

Water Treatment Plant No. 3

City of Blaine

The City of Blaine recently decided to construct a 2,000 gpm Blaine Water Treatment Plant No. 3 to improve the drinking water quality supplied to the residents. The City retained Progressive Consulting Engineers, Inc. (PCE) to design the plant. PCE had earlier designed Water Treatment Plants No. 1 (2,000 gpm) and No. 2 (5,500 gpm).

The initial step was to complete a pilot plant study to determine the design criteria for the removal of iron and manganese from the well water. Water Plant No. 3 is designed to treat water from Wells No. 6 and No. 11. The plant removes iron and manganese from the well water by the Filtronics Process, which uses "Electro media" to filter the water. The project was bid and awarded to Municipal Builders, Inc. in October 2006.



The treatment process involves pumping the well water into the chlorine contactor where high doses of chlorine is added to oxidize the iron and manganese. Sulphur dioxide is added as the water enters the sulphur dioxide contactor to neutralize excess chlorine. The water then is filtered in the two filter tanks. Fluoride is added to prevent tooth decay and the water then flows into the distribution system. Periodically the filters are backwashed by reversing the flow to remove the particulate matter lodged in the filter media. The backwash water is sent to a reclaim basin and the water is recycled back to the head of the plant. Sludge from the recycle basin is periodically pumped into the sanitary sewer. An emergency chlorine scrubber is designed to neutralize any accidental release of chlorine gas. The chlorine room is designed to accommodate three one-ton cylinders.

The water treatment plant is architecturally designed to be aesthetically pleasing, conserve energy, and be low in maintenance. Energy saving features and equipment include energy efficient motors on equipment and translucent window panels for passive lighting. The plant went into operation in August 2007.

Client: City of Blaine

Client Contact: Mike Ulrich, Public Works Director

Year Completed: 2007

Bid: \$2,806,600 **Final Construction Cost:** \$2,862,019 **Change Orders:** 2.0%



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