

PA DEP Small Drinking Water Systems Engineering Services Program (ESP) Case Study

Client Name: Osceola Water Association
Location: Osceola Township, Tioga County
Project: Engineering Feasibility Study

Background:

The Osceola Water Association (OWA) Public Water System serves approximately 300 people through 116 service connections with an average demand of 19,000 gallons per day (gpd) through two (2) well sources. Treatment of the spring water consists of chlorination and iron/manganese sequestration. Treated water is pumped to a 3,000-gallon pressurized chlorine detention tank prior to the distribution.

Public Health Challenges:

The pressurized tank is in a deteriorated state and needs to be replaced or removed from service. The tank ruptured in November 1999 causing a lack of pressure and a system-wide boil advisory. The deteriorated facilities and lack of adequate facilities pose a risk to the health and safety of the OWA operators and customers. Additional finished water storage is needed to maintain a minimum one-day's storage and to provide for fire protection.



Capacity Issues:

Technical – The sources are providing sufficient yield, however, the system does not provide adequate pressure and has less than one-day's finished water storage. Increased chlorine contact time is needed to provide the proper disinfection necessary to protect against biological contamination.

Managerial – The OWA Board Members were pursuing funding for system improvements. They requested the Feasibility Study to evaluate the lifecycle costs of the various system wide improvement alternatives.

Financial – Due to the small customer base, OWA had limited financial capabilities to cover new capital investments or increased operations and maintenance costs. The PWS rates are set to cover expenses of the system with a small amount of excess that goes into a reserve fund for maintenance items and small projects. It does not reflect the volunteerism in the community to run the system.

Actions:

A Feasibility Study was completed to determine the most viable alternative to provide adequate pressure, storage, and safe drinking water. Options evaluated included interconnection with a neighboring system, installation of a new pressure vessel and a water storage tank, installation of 24-inch water main and a water storage tank, and installation of a transmission main and a water storage tank.

Outcomes:

The Feasibility Study provided an assessment of the existing water system, evaluated technical, managerial, and financial capabilities, projected future consumption and demands, and identified and evaluated alternatives to meet compliance requirements. An interconnection with an adjacent viable water system was identified at the least-cost alternative. Osceola Township formed a Municipal Authority to address the long-term water needs of the Township. The OWA system has become the responsibility of the Municipal Authority. Future actions will be based on the ESP Study



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