

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

Client Name: Madisonburg Water Works
Location: Miles Township, Centre County
Project: GUDI Feasibility Study

Background:

The Madisonburg Water Works (MWW) Public Water System serves approximately 250 people through 90 service connections with an average demand of 15,000 gallons per day (gpd) through nine (9) spring sources. Treatment of the spring water consists of chlorination. Treated water is stored in a 19,200-gallon concrete reservoir. Distribution from the reservoir is via gravity.

Public Health Challenges:

The nine (9) spring sources have been determined to be groundwater under the direct influence of surface water (GUDI) by the Pennsylvania Department of Environmental Protection (DEP) based on Surface Water Identification Protocol (SWIP) testing.



Capacity Issues:

Technical – The sources are providing sufficient yield, however, have been deemed GUDIs, therefore, do not meet current regulations without providing further treatment.

Managerial – The MWW Board of Directors and certified operators were concerned with the added operation and maintenance requirements with filtering the GUDI sources. They requested the Feasibility Study to evaluate the lifecycle costs of the various alternatives.

Financial – Due to the small customer base, MWW had limited financial capabilities to raise capital funds for additional treatment or new source development. The PWS rates are set to cover expenses of the system with a small amount of excess set aside for capital expenditures. Most of the operation and maintenance activities are completed by volunteers and the addition of treatment to the system would put a financial burden on the customers. Funding was pursued to support the Feasibility Study recommendations.

Actions:

A Feasibility Study was completed to determine the most viable alternative to treat the spring water sources or to develop a new groundwater source to provide safe drinking water. Options evaluated included interconnection with a neighboring system, development of ground water sources, and various filtration methods of the spring water sources. MWW utilized the Feasibility Study as an important tool for making decisions concerning the long term viability of the public water system.

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. MWW performed pilot testing on several filtration methods (slow sand and membrane cartridge) and are in the process of locating test well sites to develop a new groundwater source. Design services will follow to provide MWW with an effective treatment system to provide safe drinking water to the MWW customers.

