THEN AND NOW
SINCE 1985

Located approximately 40 miles southwest of Portland, Carlton was a bedroom community of 1,400 people at that time, whose water-treatment story began some 30 years ago when the town faced its original water quality hurdle.

It was in 1980 when the first turbidity standards were introduced in Oregon. Andrew Klein of Klein Engineering was hired by the city to research and recommend what course the city should take to comply with the then new standards. After exhaustive research, Klein chose a technology called Electromedia® V from Filtronics, Inc., to solve the turbidity problems they faced with their surface water source. Just as important as meeting the water quality standards of the time was meeting a strict operational budget. Filtronics' Electromedia® V did both.

Main Street, Carlton, OR

"My God, we saved about $200,000 over conventional systems and it worked absolutely beautifully," Klein said.There were a number of reasons Klein chose to go with the pressure filter, the foremost being that he didn't want to break the natural pressure provided by the reservoir, which is located at a higher elevation than the treatment plant. This saved the city money by not having to re-pump as they would with a conventional gravity treatment system. "We looked at a conventional gravity type system," Klein said. "The problem there was we didn't want to lose the pressure we had.

Of course, at the heart of the decision was that fact that Electromedia® V provided filtration at the 2 micron level - without chemicals - thus having the ability to capture giardia and cryptosporidium, giving extra protection in the treatment scheme.

"In addition to the turbidity they get in the wintertime," Klein continued, "they have a big lake, a reservoir upstream and out of that they get algae in the summertime, and that was a problem too. It seemed to me that a pressure filter - where you have a variety of conditions: probably different kinds of algae, you have the turbidity, so on and so forth - it seemed to me that a pressure filter would be a far better thing than to try to dink around with going the sedimentation route and flocculation and all of that."

The fully automated Filtronics system, installed in 1985, easily and cost effectively produced water that exceeded the fairly lenient standards in place at the time of installation, even in light of the often highly turbid raw water.

“Turbidity units would run way high," Klein said. "They had a lot of logging upstream from their reservoir and they had a lot of problems with mud slides and things of this type. They get heavy, heavy turbidity - the water was so thick you could almost walk on it, but [the system] did a good job."

Bernie Bendel, the treatment-plant operator, concurs. "Raw water is 1 to 2 [NTU] normally," Bendel said. "In bad weather [it can run] 15, 20, 120. I cleaned up water that was 100. It was off the scale. Must have been 50, 60, 70 for hours and I cleaned it consistently."

Filtronics automated systems allow for unattended operation requiring only the minimum of maintenance and operating personnel. "I like the system real well, it's real easy [to run]," Bendel said. "If a guy were to consistently put in an hour and a half to two hours a day there, that would take care of maintenance completely, I'd say, including upkeep, painting, maintaining the building - the whole bit. Less than two hours a day year round. We could actually run Carlton on an hour a day. That would do it. And I'm talking travel time - 6 or 8 miles - there and back, too. It would be no problem."

Fewer attended hours mean lower costs, but the system has proven cost effective in other areas too. Electromedia® V uses considerably less alum than conventional systems because it filters particles that do not settle, even when a sample of alum treated water has been allowed to stand for several days.

In 2001, tightening regulations and population growth forced the City of Carlton to expand its treatment capacity to 1.4 million gallons a day. Carlton again turned to Filtronics. The flexibility of the Electromedia® V system design allowed the city to upgrade to accommodate the City's current residents and projected growth through 2020, while still producing water that is less than 0.2 NTU and frequently less than 0.1.

More recently, Carlton, Oregon's water was judged best tasting water in Northwest Oregon in the 2008 Annual American Waterworks Association Northwest Subsection's Best Tasting Water Competition. From sampled water from cities all over the state, based on odor, flavor, and aftertaste, Carlton's water was awarded first place, proving the Filtronics system to be just as reliable, efficient and effective as it was when it was installed all those years ago.

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