

Filter Evaluation - Circle Pines, MN

The City of Circle Pines 1,500 gpm water plant was constructed about 20 years ago and was designed to remove manganese from the raw water from Wells 2 and 3. The raw water manganese has increased since the plant was constructed.

Now the plant effluent routinely exceeds the secondary standard of 0.05 mg/L for manganese caused by higher manganese in the raw water.

PCE was retained to provide a plant evaluation to optimize the treatment process. The physical condition of the media and chemical dosages will be reviewed. The plant backwashes after every 21 hours of operation regardless of

headloss buildup or effluent quality.

Parameters for filter backwash will need to be developed.

The treatment process in the Circle Pines Water Treatment Plant will undergo a thorough analysis to improve the plant performance.



Water Distribution System Modeling - Coon Rapids, MN

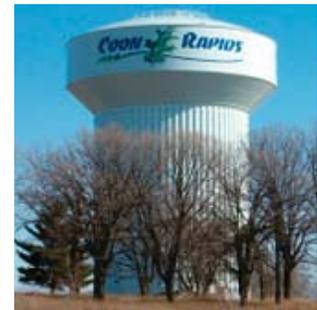
The City retained PCE to complete a computer modeling analysis of the water distribution system to determine if:

1. Replacing the 24" watermain on Main Street at the railroad crossing (and west to Avocet Street) with an 18" watermain will have any major effect on the water system.
2. Shutting down the East Plant during the winter is possible. Pressures and domestic and fire flows will be an important consideration.
3. Evaluate the size and location for additional storage if the existing 500,000 gallon storage facility near the East Plant is removed from service.

The 2000 model was updated with the mains and facilities installed after 2000. To determine if the change in water-

main size from 24" to 18" at Main Street will make any difference, two scenarios were compared in the model: one with 24" watermain and one with 18" watermain. Both scenarios were run under a steady state model simulation during peak day demand conditions.

The computer model of the water distribution system under the steady state and peak day demand condition shows that there is no significant change in the pressure and available fire flow in the system if the City decides to reduce the watermain size from 24" to 18" at the railroad crossing on Main Street.



Well and Booster Pump Rehabilitation - Coon Rapids, MN

The City of Coon Rapids retained PCE to provide design and construction services on the 2011 well and booster pump rehabilitation project. The well rehabilitation project includes: Wells No. 11, 14, 16, 17, Booster Pumps No. 4 and 5, and a recycle pump at the West Water Treatment Plant.

The well rehabilitation work will include:

1. Check pump motors, replacing upper and lower motor bearings if necessary.
2. Pulling pumps, inspecting line shaft, bearings, packing, column, bowls and impellers, and replacing components as necessary.
3. Replacing pumps and motors as needed.
4. Gamma logging and videotaping the wells.
5. Assess need for sand removal and redevelopment. Bailing, redevelopment, test pumping and disinfecting will be included as bid items in the specifications.
6. Standardizing equipment between the well facilities as much as possible.
7. The present control valves configuration for Booster Pumps 4 and 5 and the recycle pump will be updated. Options to replace these valves with hydraulic or electric check valve will be considered.

PCE has previously completed five phases of the City's \$3.2 million well rehabilitation program.



Cost of Service and Rate Study - New Ulm Public Utilities

The New Ulm Public Utilities Commission supplies water and sanitary sewer services, which are primarily funded by revenues from the rates. The last rate increase was in 2008. The Utility is interested in developing new utility rate structures for both water and wastewater for the next five years and wants to target 35% of the operating expenses as the fund balance. The Utility also wants to do a study of cost of service to develop equitable rates for rate classes within the water and wastewater rate structure. The commission selected PCE to conduct the study.

Water conservation is now being emphasized by a number of utilities and can result in a substantial savings for both the utility and the consumer. Water conservation promotes a reduction of water usage, which also results in less electric usage and lower sewage flows. This is sig-

nificant as about 3% of the Nation's electric consumption is for water and wastewater services. Water conservation and its impact on rates will be an important aspect of the study.

Equitable rates are needed to fund the ongoing operation and the development of a fund balance for emergency needs. The rate study will address these concerns. The rates have to be developed within the Utility environment. The approach taken by adjoining communities in developing the rates will be carefully considered. The new rates will be reviewed in relation to rates in the surrounding cities. To maximize the value to the commission, at the conclusion of the study the tables and a report explaining the methodology used for the rate study will be provided to the Utility for their future use.

Water Distribution System Modeling - High Pressure Zone - Shoreview, MN

The Weston Way Area of Shoreview was experiencing low pressures during maximum hour demand resulting in complaints. The pressures were less than 30 psi.

The City retained PCE to evaluate the options for increasing the pressures in the area. The water distribution system model was updated with new pipes added since PCE completed the comprehensive water system plan in 2008. The modeling results showed the need for a booster station to increase the pressures by about 25 psi.

A preliminary design report showed the layout of the high pressure zones. Special attention was paid to minimizing the dead end eliminating stagnation and cost.

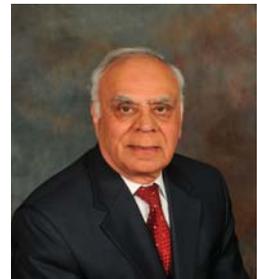
The report recommended the use of an in-line booster station to reduce costs.

Poster Session - Washington, DC

Naeem Qureshi presented a Poster Session at the AWWA Annual Conference in Washington, DC on June 15, 2011. The poster session was titled "Phased Approach to Water System Modeling". The project objective: Use water system modeling to identify a new infrastructure needed in five (5) pressure zone systems to serve a growing population in Rochester, Minnesota. The five pressure zones included: Phase I (2006) NE Hadley Valley; Phase II (2007) Northwest High Level Area; Phase III (2008) Main Level Service Area; Phase IV (2009) St. Bridget/Airport/Willow

Service Areas; and, Phase V (2010) Rose Harbor/Marion Service Area.

The study showed the need to add 21 new 1,000 gpm wells and 12 new storage facilities with a storage capacity of 12.5 million gallons.



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