

Emlenton Water Treatment Plant Fast Track Design and Construction



PA-AWWA
64th Annual Conference
Lancaster, PA
May 3-4, 2012

William A. LaDieu, P.E.
Marc A. Lucca, P.E.



C E T
E N G I N E E R I N G
S E R V I C E S

A Subsidiary
of



CLIENTS | PEOPLE | PERFORMANCE

Project Drivers

- PA DEP
- Boil Water and Public Health
- Decaying Infrastructure

PA DEP

- Imposed Boil Water Notice
- Approached Aqua About Possible Acquisition
- Facilitated PennVEST Funding

Existing Water System

- “System Schematic”

Existing Water System

- Existing -Water Treatment Plant



Existing Water System

- Reservoir and Highlift Pumping Station



Condition Assessment

- Poorly Performing WTP
- Existing Buildings and Structures in Poor Shape with Significant Structural Issues
- Leaking Floating Cover on the Reservoir
- Mechanical, Structural and Electrical Issues with the Existing High Service Pumping Station
- Existing High Zone Standpipe in Need of Structural Repair and Painting

Alternatives

- Repair and Upgrade Treatment Plant
- Replace Treatment Plant with Membrane Filtration
- Replace Treatment Plant with Conventional Treatment Plant

Selected Alternative

- **Replace Treatment Plant with Conventional Treatment Facility**
 - ❑ Existing facilities were at end of useful life and considered un-repairable
 - ❑ Membrane filtration while cost effective, required a pilot plant to verify system design and could not be implemented in a timely manner

New Facilities

- “System Schematic”

New Facilities

- “Picture of New Treatment Plant: Roberts Filter Package Units”



New Facilities

- New Treatment Plant: Laboratory and Office



New Facilities

- New Treatment Plant: Chemical Feed"



New Facilities

- New Treatment Plant – Filter Room



New Facilities

- New Treatment Plant – High Service Pumping Facilities



New Facilities

- New Treatment Plant and Reservoir



Cost/Time Saving Project Features

- All team members (Aqua and CET-GHD and Roberts Filter) actively participated in the design process
- Package filtration units were bid simultaneously with construction contract
- Manufactured building system
- Precast concrete clearwell

(Continued on next page...)



CLIENTS | PEOPLE | PERFORMANCE

Cost/Time Saving Project Features

- Close communication with PA DEP and selection of conventional treatment allowed for quick approval and permitting
- PA DEP allowed site work and building construction to start before permit was issued
- Close communication with contractor to keep the project on schedule

(Continued from previous page)

Project Constraints

- Winter Time Construction
- Must maintain CT compliance throughout construction period
- Limited Storage during reservoir renovations

Schedule (Actual)

Aqua acquires system	January 2009
Request for Proposals issued to interested engineering firms	June 2009
Engineer selected	July 2009
Complete design and advertisement for bids	September 2009
Receive bids	November 2009
Notice of Award	January 2010
Substantial Completion – Making water	June 2010
Final Completion – All work complete	February 2011

Summary

- Cost effective treatment plant
- Excellent treatment – the facility plans to join the Partnership for Safe Water

Questions

