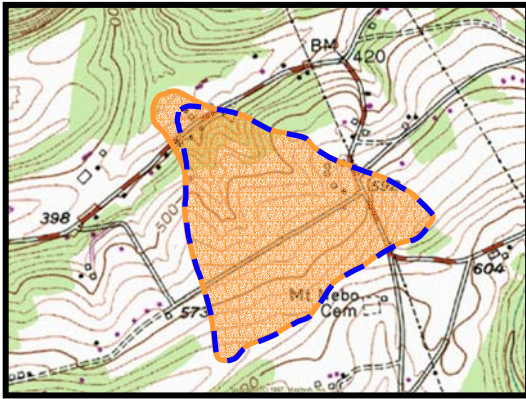


# PA DEP Small Drinking Water Systems Engineering Services Program (ESP) Case Study

Client Name: Pequea Water Cooperative Association  
Location: Martic Township, Lancaster County  
Project Name: Nitrate and Source Yield Studies



## Background:

The Pequea Water Cooperative Association (PWCA) Public Water System serves approximately 90 people through 52 service connections to meet average demands of 10,000 gallons per day (gpd). A spring is used as their water source and it is treated with sodium hypochlorite for disinfection.

## Public Health Challenges:

Their primary water supply is a spring source which has passed Surface Water Identification Protocol (SWIP) monitoring. However, nitrates have been detected at concentrations equal to or exceeding the Maximum Contaminant Level (MCL) of 10 mg/l. Water quantity problems have also worsened over the last several years. The PWCA has been forced to implement voluntary or mandatory conservation measures, and, at times, has had to purchase bulk water from adjacent systems via tanker trucks.

## Capacity Issues:

**Technical** – The spring source requires a nitrate treatment system to comply with regulations or the Association must develop an alternative groundwater source with no nitrate problems and a higher yield.

**Managerial** – Mandatory conservation measures were implemented, however the supply cannot meet the demand.

**Financial** – Due to the small customer base, PWCA had limited financial capabilities to raise capital funds for new source development and additional treatment.

## Actions:

A Source Yield Study was completed to examine the existing source, potential new sources, and provide a system evaluation based on available information. The study concluded that the existing source cannot meet the current or future water demands and a new well should be constructed near their existing treatment building. The existing spring source could be used as an emergency backup source. A Nitrate Study was completed to determine the most viable alternative to treat the spring source and provide safe drinking water. This study concluded that construction of a denitrification system is not logistically or financially feasible and construction of an alternate source not susceptible to nitrates should be explored.

## Outcomes:

These Studies have 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.

