

# Sherkston Community Centre Well Supply Annual Drinking Water Quality Report

Prepared on February 2, 2012  
in accordance with O.Reg. 170/03  
January 1, 2011 to July 7, 2011

Prepared by:



Darlene Suddard  
Environmental Compliance  
Supervisor

Approved by:



Doug Cressey  
Utilities Supervisor

Approved by:



Ron Hanson  
Director of Engineering and  
Operations

Drinking Water System number: 260092495  
Drinking Water System category: Small Municipal Non-Residential  
Owned and operated by: The Corporation of the City of Port Colborne

# Sherkston Community Centre Well Supply Annual Drinking Water Quality Report

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## Introduction

The City of Port Colborne is required, under O.Reg.170/03 - *Drinking Water Systems*, to prepare an annual report detailing the operation of the Sherkston Community Centre Well Supply (SCCWS). The regulation specifies in Section 11 what the report must contain, and sets a February 28 deadline for having the report prepared and made available to the public.

Therefore, to ensure compliance with the regulation, this report is prepared in accordance with Section 11, and is available to the public on the City's website at [www.portcolborne.ca](http://www.portcolborne.ca), under the Water Quality link

## Water Supply and Distribution

The Corporation of the City of Port Colborne (City) is the Owner of the Sherkston Community Centre Well Supply, which was the drinking water system for the City-owned Sherkston Community Centre (SCC) from January 1, 2011 to July 7, 2011. The City leases the SCC to the Sherkston Neighbourhood Recreation Committee, who leases the facility to the District School Board of Niagara (DSBN). The DSBN operates the "Sherkston BRIDGE" program at the facility; during the 2010-11 school year, there were twelve (12) grade 7 and 8 students and two (2) teachers at the facility on normal school days and times.

A cistern system was installed and began functioning on July 7, 2011 and a separate report for that system, Sherkston Community Centre Cistern System (SCCCS), 260092963, has been issued.

The SCCWS system consisted of the following:

- One (1) dug well of unknown age, constructed of cinder blocks and measuring approximately 3.65m in diameter and approximately 5.33m deep, located outside and to the north of the building
- One (1) Star ½ HP jet pump (model 940105) and pressure tank (75 L) assembly located in the utilities room inside the building
- One (1) "Big Blue" cartridge sediment filter housing containing a nominal 5 micron element of unknown construction

- One (1) ultraviolet disinfection reactor (believed to be an older version of the current C4 series Trojan UV Max system) and,
- Miscellaneous metallic and non-metallic pipe sections and fittings.

The SCCWS obtained raw water from the single dug well located in a flat area to the north of the building, and was classified as a GUDI well (Ground Water Under the Direct Influence of surface water - referring to a well which may be subject to surface water contamination). The well hatch was padlocked to prevent unauthorized access; however, there was no gasket on the lid to seal it against infiltration. The raw water supply pipe from the well crossed under the floor of the SCC and entered the utility room from beneath the floor slab via a 25 mm (1 inch) carbon steel or iron pipe. The pipe connected to the jet pump via a combination of steel, copper and galvanized fittings.

The jet pump was rated for 0.49 L/sec against a TDH of 50 psig, and system pressure was around 23 psig. Water was pumped into the pressure tank or into the plumbing, dependant upon pressure requirements. Prior to entering the plumbing, the raw water was filtered to remove suspended organic and inorganic particles to ensure efficient operation of the UV disinfection system by reducing the potential for pathogen “shielding” by foreign matter in the water. The water then entered the UV unit, which was operated with an automatic alarm provision that indicated if/when the lamp required replacement. The audible and visual alarm also annunciated when the power supply failed, or when the lamp was not operating; however, the system did not monitor critical failure, ballast failure or low UV transmittance. The system also did not have a remote alarm to notify City staff that a failure had occurred, nor did it stop untreated water from entering the plumbing system in the event an alarm situation occurs.

ASI Group Ltd. (ASI) evaluated the existing system in December 2010 and issued a report entitled “Assessment of the Existing Drinking Water Treatment System for the Sherkston Community Centre” on December 22, 2010. ASI determined that the system did not comply with the requirements of O.Reg. 170/03. As a result, the City issued a tender to replace the existing water system with a cistern system, including a new pressure tank, filter, UV light and autodialler and received quotations on decommissioning the dug well in accordance with O.Reg. 903/90. The installation was completed on July 7, 2011, with the well decommissioning completed on September 3, 2011. Details of the new system, including sampling and testing results are provided in the Sherkston Community Centre Cistern System Annual Drinking Water Quality Report, as described above.

## Water Quality Monitoring

The City of Port Colborne is required to supply safe drinking water that meets the requirements of the Safe Drinking Water Act and associated regulations. To ensure the City meet these requirements, the City has assigned the following individuals as responsible persons for the SCCWS:

Table 1: Sherkston Community Centre Well Supply Responsible Persons

Position	Name	Phone number
Director of Engineering and Operations	Ron Hanson	905-835-2900 ext. 222
Utilities Supervisor	Doug Cressey	905-835-5079
Environmental Compliance Supervisor	Darlene Suddard	905-835-2900 ext. 212

The City has identified the Engineering and Operations Department as being responsible for the operation and maintenance of the Sherkston Community Centre Well Supply (SCCWS). The Public Works, Water Department operates under the Engineering and Operations Department, and is specifically responsible for the daily operation of the SCCWS. As such, the Water Department is responsible for assigning Certified Water Operators to conduct both the routine water quality sampling and testing and to conduct non-routine sampling (i.e., responding to adverse water quality incidents (AWQI)). These activities ensure the water quality meets the Ontario Drinking Water Quality Standards (O.Reg. 169/03) at all times and under all conditions. The Water Department also ensures that the Operational Checks, Sampling and Testing requirements specified in the Drinking Water Systems Regulation (O.Reg. 170/03) are conducted and recorded. If it is determined that the water quality or an operational parameter does not meet the regulated requirements or exceeds the regulated limits, Certified Operators immediately implement corrective action to ensure the continued supply of safe drinking water. The operational checks, sampling and testing requirements which the City must conduct are outlined in Table 3.

## Water Quality Test Results

As per the sampling and testing requirements detailed in Table 3, the City conducted the following sampling in the period of January 1, 2011 to July 7, 2011:

### Microbiological Analysis

A total of 19 samples (12 treated samples and 7 raw samples) were collected and analyzed for the presence of *E.coli* and Total Coliforms (Table 4). *E.coli* and Total Coliforms were not detected in any of the treated water samples (collected

from the kitchen sink); however Total Coliforms were detected in five (5) of the samples collected from the untreated, raw well water and *E.coli* was detected in one (1) of the samples collected from the untreated raw water. These results indicate that surface water was entering the well.

### **Operational Checks**

On a twice-weekly basis, the City performed a site visit to monitor the system and ensure there were no issues. The well hatch was checked to ensure it was secure, the UV system was checked to ensure the alarm was not on, the system pressure was recorded and the pump status (idle vs. running) was noted.

### **Lead Testing (Schedule 15.1) Results**

The City is not required to test for lead, as the designated facility falls under the requirements of O.Reg. 243/07; as such, the DSBN is responsible for all lead testing activities at the facility.

### **Chemical Parameters**

Samples for all organic and inorganic parameters listed in Schedules 23 and 24 of O.Reg. 170/03, sodium and fluoride were sampled in January and February 2011. One (1) set of Schedule 23 and 24 samples were collected on February 9, 2011. There were no exceedances of any of the parameters measured.

Samples were collected on January 18, 2011 and submitted for fluoride and sodium measurement. Fluoride levels were well below the maximum acceptable concentration (MAC); however, sodium levels were 93.8, well above the MAC of 20 mg/L. A re-sample on January 28 confirmed that sodium levels were well above the MAC (82.8 mg/L) (*Table 4*). These parameters are required to be sampled at least every 60 months.

Samples were collected and submitted for nitrate and nitrite analysis in January, April and July. There were no exceedances.

In 2011, the high sodium levels were the only reportable sample results; and the City was simply directed by Public Health to post notices at the facility warning facility users not to drink the water.

## **Regulatory Non-Compliances**

As it was determined in 2010 that the drinking water system was not in compliance with O.Reg 170/03, steps were taken to install a water system that would comply with the

requirements of the regulation and ensure the facility users were receiving a safe drinking water supply.

## **Our Commitment to Providing Safe Drinking Water**

To ensure that users of the Sherkston Community Centre were protected until the system upgrades are completed, the City implemented the following interim measures:

- Licensed Water Operators collected samples from the raw water (well) once (1) per month, and treated water from the kitchen twice (2) per month. These samples were submitted for *E.coli* and Total Coliform analysis;
- Raw water samples were collected, as required by the regulation, and analyzed for the following parameters:
  - All organic and inorganic parameters listed in Schedule 23 and 24 of O.Reg. 170/03 (once every 60 months)
  - Fluoride and sodium (once every 60 months)
  - Nitrates and nitrites (once every 3 months);
- Licensed Water Operators visited and inspected the facility twice (2) weekly to ensure there were no operational issues with the system;
- Letters were provided to the designated facility (District School Board of Niagara) and the Sherkston Neighbourhood Recreation Committee, indicating they were not to consume the water and they were provided with a contact list in the event there are any issues with the drinking water system;
- Warning notices were posted near every tap, and at every entrance to the building stating “Public Notice: Do Not Drink This Water”, and City contact information was provide. *(Note: The Sherkston Neighbourhood Recreational Committee historically provided bottled water to the users of the facility, and continued to provide bottled water until the system upgrades were completed)*

The City upgraded the water system to a cistern system, complete with an NSF certified ultraviolet disinfection system, pre-filter, pressure tank and autodialler. Details regarding the new system are provided in the Sherkston Community Centre Cistern System Annual Drinking Water Quality Report for DWS # 260092963.

All expenditures were related to upgrading the drinking water system and are detailed in the aforementioned report.

## **Where to Obtain Additional Information**

Copies of this annual report are available, free of charge, at the Engineering and Operations Department, 2<sup>nd</sup> Floor, City Hall - 66 Charlotte Street. It can also be

downloaded from the internet at [www.portcolborne.ca](http://www.portcolborne.ca), under the “Water Quality” link. Copies may also be obtained by contacting the City numbers listed below.

Additionally, all laboratory test results are available either at the Engineering and Operations Department or at the Public Works office at 11 King Street. Copies may also be obtained by contacting the City numbers listed below.

Table 2: Contact Information for the City

Organization	Department	Phone Number
City of Port Colborne	Engineering and Operations Department	905-835-2900
	Public Works	905-835-5079

Table 3: Sherkston Community Centre Well Supply - Water Quality Sampling and Testing Requirements

Parameter	Sampling and Analysis	Water Quality Standards	Comments
Microbiological	<p>Minimum of 2 samples of treated water per month collected and tested for total coliforms and/or <i>E.coli</i>.</p> <p>Minimum of 1 sample of raw water per month collected and tested for total coliforms and <i>E.coli</i></p>	<ul style="list-style-type: none"> <li>• <i>E.coli</i> – NONE detected</li> <li>• Total Coliforms – NONE detected</li> </ul>	<ul style="list-style-type: none"> <li>• 2 samples per month</li> <li>• Samples sent to an accredited laboratory for analysis</li> <li>• Adverse results are immediately reported by the lab to the City</li> <li>• Once the cistern system is installed, City will no longer be required to test the raw water, and the sampling frequency for treated water will decline to 1 per month.</li> </ul>
Chemical (Schedule 23 & 24; sodium, fluoride, nitrate and nitrite)	<p>Schedule 23 &amp; 24 parameters, sodium and fluoride required to be sampled at least every 60 months.</p> <p>Nitrate and Nitrite required to be sampled every 3 months</p>	<ul style="list-style-type: none"> <li>• maximum acceptable concentrations stated in O.Reg. 169/03 – <i>Ontario Drinking Water Quality Standards</i></li> <li>• aesthetic objective for sodium is stated in the “<i>Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines</i>”</li> </ul>	<ul style="list-style-type: none"> <li>• Samples sent to an accredited laboratory for analysis</li> <li>• Adverse results are immediately reported by the lab to the City</li> <li>• Once the cistern system is installed, City will not longer be required to monitor these parameters</li> </ul>

Table 4: Sherkston Community Centre Well Supply - Water Quality Sampling and Testing Results  
January 1 to July 7, 2011

Parameter	Requirement	Number of samples	Results			Comments	
			Range	Unit	Exceedances		
<b>Microbiological Analysis</b>							
Raw	<i>E. coli</i>	N/A	7	0 - 1	cfu/ 100 mL	N/A	Presence of <i>E.coli</i> indicates presence of fecal matter
	Total Coliforms	N/A	7	0 - >200	cfu/ 100 mL	N/A	Presence of Total Coliforms indicates possible presence of pathogenic bacteria
Treated	<i>E. coli</i>	ND	12	ND	cfu/ 100 mL	0	Presence of <i>E.coli</i> indicates presence of fecal matter
	Total Coliforms	ND	12	ND	cfu/ 100 mL	0	Presence of Total Coliforms indicates possible presence of pathogenic bacteria
<b>Chemical Parameters</b>							
Schedule 23 & 24 parameters	< Maximum Allowable Concentration	1 sample set	Various (depending upon parameter)		0	Inorganic and Organic parameters. These parameters are measured as they ensure that the water being provided is free from potentially toxic or objectionable chemicals	
Nitrate	<10 mg/L	3	0.056 – 1.200	mg/L	0	Nitrate concentrations >10 mg/L in infants and small children can cause nitrate poisoning.	
Nitrite	<1 mg/L	3	<MDL	mg/L	0	Nitrite concentrations >1 mg/L in infants and small children can cause nitrate poisoning.	
Fluoride	<1.5 mg/L	1	0.17	mg/L	0	Fluoride concentrations greater than 1.5 mg/L require notifying Public Health so that the public/professionals can be notified to control excessive exposure to fluoride from other sources.	

Sodium	<20 mg/L	2	82.8 – 93.8	mg/L	2	No regulated limit; however the aesthetic objective is <200 mg/L, and levels >20mg/L are reported to Public Health as individuals suffering from hypertension or congestive heart disease may be on a sodium-restricted diet and the intake of sodium from drinking water may be significant. Therefore, Public Health will advise posting “Do Not Drink” signs at all taps and providing alternate water supply.
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*MDL = SGS Canada Inc. Method Detection Limit*

*ND = non-detectable*