

# **Spruce Dr. Water Treatment Plant**

## **2018 Potable Water System Operation Report**

The Town of Niverville strives to provide the highest quality drinking water in sufficient quantity to meet the needs of the residents. It is our goal to provide this water in a safe, cost effective manner while remaining in compliance with all regulatory requirements governing the provision of potable water.

It is our belief that the public has a right to access information related to the potable water they consume. To that end the following report has been prepared for the Town of Niverville potable water system.

### **Where do we get our water from?**

The raw water is currently obtained from two supply wells located one mile west of New Bothwell. The wells draw water from fractured limestone aquifers that do not have the designation of being groundwater under the direct influence of surface water (GUDI).

Both wells were installed in 2017 and are both 200 mm in diameter. The first well has a total depth of 91.4m with a 300 mm welded black steel casing installed to a depth of 27.1 m. The second well has a total depth of 96.6 m with a 300 mm welded black steel casing installed to a depth of 27.4 m. The wells were tested by Friesen Drillers Ltd. to each have an estimated discharge rate of 500 Imperial Gallons Per Minute (IGPM). The raw water from these two wells travel 10.5 km back to the water treatment plant via a 350 mm High-density polyethylene (HDPE) pipeline.

### **Why do we treat our water?**

We treat our water to ensure that safe and aesthetically pleasing potable water is supplied to our residents. The Town of Niverville is committed to meeting and/or exceeding the water quality standards set by the province.

### **What is our treatment process?**

Raw water is pumped from the fractured limestone aquifer to the water treatment plant. The raw water is then dosed with an anti-scalant upstream of the dual train reverse-osmosis (RO) skid. On-skid piping and controls allow up to 30% of the raw water to bypass the RO and be blended back into the permeate stream. This gives the finished water a desired hardness level and minimizes the need for stabilization chemicals. Following RO, water is dosed with sodium hydroxide (caustic soda) which adjusts the pH level of the finished water, and sodium hypochlorite (chlorine) for disinfection. The treated water is then stored in two, below grade reservoirs with a combined capacity of 1,700 m<sup>3</sup> prior to entering the distribution system. In the unlikely event of a failure of both RO trains, an emergency bypass allows operators to sidestep the treatment process entirely. In this case, a spare chlorine feed station would be set up and the starting and stopping of the raw water pumps would be completed manually. It is expected that operators would notify the local Drinking Water Officer of their intentions to bypass treatment prior to exercising this option.

### **Why and how do we disinfect our water?**

The final step in the treatment of safe water is disinfection. Disinfection is the selective destruction or inactivation of disease-causing organisms in water. The *Drinking Water Safety Act* and supporting regulations require that water is disinfected before it leaves the water treatment facility and that an

adequate amount of disinfectant is in the distribution system (water piping network) to ensure the water is safe right to the consumer's tap.

We use sodium hypochlorite (chlorine) to disinfect our water. We maintain a level of residual chlorine between 0.5 – 1.0 mg/L. The provincial standards mandate that we maintain a minimum residual chlorine level of 0.5 mg/L leaving the water plant

### **What is the 'distribution system'?**

The water distribution system is the network of underground pipes used to carry the treated water from the water treatment facility to the homes & businesses within our Community. We have both PVC (C-900) and High-density polyethylene (HDPE) piping through parts of the Town. The piping is interconnected (looped) to ensure that fresh safe water is continuously supplied. We carry out regular maintenance in the distribution system such as our seasonal flushing program and fire hydrant testing in cooperation with the Town of Niverville Volunteer Fire Department.

### **Is our water tested? What for? When?**

Three different water samples are taken every two weeks. The first sample is taken from the raw water (well water), the second sample is taken from the reservoir in the plant, and the third sample is taken from a home or business within the distribution system. These samples are sent to a Provincially approved lab for analysis to ensure that there are no coliforms or e-coli. The Lab also checks to ensure that the free chlorine level from the reservoir is above the 0.5mg/L as well as a minimum free chlorine level of 0.1mg/L from the sample taken at the home or business within our distribution system.

Disinfectant testing: We test the level of chlorine (both free and total) in the reservoir daily to ensure that we are meeting the provincial standard of 0.5mg/L. This will ensure proper disinfection.

The Town also tests for free ammonia once a week from within the distribution system. Free ammonia testing is done to ensure that the water has reached breakpoint chlorination and the Town is disinfecting with free chlorine instead of mono-chloramines.

### **What do we have in place to alert Operations Staff to water emergencies?**

All certified operators are given a smart phone. In the water plant, our filtration system is run on a SCADA system which can be accessed via smart phones. This SCADA system has set numbers for different aspects of the treatment process that need to be met. If one of these numbers is off, or something is not working properly an alarm will go off. Once this happens, our Auto Dialer will automatically call through a list of pre-set Operators until the alarm is acknowledged and accepted. The Operator can then log on to the SCADA system through either their phone or the PC at the water plant to determine the cause of the alarm. By having control of the SCADA system remotely we can minimize down time.

### **Were there any emergencies, regulatory compliance issues or other operational issues to report for 2018?**

There had two days on May 14 and 15 where our free chlorine dropped below 0.5 mg/L. We believe that there was a dosing error on the one chlorine pump. We fixed this by switching over to our

secondary chlorine pump and made repairs on the primary pump. The chlorine never dropped below 0.40 mg/L.

**Were there any major expenses incurred in 2018?**

1. The Town's new well site building, along with the required testing of the plumbing and electrical were completed in spring 2018.

The Town's contribution to the project \$1,550,000

2. Southwood Ventured Inc. installed six new fire hydrants in Town. The hydrants were installed in mid-November. There were three hydrants installed in and around Cobblestone Court, and the other three were installed on Saint Andrew's Way and Troon Cove.

Price of Project - \$97,000

**Future system expansion or expenses expected?**

1. The Town is looking at installing another 12 fire hydrants over the next two years in areas of Town that currently don't meet the spacing requirements spelled out in the Town's construction standards.

Approximate cost per year. \$90,000

2. There are a dozen water valves that are currently not working as designed. These valves are crucial for isolating water in the case of a watermain break or for directing water in our directional flushing program. Each valve will be inspected, and the appropriate repairs will be completed.

Estimated cost - \$20,000

**Who can we call with questions or concerns regarding our drinking water?**

All calls regarding the public water system (emergency or not), please call the Town of Niverville directory (204)-388-4600 ext.111 and leave a message. Staff will listen to the message within a reasonable amount of time and respond accordingly.

**How can you find out about this report?**

This report, as well as our water analysis and the bi-weekly testing results are available on the Town website [www.wheretheyoubelong.ca](http://www.wheretheyoubelong.ca). Paper copies are available upon request at the Town Office. The Town will also post on our Facebook page that this report is available. If you wish to leave an email (non-emergency) please send it to [ryan@wheretheyoubelong.ca](mailto:ryan@wheretheyoubelong.ca)