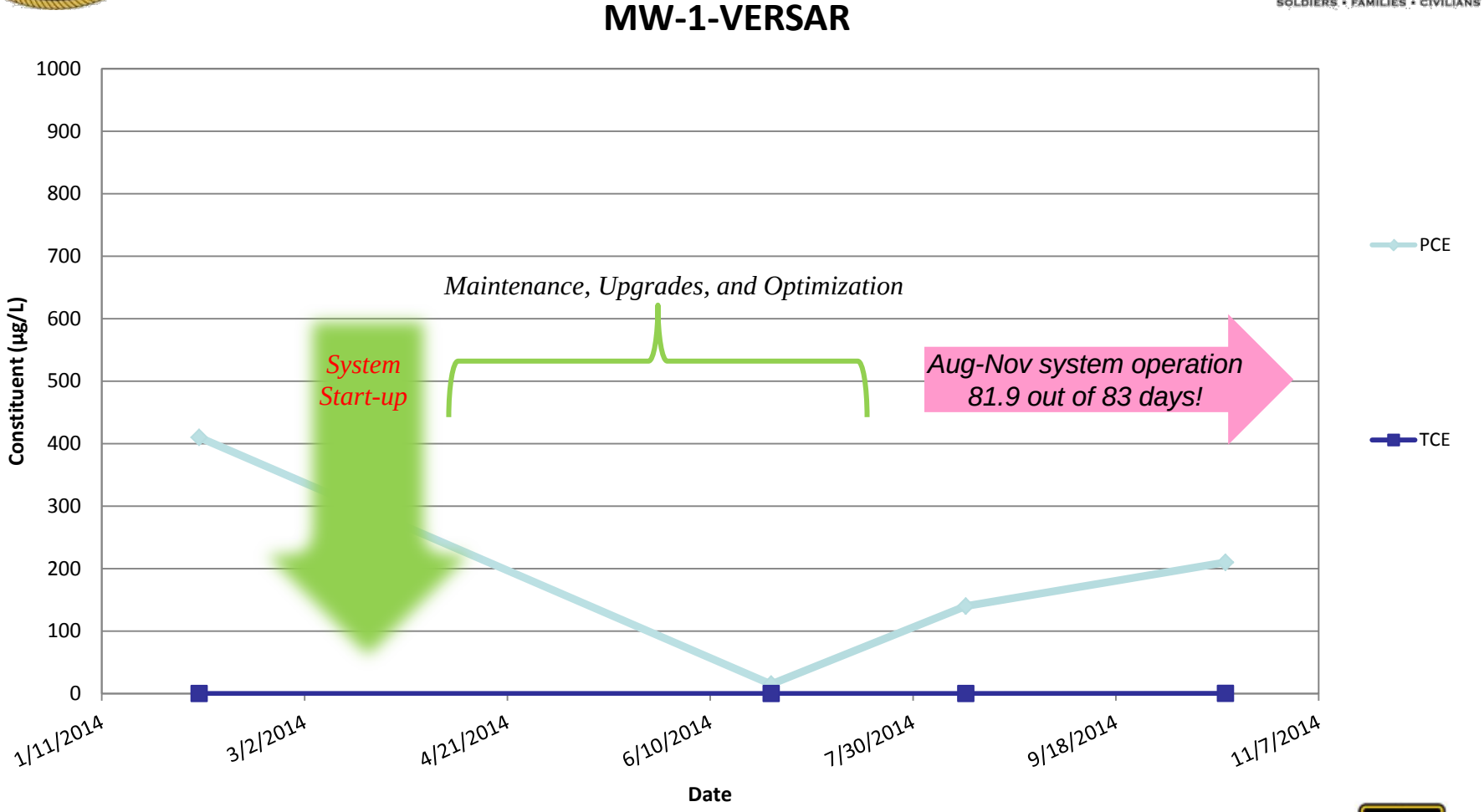
Completed activities

- Baseline groundwater sampling (February 2014)
  - AS/SVE system construction complete in March 2014.
  - AS/SVE system startup/shakedown March 2014.
- Quarterly Performance Monitoring
  - Q2 (June 2014)
  - Q3(August 2014)
  - Q4(October 2014)

Future Activity

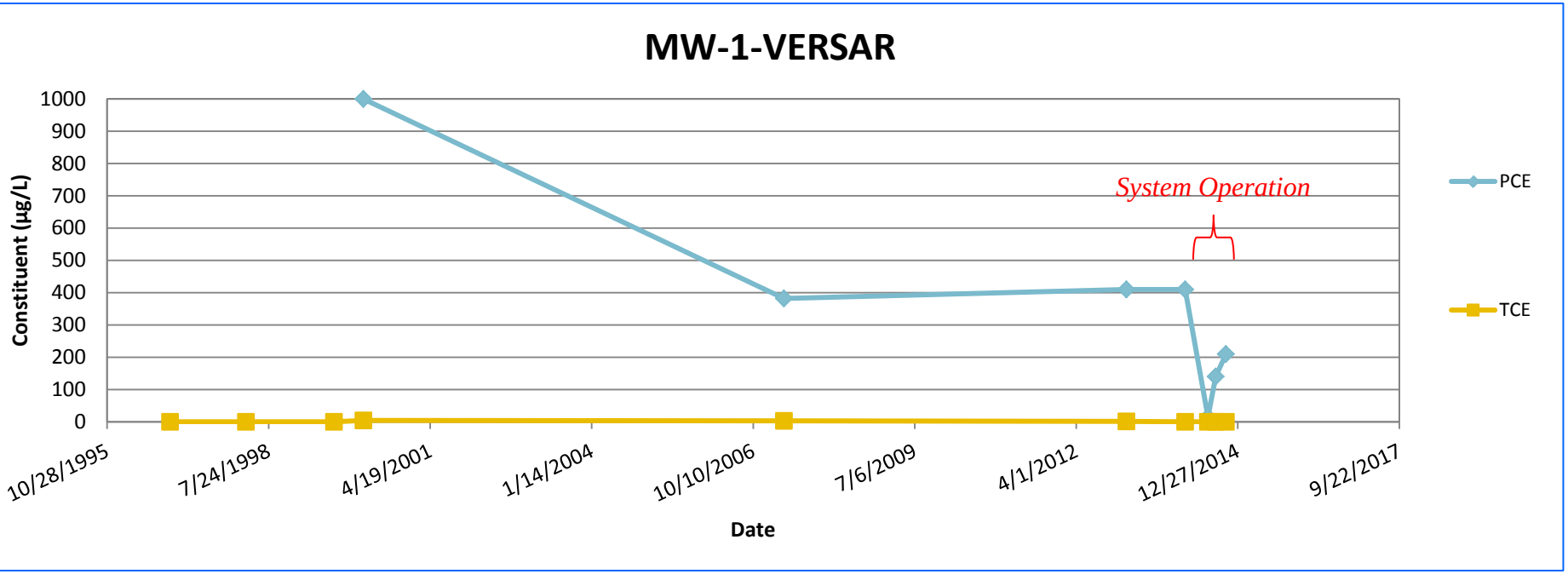
- Continued AS/SVE operation into 2015 with performance monitoring and RAB updates.

AOC 1 – Performance Summary



Historical Data

(to put current concentrations into perspective)



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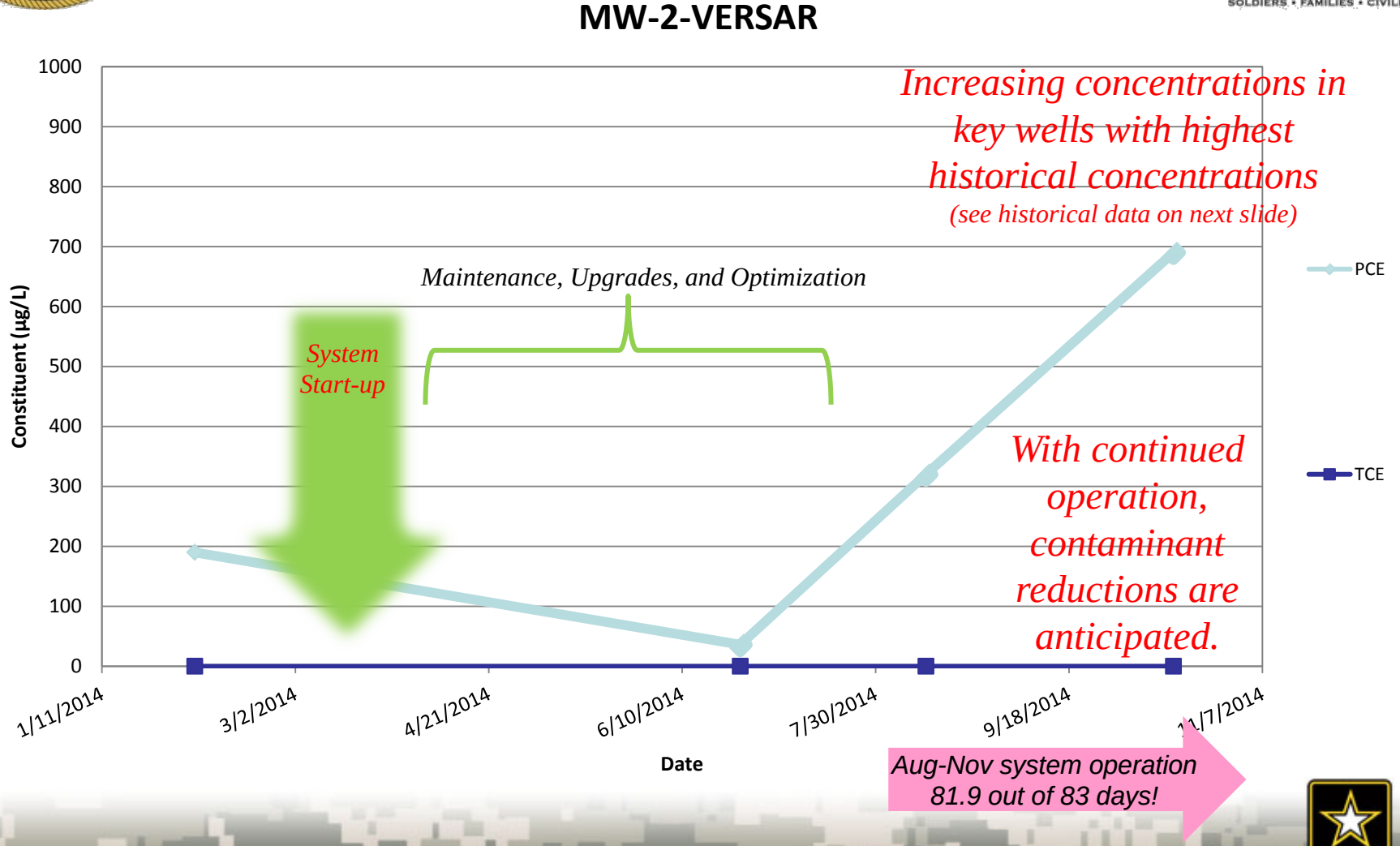
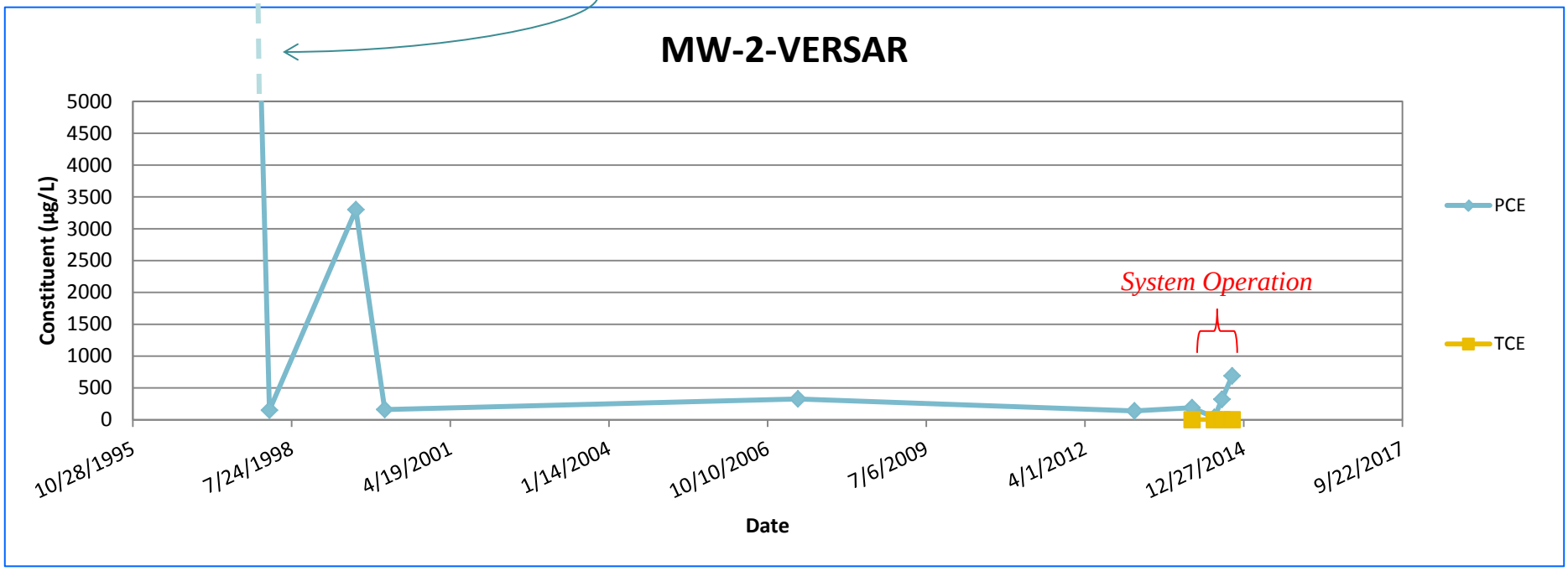
AOC 1 – Performance Summary



Historical Data

(to put current concentrations into perspective)

Highest detection off the chart in 1998!



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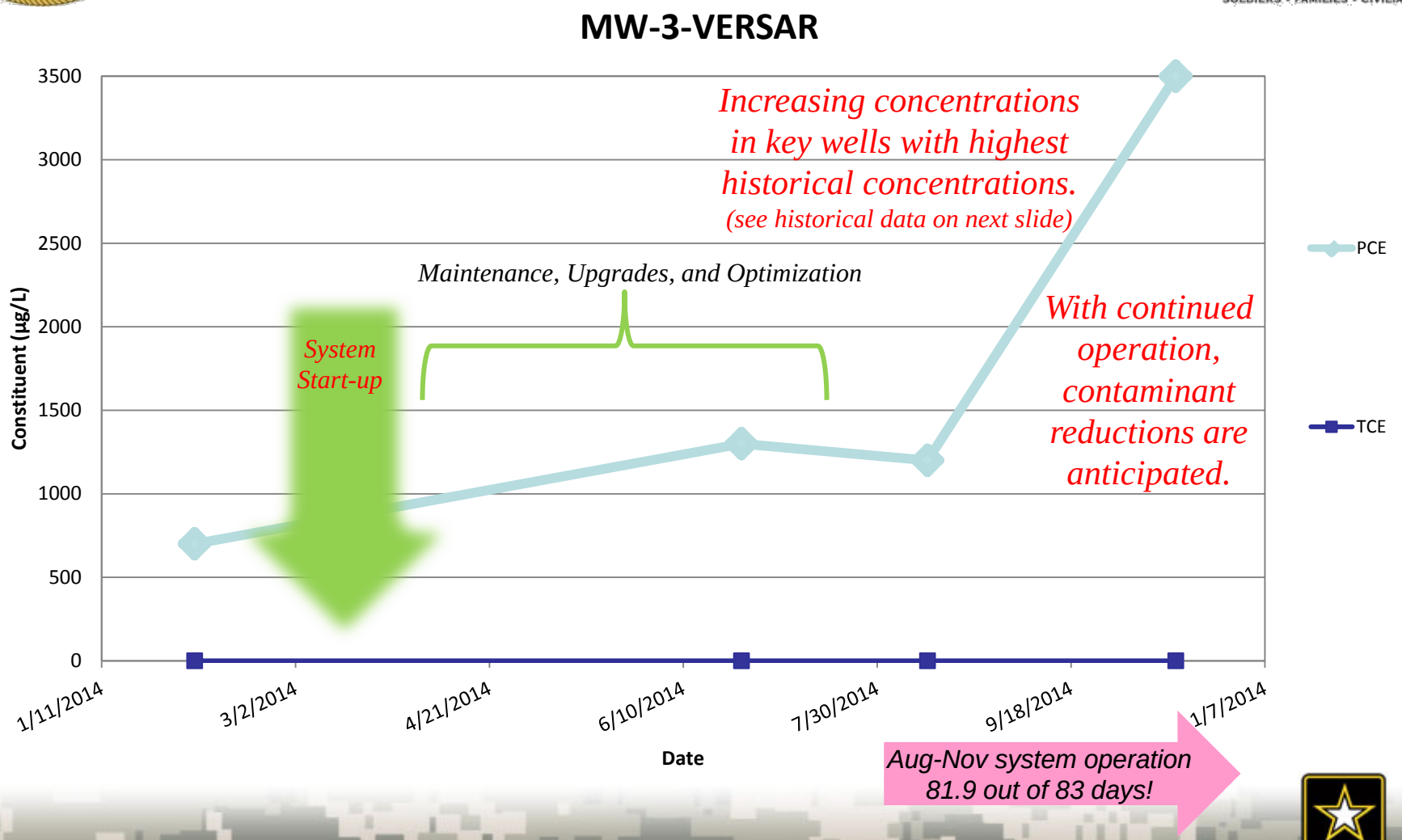
AOC 1 – Performance Summary



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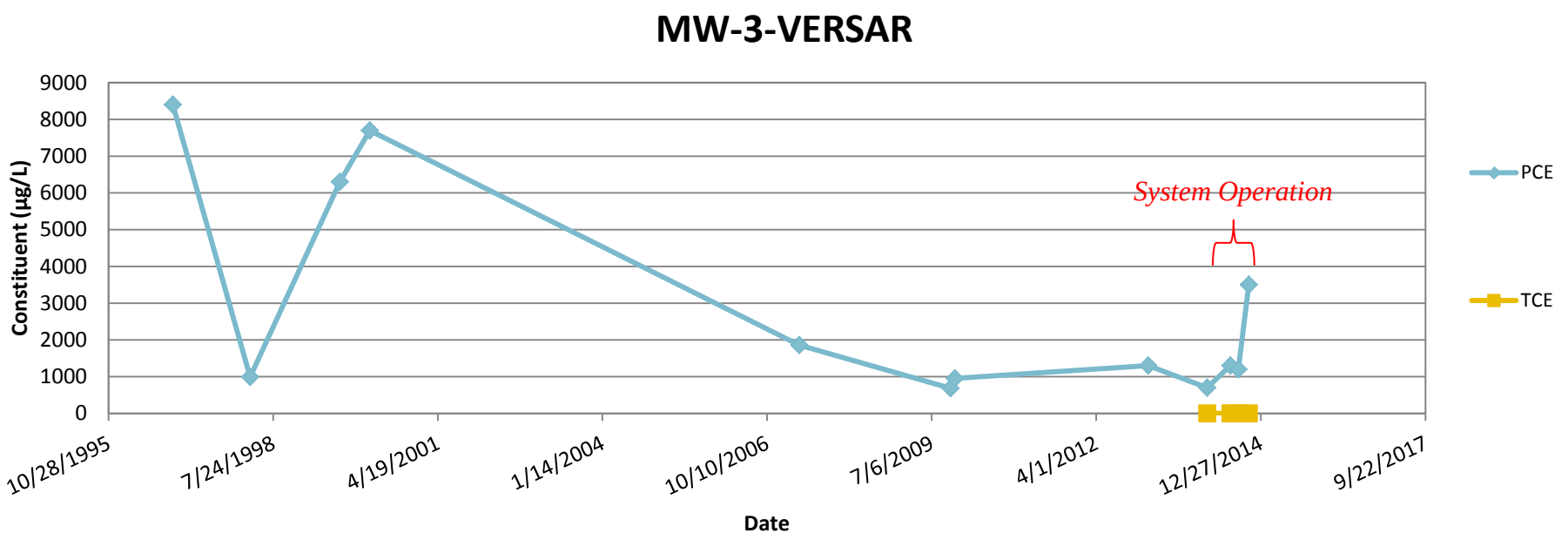

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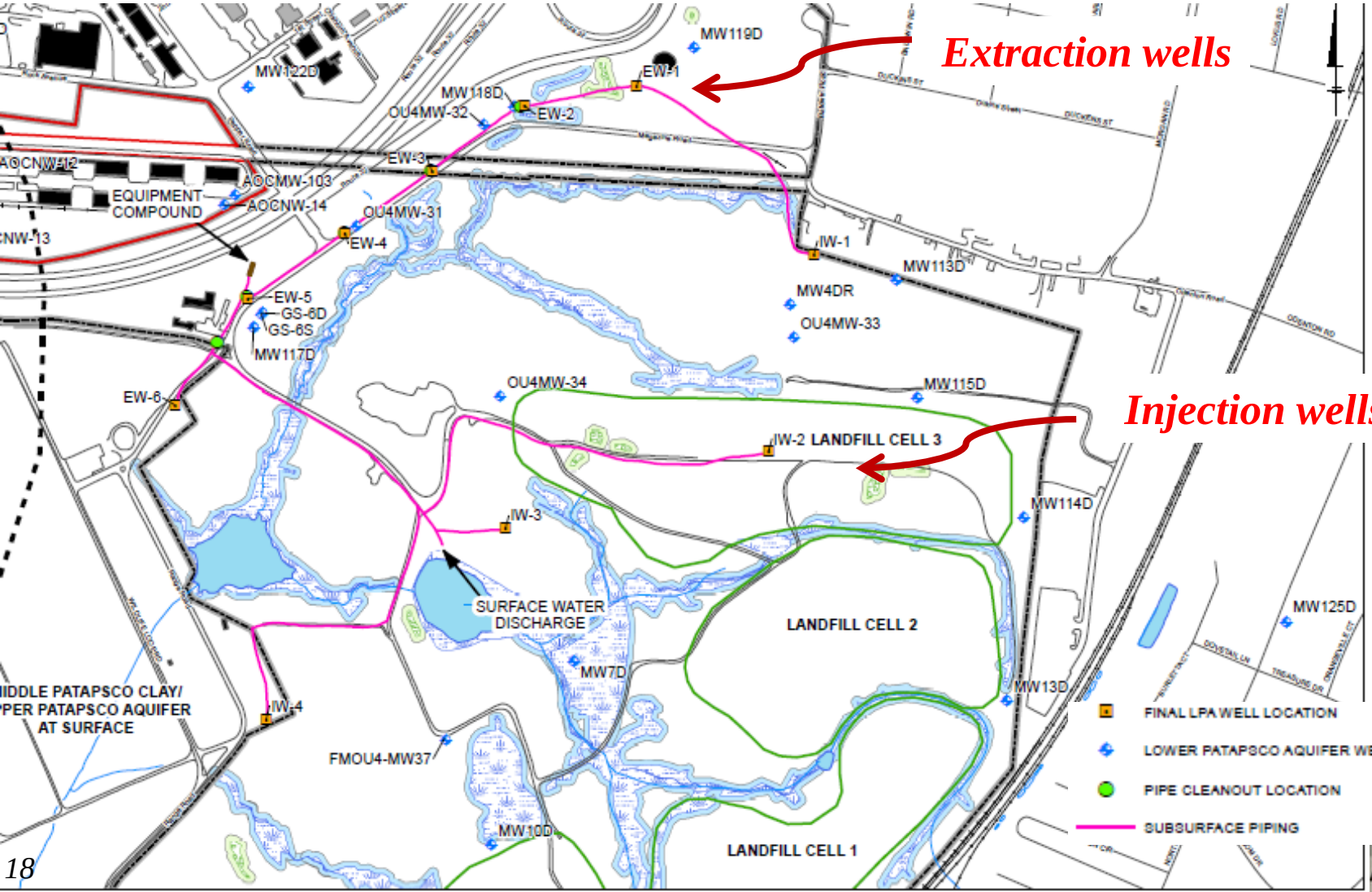
AOC 3 – LPA Hydraulic Containment System Layout



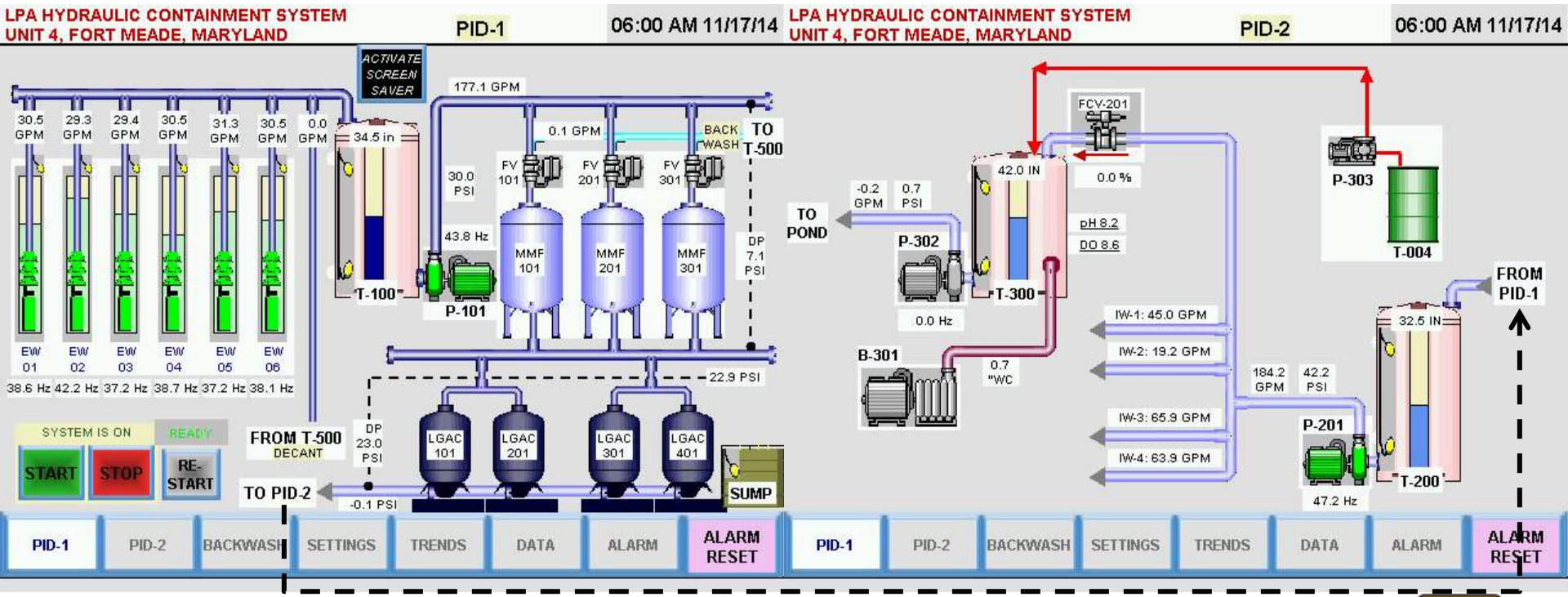
AOC 3 – LPA Hydraulic Containment System

Completed activities

- HC system construction completed in March 2014.
  - Included 6 extraction wells, 4 injection wells, and 1 surface water point discharge location.
  - Included the installation of appx. 21,000 linear feet of subsurface pipe.
  - Included the installation of 2 separate power transformers.
- System startup/shakedown completed in March 2014.
- Semi-Annual Groundwater Monitoring (August 2014).
- More than **56,000,000 gallons** of groundwater extracted, treated, and reinjected to enhance contaminant flushing (through November 14, 2014)

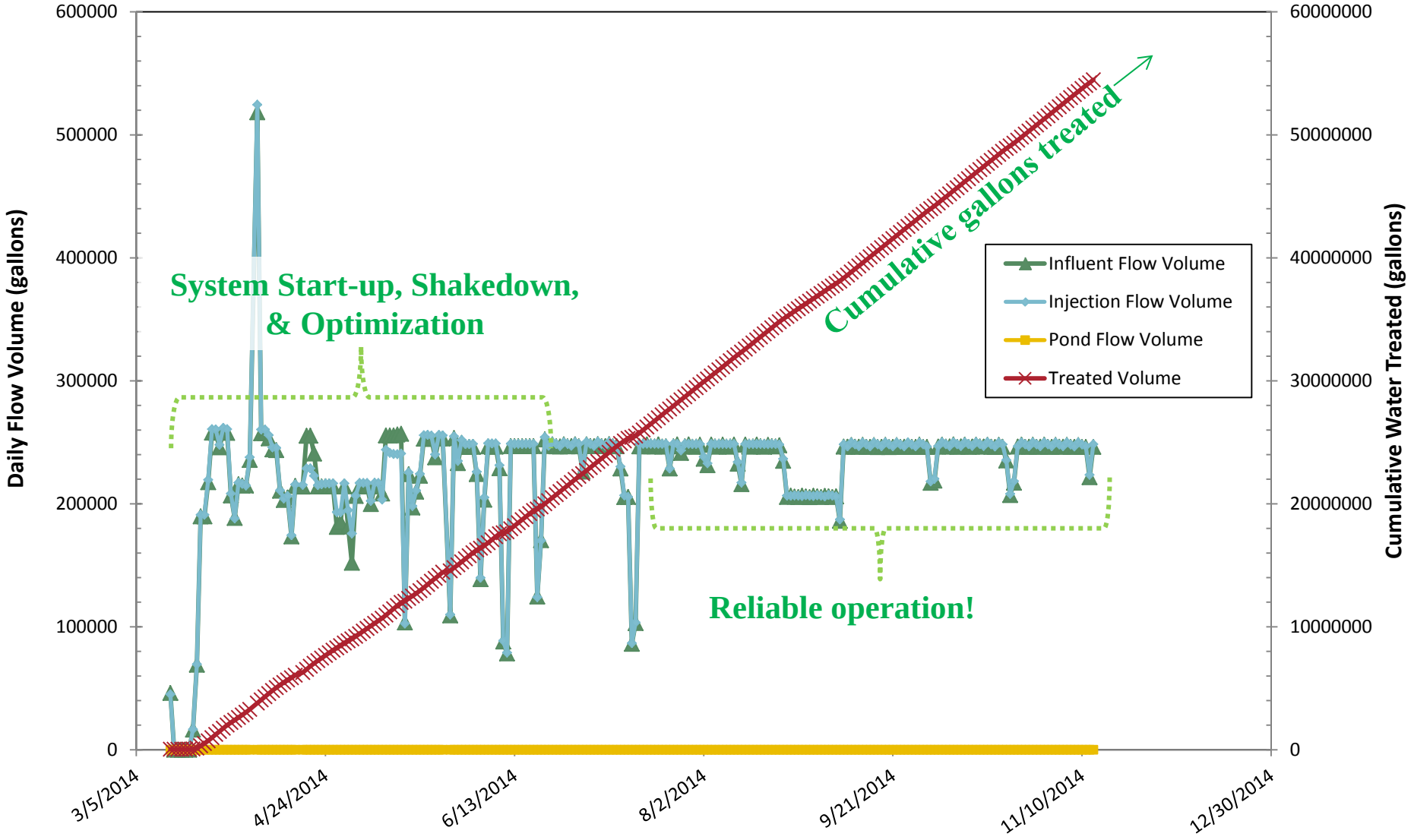
AOC 3 – Performance Summary Cont.

HC System Programmable Logic Controller Screen Captures



LPA Hydraulic Containment System Daily Flow Volume (Pumps)

Fort Meade, Maryland



AOC 3 – Performance Summary

- The HC system is a long-term action to clean-up contaminated groundwater coming from upgradient OU-4 sources (e.g., Bldg. 2250, 2276, 2286) and reinject clean water to flush the downgradient aquifer over time. Groundwater modeling predicts a clean water front will reach the FGGM property boundary within 10 years.

- Future HC Activities: Continued system operation with long-term groundwater monitoring. Updates to be provided at RAB meetings.

Questions/Comments?

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