

RADVILLE STAR/DEEP SOUTH STAR

Last updated at 12:03 PM on 14/07/09

Radville Water Treatment Plant

Nears completion

RADVILLE, SK
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By this Fall Radville will have a brand new, efficient water treatment system. The current water treatment plant, which was built in the 1950s, is simply no longer capable of producing treated water that meets with Sask Environment's quality requirements. Water is tested within the plant every day, and samples are sent to the provincial water quality laboratory in Regina on a regular basis. While the water was perfectly safe, it required extensive daily monitoring to maintain the water quality below the minimum standards set by Sask Environment. The plant has already been upgraded 3 or 4 times in the past 50 years, but to operate the current plant at today's standards would require about \$1.4 million in upgrades.

The Town of Radville discussed different options, and it was agreed that a brand new system would be most cost-effective. In 2007 research and inquiries into a new plant began. The Town applied and was approved for funding from the Canada Saskatchewan Municipal Rural Infrastructure Fund in the amount of \$399,684. Fifty percent of the grant was provided by the federal government, and 50% by the provincial government. At the time it was received, the grant was expected to cover about half the cost of the completed project. The Town of Radville is now projecting a final cost of \$850,000.

The Town decided to purchase a Mainstream Water Solutions plant after hearing many good reports about the company. Mainstream Water Solutions plants offer many benefits.

The water plant in Radville will be a BioClear system, which utilizes naturally occurring microbe enzymes to digest and remove contaminants. BioClear systems utilize the technology of nature, employing the oldest method of water purification there is: slow sand filtration. The process is chemical free, however chlorine is added after filtration to kill any bacteria picked up by the water as it is distributed throughout town, which is required by law.

First, ozone is injected into the raw water, which neutralizes all bacteria. The water then filters through sand and other carbons in large tanks which removes all particles, the major problem that the old plant was not addressing properly. The process runs entirely on gravity, thus eliminating the need for pumps, metering devices and other mechanical components. As a result, the system will require very little ongoing maintenance. The only regular operation is occasional backwashing of the filters every few months. This procedure will result in 4% wastewater as compared to the current system which produces 20% wastewater. This is the most efficient of any water treatment system currently on the market.

Because of the simplicity of the design, there is low stress functionality, which will result in a long life for the plant. There is also very low electricity consumption, and no need to purchase chemicals or consumable carbons, making for very low operating costs as well as being environmentally friendly. The Town will save approximately \$16,000 a year in chemical costs alone.

Mainstream Water Solutions is based in Regina. Its water treatment systems are based on the European slow sand filtration method, which has been used for decades in the municipal water systems of major cities like Berlin and London. In conjunction with the Prairie Farm Rehabilitation Administration, the National Research Council and other research agencies, Mainstream has adapted the slow sand filtration technique to specifically deal with prairie water issues. They have been producing clean water since 1989.

The building which will house the new water treatment facility has been completed by RyCor Developments Inc. of Vanscoy, SK. The next step will be the pouring of the concrete floor by Jackco Construction and Vandencore Construction from Radville. In August Mainstream Water Solutions will install the equipment, which will include 19 tanks filled with filtering media which consists of different types of sand and carbon.

The plan is to have the plant up and running by this Fall. At that time both the old and the new system will operate simultaneously while the new filters cure enough to operate independently. Once this is completed, the Town will switch over to the new system. The curing process will take 3-4 weeks depending on the volume of water consumption during the period.

The existing water treatment plant will be maintained as a back-up and storage system. The treated water from the new plant will run back through the old plant where it will be distributed throughout the town.

The new plant will be capable of treating 100,000 gallons of water a day, which is normally more than sufficient to meet the Town's needs. However, in the summer months water consumption is much higher. The Town of Radville has already seen a day this year where 160,000 gallons of water were used. On peak consumption days, the old plant will work in conjunction with the new one to meet the demand.

The new water treatment plant will produce water with a noticeable improvement in quality. While the water currently supplied by the Town of Radville is bacteria-free and safe to drink, the new water treatment plant will produce water that is similar in appearance, odour and taste to that of reverse osmosis systems.

To help with the cost of the new plant, the Town of Radville introduced an infrastructure levy in June of 2008. Businesses are charged \$120 annually, or \$30 per quarter, while households pay \$24 quarterly, or \$96 per year.

The new water treatment plant will serve the Town of Radville far into the future. The design of the plant ensures that it will produce quality water that will meet the current stringent water quality requirements. Its design allows for easy modifications in the event that water quality requirements change. It is a modern plant that will efficiently provide high-quality water to the residents of Radville. One of the main benefits of the system is that as the Town grows, the capacity of the plant can easily be increased simply by adding additional banks of filters.

Once the new system is online, the Town will have to issue a boil water advisory just as a precaution, as required by Sask Environment.

Radville's water is supplied primarily by Larsen Dam, which is fed by Long Creek. Additional water is supplied by a well south of town on the #705 Grid. Every year thirty two million gallons of water flow through the water plant.