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Superior Water and Wastewater Treatment Services

A Great Advantage for Our Community | 8

Pumps at Monroe County's east-side fresh water treatment plant in Webster push fresh water out to the distribution system.

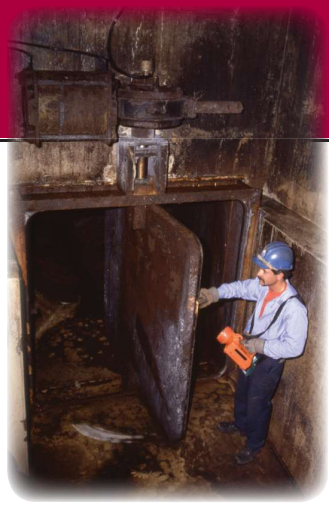
Also in this issue:

Stormwater Management: It's Everywhere | 16

Finished Water - New Webster Water Treatment Plant Now Drawing Water From Lake Ontario | 48

Superior Water and Wastewater Treatment Services
A Great Advantage for Our Community

By Pete Kundin



Worker at a rectangular butterfly valve in the Culver-Goodman section of the deep-rock tunnel system circa 1991.

The County of Monroe, City of Rochester, and Monroe County Water Authority (MCWA) have long been leaders in the field of providing clean water to our region. Also, we are blessed with one of the most progressive wastewater collection and treatment systems in the nation.

It is clear that the abundant availability of clean water is vitally important in our everyday lives. So, let's examine the systems here and identify why we are unique to many areas of the country.

There are two main water supplies to us here in the greater Rochester area. The City of Rochester has been supplied with fresh water from two lakes south of the City for many years. Hemlock and Canadice Lakes supply water through gravity fed pipes to the City. They come from a junction point called the Rush Reservoir.

Due to the natural down slope of the terrain, little pumping is required to bring this water to the City. The lakes are pristine and required no filtering until federal laws regarding turbidity (water clarity) were put in place in the 1980s. When more stringent controls on turbidity were mandated, a filter plant was constructed at the Hemlock Lake site. This was a very modern automated plant with a SCADA system and an automated filter backwash system that included PLCs and motor operated valves (MOVs). In addition, the Rush Reservoir had its very large valves motorized to insure a clear path to the reservoir system which could be monitored, including the large Cobbs Hill and Highland reservoirs.

The Gatehouse at Cobb's Hill Reservoir where the City of Rochester stores water from Hemlock and Canadice Lakes.

Recently, the City sold Hemlock and Canadice Lakes to NYS with a supply contract, which allows the City the right to continue to remove enough water to meet its needs.

The Monroe County Water Authority is in charge of another major supply of fresh water here and is the third largest purveyor in the state. The MCWA has an intake pipe which reaches into Lake Ontario and feeds the Shoremont Filter Plant on Dewey Avenue. It also is a highly automated facility. It has 16 filter beds and is split internally into three parallel process trains.

The three sections were modernized at different times as the MCWA kept up with automation. Major upgrades happened in 1985, 1992, and 2003. The entire facility is networked with modern control equipment which allows the Authority to monitor the plant as well as the pump stations and reservoirs throughout the six-county region. It is continually monitored via a SCADA system to insure its integrity and reliability. Due to the topography, water is pumped south from the Lake versus the gravity feed from Hemlock Water Plant.

The most recent addition to the system is the new MCWA facility in Webster. It reaches out into the Lake directly north of Webster. The plant is state of the art and completes the system for its customers, providing us with a Westside, Southside, and Eastside water supply. We are fortunate to have this resource, and the supply now extends out of Monroe County supplying water to portions of each of the five surrounding counties.

The City and County have a long-standing cooperative agreement and actually trade water within the systems to insure a reliable supply. Our community is extremely fortunate to have these strong utilities working together to insure a reliable, world-class water supply.

Digester tanks at the Van Lare waste-water treatment facility.

Another very important part of the water supply system which we need to

understand, and should be equally proud of, is the advanced capability we have here in Monroe County to treat wastewater and storm water. Our system is operated by the Monroe County Department of Environmental Services, known as the MCDES. Although the DES has other tasks such as operating our landfill in Riga, its major concern is water treatment.

A row of valve actuators controlling the incoming flow to Monroe County's east-side fresh water treatment plant in Webster.

To understand the importance of our system, it is probably best to start with the collection system. In many cases, older large cities, such as Rochester, have combined sewer systems. That is, our sewage collection systems are combined with our rain collection systems. The acronym for this is CSO, or combined sewer overflow. Essentially our sewage is combined with rain water before transportation via pump stations to one of two treatment plants operated by the County.

The major issue with this is during rain events a large amount of water is introduced to the City of Rochester collection system, which traditionally is too much for the plants to treat. Unfortunately, what occurred during these events was that the untreated combined flow was discharged into the rivers, streams, and eventually Lake Ontario. This is a common issue today in many municipalities. In fact, our nation's capital is currently embarking on an extremely expensive project to protect the water table in Washington, DC.

Due to some very forward thinking by our County Government in the 1970s, Monroe County took advantage of a growing sentiment in the federal government, and built a unique tunnel system to store CSOs and virtually eliminate the discharge into our local waterways. This project took more than ten years to complete.

Aeration tanks at the Van Lare waste-water treatment facility.

The County was an industry leader in this CSO technology. The Cities of Chicago and Milwaukee were the other major cities to install this type of system more than 30 years ago. The engineers who worked and operated the system here were pioneers and have shared their knowledge with other municipalities across the USA.

Another important component of the system is a series of pump stations that move wastewater through three major collection districts. In the City of Rochester district, the flow moves via gravity. On the Westside is the northwest collection quadrant where wastewater ends up at the treatment plant in Hilton. Another district is on the Eastside and is called the Irondequoit Bay Pure Waters District. The Frank E. Van Lare Treatment facility is the largest plant in the system and is located in the Rochester district on Lakeshore Boulevard. It supports the Eastside tunnel system.

The wastewater on the Eastside is actually fed through the tunnels to an extremely large and important pump station at the front of the plant. The Irondequoit Bay Pump Station, or IBPS, looks like a small three-story building, but is actually a seven-story building with four floors underground. It pumps into Van Lare for treatment. There have been many major rehabs of these facilities over the past few years. In addition to new pumps at IBPS, the aeration systems at Van Lare have been upgraded and automated.

One of the more interesting projects occurred about ten years ago. The wastewater treatment process produces a by-product called sludge. Previously the sludge was incinerated. Then, the County installed new centrifuge technology advancing the dewatering of the sludge, and put in a truck offloading facility as well. Now, the dewatered sludge is sent to the Riga landfill, and the incinerators were shut down. This was a boost to the landfill in producing methane gas, and the County now generates a large amount of clean, renewable electricity from the gas. The modern treatment facilities as well as the advanced collection system are monitored continually by a state-of-the-art control room at the Van Lare facility.

The combination of our fresh water and waste water systems make our area an envy to all those who are involved in this industry.

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