



February 23, 2010

The Goderich Water System - 2009 Summary

This document is compliance summary for the Goderich water supply for the year 2009. A full summary of the water system's test results, flows and significant activities is attached.

System Description

The Goderich water system is characterized as a "surface water" system and is classified as a large municipally owned water system. The plant and its equipment have a daily maximum capacity to deliver 12,000 cubic metres of potable water to the town of Goderich and the sub system supplying the Bluewater Centre south of Goderich on #21 highway.

The water source is Lake Huron and the water treatment plant is located at 100 Cove Rd. in Goderich. The water treatment plant is a SCADA controlled conventional surface water treatment plant providing chemically assisted filtration and chlorine gas disinfection. The plant is equipped with an intake, coarse prescreening, rapid mix, flocculation basins, sedimentation basins, rapid sand/anthracite filters, gas chlorinators and a chlorine contact reservoir.

The plant originally constructed in 1964 was upgraded in 1988 with chlorine contact facilities being added in 2005. Improvements to the SCADA system were completed in 2007.

The attached distribution system is a combination of PVC, ductile iron and cast iron water mains. Much of the system has been updated since 1989 and the systematic replacement plan begun in that year continues with annual projects scheduled.

In addition to the water mains and associated valves and hydrants the distribution system equipment includes storage facilities including an in ground reservoir containing 5000 cubic metres of water and an elevated tank containing 1200 cubic metres.

Chemicals Fed

Coagulant

The Goderich water plant provides chemically assisted filtration. The product currently used as a coagulant and filter aid is Polyaluminum chloride or $Al_{13}(OH)_{19.5}Cl_{15.5}(SO_4)_2$ sold under the trademark name of SternPac.

This chemical was fed at the rapid mixer at rates ranged from 2.5 mg/l to 20 mg/l in 2007. The dosage varied depending on the raw water characteristics.

Disinfectant

Disinfection was achieved at the Goderich water plant through the use of gaseous chlorine. This chemical was also used at the intake for zebra mussel control. Chlorine was fed in a dilute form in 2 stages.

The primary chlorination point in 2009 was just prior to the filters . The intake was used at intervals through the summer combining prechlorination with zebra mussel control. The secondary chlorination point used was at the point of entry to the clear well immediately after the water had left the filters.

In 2009 the chlorine dosages ranged from 1.9 mg/l to 2.47 mg/l depending on the quality of the raw water. The free chlorine residual was monitored at the point of entry to the distribution system with a target residual of > 1.00 mg/l and < 1.30 mg/l
The chlorine residual was also topped up on entry to the in ground reservoir periodically using sodium hypochlorite on an as needed basis. The target residual was >0.50 and <1.30 mg/l.

Fluoride

The Goderich water plant added supplementary fluoride to the treated water in 2009. This was done using a 24% hydrofluosilicic acid solution. The target residual was > 0.60 mg/l and > 0.80 mg/l. The MAC for fluoride is 1.40 mg/l and this was not exceeded in 2009.

Carbon

The Goderich water plant has the capability of feeding powdered activated carbon. This chemical is used to prevent taste and odour problems associated with dying algae blooms. It can also be used to remove petroleum products from the water. It was not necessary to feed this chemical in 2009.

Flows

The Goderich water treatment plant has a permit to take water, 01-P-1010 which allows the transfer of 15,890 cubic metres per day. This was not exceeded in 2009.

The Goderich plant has a rated capacity to treat 12,000 cubic metres per day as listed in the January 7, 2004 C of A #6863-5SRS34. The maximum daily flow in 2009 was 6,610 cubic metres per day or 55 % of capacity.

The annual average of 3,739 cubic metres was 31 % of capacity.
Complete monthly summaries of 2009 flows were included in the attached 2009 annual summary.

The maximum flow allowed by the C of A is 165 litres per second. The major limiting factor at the water plant is the capacity of the filters. The maximum allowed flow corresponds with the maximum flow at which the filters can efficiently remove sediment and the pathogens contained therein.

The maximum flow across the filters was 160 litres per second in 2009 as recorded by the raw water flow meter.

Adverse Water Quality Indicators (AWQI)

There were 20 AWQI's issued by the MOE spills action centre in 2009. Eighteen of these were issued in response to low pressure incidents as noted in the attached summary.



One was issued as a result of high turbidity on the filter effluent on January 9, 2009. The max. allowable under the SDAWA is 1 NTU. The turbidity on the effluent from both filters reached 1.90 NTU. The filter effluent valves locked out at 0.60 NTU and none of the adverse quality water entered the finished water reservoir.

The remaining AWQI was notification of the failure of the on line fluoride analyzer. Grab samples were analyzed on a daily basis while this instrument was out of service.

Precautionary Boil Water Notices

There were 18 precautionary boil water notices issued by the operating authority in 2009. All were the result of low pressure incidents on limited portions of the distribution system. These were put in place on the advice of the Huron County Health Unit as acts of due diligence. They were not due to any known contamination of the system or any failure of the system to meet regulatory requirements. Subsequent microbiologic analysis of samples collected from the effected sites were found to be free of all bacteria.

Boil Water Advisory

There were no Boil Water Advisories issued by the Huron County Health MOH on the Goderich water system in 2009.

Annual Ontario Ministry of the Environment Inspection

Dave Sawchuk, MOE Drinking Water Inspector, inspected the water plant and examined the water quality and operational records on July 9, 2009. He issued a report of his findings on September 1, 2009.

He found no non compliant issues.

A copy of the 2009 inspection report is available at the municipal offices or at the Goderich water treatment plant.

Laurie Cox – Project Manager Veolia Water Canada





OPTIONAL ANNUAL REPORT TEMPLATE

Drinking-Water System Number:	210000238
Drinking-Water System Name:	Goderich Water Treatment Plant
Drinking-Water System Owner:	Town of Goderich
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	January 1/2009 – December 31/2009

<p><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes [] No [X]</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [] No [X]</p> <p>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</p> <div style="border: 1px solid black; padding: 5px;"> <p>Veolia Water Canada 100 Cove Rd., Goderich, ON N7A 3Z2 Town of Goderich, 57 West St Goderich, ON N7A 3Z2</p> </div>	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served:</p> <div style="border: 1px solid black; padding: 2px; width: fit-content;">N/A</div> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [] No []</p> <p>Number of Interested Authorities you report to:</p> <div style="border: 1px solid black; padding: 2px; width: fit-content;">N/A</div> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [] No []</p>
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Note: For the following tables below, additional rows or columns may be added or an appendix may be attached to the report

List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:

Drinking Water System Name	Drinking Water System Number
Bluewater Correctional Facility	260005580

Did you provide a copy of your annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water?

Yes [X] No [] – **Town of Goderich will provide a copy of annual report.**



Indicate how you notified system users that your annual report is available, and is free of charge.

- Public access/notice via the web
- Public access/notice via Government Office
- Public access/notice via a newspaper
- Public access/notice via Public Request
- Public access/notice via a Public Library
- Public access/notice via other method –Submitted to the Town of Goderich to notify residents.

Describe your Drinking-Water System

Goderich Water Treatment Plant, comprising of a surface water treatment plant rated at **12,000 m³/d** and a booster pump station/reservoir (bps) to serve the Corporation of the Town of Goderich and some small commercial malls outside of the municipal boundry in the municipality of Central Huron and also to supply a bulk quantity of treated water to the Bluewater Correction Facility, also located in the Municipality of Central Huron.

List all water treatment chemicals used over this reporting period

Aluminum Chloride Hydroxide Sulphate
Fluoride, Sodium Hypochlorite,
Chlorine Gas

Were any significant expenses incurred to?

- Install required equipment
- Repair required equipment
- Replace required equipment

Please provide a brief description and a breakdown of monetary expenses incurred

Repaired roof of Water Plant.
Additional main for two blocks on South Street.
Additional main for 1 block on St. David Street.

Provide details on the notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
Jan. 9/09	High Turbidity	1.91	NTU	Filters backwashed-coagulant dosage adjusted. Turbidities 0.12 NTU Filter # 1 0.08 NTU Filter # 2	Jan. 9/09
Jan. 21/09	Lost pressure during main break repair.	0	PSI	Main repaired. System flushed. Residuals 0.97 mg/L Two sets samples taken resulting in "0" bacteria. Precautionary boil water notice lifted.	Jan. 26/09
Jan. 24/09	Lost pressure during main break.	0	PSI	Main repaired. System flushed. Residuals 0.61, 0.99, 0.65, 0.39 mg/L Two sets samples taken resulting in "0" bacteria. Precautionary boil water notice lifted.	Jan. 29/09
Jan. 27/09	Lost pressure due to main break.	0	PSI	Main repaired. System flushed. Residuals 0.43, 1.05, 0.66 0.81 mg/L Two sets samples taken resulting in "0" bacteria. Precautionary boil water notice lifted.	Jan.30/09
Feb. 9/09	Negative pressure due to main break.	0	PSI	Main repaired. System flushed. Two sets samples taken resulting in "0" bacteria. Precautionary boil water notice lifted.	Feb. 13/09
Feb. 10/09	Negative pressure due to main break. Courthouse only.	0	PSI	Main repaired. System flushed. Residual 0.60 mg/L Two sets samples taken resulting in "0" bacteria. Precautionary boil water notice lifted.	Feb. 26/09
Mar 2/09	Negative pressure	0	PSI	Main repaired.	Mar. 5/09



	due to main break.			System flushed. Residual 1.07 mg/L Two sets samples taken resulting in "0" bacteria. Precautionary boil water notice lifted.	
May 6/09	Negative pressure due to main tie in.	0	PSI	Main repaired. System flushed. Residuals 0.97, 0.91, 0.91, 0.94, 0.84, 0.85 mg/L Two sets samples taken resulting in "0" bacteria. Precautionary boil water notice lifted.	May 14/09
May 7/09	Negative pressure due to construction.	0	PSI	Construction complete. Flushed. Residual 0.92 mg/l Two sets samples taken resulting in "0" bacteria. Precautionary boil water notice lifted	May 14/09
June 10/09	Negative Pressure due to main break.	0	PSI	Main repaired. System flushed. Two sets samples taken resulting in "0" bacteria. Precautionary boil water notice lifted	June 12/09
July 22/09	Construction resulted in turning the water off at 3 homes.	0	PSI	Water was restored to homes and flushed. Two sets samples taken resulting in "0" Bacteria. Precautionary boil water notice lifted	July 7/09
May 5/09	On line fluoride analyzer failed-no trending of fluoride levels in treated water available.	0	NTU	New Fluoride Analyzer installed and calibrated.	June 30/09
Aug. 10/09	Negative pressure due to construction.	0	PSI	Construction completed. System flushed. Two sets samples taken resulting in "0" Bacteria. Precautionary boil water notice lifted	Aug. 14/09



Aug. 24/09	Main break due to construction.	0	PSI	Main repaired. System flushed. Residual 0.79 mg/l Two sets samples taken resulting in "0" Bacteria. Precautionary boil water notice lifted	Aug. 27/09
Sept 16/09	Negative Pressure due to construction.	0	PSI	Main Repaired. Residual 0.64 mg/l Two sets samples taken resulting in "0" Bacteria. Precautionary boil water lifted.	Sept. 21/09
Sept. 21/09	Negative Pressure due to construction	0	PSI	Main Repaired. Residual 0.94 mg/l Two sets samples taken resulting in "0" Bacteria. Precautionary boil water lifted.	Sept. 28/09
Sept. 24/09	Negative Pressure due to construction.	0	PSI	Main Repaired. Residual 0.55, 0.91, 0.62, 0.67, 0.81, 0.73 mg/l Two sets samples taken resulting in "0" Bacteria. Precautionary boil water lifted.	Sept. 30/09
Sept. 25/09	Negative Pressure due to construction.	0	PSI	Main Repaired. Residual 0.55, 0.91, 0.62, 0.67, 0.81, 0.73 mg/l Two sets samples taken resulting in "0" Bacteria. Precautionary boil water lifted.	Sept. 30/09
Oct 01/09	Negative Pressure due to construction.	0	PSI	Construction completed. Flushed. Residual 0.88 mg/l Two sets samples taken resulting in "0" Bacteria. Precautionary boil water lifted.	Oct. 8/09
Nov. 9/09	Negative Pressure due to construction.	0	PSI	Construction complete. Flushed. Residual 0.95 mg/l Two sets samples taken resulting in "0" Bacteria. Precautionary boil	Nov. 12/09



				water lifted.	
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Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period.

	Number of Samples	Range of E.Coli Or Fecal Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #)	Number of HPC Samples	Range of HPC Results (min #)-(max #)
Raw	52	0 - 114	0 - 6400		
Treated	52	0	0	52	<10 - 40
Distribution	388	0	0	102	<10 - 50

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

	Number of Grab Samples	Range of Results (min #)-(max #)
Raw Water Turbidity	8760	0.600 – 2.30 NTU
Finished Water Turbidity	8760	0.028 – 0.427 NTU
Filter # 1 Turbidity	8760	0.051 – 0.980 NTU
Filter # 1 Bench Turbidity	363	0.060 – 1.33 NTU
Filter # 2 Turbidity	8760	0.059 – 0.770 NTU
Settled Turbidity Bench	363	0.067 – 13.00 NTU
BS Chlorine # 1	363	0.270 – 1.31 mg/L
BS Chlorine # 2	352	0.120 – 1.32 mg/L
Finished Water Cl ₂ Residual	8760	0.45 – 2.26 mg/L
WTP – Cl ₂ Residual-Pre-Filter	8760	0.19 – 3.46 mg/L
Fluoride (If the DWS provides fluoridation)	564	0.28 – 0.98 mg/L

NOTE: For continuous monitors use 8760 as the number of samples.

NOTE: Record the unit of measure if it is not milligrams per litre.

Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.



Date of legal instrument issued	Parameter	Date Sampled	Result	Unit of Measure
N/A				

Summary of Inorganic parameters tested during this reporting period or the most recent sample results - See Attached

*only for drinking water systems testing under Schedule 15.2; this includes large municipal non-residential systems, small municipal non-residential systems, non-municipal seasonal residential systems, large non-municipal non-residential systems, and small non-municipal non-residential systems

Summary of lead testing under Schedule 15.1 during this reporting period

(applicable to the following drinking water systems; large municipal residential systems, small municipal residential systems, and non-municipal year-round residential systems)

Location Type	Number of Samples	Range of Lead Results (min#) – (max #)	Number of Exceedances
Plumbing	188	0.09 – 17.6 ug/L	3
Distribution	25	0.09 – 0.72 ug/L	None
Goderich Childcare	2	0.15 – 0.24 ug/L	None

Summary of Organic parameters sampled during this reporting period or the most recent sample results – See Attached

List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.

Parameter	Result Value	Unit of Measure	Date of Sample
N/A			

Goderich Water Treatment Plant - Chemical Usage

2009

Month	Poly Aluminum Chloride		Chlorine Gas		Carbon		Fluoride		Sodium Hypochlorite	
	Usage Kg.	Dosage mg/L	Usage Kg.	Dosage mg/L	Usage Kg.	Dosage mg/L	Usage Kg.	Dosage mg/L	Usage Kg.	Dosage mg/L
Jan	3,452.00	11.29	298.28	2.45			210.00	0.39	6.21	147.99
Feb	1,364.00	5.80	217.92	2.32			167.00	0.40	6.62	168.67
Mar	2,018.00	8.07	237.90	2.39			187.00	0.43	0.00	0.00
Apr	2,653.50	10.53	235.17	2.33			147.50	0.33	6.49	149.79
May	1,827.50	6.42	273.31	2.38			154.50	0.31	0.00	0.00
Jun	1,542.00	4.93	257.87	2.06			174.00	0.31	2.76	58.26
Jul	1,466.00	4.38	286.93	2.15			224.00	0.38	5.38	128.26
Aug	1,991.00	5.26	350.03	2.32			241.50	0.36	8.35	128.63
Sep	1,825.00	5.34	281.48	2.07			224.50	0.37	11.04	207.03
Oct	1,434.50	5.59	211.11	2.05			179.00	0.39	9.25	260.48
Nov	1,332.50	5.43	203.85	2.08			169.00	0.39	6.90	186.42
Dec	1,460.50	5.77	202.48	1.98			193.50	0.43	0.00	0.00
Total	22,366.50	6.57	3,056.33	2.21			2,271.50	0.37	63.00	118.26

- Notes:
- 1) The polyaluminum chloride is used as our coagulant.
 - 2) The chlorine gas is used as our disinfectant both pretreatment and post treatment.
 - 3) The carbon is used to counter taste and odour problems in the raw water.
 - 4) The fluoride is added to the finished water to compensate for the low natural level of this element in our raw water.
 - 5) The sodium hypochlorite is used as a source of chlorine at the reservoir to ensure adequate residuals.

All quantities of chemicals are listed as the available chemical in the colutions and not the total physical quantities.

Annual Summary - Fluoride, Nitrite, Nitrate, and Colour
 (Complete a separate sheet for each input into the Distribution System)

Water Works Name: Goderich Water Treatment Plant
Well No. (if applicable): _____
Year: 2009
Serviced Population 7500
Laboratories Which Performed Analyses: SGS Lakefield Research
Water Works 210000238

Month				Treated Water Nitrite			Treated Water Nitrate			THM's	
	No. of Samples Collected	Average Residual mg/L	Maximum Residual mg/L	No. of Samples Collected	Average Nitrite mg/L	Maximum Nitrite mg/L	No. of Treated Samples Collected	Average Nitrate (mg/L)	Maximum Nitrate mg/L	No of Samples	Result ug/l
Jan.											
Feb.				1	<0.005	<0.005	1	2.64	2.64	1	48
Mar.											
Apr.											
May				1	<0.005	<0.005	1	1.19	1.19	1	35
June											
July											
August				1	<0.005	<0.005	1	0.318	0.318	1	52
Sept											
Oct.											
Nov				1	<0.005	<0.005	1	0.424	0.424	1	49
Dec											
Total	0			4			4				
Average					#DIV/0!						
Maximum			0			0			2.64		
ODWQS											

Where nitrate and nitrite are present, the total of the two should not exceed 10 mg/L
 The maximum allowable level of THM's is 100 ug/l
 Fluoride levels above 1.5 mg/L should be reported to the Medical Officer of Health

Water Works Name: Goderich Water Treatment Plant
Well No. (if applicable):
Year: 2009
Serviced Population 7500
Laboratories Which Performer Analyses: SGS Lakefield Research
Water Works # 210000238

Parameter	Analysis		Maximum Allowable Level (ug/L)	Result mg/L	Maximum Allowable Level mg/L
	Date (MM/DD/YY)	Result (ug/L)			
Schedule 23 & 24					
Antimony	2/10/2009	0.08	6		
Arsenic	"	0.05	25		
Barium	"	18.4	1000		
Boron	"	14.1	5000		
Cadmium	"	<0.003	5		
Chromium	"	<0.5	50		
Mercury	"	<0.02	1		
Lead	12/4/2009	0.03	10		
Sodium	12/11/2007			6.56	20
Selenium	2/10/2009	<1	10		
Uranium	"	0.378	20		
Benzene	"	<0.37	5		
Carbon Tetrachloride	"	<0.41	5		
1,2-Dichlorobenzene	"	<0.50	200		
1,4-Dichlorobenzene	"	<0.21	5		
1,1-Dichloroethylene	"	<0.41	14		
1,2-Dichloroethane	"	<0.43	5		
Dichloromethane	"	<0.34	50		
Monochlorobenzene	"	<0.58	80		
Tetrachloroethylene	"	<0.45	30		
Trichloroethylene	"	<0.38	5		
Vinyl Chloride	"	<0.17	2		
Diquat	"	<1	70		
Paraquat	"	<1	10		
Glyphosate	"	<6	280		
Polychlorinated Biphenyls	"	<0.04	3		
Benzo(a)pyrene	"	<0.004	0.01		
2,4-dichlorophenol	"	<0.15	900		
2,4,6-trichlorophenol	"	<0.25	5		
2,3,4,6-tetrachlorophenol	"	<0.14	100		
Pentachlorophenol	"	<0.15	60		
Alachlor	"	<0.11	5		
Aldicarb	"	<0.30	9		
Aldrin+Dieldrin	"	<0.067	0.7		
Aldrin	"	<0.060			
Dieldrin	"	<0.067			
Atrazine+N-dealkylated metabolites	"	<0.12	5		
Atrazine	"	<0.11			
De-ethylated atrazine	"	<0.12			
Azinphos-methyl	"	<0.21	20		
Bendiocarb	"	<0.13	40		
Carbaryl	"	<0.16	90		
Carbofuran	"	<0.37	90		
Chlordane	"	<0.11	7		
a-chlordane	"	<0.069			
g-chlordane	"	<0.063			
Oxychlordane	"	<0.11			
Chlorpyrifos	"	<0.18	90		

Annual Data Summary - Treated Water Volatile Organic and Inorganic Data
 (Complete a separate sheet for each input into the Distribution System)

Parameter	Analysis		Maximum Allowable Level (ug/L)	Result mg/L	Maximum Allowable Level mg/L
	Date (MM/DD/YY)	Result (ug/L)			
Cyanazine	"	<0.18	10		
Diazinon	"	<0.081	20		
(DDT)+Metabolites	"	<0.14	30		
op-DDT	"	<0.095			
pp-DDD	"	<0.098			
pp-DDE	"	<0.075			
pp-DDT	"	<0.14			
Dimethoate	"	<0.12	20		
Diuron	"	<0.087	150		
Heptachlor-Heptachlor Epoxide	"	<0.11	3		
Heptachlor	"	<0.061			
Heptachlor epoxide	"	<0.11			
Lindane	"	<0.056	4		
Malathion	"	<0.091	190		
Methoxychlor	"	<0.14	900		
Metolachlor	"	<0.092	50		
Metribuzin	"	<0.12	80		
Parathion	"	<0.18	50		
Phorate	"	<0.11	2		
Prometryne	"	<0.23	1		
Simazine	"	<0.15	10		
Temephos	"	<0.31	280		
Terbufos	"	<0.12	1		
Triallate	"	<0.10	230		
Trifluralin	"	<0.12	45		
2,4-dichlorophenoxyacetic acid	"	<0.19	100		
2,4,5-trichlorophenoxyacetic acid	"	<0.22	280		
Bromoxynil	"	<0.33	5		
Dicamba	"	<0.20	120		
Diclofop-methyl	"	<0.40	9		
Dinoseb	"	<0.36	10		
Picloram	"	<0.25	190		

Goderich Water Treatment Plant

<u>Sample ID</u>	<u>Date</u>	<u>Cl2</u>	<u>Clostridiumperfring</u> <u>CFU/L</u>
RW Goderich Water Plant (calm) TW Goderich Water Plant (Calm)	Oct 20/09 Oct 20/09	1.17	28 0
RW Goderich Water Plant (Rough) TW Goderich Water Plant (Rough)	Dec 10/09 Dec 10/09	1.36	72 0

Water Works Name: **Goderich Water Treatment Plant**
 Year: **2009**
 Serviced Population: **7500**
 Laboratories Which Performed Analyses: **SGS Lakefield Research**
 Water Works Number: **210000238**

Distribution System

Month	Total Coliform				Fecal Coliform/ Escherichia Coli			HPC or MF			BKG		
	No. of Samples Collected	No. of Samples "Safe"	No. of Sample "Unsafe"	No. of Samples "Deteriorating"	No. of Samples Collected	No. of Samples "Safe"	No. of Sample "Unsafe"	No. of Samples Collected	No. of Samples "Safe"	No. of Samples "Deteriorating"	No. of Sample Collected	No. of Samples "Safe"	No. of Samples "Deteriorating"
Jan	35	35	0	0	35	35	0	8	8	0			
Feb	31	31	0	0	31	31	0	8	8	0			
Mar	32	32	0	0	32	32	0	10	10	0			
Apr	21	21	0	0	21	21	0	8	8	0			
May	27	27	0	0	27	27	0	8	8	0			
Jun	35	35	0	0	35	35	0	10	10	0			
Jul	26	26	0	0	26	26	0	7	7	0			
Aug	34	34	0	0	34	34	0	7	7	0			
Sep	57	57	0	0	57	57	0	10	10	0			
Oct	33	33	0	0	33	33	0	8	8	0			
Nov	29	29	0	0	29	29	0	8	8	0			
Dec	28	28	0	0	28	28	0	10	10	0			
Total	388	388	0	0	388	388	0	102	102	0			

INDICATORS OF UNSAFE DRINKING WATER QUALITY:

If any of the following conditions exist, the drinking water is judged unsafe.

1. Escherichia coli and/or fecal coliforms are detected in any distribution sample by any analytical method;
2. Total coliforms are detected in consecutive samples from the same site or in multiple samples taken as a single submission from a distribution system.

If the water contains any indicators of unsafe water quality for any of the reasons outlined above, the laboratory will immediately notify the MOE District Officer who will immediately notify the Medical Officer of Health and the operating authority to initiate collection of special samples and/or take corrective action.

INDICATORS OF DETERIORATING WATER QUALITY:

Any of the following conditions indicate a deterioration in drinking water quality.

- a) total coliforms detected as a single occurrence (but not Escherichia coli or other fecal coliforms);
- b) samples contain more than 500 colonies per ml on a heterotrophic plate count analysis;
- c) samples contain more than 200 background colonies on a total coliform membrane filter analysis;
- d) Aeromonas spp., Pseudomonas aeruginosa, Staphylococcus aureus, Clostridium spp. Or members of the Fecal Streptococcus (Enterococcus) group are detected.

If these conditions occur, the MOE Dist. Mang. Should be notified.

Water Works Name: **Goderich Water Treatment Plant**
 Well No. (if applicable) **N/A**
 Year: **2009**
 Serviced Population: **7500**
 Laboratories Which Performed Analyses: **SGS Lakefield Research**
 Water Works Number **210000238**

Treated Water

Month	Total Coliform				Fecal Coliform/ Escherichia Coli			HPC or MF			BKG		
	No. of Samples Collected	No. of Samples "Safe"	No. of Sample "Unsafe"	No. of Samples "Deteriorating"	No. of Samples Collected	No. of Samples "Safe"	No. of Sample "Unsafe"	No. of Samples Collected	No. of Samples "Safe"	No. of Samples "Deteriorating"	No. of Sample Collected	No. of Samples "Safe"	No. of Samples "Deteriorating"
Jan	4	4	0	0	4	4	0	4	4	0			
Feb	4	4	0	0	4	4	0	4	4	0			
Mar	5	5	0	0	5	5	0	5	5	0			
Apr	4	4	0	0	4	4	0	4	4	0			
May	4	4	0	0	4	4	0	4	4	0			
Jun	5	5	0	0	5	5	0	5	5	0			
Jul	4	4	0	0	4	4	0	4	4	0			
Aug	4	4	0	0	4	4	0	4	4	0			
Sep	5	5	0	0	5	5	0	5	5	0			
Oct	4	4	0	0	4	4	0	4	4	0			
Nov	4	4	0	0	4	4	0	4	4	0			
Dec	5	5	0	0	5	5	0	5	5	0			
Total	52	52	0	0	52	52	0	52	52	0			

INDICATORS OF UNSAFE DRINKING WATER QUALITY:

If any of the following conditions exist, the drinking water is judged unsafe.

1. Escherichia coli and/or fecal coliforms are detected in any distribution sample by any analytical method;
2. Total coliforms are detected in consecutive samples from the same site or in multiple samples taken as a single submission from a distribution system.
3. In communal drinking water supplies, more than 10% of the samples (based on a minimum of 10 samples per month) show the presence of coliform organisms.

If the water contains any indicators of unsafe water quality for any of the reasons outlined above, the laboratory will immediately notify the MOEE District Officer who will immediately notify the Medical Officer of Health and the operating authority to initiate collection of special samples and/or take corrective action.

INDICATORS OF DETERIORATING WATER QUALITY:

Any of the following conditions indicate a deterioration in drinking water quality.

- a) total coliforms detected as a single occurrence (but not Escherichia coli or other fecal coliforms);
- b) samples contain more than 500 colonies per ml on a heterotrophic plate count analysis;
- c) samples contain more than 200 background colonies on a total coliform membrane filter analysis;
- d) Aeromonas spp., Pseudomonas aeruginosa, Staphylococcus aureus, Clostridium spp. Or members of the Fecal Streptococcus (Enterococcus) group are detected.

If these conditions occur, the MOEE Dist. Mang. Should be notified.

Water Works Name: Goderich Water Treatment Plant
 Well No. (if applicable): N/A
 Year: 2009
 Service Population: 7500
 Laboratory Which Performed Analyses: Goderich Water Treatment Plant
 Water Works Number: 210000238

Month	Treated Water Flow			Process Wastewater Monthly Total (1000 m3)	Treated Water Turbidity			Treated Disinfectant		Dist. System Disinfectant	
	Average Daily (1000 m3)	Maximum Daily (1000 m3)	Monthly Total (1000 m3)		No. of Samples Collected	No. of Samples >1 NTU	Average Turbidity NTU	No. of Treated Samples Collected	Average Residual (mg/L)	No. of Dist. Samples Collected	No. of Samples <0.05
Jan	3.679	4.477	114.051	1603.33	31	0	0.124	31	1.56	64	0
Feb	3.299	3.946	92.377	1603.33	28	0	0.070	27	1.58	57	0
Mar	3.102	3.649	96.172	1603.33	31	0	0.069	31	1.51	61	0
Apr	3.196	3.571	95.880	1603.33	30	0	0.069	30	1.54	50	0
May	3.696	4.675	114.580	1603.33	31	0	0.048	31	1.54	56	0
Jun	4.143	5.069	124.297	1603.33	30	0	0.043	30	1.52	69	0
Jul	4.352	5.361	134.924	1603.33	31	0	0.046	31	1.39	55	0
Aug	5.031	6.610	155.948	1603.33	30	0	0.053	30	1.40	65	0
Sep	4.714	6.377	141.427	1603.33	30	0	0.053	30	1.31	86	0
Oct	3.325	3.670	103.089	1603.33	31	0	0.056	31	1.38	62	0
Nov	3.147	3.491	94.418	1603.33	29	0	0.053	29	1.49	58	0
Dec	3.133	3.955	93.981	1603.33	31	0	0.060	30	1.57	60	0
Total			1,361.143	19,240	363	0		361		743	0
Average	3.739						0.062		1.48		
Maximum		6.610									

Chlorine Gas _____

Free _____

3,056.33 _____

Goderich Trending 2009

	Filter # 1 Turbidity			Filter # 2 Turbidity			Treated Disinfectant		
	Minimum Turbidity NTU	Maximum Turbidity NTU	Average Turbidity NTU	Minimum Turbidity NTU	Maximum Turbidity NTU	Average Turbidity NTU	Minimum Residual mg/L	Maximum Residual (mg/L)	Average Residual (mg/L)
Jan/09	0.03	1.91	0.12	0.02	2.00	0.06	0.71	1.70	1.24
Feb/09	0.01	0.39	0.07	0.03	0.23	0.05	0.86	1.87	1.29
Mar/09	0.04	0.88	0.09	0.03	0.80	0.08	0.81	1.82	1.23
Apr/09	0.04	0.50	0.09	0.04	0.80	0.08	0.87	1.72	1.35
May/09	0.05	0.21	0.08	0.04	0.17	0.06	1.04	1.68	1.35
June/09	0.01	0.95	0.07	0.04	0.70	0.05	0.80	2.43	1.29
July/09	0.01	0.93	0.06	0.03	0.12	0.04	0.81	1.44	1.14
Aug/09	0.02	0.64	0.07	0.03	0.72	0.05	0.49	2.74	1.29
Sept/09	0.04	0.14	0.06	0.03	0.65	0.04	0.81	2.48	1.27
Oct/09	0.01	0.17	0.07	0.03	0.78	0.05	1.01	1.40	1.31
Nov/09	0.05	0.13	0.06	0.04	0.52	0.05	0.91	1.80	1.38
Dec/09	0.01	0.52	0.08	0.04	0.43	0.05	0.83	1.83	1.42

Turbidity

Maximum allowable limit 1.00 NTU

Under 0.30 NTU 95% of the time.