

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

Client Name: Hazel Hurst Water Company  
Location: McKean County, Pennsylvania  
Project Name: Well Development and Treatment Upgrades



Well Prior to Development



Developed Well



Bore & Jack Crossing

## Background:

The Village of Hazel Hurst is located in Hamlin Township, McKean County. The Hazel Hurst Water Company (HHWC) serves 76 residential and commercial users. The Village has seen a significant decline in population in the last decade due to various reasons; one being the deterioration of the water quality and the insufficient water system infrastructure.

## Public Health Challenges:

The spring which fed Reservoir #1 went dry in the Summer of 1999. Reservoir #2 and the Santeen Well were used as emergency sources, but they lacked both the quality (unfiltered surface water) and quantity for development as full-time primary sources. The system was placed on a "boil water" advisory and disinfection concentrations were mandated until a permanent solution could be made.

The HHWC decided to drill an emergency well, the Marvin Creek Well, to supply water to the system. Pump tests indicated a rate of 60 gallons per minute (gpm) could be obtained from the well, which would provide more than sufficient quantities to meet the system's demand. However having depleted their financial resources, HHWC could not proceed with development of the new source.

## Capacity Issues:

**Technical** – HHWC needed to develop an emergency well to provide adequate water to the customers of the system.

**Managerial** – HHWC is managed by an elected, seven-member board. HHWC does not have the authority to mandate connection to their system; consequently over the years a number of customers have reverted to wells reducing the ever declining customer base. The funding resources for HHWC's capital improvements were minimized.

**Financial** – Due to the small customer base, HHWC could not undertake major system improvements in a cost-effective manner.

## Actions:

The Marvin Creek Well Development Project which included installation of a 3-inch PVC dedicated transmission pipe from the well to the existing treatment building was designed. The design included a bore and jack crossing of Historic Route 6.

- The design included changes to the treatment process based on the water quality of Marvin Creek Well, adding a sequestering agent for manganese and a disinfection system utilizing sodium hypochlorite. A potential taste and odor problem caused by the presence of hydrogen sulfide was addressed through the installation of a diffused aeration system in the storage tank.

- A SCADA system including a transducer and telemetry panel were installed to control water levels and the well pump operation sequence.

- After treatment, water flows from the storage tank by gravity through a newly designed 6-inch PVC distribution system to an interconnection point with the existing distribution system in the village.

## Outcomes:

The newly developed Marvin Creek Well, treatment upgrades and transmission main provided safe drinking water to the customers of HHWC



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