

# CITY EXPANDS WATER TREATMENT FACILITIES TO MEET GROWTH

The City of Coon Rapids, Minnesota recently completed the expansion and upgrade of its East and West Water Treatment facilities. Production at the plants was increased by 66% at the East Plant and 40% at the West Plant to bring the total design capacity to 22.3 million gallons per day. New filters, additional backwash water reclaim capacity, chemical feed systems, and new control systems for plant operations and telemetry were included in the projects.



Like many municipalities, the City of Coon Rapids faced a variety of decisions in planning for the treatment of iron and manganese found in the majority of their wells. A comprehensive water system study favored the use of common, centrally located plants versus multiple satellite plants. Choosing the treatment method involved an extensive review including site visits for different filtration technologies. City personnel and their consulting engineers traveled to California to visit several Filtronics installations and their manufacturing facilities.

Ultimately, the City of Coon Rapids chose Filtronics *Electromedia*® I filtration technology for their East and West Treatment plants. The facilities with capacities of 4000 and 7000 gpm, respectively, were installed in 1991. After 15 years of service, each plant was expanded to 6000 and 10,500 gpm, respectively. The original design left space on each of the sites to allow for the physical expansion.



Two new Filtronics' *Electromedia*® I filters for iron and manganese were installed at each facility to add to the existing *Electromedia* filters put into service in 1991. Each of the filters is designed to run at 10 gallons per minute per square foot.

The reclaim systems were expanded in capacity to allow for the additional backwash volume created by the new filters. Water from the four minute backwash and one minute purge (filter to waste) cycles of each filter is sent to the reclaim tanks. After a settling period, where the iron and manganese treatment residuals settle out, the supernatant is blended with the well water at the headworks of the treatment plant.

More than ninety nine percent of the water used for backwash and purge is recycled. At design capacity this means that more than 200,000 gallons per day of water can be recovered.

The chemical feed systems are completely automatic. New automatic rate valves for chlorine and sulfur dioxide gas were installed. Upgrades to the chemical systems were performed by Larsco, Incorporated of Anoka, MN.



The original plant control systems used painted graphic panels with small lights for plant process indications. Each of the systems was upgraded with large graphic display panels, new programmable logic controllers (PLC's), and new telemetry control. The system now runs on an ethernet network with a virtual private network (VPN) set up. The VPN allows the operators to remotely access the telemetry and plant operating systems with a laptop and an internet connection.

The combination of these upgrades allows each facility to be run by one operator. Each operator has plenty of time for regular maintenance at the plants which also house distribution system booster pumps.

Iron and manganese in the raw water is as high as 1.0 mg/L. The treated water from both facilities is usually less than 0.020 mg/L with many non-detectable results.

The upgrade of these treatment facilities provides the 65,000 residents of the City of Coon Rapids with treated water from fifteen different wells with expandability to meet future needs of the water system. The two projects with a total value of \$5.7 million dollars were designed by TKDA of Saint Paul, Minnesota and constructed by Municipal Builders Incorporated of Andover, Minnesota.

For more information on Filtronics and our Electromedia® line of filtration systems, contact the sales department at 714-630-5040, or visit the company's website at [www.filtronics.com](http://www.filtronics.com).

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