

Calvary Hill High Pressure Zone Improves Pressures

The Calvary Hill area of St. Cloud had a 2.0 million gallon (MG) storage facility constructed in the early 1930s. The growth of the City accompanied with higher demand and construction of residences at higher elevations resulted in low pressures. The City completed a study to determine the best option to alleviate low pressures. The study developed a model of the water distribution system and recommended the creation of a high pressure zone with a booster station and a new 1.0 MG elevated storage to serve the new high pressure zone. The study also recommended that the existing 2.0 MG ground storage facility be replaced with a new 2.0 MG ground storage tank.



The City of St. Cloud retained Progressive Consulting Engineers, Inc. (PCE) to design the new 1.0 MG tower, the new 3,800 gallons per minute (gpm) booster station, and the new 2 MG ground storage facility with a total estimated project cost of almost \$4.0 million.

PCE used the computer model of the distribution system and ran a 21 day extended period simulation to determine how the new tower would work within the new high pressure zone in conjunction with the booster station.



The tower design included an insulated riser pipe to avoid pipe freeze up during extreme Minnesota winters. PCE completed the plans and specifications for the new 1.0 MG water tower. PCE obtained approval of the tank location from the Federal Aviation Administration and the Minnesota Department of Health reviewed and approved the plans and specifications for the new tower.

Separate bids were let for the 1.0 MG elevated tower, booster station and the 2.0 MG ground storage facilities to reduce costs. The tower project was the first to be bid followed by the booster station and the 2.0 MG ground storage facilities. The tower and booster station projects were completed in early 2005 and have been operating successfully. The 2.0 MG ground storage facility became operational in November 2005.



Key staff members involved with the project include: Naeem Qureshi, overall supervision and Project Management, Brian Zinnel, Design Engineer, Project Design, and Construction Period Services.

Client: City of St. Cloud

Client Contact: Steve Gaetz

Year Completed: 2005

Bid: \$3,030,683 (3) **Construction Cost:** \$3,136,854 (3 Contracts) **Change Orders:** 3.2%



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