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Residents of Guernsey celebrate

With the lifting of a Precautionary Drinking Water Advisory that has been in place since 2003, the residents of Guernsey have a lot to celebrate. Since the installation of their new water treatment plant the water has become better and better and the residents are happy.

The small hamlet is home to 95 people. Their water is drawn from the Delwood Reservoir which is fed from Lake Diefenbaker and is notably high in minerals and contaminants. Guernsey's original water treatment plant was a basic water treatment plant put into operation in 1977. It consisted of aeration, settling and coagulation. The water was then pumped through two combination sand and carbon filters and chlorinated.

The residents were very dissatisfied with the condition of their drinking water. Don Koch, Hamlet of Guernsey Board Chairman says, "When conditions at the Delwood Reservoir worsened, our water would take on a brown colour and appear unpleasant. People were unhappy."

To make matters worse the community was placed on a precautionary boil water advisory in 2003 due to continued elevated trihalomethane levels. Foreseeable increases in the stringency of provincial water standards combined with the dissatisfaction of residents prompted Koch and the other council members to search for a solution.

" It was evident that the old plant would never meet new standards but funding for a new plant appeared to be unattainable", says Koch. The community was struggling financially due to a declining tax base and elevated operating costs which resulted in the dissolution of the village to become an organized hamlet of the RM of Usborne. The community applied for and received funding for an upgrade through the Canada-Saskatchewan Infrastructure Program. Engineering studies were done but the proposals put forward were either too expensive or did not meet specifications. They also looked at drilling a well into the Hatfield Aquifer but the cost of drilling an approved well and dealing with bad water was not cost efficient for their budgetary concerns.

In their search for a solution Keith Schulze, RM of Usborne administrator, did extensive reading on the Mainstream BioClear system. "It was firstly more affordable and secondly, appeared to have a chance to treat the Delwood water", he says. Based in Regina, Mainstream Water Solutions, Inc. designs and manufactures chemical-free water treatment systems based on slow sand biofiltration. These systems use naturally occurring microorganisms to purify the water. The village approached the company who installed a test plant within the existing plant. The test plant was very successful at treating the water and after extensive sampling and testing it was decided to propose this plan to the people of Guernsey for approval. Despite the prospect of their monthly water bills tripling, the residents readily voted for construction of the new Mainstream BioClear plant.

"No one complained about paying more for water, they just wanted good water", explained Koch.

Construction of the new 22,000 imperial gallon per day water treatment plant was completed in early spring. The system consists of ozone pre-treatment to break up contaminants and deactivate pathogens such as E.coli and Giardia, a roughing pre-filter to remove large suspended solids and biological slow sand filters to remove contaminants. The biological slow sand filters are most responsible for purifying the water. The top several inches of the sand is colonized by microorganisms that digest contaminants as the untreated water flows through the system. For additional treatment of colour and odour and removal of organics, biological carbon filters were also installed. Microorganisms that populate the outside of the carbon feed on the trapped contaminants. The Mainstream system is simplistic in design with minimal maintenance requirements which consist of periodic backwashing by bringing air and water up through the filters to remove some of the top biological layer.

After several months of operating, the new Mainstream water treatment plant has proven itself to work. Orient Siermachesky, the Regional Certified Operator, oversees the plant's operation spending about four hours a week at the plant along with operator Doug Snider. Siermachesky states, "The quality of the water leaving the plant is excellent. Turbidity is very low, about 0.3 to 0.4 NTU. (Well below the mandatory provincial limit.) The water has no taste, odour or colour. The people are happy, their fixtures aren't stained yellow any more. I'll stand behind this water".

The trihalomethane levels have dropped significantly and the chlorine required is minimal. The Precautionary Drinking Water Advisory that had been in place since November of 2003 was removed in early October.

"We could not be happier with our water quality", says Schulze.