



# Village of Cumberland Drinking Water 2016 Annual Report

Reporting Period:	2016
Operating Permit Number:	1414314
Drinking Water System Owner:	Corporation of the Village of Cumberland
Drinking Water System Contact:	
Name:	Gavin Murgatroyd
Phone No:	(250) 336-2291 Cell: 250-792-1593
Email:	publicworks@cumberland.ca

**1. Microbiological testing completed during this reporting period:**

- a) bacteriological results attached to this report.  None detected  
 b) adverse bacteriological results:  Listed in table below:

Adverse Results:

Date	Site #	Total Coliform	E.Coli	Reason	Corrective Action
Sept 13/2016	2	1	0	Contractor using VoC fire hydrant stirred up sediment in water system.	Flushed and Resampled

**2. Chemical results for this reporting period:**

- a) most recent chemical analysis attached to this report.  
 b) chemical parameters listed in *The Guidelines for Canadian Drinking Water Quality (GCDWQ)* are:  all within the GCDWQ  
 above the GCDWQ and are listed below:

Parameters above the Guidelines:

Parameter	Result	Max. Acceptable Concentration	Aesthetic Objective	Treatment/Corrective Action

**3. Summarize additional testing and sampling carried out in accordance with the requirement of a Water Source approval, Written Order or as per the conditions of your *Operating Permit*.**

- No additional testing
- Additional testing listed below:

Additional testing:

Description of parameter & reason for sampling	Health parameter or non-health related parameter	Corrective action necessary (Y/N?)	Corrective action taken
<b>Bromodichloromethane ug/l (mac 16)</b>		<b>N</b>	
<b>Maximum 1 for turbidity</b>		<b>N</b>	
<b>Requested by V.I.H.A</b>			
<b>UVT</b>	<b>Data collection in preparation for UV treatment system</b>		

**4. Water Quality Complaints:**

During the course of the year, the water system:

- Did not receive water quality complaints (ie taste, odour, colour, etc)
- Received water quality complaints and are listed below:

**Water Quality Complaints:**

Date	Water Quality Complaint	Corrective Action Taken
<b>Aug 19/2016</b>	<b>Discoloured water due to construction on Dunsmuir Ave.</b>	<b>Flushed affected area until clear</b>
<b>Nov 7/2016</b>	<b>Discoloured water due to contractor using hydrant to fill Vector truck</b>	<b>Flushed affected area until clear</b>

**5. Adverse results: Total number of adverse results during this reporting period for insufficient water supply, malfunction of disinfection equipment or elevated turbidity:**

- No adverse results
- Adverse results listed below:

**Adverse Results**

Incident Date	Incident	Corrective Action
<b>Oct 18/2016</b>	<b>Increased turbidity due to fire side valve opening in Henderson Lake PRV chamber</b>	<b>Cleared blockage from pilot tubing</b>

**6. Description of the system:**

Sources of raw water:

- Groundwater
- Surface water
- Other (specify): \_\_\_\_\_

Does the drinking water system have disinfection?  Yes  No Disinfection methods (check boxes that apply):

- Chlorination
- Ultraviolet light
- Ozonation
- Other (specify): \_\_\_\_\_

Does the drinking water system have treatment?  Yes  No treatment type (check boxes that apply):

- Particulate cartridge filters
- Membrane filtration
- Carbon filter
- Sand filtration
- Reverse osmosis
- Other (specify): \_\_\_\_\_

**7. Major expenses incurred during the period covered by the report:**

To purchase or install required equipment:	
To repair equipment:	
To replace equipment:	
To complete annual maintenance of system: <i>(system flushing, replacement of carbon filters, etc)</i>	Renewal of water main (Dunsmuir Avenue from 2 <sup>nd</sup> Street to Carlisle Lane).
To complete specialist report (specify):	Long term water supply strategy report completed by Koers & Associates Engineering. Worked with Tetra Tech EBA to update the Village's dam consequence classifications.

**8. Further communication with users:**

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

- hand delivered
- public access/notice via web
- public access/notice via government office
- public access/notice via newspaper
- public access/notice via bill stuffier
- public access/notice via other method (specify): \_\_\_\_\_

b) Improvements or remedial actions required by the Drinking Water Officer:

- no action required
- drinking Water Officer inspection report attached to report
- actions required by Drinking Water Officer listed below:

Improvements/Remedial Action

Required Action	Completion Date
<b>Watershed Management Plan</b>	<b>October 2016</b>

c) Future water system improvements:

- no improvements planned
- improvements listed below:

Future Improvements

Future plans	Planned Completion Date
<b>3 major water system improvements have obtained funding. They are: (1) supply line twinning from Henderson Lake PRV chamber to existing chlorine building; (2) 2500m3 reservoir; (3) water treatment plant.</b>	<b>2017/18</b>

d) Emergency Response Plan can be accessed by:

- posting on web
- posting at nearest government office
- contacting water system owner
- other (specify): Adriana Proton (250-336-2291)

**ANNUAL TOTAL W - ANALYSIS**  
**SITE #1 2016 TREATED CHEMICAL**

Your P.O. #: 16-1114  
Your Project #: ANNUAL DRINKING WATER  
Site Location: SITE #1  
Your C.O.C. #: 08422452

**Attention: MARK SPRINGFORD**

VILLAGE OF CUMBERLAND  
PO BOX 340  
CUMBERLAND, BC  
CANADA V0R 1S0

**Report Date: 2016/10/19**  
Report #: R2285449  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B689664**

**Received: 2016/10/12, 09:50**

Sample Matrix: DRINKING WATER  
# Samples Received: 1

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Alkalinity - Water (1)	1	2016/10/13	2016/10/14	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry (2)	1	N/A	2016/10/17	AB SOP-00020	SM 22-4500-Cl G m
Colour (True) by Kone Lab (1)	1	N/A	2016/10/14	BBY6SOP-00057	SM 22 2120 C m
Coliforms & E.coli by Quantitray (MPN)	1	N/A	2016/10/12	CTYSOP-00002	Based on SM-9223
Conductance - water (1)	1	N/A	2016/10/14	BBY6SOP-00026	SM 22 2510 B m
Fluoride (1)	1	N/A	2016/10/14	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3) (1)	1	N/A	2016/10/19	BBY WI-00033	Auto Calc
Mercury (Total) by CVAf (1)	1	2016/10/18	2016/10/18	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Na, K, Ca, Mg, S by CRC ICPMS (total) (1)	1	N/A	2016/10/19	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by CRC ICPMS (total) (1)	1	N/A	2016/10/18	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Nitrate + Nitrite (N) (1)	1	N/A	2016/10/13	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) by CFA (1)	1	N/A	2016/10/13	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N) (1)	1	N/A	2016/10/14	BBY6SOP-00010	SM 22 4500-NO3 I m
pH Water (1, 3)	1	N/A	2016/10/14	BBY6SOP-00026	SM 22 4500-H+ B m
Sulphate by Automated Colourimetry (2)	1	N/A	2016/10/17	AB SOP-00018	SM 22 4500-SO4 E m
Total Dissolved Solids (Filt. Residue) (1)	1	2016/10/13	2016/10/14	BBY6SOP-00033	SM 22 2540 C m
Total Trihalomethanes Calculation (1)	1	N/A	2016/10/17	BBY WI-00033	BC MOE Lab Method
Turbidity (1)	1	N/A	2016/10/13	BBY6SOP-00027	SM 22 2130 B m
VOCs, VH, F1, LH in Water by HS GC/MS (1)	1	2016/10/13	2016/10/15	BBY8SOP-00009	EPA 8260c R3 m

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Vancouver

(2) This test was performed by Maxxam Calgary Environmental

(3) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Your P.O. #: 16-1114  
Your Project #: ANNUAL DRINKING WATER  
Site Location: SITE #1  
Your C.O.C. #: 08422452

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**Report Date: 2016/10/19**  
Report #: R2285449  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B689664**  
Received: 2016/10/12, 09:50

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
Melissa McIntosh, Project Manager  
Email: MMcIntosh@maxxam.ca  
Phone# (250) 338 7786

=====  
This report has been generated and distributed using a secure automated process.  
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Maxxam Job #: B689664  
Report Date: 2016/10/19

VILLAGE OF CUMBERLAND  
Client Project #: ANNUAL DRINKING WATER  
Site Location: SITE #1  
Your P.O. #: 16-1114

**RESULTS OF CHEMICAL ANALYSES OF DRINKING WATER**

<b>Maxxam ID</b>					PT0104	
<b>Sampling Date</b>					2016/10/12 09:40	
<b>COC Number</b>					08422452	
	<b>UNITS</b>	<b>MAC</b>	<b>AO</b>	<b>OG</b>	<b>SITE #1</b>	<b>RDL</b>
<b>ANIONS</b>						
Nitrite (N)	mg/L	1	-	-	<0.0050	0.0050
<b>Calculated Parameters</b>						
Nitrate (N)	mg/L	10	-	-	<0.020	0.020
<b>Misc. Inorganics</b>						
Fluoride (F)	mg/L	1.5	-	-	0.011	0.010
Alkalinity (Total as CaCO3)	mg/L	-	-	-	11.8	0.50
Alkalinity (PP as CaCO3)	mg/L	-	-	-	<0.50	0.50
Bicarbonate (HCO3)	mg/L	-	-	-	14.4	0.50
Carbonate (CO3)	mg/L	-	-	-	<0.50	0.50
Hydroxide (OH)	mg/L	-	-	-	<0.50	0.50
<b>Anions</b>						
Dissolved Sulphate (SO4)	mg/L	-	500	-	<1.0	1.0
Dissolved Chloride (Cl)	mg/L	-	250	-	2.4	1.0
<b>MISCELLANEOUS</b>						
True Colour	Col. Unit	-	15	-	14.9	5.0
<b>Nutrients</b>						
Nitrate plus Nitrite (N)	mg/L	-	-	-	<0.020	0.020
<b>Physical Properties</b>						
Conductivity	uS/cm	-	-	-	30.2	1.0
pH	pH	-	6.5:8.5	-	7.35	
<b>Physical Properties</b>						
Total Dissolved Solids	mg/L	-	500	-	30	10
Turbidity	NTU	see remark	see remark	see remark	1.12	0.10
No Fill	No Exceedance					
Grey	Exceeds 1 criteria policy/level					
Black	Exceeds both criteria/levels					
RDL = Reportable Detection Limit						

Maxxam Job #: B689664  
Report Date: 2016/10/19

VILLAGE OF CUMBERLAND  
Client Project #: ANNUAL DRINKING WATER  
Site Location: SITE #1  
Your P.O. #: 16-1114

**VOLATILE ORGANICS BY GC-MS (DRINKING WATER)**

<b>Maxxam ID</b>			PT0104	
<b>Sampling Date</b>			2016/10/12 09:40	
<b>COC Number</b>			08422452	
	<b>UNITS</b>	<b>MAC</b>	<b>SITE #1</b>	<b>RDL</b>
<b>Volatiles</b>				
Total Trihalomethanes	ug/L	100	26	1.0
No Fill	No Exceedance			
Grey	Exceeds 1 criteria policy/level			
Black	Exceeds both criteria/levels			
RDL = Reportable Detection Limit				



Maxxam Job #: B689664  
Report Date: 2016/10/19

VILLAGE OF CUMBERLAND  
Client Project #: ANNUAL DRINKING WATER  
Site Location: SITE #1  
Your P.O. #: 16-1114

**MICROBIOLOGY (DRINKING WATER)**

<b>Maxxam ID</b>			PT0104	
<b>Sampling Date</b>			2016/10/12 09:40	
<b>COC Number</b>			08422452	
	<b>UNITS</b>	<b>MAC</b>	<b>SITE #1</b>	<b>RDL</b>
<b>Microbiological Param.</b>				
Total Coliforms	MPN/100mL	<1	<1	1
E. coli	MPN/100mL	<1	<1	1
No Fill	No Exceedance			
Grey	Exceeds 1 criteria policy/level			
Black	Exceeds both criteria/levels			
RDL = Reportable Detection Limit				

Maxxam Job #: B689664  
Report Date: 2016/10/19

VILLAGE OF CUMBERLAND  
Client Project #: ANNUAL DRINKING WATER  
Site Location: SITE #1  
Your P.O. #: 16-1114

**TOT. METALS W/ CV HG FOR DRINKING WATER (DRINKING WATER)**

Maxxam ID					PT0104	
Sampling Date					2016/10/12 09:40	
COC Number					08422452	
	UNITS	MAC	AO	OG	SITE #1	RDL
<b>Calculated Parameters</b>						
Total Hardness (CaCO3)	mg/L	-	-	-	10.8	0.50
<b>Elements</b>						
Total Mercury (Hg)	ug/L	1	-	-	<0.010	0.010
<b>Total Metals by ICPMS</b>						
Total Aluminum (Al)	ug/L	-	-	100	54.4	3.0
Total Antimony (Sb)	ug/L	6	-	-	<0.50	0.50
Total Arsenic (As)	ug/L	10	-	-	<0.10	0.10
Total Barium (Ba)	ug/L	1000	-	-	<1.0	1.0
Total Beryllium (Be)	ug/L	-	-	-	<0.10	0.10
Total Bismuth (Bi)	ug/L	-	-	-	<1.0	1.0
Total Boron (B)	ug/L	5000	-	-	<50	50
Total Cadmium (Cd)	ug/L	5	-	-	<0.010	0.010
Total Chromium (Cr)	ug/L	50	-	-	<1.0	1.0
Total Cobalt (Co)	ug/L	-	-	-	<0.50	0.50
Total Copper (Cu)	ug/L	-	1000	-	6.23	0.20
Total Iron (Fe)	ug/L	-	300	-	180	5.0
Total Lead (Pb)	ug/L	10	-	-	0.46	0.20
Total Manganese (Mn)	ug/L	-	50	-	18.9	1.0
Total Molybdenum (Mo)	ug/L	-	-	-	<1.0	1.0
Total Nickel (Ni)	ug/L	-	-	-	<1.0	1.0
Total Selenium (Se)	ug/L	50	-	-	<0.10	0.10
Total Silicon (Si)	ug/L	-	-	-	2630	100
Total Silver (Ag)	ug/L	-	-	-	<0.020	0.020
Total Strontium (Sr)	ug/L	-	-	-	7.3	1.0
Total Thallium (Tl)	ug/L	-	-	-	<0.050	0.050
Total Tin (Sn)	ug/L	-	-	-	<5.0	5.0
Total Titanium (Ti)	ug/L	-	-	-	<5.0	5.0
Total Uranium (U)	ug/L	20	-	-	<0.10	0.10
Total Vanadium (V)	ug/L	-	-	-	<5.0	5.0
Total Zinc (Zn)	ug/L	-	5000	-	8.6	5.0
Total Zirconium (Zr)	ug/L	-	-	-	<0.50	0.50
No Fill	No Exceedance					
Grey	Exceeds 1 criteria policy/level					
Black	Exceeds both criteria/levels					
RDL = Reportable Detection Limit						

Maxxam Job #: B689664  
Report Date: 2016/10/19

VILLAGE OF CUMBERLAND  
Client Project #: ANNUAL DRINKING WATER  
Site Location: SITE #1  
Your P.O. #: 16-1114

**TOT. METALS W/ CV HG FOR DRINKING WATER (DRINKING WATER)**

<b>Maxxam ID</b>					PT0104	
<b>Sampling Date</b>					2016/10/12 09:40	
<b>COC Number</b>					08422452	
	<b>UNITS</b>	<b>MAC</b>	<b>AO</b>	<b>OG</b>	<b>SITE #1</b>	<b>RDL</b>
Total Calcium (Ca)	mg/L	-	-	-	2.92	0.050
Total Magnesium (Mg)	mg/L	-	-	-	0.850	0.050
Total Potassium (K)	mg/L	-	-	-	0.064	0.050
Total Sodium (Na)	mg/L	-	200	-	0.858	0.050
Total Sulphur (S)	mg/L	-	-	-	<3.0	3.0
No Fill	No Exceedance					
Grey	Exceeds 1 criteria policy/level					
Black	Exceeds both criteria/levels					
RDL = Reportable Detection Limit						

Maxxam Job #: B689664  
Report Date: 2016/10/19

VILLAGE OF CUMBERLAND  
Client Project #: ANNUAL DRINKING WATER  
Site Location: SITE #1  
Your P.O. #: 16-1114

**TRIHALOMETHANES (THM) IN WATER**

<b>Maxxam ID</b>		PT0104	
<b>Sampling Date</b>		2016/10/12 09:40	
<b>COC Number</b>		08422452	
	<b>UNITS</b>	<b>SITE #1</b>	<b>RDL</b>
<b>Volatiles</b>			
Chloroform	ug/L	26	1.0
Chlorodibromomethane	ug/L	<1.0	1.0
Bromodichloromethane	ug/L	<1.0	1.0
Bromoform	ug/L	<1.0	1.0
<b>Surrogate Recovery (%)</b>			
1,4-Difluorobenzene (sur.)	%	103	
4-Bromofluorobenzene (sur.)	%	90	
D4-1,2-Dichloroethane (sur.)	%	93	
RDL = Reportable Detection Limit			

Maxxam Job #: B689664  
Report Date: 2016/10/19

VILLAGE OF CUMBERLAND  
Client Project #: ANNUAL DRINKING WATER  
Site Location: SITE #1  
Your P.O. #: 16-1114

**GENERAL COMMENTS**

**Results relate only to the items tested.**

Maxxam Job #: B689664  
Report Date: 2016/10/19

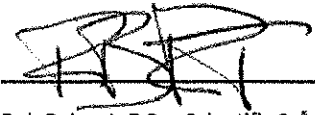
VILLAGE OF CUMBERLAND  
Client Project #: ANNUAL DRINKING WATER  
Site Location: SITE #1  
Your P.O. #: 16-1114

**VALIDATION SIGNATURE PAGE**

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



\_\_\_\_\_  
Ghayasuddin Khan, M.Sc., P.Chem., QP, Scientific Specialist, Inorganics



\_\_\_\_\_  
Rob Reinert, B.Sc., Scientific Specialist

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

**FULL SPECTRUM  
WELL**

**#2**

Your P.O. #: 16-1114  
Your Project #: DRINKING WATER  
Site Location: SITE #7 WELL  
Your C.O.C. #: 08429670

**Attention: MARK SPRINGFORD**

VILLAGE OF CUMBERLAND  
PO BOX 340  
CUMBERLAND, BC  
CANADA V0R 1S0

**Report Date: 2016/12/13**  
Report #: R2316071  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B6A9178**

**Received: 2016/12/06, 10:00**

Sample Matrix: DRINKING WATER  
# Samples Received: 1

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Alkalinity - Water (1)	1	2016/12/07	2016/12/07	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry (1)	1	N/A	2016/12/07	BBY6SOP-00011	SM 22 4500-Cl- E m
Colour (True) by Kone Lab (1)	1	N/A	2016/12/07	BBY6SOP-00057	SM 22 2120 C m
Coliforms & E.coli by Quantitray (MPN)	1	N/A	2016/12/06	CTYSOP-00002	Based on SM-9223
Conductance - water (1)	1	N/A	2016/12/07	BBY6SOP-00026	SM 22 2510 B m
Fluoride (1)	1	N/A	2016/12/13	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3) (1)	1	N/A	2016/12/08	BBY WI-00033	Auto Calc
Mercury (Total) by CVAF (1)	1	2016/12/08	2016/12/08	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Na, K, Ca, Mg, S by CRC ICPMS (total) (1)	1	N/A	2016/12/08	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by CRC ICPMS (total) (1)	1	N/A	2016/12/08	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Nitrate + Nitrite (N) (1)	1	N/A	2016/12/07	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) by CFA (1)	1	N/A	2016/12/07	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N) (1)	1	N/A	2016/12/09	BBY6SOP-00010	SM 22 4500-NO3 I m
pH Water (1, 2)	1	N/A	2016/12/07	BBY6SOP-00026	SM 22 4500-H+ B m
Sulphate by Automated Colourimetry (1)	1	N/A	2016/12/07	BBY6SOP-00017	SM 22 4500-SO42- E m
Total Dissolved Solids (Filt. Residue) (1)	1	2016/12/07	2016/12/08	BBY6SOP-00033	SM 22 2540 C m
Turbidity (1)	1	N/A	2016/12/07	BBY6SOP-00027	SM 22 2130 B m

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Vancouver

(2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Your P.O. #: 16-1114  
Your Project #: DRINKING WATER  
Site Location: SITE #7 WELL  
Your C.O.C. #: 08429670

**Attention: MARK SPRINGFORD**

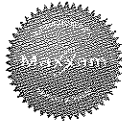
VILLAGE OF CUMBERLAND  
PO BOX 340  
CUMBERLAND, BC  
CANADA VOR 1S0

**Report Date: 2016/12/13**  
Report #: R2316071  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B6A9178**  
Received: 2016/12/06, 10:00

Encryption Key



Maxxam  
REPORT AUTOMATION ENGINE  
13 Dec 2016 16:03:24

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
Melissa McIntosh, Project Manager  
Email: [MMcIntosh@maxxam.ca](mailto:MMcIntosh@maxxam.ca)  
Phone# (250) 338 7786

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Maxxam Job #: B6A9178  
Report Date: 2016/12/13

VILLAGE OF CUMBERLAND  
Client Project #: DRINKING WATER  
Site Location: SITE #7 WELL  
Your P.O. #: 16-1114

**RESULTS OF CHEMICAL ANALYSES OF DRINKING WATER**

<b>Maxxam ID</b>					QE9905	
<b>Sampling Date</b>					2016/12/06 08:15	
<b>COC Number</b>					08429670	
	<b>UNITS</b>	<b>MAC</b>	<b>AO</b>	<b>OG</b>	<b>WELL SITE #7</b>	<b>RDL</b>
<b>ANIONS</b>						
Nitrite (N)	mg/L	1	-	-	<0.0050	0.0050
<b>Calculated Parameters</b>						
Nitrate (N)	mg/L	10	-	-	0.094	0.020
<b>Misc. Inorganics</b>						
Fluoride (F)	mg/L	1.5	-	-	0.022	0.010
Alkalinity (Total as CaCO3)	mg/L	-	-	-	42.7	0.50
Alkalinity (PP as CaCO3)	mg/L	-	-	-	<0.50	0.50
Bicarbonate (HCO3)	mg/L	-	-	-	52.1	0.50
Carbonate (CO3)	mg/L	-	-	-	<0.50	0.50
Hydroxide (OH)	mg/L	-	-	-	<0.50	0.50
<b>Anions</b>						
Dissolved Sulphate (SO4)	mg/L	-	500	-	6.82	0.50
Dissolved Chloride (Cl)	mg/L	-	250	-	14	0.50
<b>MISCELLANEOUS</b>						
True Colour	Col. Unit	-	15	-	<5.0	5.0
<b>Nutrients</b>						
Nitrate plus Nitrite (N)	mg/L	-	-	-	0.094	0.020
<b>Physical Properties</b>						
Conductivity	uS/cm	-	-	-	146	1.0
pH	pH	-	6.5:8.5	-	7.36	
<b>Physical Properties</b>						
Total Dissolved Solids	mg/L	-	500	-	84	10
Turbidity	NTU	see remark	see remark	see remark	0.12	0.10
No Fill	No Exceedance					
Grey	Exceeds 1 criteria policy/level					
Black	Exceeds both criteria/levels					
RDL = Reportable Detection Limit						

Maxxam Job #: B6A9178  
Report Date: 2016/12/13

VILLAGE OF CUMBERLAND  
Client Project #: DRINKING WATER  
Site Location: SITE #7 WELL  
Your P.O. #: 16-1114

**MICROBIOLOGY (DRINKING WATER)**

<b>Maxxam ID</b>			QE9905	
<b>Sampling Date</b>			2016/12/06 08:15	
<b>COC Number</b>			08429670	
	<b>UNITS</b>	<b>MAC</b>	<b>WELL SITE #7</b>	<b>RDL</b>
<b>Microbiological Param.</b>				
Total Coliforms	MPN/100mL	<1	<1	1
E. coli	MPN/100mL	<1	<1	1
No Fill	No Exceedance			
Grey	Exceeds 1 criteria policy/level			
Black	Exceeds both criteria/levels			
RDL = Reportable Detection Limit				

Maxxam Job #: B6A9178  
Report Date: 2016/12/13

VILLAGE OF CUMBERLAND  
Client Project #: DRINKING WATER  
Site Location: SITE #7 WELL  
Your P.O. #: 16-1114

**TOT. METALS W/ CV HG FOR DRINKING WATER (DRINKING WATER)**

<b>Maxxam ID</b>					QE9905	
<b>Sampling Date</b>					2016/12/06 08:15	
<b>COC Number</b>					08429670	
	<b>UNITS</b>	<b>MAC</b>	<b>AO</b>	<b>OG</b>	<b>WELL SITE #7</b>	<b>RDL</b>
<b>Calculated Parameters</b>						
Total Hardness (CaCO3)	mg/L	-	-	-	39.3	0.50
<b>Elements</b>						
Total Mercury (Hg)	ug/L	1	-	-	<0.010	0.010
<b>Total Metals by ICPMS</b>						
Total Aluminum (Al)	ug/L	-	-	100	<3.0	3.0
Total Antimony (Sb)	ug/L	6	-	-	<0.50	0.50
Total Arsenic (As)	ug/L	10	-	-	<0.10	0.10
Total Barium (Ba)	ug/L	1000	-	-	2.0	1.0
Total Beryllium (Be)	ug/L	-	-	-	<0.10	0.10
Total Bismuth (Bi)	ug/L	-	-	-	<1.0	1.0
Total Boron (B)	ug/L	5000	-	-	185	50
Total Cadmium (Cd)	ug/L	5	-	-	<0.010	0.010
Total Chromium (Cr)	ug/L	50	-	-	<1.0	1.0
Total Cobalt (Co)	ug/L	-	-	-	<0.50	0.50
Total Copper (Cu)	ug/L	-	1000	-	28.4	0.20
Total Iron (Fe)	ug/L	-	300	-	6.4	5.0
Total Lead (Pb)	ug/L	10	-	-	0.70	0.20
Total Manganese (Mn)	ug/L	-	50	-	<1.0	1.0
Total Molybdenum (Mo)	ug/L	-	-	-	<1.0	1.0
Total Nickel (Ni)	ug/L	-	-	-	<1.0	1.0
Total Selenium (Se)	ug/L	50	-	-	<0.10	0.10
Total Silicon (Si)	ug/L	-	-	-	4760	100
Total Silver (Ag)	ug/L	-	-	-	<0.020	0.020
Total Strontium (Sr)	ug/L	-	-	-	33.3	1.0
Total Thallium (Tl)	ug/L	-	-	-	<0.050	0.050
Total Tin (Sn)	ug/L	-	-	-	<5.0	5.0
Total Titanium (Ti)	ug/L	-	-	-	<5.0	5.0
Total Uranium (U)	ug/L	20	-	-	<0.10	0.10
Total Vanadium (V)	ug/L	-	-	-	<5.0	5.0
Total Zinc (Zn)	ug/L	-	5000	-	9.5	5.0
No Fill	No Exceedance					
Grey	Exceeds 1 criteria policy/level					
Black	Exceeds both criteria/levels					
RDL = Reportable Detection Limit						

Maxxam Job #: B6A9178  
Report Date: 2016/12/13

VILLAGE OF CUMBERLAND  
Client Project #: DRINKING WATER  
Site Location: SITE #7 WELL  
Your P.O. #: 16-1114

**TOT. METALS W/ CV HG FOR DRINKING WATER (DRINKING WATER)**

<b>Maxxam ID</b>					QE9905	
<b>Sampling Date</b>					2016/12/06 08:15	
<b>COC Number</b>					08429670	
	<b>UNITS</b>	<b>MAC</b>	<b>AO</b>	<b>OG</b>	<b>WELL SITE #7</b>	<b>RDL</b>
Total Zirconium (Zr)	ug/L	-	-	-	<0.50	0.50
Total Calcium (Ca)	mg/L	-	-	-	10.7	0.050
Total Magnesium (Mg)	mg/L	-	-	-	3.07	0.050
Total Potassium (K)	mg/L	-	-	-	0.326	0.050
Total Sodium (Na)	mg/L	-	200	-	12.0	0.050
Total Sulphur (S)	mg/L	-	-	-	<3.0	3.0
No Fill	No Exceedance					
Grey	Exceeds 1 criteria policy/level					
Black	Exceeds both criteria/levels					
RDL = Reportable Detection Limit						

Maxxam Job #: B6A9178  
Report Date: 2016/12/13

VILLAGE OF CUMBERLAND  
Client Project #: DRINKING WATER  
Site Location: SITE #7 WELL  
Your P.O. #: 16-1114

**GENERAL COMMENTS**

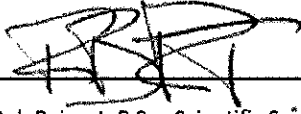
**Results relate only to the items tested.**

Maxxam Job #: B6A9178  
Report Date: 2016/12/13

VILLAGE OF CUMBERLAND  
Client Project #: DRINKING WATER  
Site Location: SITE #7 WELL  
Your P.O. #: 16-1114

**VALIDATION SIGNATURE PAGE**

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Rob Reinert, B.Sc., Scientific Spécialist

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

# VILLAGE OF CUMBERLAND WATER SUPPLY

## Facility Location:

2673 Dunsmuir Avenue  
Cumberland

## Facility Information:

Facility Type: DWT

## Facility Sampling History:

<u>Location</u>	<u>Date</u>	<u>Total Coliform</u>	<u>E. Coli</u>
Site #5 - 3607 Small Road, 3607 Small Road	8-Nov-2016	L1	L1
Site #6 - 2563 Kendall Ave, 2563 Kendall Ave	8-Nov-2016	L1	L1
Site #7 - 2476 Dunsmuir Avenue	8-Nov-2016	L1	L1
Site #3 - 4700 Cumberland Road, 4700 Cumberland Road	7-Nov-2016	L1	L1
Site #2 - 3328 Second Street, 3328 Second Street	31-Oct-2016	L1	L1
Site #1 - 2040 Derwent , 2040 Derwent	24-Oct-2016	L1	L1
Site #7 - 2476 Dunsmuir Avenue	17-Oct-2016	L1	L1
Site #1 - 2040 Derwent , 2040 Derwent	12-Oct-2016	L1	L1
Site #1 - 2040 Derwent , 2040 Derwent	12-Oct-2016	L1	L1
Site #2 - 3328 Second Street, 3328 Second Street	12-Oct-2016	L1	L1
Site #3 - 4700 Cumberland Road, 4700 Cumberland Road	12-Oct-2016	L1	L1
Site #4 - 3190 Royston Road, 3190 Royston Road	12-Oct-2016	L1	L1
Site #5 - 3607 Small Road, 3607 Small Road	12-Oct-2016	L1	L1
Site #6 - 2563 Kendall Ave, 2563 Kendall Ave	12-Oct-2016	L1	L1
Site #7 - 2476 Dunsmuir Avenue	12-Oct-2016	L1	L1
Site #6 - 2563 Kendall Ave, 2563 Kendall Ave	11-Oct-2016	L1	L1
Site #5 - 3607 Small Road, 3607 Small Road	4-Oct-2016	L1	L1
Site #4 - 3190 Royston Road, 3190 Royston Road	27-Sep-2016	L1	L1
Site #3 - 4700 Cumberland Road, 4700 Cumberland Road	19-Sep-2016	L1	L1
Site #2 - 3328 Second Street, 3328 Second Street	16-Sep-2016	L1	L1
Site #1 - 2040 Derwent , 2040 Derwent	13-Sep-2016	L1	L1
Site #2 - 3328 Second Street, 3328 Second Street	13-Sep-2016	1	L1
Site #3 - 4700 Cumberland Road, 4700 Cumberland Road	13-Sep-2016	L1	L1
Site #4 - 3190 Royston Road, 3190 Royston Road	13-Sep-2016	L1	L1
Site #5 - 3607 Small Road, 3607 Small Road	13-Sep-2016	L1	L1
Site #6 - 2563 Kendall Ave, 2563 Kendall Ave	13-Sep-2016	L1	L1

Site #7 - 2476 Dunsmuir Avenue	13-Sep-2016	L1	L1
Site #2 - 3328 Second Street, 3328 Second Street	12-Sep-2016	L1	L1
Site #1 - 2040 Derwent , 2040 Derwent	6-Sep-2016	L1	L1
Site #7 - 2476 Dunsmuir Avenue	29-Aug-2016	L1	L1
Site #6 - 2563 Kendall Ave, 2563 Kendall Ave	22-Aug-2016	L1	L1
Site #5 - 3607 Small Road, 3607 Small Road	16-Aug-2016	L1	L1
Site #1 - 2040 Derwent , 2040 Derwent	9-Aug-2016	L1	L1
Site #2 - 3328 Second Street, 3328 Second Street	9-Aug-2016	L1	L1
Site #3 - 4700 Cumberland Road, 4700 Cumberland Road	9-Aug-2016	L1	L1
Site #4 - 3190 Royston Road, 3190 Royston Road	9-Aug-2016	L1	L1
Site #4 - 3190 Royston Road, 3190 Royston Road	9-Aug-2016	L1	L1
Site #5 - 3607 Small Road, 3607 Small Road	9-Aug-2016	L1	L1
Site #6 - 2563 Kendall Ave, 2563 Kendall Ave	9-Aug-2016	L1	L1
Site #7 - 2476 Dunsmuir Avenue	9-Aug-2016	L1	L1
Site #3 - 4700 Cumberland Road, 4700 Cumberland Road	3-Aug-2016	L1	L1
Site #2 - 3328 Second Street, 3328 Second Street	25-Jul-2016	L1	L1
Site #1 - 2040 Derwent , 2040 Derwent	19-Jul-2016	L1	L1
Site #1 - 2040 Derwent , 2040 Derwent	19-Jul-2016	L1	L1
Site #2 - 3328 Second Street, 3328 Second Street	19-Jul-2016	L1	L1
Site #3 - 4700 Cumberland Road, 4700 Cumberland Road	19-Jul-2016	L1	L1
Site #4 - 3190 Royston Road, 3190 Royston Road	19-Jul-2016	L1	L1
Site #5 - 3607 Small Road, 3607 Small Road	19-Jul-2016	L1	L1
Site #6 - 2563 Kendall Ave, 2563 Kendall Ave	19-Jul-2016	L1	L1
Site #7 - 2476 Dunsmuir Avenue	19-Jul-2016	L1	L1
Site #7 - 2476 Dunsmuir Avenue	11-Jul-2016	L1	L1
Site #6 - 2563 Kendall Ave, 2563 Kendall Ave	4-Jul-2016	L1	L1
Site #5 - 3607 Small Road, 3607 Small Road	27-Jun-2016	L1	L1
Site #4 - 3190 Royston Road, 3190 Royston Road	20-Jun-2016	L1	L1
Site #1 - 2040 Derwent , 2040 Derwent	14-Jun-2016	L1	L1
Site #2 - 3328 Second Street, 3328 Second Street	14-Jun-2016	L1	L1
Site #3 - 4700 Cumberland Road, 4700 Cumberland Road	14-Jun-2016	L1	L1
Site #4 - 3190 Royston Road, 3190 Royston Road	14-Jun-2016	L1	L1
Site #5 - 3607 Small Road, 3607 Small Road	14-Jun-2016	L1	L1
Site #6 - 2563 Kendall Ave, 2563 Kendall Ave	14-Jun-2016	L1	L1
Site #7 - 2476 Dunsmuir Avenue	14-Jun-2016	L1	L1
Site #3 - 4700 Cumberland Road, 4700 Cumberland Road	13-Jun-2016	L1	L1



Site #2 - 3328 Second Street, 3328 Second Street	6-Jun-2016	L1	L1
Site #1 - 2040 Derwent , 2040 Derwent	30-May-2016	L1	L1
Site #7 - 2476 Dunsmuir Avenue	24-May-2016	L1	L1
Site #1 - 2040 Derwent , 2040 Derwent	17-May-2016	L1	L1
Site #2 - 3328 Second Street, 3328 Second Street	17-May-2016	L1	L1
Site #3 - 4700 Cumberland Road, 4700 Cumberland Road	17-May-2016	L1	L1
Site #4 - 3190 Royston Road, 3190 Royston Road	17-May-2016	L1	L1
Site #5 - 3607 Small Road, 3607 Small Road	17-May-2016	L1	L1
Site #6 - 2563 Kendall Ave, 2563 Kendall Ave	17-May-2016	L1	L1
Site #6 - 2563 Kendall Ave, 2563 Kendall Ave	17-May-2016	L1	L1
Site #7 - 2476 Dunsmuir Avenue	17-May-2016	L1	L1
Site #5 - 3607 Small Road, 3607 Small Road	9-May-2016	L1	L1
Site #4 - 3190 Royston Road, 3190 Royston Road	2-May-2016	L1	L1
Site #3 - 4700 Cumberland Road, 4700 Cumberland Road	25-Apr-2016	L1	L1
Site #1 - 2040 Derwent , 2040 Derwent	18-Apr-2016	L1	L1
Site #2 - 3328 Second Street, 3328 Second Street	18-Apr-2016	L1	L1
Site #2 - 3328 Second Street, 3328 Second Street	18-Apr-2016	L1	L1
Site #3 - 4700 Cumberland Road, 4700 Cumberland Road	18-Apr-2016	L1	L1
Site #4 - 3190 Royston Road, 3190 Royston Road	18-Apr-2016	L1	L1
Site #5 - 3607 Small Road, 3607 Small Road	18-Apr-2016	L1	L1
Site #6 - 2563 Kendall Ave, 2563 Kendall Ave	18-Apr-2016	L1	L1
Site #7 - 2476 Dunsmuir Avenue	18-Apr-2016	L1	L1
Site #1 - 2040 Derwent , 2040 Derwent	11-Apr-2016	L1	L1
Site #7 - 2476 Dunsmuir Avenue	4-Apr-2016	L1	L1
Site #6 - 2563 Kendall Ave, 2563 Kendall Ave	30-Mar-2016	L1	L1
Site #5 - 3607 Small Road, 3607 Small Road	21-Mar-2016	L1	L1
Site #1 - 2040 Derwent , 2040 Derwent	15-Mar-2016	L1	L1
Site #2 - 3328 Second Street, 3328 Second Street	15-Mar-2016	L1	L1
Site #3 - 4700 Cumberland Road, 4700 Cumberland Road	15-Mar-2016	L1	L1
Site #4 - 3190 Royston Road, 3190 Royston Road	15-Mar-2016	L1	L1
Site #5 - 3607 Small Road, 3607 Small Road	15-Mar-2016	L1	L1
Site #6 - 2563 Kendall Ave, 2563 Kendall Ave	15-Mar-2016	L1	L1
Site #7 - 2476 Dunsmuir Avenue	15-Mar-2016	L1	L1
Site #4 - 3190 Royston Road, 3190 Royston Road	14-Mar-2016	L1	L1
Site #3 - 4700 Cumberland Road, 4700 Cumberland Road	7-Mar-2016	L1	L1
	7-Mar-2016	L1	L1

Site #3 - 4700 Cumberland Road, 4700 Cumberland Road

Site #2 - 3328 Second Street, 3328 Second Street

Site #1 - 2040 Derwent , 2040 Derwent

29-Feb-2016

L1

L1

22-Feb-2016

L1

L1

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# VILLAGE OF CUMBERLAND WATER SUPPLY

**Facility Location:**

2673 Dunsmuir Avenue  
Cumberland

**Facility Information:**

Facility Type: DWT

**Facility Sampling History:**

<u>Location</u>	<u>Date</u>	<u>Total Coliform</u>	<u>E. Coli</u>
Site #1 - 2040 Derwent , 2040 Derwent	10-Feb-2016	L1	L1
Site #2 - 3328 Second Street, 3328 Second Street	10-Feb-2016	L1	L1
Site #3 - 4700 Cumberland Road, 4700 Cumberland Road	10-Feb-2016	L1	L1
Site #4 - 3190 Royston Road, 3190 Royston Road	10-Feb-2016	L1	L1
Site #5 - 3607 Small Road, 3607 Small Road	10-Feb-2016	L1	L1
Site #6 - 2563 Kendall Ave, 2563 Kendall Ave	10-Feb-2016	L1	L1
Site #7 - 2476 Dunsmuir Avenue	10-Feb-2016	L1	L1
Site #6 - 2563 Kendall Ave, 2563 Kendall Ave	9-Feb-2016	L1	L1
Site #7 - 2476 Dunsmuir Avenue	4-Feb-2016	L1	L1
Site #5 - 3607 Small Road, 3607 Small Road	2-Feb-2016	L1	L1

Show:  results per page

⬆️ PREVIOUS ⬇️ NEXT

# VILLAGE OF CUMBERLAND WATER SUPPLY

**Facility Location:**

2673 Dunsmuir Avenue  
Cumberland

**Facility Information:**

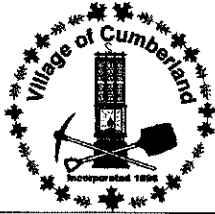
Facility Type: DWT

**Facility Sampling History:**

<u>Location</u>	<u>Date</u>	<u>Total Coliform</u>	<u>E. Coli</u>
Site #4 - 3190 Royston Road, 3190 Royston Road	25-Jan-2016	L1	L1
Site #3 - 4700 Cumberland Road, 4700 Cumberland Road	18-Jan-2016	L1	L1
Site #1 - 2040 Derwent , 2040 Derwent	11-Jan-2016	L1	L1
Site #2 - 3328 Second Street, 3328 Second Street	11-Jan-2016	L1	L1
Site #3 - 4700 Cumberland Road, 4700 Cumberland Road	11-Jan-2016	L1	L1
Site #4 - 3190 Royston Road, 3190 Royston Road	11-Jan-2016	L1	L1
Site #5 - 3607 Small Road, 3607 Small Road	11-Jan-2016	L1	L1
Site #6 - 2563 Kendall Ave, 2563 Kendall Ave	11-Jan-2016	L1	L1
Site #7 - 2476 Dunsmuir Avenue	11-Jan-2016	L1	L1
Site #1 - 2040 Derwent , 2040 Derwent	4-Jan-2016	L1	L1

Show:  results per page

⬆️ PREVIOUS ⬇️ NEXT



# Village of Cumberland Drinking Water 2016 Annual Report

Reporting Period:	
Operating Permit Number:	1414314
Drinking Water System Owner:	Corporation of the Village of Cumberland
Drinking Water System Contact:	<i>GAVIN MURCATROYD</i>
Name:	Kevin-Fitzgerald <del>MARK SPAINLEAF</del>
Phone No:	(250) 336-2291 Cell: 250-792-1593
Email:	publicworks@cumberland.ca

**1. Microbiological testing completed during this reporting period:**

- a) bacteriological results attached to this report.  None detected
- b) adverse bacteriological results:  Listed in table below:

Adverse Results:

Date	Site #	Total Coliform	E.Coli	Reason	Corrective Action
<i>SEPT 13/2016</i>	<i>#2</i>	<i>1</i>		<i>CONSTRUCTION IN VOC FIRE HYDRANT USE STIRRED UP SYSTEM</i>	<i>FLUSH + RESAMPLE</i>
<i>Oct 8</i>					

**2. Chemical results for this reporting period:**

- a) most recent chemical analysis attached to this report.
- b) chemical parameters listed in *The Guidelines for Canadian Drinking Water Quality (GCDWQ)* are:  all within the GCDWQ  
 above the GCDWQ and are listed below:

Parameters above the Guidelines:

Parameter	Result	Max. Acceptable Concentration	Aesthetic Objective	Treatment/Corrective Action

3. Summarize additional testing and sampling carried out in accordance with the requirement of a Water Source approval, Written Order or as per the conditions of your *Operating Permit*.

- no additional testing
- additional testing listed below:

Additional testing:

Description of parameter & reason for sampling	Health parameter or non-health related parameter	Corrective action necessary (YIN?)	Corrective action taken
Bromodichloromethane ug/l (mac 16)		N	
Maximum 1 for turbidity		N	
Requested by V.I.H.A			
<i>UV T ANALYSIS</i>			

4. Water Quality Complaints:

During the course of the year, the water system:

- did not receive water quality complaints (ie taste, odour, colour, etc)
- received water quality complaints and are listed below:

Water Quality Complaints:

Date	Water Quality Complaint	Corrective action taken
<i>AUG 19/2016</i>	<i>DISCOLOURED WATER DUE TO CONSTRUCTION ON DUNSMUIR</i>	<i>FLUSH AREA EFFECTED</i>
<i>NOV 7/2016</i>	<i>COLOURED WATER BOODING TRUCK USING HYDRANT STIRRED UP W-MAIN</i>	<i>FLUSHED AREA EFFECTED</i>

5. Adverse results: Total number of adverse results during this reporting period for insufficient water supply, malfunction of disinfection equipment or elevated turbidity:

- No adverse results
- Adverse results listed below:

Adverse Results

Incident date	Corrective action	Corrected by
<i>OCT 18/2016</i>	<i>HIGH TURBIDITY FIRE VALVE OPENED IN PRV CHAMBER</i>	<i>REMOVE BLOCKAGE FROM PILOT VALVE SUPPLY LINE WHICH CAUSED FIRE VALVE TO REMAIN OPEN ONCE FIXED TURBIDITY LEVELS RETURNED TO NORMAL</i>

6. Description of the system:

Sources of raw water:

- Groundwater
- Surface water
- Other (specify): \_\_\_\_\_

Does the drinking water system have disinfection?  Yes  No Disinfection methods (check boxes that apply):

- Chlorination
- Ultraviolet light
- Ozonation
- Other (specify): \_\_\_\_\_

Does the drinking water system have treatment?  Yes  No treatment type (check boxes that apply):

- Particulate cartridge filters
- Membrane filtration
- Carbon filter
- Sand filtration
- Reverse osmosis
- Other (specify): \_\_\_\_\_

**7. Major expenses incurred during the period covered by the report:**

*2015*

To purchase or install required equipment:	
To repair equipment:	
To replace equipment:	
To complete annual maintenance of system: (system flushing, replacement of carbon filters, etc)	
To complete specialist report (specify):	

**8. Further communication with users:**

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

- hand delivered
- public access/notice via web
- public access/notice via government office
- public access/notice via newspaper
- public access/notice via bill stuffier
- public access/notice via other method (specify): \_\_\_\_\_

b) Improvements or remedial actions required by the Drinking Water Officer:

- no action required
- drinking Water Officer inspection report attached to report
- actions required by Drinking Water Officer listed below:

Improvements/Remedial Action

Required Action	Completion Date

*For Rep.*

<p>First water user is 1 Km. from injection point. At a flow rate of 30 lps. (which is high.) The waterline is twinned after injection and travels to town in two separate 12 inch diameter lines. As the attached chart indicates the contact time would be approximately 40 minutes.</p>	
--	--

c) Future water system improvements:

- no improvements planned
- improvements listed below:

Future Improvements

Future plans	Planned Completion Date
	2016/17

d) Emergency Response Plan can be accessed by:

- posting on web
- posting at nearest government office
- contacting water system owner
- other (specify) Rachel Parker (250-336-2291)

*↳ DONALD PARKER*