



DRINKING WATER ANNUAL REPORT 2012

VILLAGE OF GRANISLE

June 2013

Contact:

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Introduction

The Drinking Water Protection Act, Section 15(b) requires that water systems submit an annual report to their users. A safe & adequate water supply is fundamental to the health of every individual & strategically important to the economic growth and well-being of communities. The Village of Granisle strives to ensure safe delivery of drinking water to its residents.

Water Supply

The Village water source is Babine Lake which supplies water to a population of approximately 350 residents via 189 connections. Water flows by gravity through an intake pipe from the lake into a wet well below a pump house located on the lake shore. Two pumps located in the pump house deliver water from the wet well to the distribution system and reservoir. The pumps are controlled based on the water level in the reservoir.

System Classification

The Village of Granisle Water System is classified as a Small Water System under the Environmental Operators Certification Program.

System Classification is defined by the “size” of the water system, with size being the total number of water users on a system.

The Village system is operated by its employees, with the main operator being the Public Works Manager and is supported by two other employees in the Public Works department. The operators currently possess or are in training to possess the Small Water System Operator Certification.

Water Treatment

Two chlorine injection pumps located in the pump house dose the water with liquid sodium hypochlorite before it enters the distribution system. The injection pumps run

when either of the main water pumps are running, dosing at a constant operator-set rate as pre-determined by Health Canada.

Water Storage

An 801,000 L bolted steel reservoir located at the top of McDonald Avenue provides storage for the community. This reservoir was constructed in 1995 and replaced two older reservoirs located in the same area. The reservoir is not fed by a direct transmission main from the pump house and, depending on demands in the system, water from the pump house may be consumed in the distribution system before reaching the reservoir.

Water Distribution System

The distribution system, constructed primarily in the mid 1960's and early 1970's, includes approximately 8.2 km of water mains. The majority of the mains are 200 mm diameter ductile iron, with some short sections of 150 mm diameter. There are some areas of asbestos cement pipe as well. The distribution system is within a single pressure zone, with pressures at the pump house up to approximately 165 psi.

Water Testing

Water samples are submitted for regular analysis – chemical & bacteriological. These two analyses are the major methods employed in determining water quality. The bacteriological samples are shipped via Northern Health to BCCDC (BC Centre for Disease Control) Lab in Vancouver and chemical samples are sent to Northern Laboratories for analysis.

Water samples are taken daily at one location in the Village to test for total chlorine as well as free chlorine. Samples for turbidity are taken at a different location 2-3 times per week. These results are kept on file at the public works yard and the Village Office. There was also an annual sample taken in September 2012 which was tested for levels of metals, hardness and aesthetics. (Appendix 1)

The Public Works Staff take water samples for bacteriological testing from 4 locations in the community on a monthly basis resulting in a total of 40 samples being taken during 2012. (Appendix 2) There were two (2) samples that contained total coliform counts of which both occurred in August 2012. The reason for this occurrence was due to a temporary malfunction of the chlorination pump. Immediately a **BOIL WATER ADVISORY NOTICE** was sent out to all of the community. PW increased the chlorination treatment; confirmed equipment was working properly and did extra water testing. Staff worked with Northern Health to address this issue in a timely manner. Once the samples were clear of any coliform presence Northern Health advised us to remove the Boil Water Advisory alert.

Future Initiatives

- 1.** Through discussions with Northern Health, PW is investigating opportunities to provide a dedicated water line which will flow from our treatment facility directly to the Water Storage Tank. This will provide more efficient control of the water chlorination levels.
- 2.** Currently we have only one method of water treatment (chlorination). It is recommended that communities have two methods to treat potable water in order to achieve the provincial drinking water treatment objective for surface water sources. The Village of Granisle had a Water Treatment study commissioned in 2008. There are a variety of treatments to consider. The Village would like to further investigate the possibility of the ultra violet treatment method. Seemingly this would be the most cost effective method for the community should it be feasible.

APPENDIX I

LEVELS OF METALS, HARDNESS AND AESTHETICS



ANALYSIS FINAL REPORT

Report to: Elsie Swan
Village of Granisle
Box 128
Granisle, BC V0J 1W0
Tel: 250.697.2248
Fax: 250.697.2306
eswan@villageofgranisle.ca

Lab reference: 124048

Date received: September 6, 2012

Date reported: September 21, 2012

Methodology:

All tests were done in accordance with standard procedures published by BC MoE, Health Canada, Environment Canada, the American Public Health Association, or the US EPA.

Metals were determined in a sample aliquot which was acid-preserved and analyzed by ICP or ICP-MS.

Comment(s):

All metal levels tested are below Health Canada's health or aesthetic guidelines.

Hardness below 70 mg/L is generally considered soft.

The level of colour exceeds the Aesthetic Objective in Health Canada's guidelines. Some consumers may find the colour to be unacceptably high.

Approved by: Jesse Newton, B.Sc.
Lab Manager

Lab reference: 124048

Total Metals	Units	DWG	Raw Water Sep 5/12	MDL
Aluminum (Al)	mg/L	(0.2)	0.0082	0.003
Antimony (Sb)	mg/L	0.006	ND	0.0005
Arsenic (As)	mg/L	0.010	0.00029	0.0001
Barium (Ba)	mg/L	1.0	0.0191	0.001
Beryllium (Be)	mg/L	-	ND	0.0001
Bismuth (Bi)	mg/L	-	ND	0.001
Boron (B)	mg/L	5	ND	0.05
Cadmium (Cd)	mg/L	0.005	ND	0.00001
Calcium (Ca)	mg/L	-	11.0	0.05
Chromium (Cr)	mg/L	0.05	ND	0.001
Cobalt (Co)	mg/L	-	ND	0.0005
Copper (Cu)	mg/L	(1.0)	0.00436	0.0002
Iron (Fe)	mg/L	(0.3)	0.0576	0.005
Lead (Pb)	mg/L	0.010	0.00022	0.0002
Magnesium (Mg)	mg/L	-	2.97	0.05
Manganese (Mn)	mg/L	(0.05)	0.004	0.001
Mercury (Hg)	mg/L	0.001	ND	0.00005
Molybdenum (Mo)	mg/L	-	ND	0.001
Nickel (Ni)	mg/L	-	ND	0.001
Phosphorus (P)	mg/L	-	ND	0.01
Potassium (K)	mg/L	-	0.56	0.05
Selenium (Se)	mg/L	0.01	ND	0.0001
Silicon (Si)	mg/L	-	1.71	0.1
Silver (Ag)	mg/L	-	ND	0.00002
Sodium (Na)	mg/L	(200)	2.21	0.05
Strontium (Sr)	mg/L	-	0.0737	0.001
Sulphur (S)	mg/L	-	ND	3
Thallium (Tl)	mg/L	-	ND	0.00005
Tin (Sn)	mg/L	-	ND	0.005
Titanium (Ti)	mg/L	-	ND	0.005
Uranium (U)	mg/L	0.02	ND	0.0001
Vanadium (V)	mg/L	-	ND	0.005
Zinc (Zn)	mg/L	(5)	ND	0.005
Zirconium (Zr)	mg/L	-	ND	0.0005
Hardness as CaCO ₃	mg/L	(500)	39.7	0.5

DWG = BC or Canadian drinking water guidelines

() = indicates DWG limit is aesthetic, ie not health-related

MDL = Method detection limit

ND = less than the method detection limit indicated

Lab reference: 124048

Parameter	Units	DWG	Raw Water Sep 5/12	MDL
pH	-	(6.5 - 8.5)	7.4	-
Conductivity	$\mu\text{S}/\text{cm}$	-	85.4	1
Total alkalinity as CaCO_3	mg/L	-	37.9	1
Turbidity	NTU	1	0.93	0.05
Total dissolved solids	mg/L	(500)	53	1
True colour	PtCo units	(15)	26	1
Fluoride	mg/L	1.5	0.049	0.01
Chloride	mg/L	(250)	0.63	0.5
Nitrate as N	mg/L	10	ND	0.1
Nitrite as N	mg/L	1	ND	0.01
Ammonia as N	mg/L	-	0.05	0.03
Total organic nitrogen as N	mg/L	-	0.379	0.02
Total organic carbon	mg/L	-	7.38	0.5
Sulfate as SO_4	mg/L	(500)	2.75	0.5
UV Transmission	% at 254 nm *	-	62	-
Langelier saturation index	-	-	-2.23	-

DWG = BC or Canadian drinking water guidelines

() = indicates DWG limit is aesthetic, ie not health-related

MDL = Method detection limit

ND = less than the method detection limit indicated

NTU = Nephelometric turbidity units

* UV Transmission % = $100 * 10^{-UV \text{ absorbance}}$

APPENDIX II
BACTERIOLOGICAL TESTING

Sample Range Report

Northern Health - Northern Interior Health Service Delivery Area

Facility Name: Granisle CWS
Facility Type: WS2
Date Range: Jan 1 2012 to Dec 31 2012
Date Created: May 14 2013

Operator Village of Granisle
 Box 128
 Granisle, BC V0J 1W0

Sampling Site	Date Collected	Total Coliform	E. Coli	Fecal Coliform
<u>Village Office, 1</u>				
<u>MacDonald</u>				
	1/18/2012	NT		
	4/4/2012	L1	L1	
	8/21/2012	L1	L1	
	10/16/2012	<u>L1</u>	<u>L1</u>	
	Total Positive :	0	0	0
<u>Residence</u>				
<u>Morrison Street</u>				
	1/18/2012	NT		
	2/8/2012	L1	L1	
	3/7/2012	L1	L1	
	4/4/2012	L1	L1	
	5/9/2012	L1	L1	
	6/5/2012	L1	L1	
	8/14/2012	1	L1	
	8/21/2012	L1	L1	
	8/28/2012	L1	L1	
	10/16/2012	L1	L1	
	11/14/2012	L1	L1	
	12/19/2012	<u>L1</u>	<u>L1</u>	
	Total Positive :	1	0	0
<u>Residence</u>				
<u>Hawthorne St</u>				
	1/18/2012	NT		
	2/8/2012	L1	L1	
	3/7/2012	L1	L1	
	4/4/2012	L1	L1	
	5/9/2012	L1	L1	
	6/5/2012	L1	L1	
	8/14/2012	L1	L1	
	8/21/2012	L1	L1	
	11/14/2012	L1	L1	
	12/19/2012	<u>L1</u>	<u>L1</u>	

Total Positive : 0 0 0

Coffee Room,
Granisle

1/18/2012	NT		
2/8/2012	L1	L1	
3/7/2012	L1	L1	
4/4/2012	L1	L1	
5/9/2012	L1	L1	
6/5/2012	L1	L1	
8/14/2012	25	L1	
8/21/2012	L1	L1	
8/28/2012	L1	L1	
10/16/2012	L1	L1	
11/14/2012	L1	L1	
12/19/2012	<u>L1</u>	<u>L1</u>	
Total Positive :	1	0	0

Audit - Coffee Room,
Granisle

9/18/2012	<u>L1</u>	<u>L1</u>	
Total Positive :	0	0	0

Audit - Village Office,
1 McDonald Street

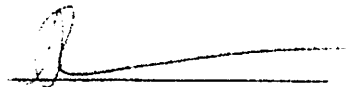
9/18/2012	<u>L1</u>	<u>L1</u>	
Total Positive :	0	0	0

Result Values: E - estimated L - less than G - greater than

Samples that contain total coliform:	2		5.00% of total
Samples that contain e. coli:	0		0.00% of total
Samples that contain fecal coliform:	0		0.00% of total
Number of consecutive samples that contain total coliform:	0		
Number of samples that contain total coliform in last 30 days:	0/3		
Total number of samples:	40		

Comments:

Water sample program well maintained.


Environmental Health Officer
May 14 2013

FOR FURTHER INFORMATION PLEASE CALL: Angela Wheeler (250) 567-6900
Definitions:

- Total Coliforms: total coliforms are organisms that are found all around us in the environment (ie on plants, animals and humans). They may or may not be harmful. Northern Health uses these organisms as indicator organisms. If total coliforms are found in the water, that indicates to the Environmental Health Officer (EHO) that other organisms may also be present.
- Fecal Coliforms: bacterial contamination from human or animal waste (feces).
- Escherichia coli: bacterial contamination from human or animal waste (feces).

Codes:

- A: means not tested; likely sample is too long in transit to the lab.
- B# (number) or BG: means the number of non-coliform background bacteria colonies. High numbers (>200) may indicate deteriorating water quality
- CFU: colony forming units
- E. Coli: means Escherichia coli.
- EST: means estimated count.
- L1: means less than 1 (<1) – essentially 0. Satisfactory.
- OG: means overgrowth of bacterial colonies; not possible to count coliform bacteria – unsatisfactory.
- R: means not tested; resample is likely required
- T: means not tested; likely sample is too long in transit to the lab.
- TNTC: means too numerous to count Similar to OG – unsatisfactory.

APPENDIX III
PERMIT TO OPERATE



BRITISH
COLUMBIA

Ministry of Health and
Ministry Responsible for Seniors

PERMIT TO OPERATE

A Drinking Water System With 15 to 300 Connections

Premises Name: Granisle CWS
Address: 1 McDonald Street
Granisle, BC

Proprietor: Village of Granisle

April 1 2001
Effective Date


Environmental Health Officer

*This permit must be displayed
in a conspicuous place and is nontransferable.*

