

PROGRESSIVE CONSULTING ENGINEERS, INC.



BULLETIN
Summer 2013



UNIVERSITY OF MN Well Project for Engineering and Fisheries Invasive Species Lab Renovations



PCE is part of the team selected to design a new well for the U of M's Engineering & Fisheries Lab. The well that currently supplies water to the lab is failing. The well water runs through a recirculating system that contains a bio-filter & associated treatments. Since fish and aquatic animals are sensitive to water temperature, gas concentrations, water purity, chlorine, and other elements, this project will require innovative strategies in regards to well design and equipment used.

The new well will draw water from the Jordan aquifer and will be about 563 feet deep. The well will have a pitless adaptor and a submersible pump design to supply 200 gpm flow.

The project will include abandoning and sealing the existing well once the new well is in operation.



ALBERT LEA, MN Water Treatment Plant Evaluation

Earlier this year the team of Naeem Qureshi and Yoko Nomura evaluated the North and West Water Treatment Plants that serve the City of Albert Lea Public Utilities.

The evaluation included an analysis of the chemical feed rates and chemical application points. The filters were observed during backwash to locate nonuniform distribution of the backwash which results from partially clogged underdrains. The project also included measurement of freeboard, filter bed expansion, core sampling the media, and floc analysis to determine how effective the backwash is in cleaning the media. A filter probe was used to determine the top of the gravel foot print and gravel mounding, and analyze the bed fluidization during backwash. Samples of backwash water were taken every minute to determine the optimum duration of the backwash.



A report will be written at the conclusion of the study with clear recommendations to improve the performance of both the plants.

OPFLOW AMERICAN WATER WORKS ASSOCIATION Publication



Opflow, a publication by the staff of the American Water Works Association has accepted the paper, "Operator Involvement in Plant Design" written by Naeem Qureshi. The paper will be published in the October 2013 issue.

The paper details how to develop a relationship with the operating staff and encourage input by the operators during the design and construction of a water treatment plant. This tactic was utilized during the design of a plant in Central Minnesota and the paper gives examples of how the buy-in by the plant operators resulted in suggestions by the operators being incorporated in the design. Operator involvement during design and construction resulted in marked improvements in the project.





MINNESOTA RURAL WATER TODAY Publication

"Getting the Most Out of the Filters", an article authored by Naeem Qureshi, was published in the April 2013 issue of *Minnesota Rural Water Today*.

The article presents the steps taken to evaluate and optimize the plant operations at four water plants in East Grand Forks, Hibbing, International Falls, and New Ulm. This includes an analysis of chemical dosages, application points, core sampling media, and conducting floc analysis to determine how clean the bed is after backwash. Backwash rates and backwash duration are reviewed to determine bed expansion and bed fluidization. Recommendations for optimizing the plant's operations are presented. Mr. Qureshi has published articles in the Journal of American Water Works Association (AWWA), Opflow AWWA Publication, MN Rural Water, Public Works, and has worked on "Precoat Filtration" AWWA Manual.

WYOMING, MN Water & Sewer Rate Study

The City of Wyoming, MN water and sanitary sewer services are primarily funded by revenues from the rates. The City's last rate study, conducted in 2009, established a rate structure through 2013. The City is interested in developing new utility rate structures for both water and wastewater for the next five years. The City selected PCE to do a cost of services study to develop equitable rates for the different rate classes within the water and wastewater rate structure.



Water conservation is increasingly being emphasized by utilities and can result in substantial savings for both the utility and the consumer. Water conservation promotes reduction of water usage, which also results in less electric energy usage and lower sewage flows. This reduction is significant 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 this study.

Equitable rates are needed to fund the ongoing operation and to develop a fund balance for emergency needs. The rate study will address these concerns. The new rates will be reviewed in relation to rates in surrounding communities and the approach taken by those communities in developing rates will be carefully considered. To maximize the value to the City, the tables and a report detailing the methodology used for the rate study will be provided to the City for their future use.



MINNESOTA MULTIPURPOSE STADIUM Minneapolis, MN Utility Design

PCE is part of the team creating the Minnesota Multipurpose Stadium - the new home of the Minnesota Vikings. PCE's team is lead by Adam Kramer.

PCE has called Minnesota home for over 30 years, and with our first-hand knowledge of Minneapolis Utilities, our firm is the perfect consultant to join the Civil Engineering Team to provide the Utility Coordination and Design Services.

We are proud to be supporting the home team and know that our extensive experience and commitment to quality, together with the other engineering groups of the Civil Design Team, will bring life to the new people's stadium.



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