Newfoundland Labrador

Government of Newfoundland and Labrador
Department of Environment and Conservation
Water Resources Management Division

May 1, 2012

Daphe Coles
PO Box 100
Seldom NL A0G 320

Re: 2011 Summer Drinking Water Quality Report
Fogo

Dear Ms. Coles,

Please find attached the 2011 Summer Drinking Water Quality Report for your community's public drinking water supply. You may find attached up to six appendices as listed below, depending upon the type of monitoring undertaken for your water supply:

- Appendix A - Source Water
- Appendix B - Tap Water
- Appendix C - Trihalomethanes (THMs)
- Appendix D - Haloacetic Acids (HAAs)
- Appendix E - Langelier Index (LI) Report
- Appendix F - Water Quality Index (WQI) Report

The following are highlights of the report format that have been implemented in order to make the report more efficient:

- Regular and exceedance water quality information are combined in the same table where aesthetic exceedances are indicated with a partial box around the parameter value and contaminant exceedances are indicated with a full box around the parameter value.
- Less than detect values are stored as zero's and indicated with the text LTD. Less than detect values were previously reported as being equal to half the detection limit.
- For groundwater source samples, a remarks field is shown. The text in this field is used to identify a particular wellhead when multiple source samples are taken in a well field.
- A Water Quality Index Report and a Langelier Index Report may be included for your water supply if all of the required parameters for calculation were available. Information regarding these reports is included below.

A brief description of each appendix and the rationale for the tested parameters follows.

Appendix A - Source Water

Source water samples are collected directly from the source such as a groundwater well, lake, pond, or stream prior to disinfection or other treatment.

The source water quality is analyzed to determine the quality of water that flows into your water treatment and distribution system. The quality of this water is a direct indicator of the health of the ecosystem that makes up the wellhead recharge area or watershed area. Monitoring of source water quality is the most important tool to assess the impact of land use changes on source water quality and to ensure the integrity of a public water supply.

The exceedance report for source water provides a brief discussion and interpretation of those water quality parameters, if any, that exceed the acceptable limits as set out in the latest edition of the *Guidelines for Canadian Drinking Water Quality* (GCDWQ). This comparison is only for screening purposes since presently, there are no guidelines for untreated source water. The GCDWQ applies to water at consumers tap. However, in the absence of water treatment, these guidelines are applicable to source water quality.

Appendix B - Tap Water

Tap water samples are collected semi-annually or quarterly from drinking water faucets of one or more homes, public buildings, or businesses in your community, approximately three quarters of the way along the distribution system, in accordance with criteria established in the GCDWQ.

Tap or treated water quality is monitored to check its compliance with the GCDWQ. Tap water quality is also monitored so that water that is being consumed at the tap can be compared with the untreated source water quality. Any variations between source and tap water quality represents the effectiveness of the treatment and disinfection system, and the influences of the distribution system due to plumbing in local homes, public buildings, or businesses.

The exceedance report for tap water provides a brief discussion and interpretation of those water quality parameters, if any, that exceed the acceptable limits as set out in the GCDWQ.

Appendix C - Trihalomethanes (THMs)

THM samples are generally collected quarterly from drinking water faucets of one or more homes, public buildings, or businesses in your community, approximately three quarters of the way along the distribution system, in accordance with criteria established in the GCDWQ. The GCDWQ recommend a maximum acceptable concentration (MAC) of 100 micrograms per litre (µg/L) for THMs in drinking water, based on a locational running annual average of a minimum of quarterly samples taken in the distribution system. THMs are compounds which may form when source water containing natural organic matter, for example the decay products of living things such as plants, leaves, human and animal wastes, is treated with chlorine. THMs are chlorinated disinfection by-products.

Appendix D - Haloacetic Acids (HAAs)

HAA samples are generally collected quarterly from drinking water faucets of one or more homes, public buildings, or businesses in your community, at an appropriate location in the distribution system. The GCDWQ recommend a maximum acceptable concentration (MAC) of 80 micrograms per litre (µg/L) for HAAs in drinking water, based on a locational running annual average of a minimum of quarterly samples taken in the distribution system. HAAs are also compounds that may form in drinking water that has been disinfected with chlorine. HAAs are chlorinated disinfection by-products.

Appendix E - Water Quality Index (WQI) Report

A WQI is a means to summarize water quality data into simple terms (e.g. good) for reporting to the public in a consistent manner. Similar to the UV index or an air quality index, it tells us in simple terms, the condition of drinking water quality from a water supply. This index is based on the six most recent tap samples.

Appendix F - Langelier Index (LI) Report

The Langelier Index is one of several tools used by a water operator for stabilizing water to control both internal corrosion of the piping system and the deposition of scale. The LI is an approximate measure of the degree of saturation of calcium carbonate in water. It is calculated using the pH, alkalinity, hardness, total dissolved solids, and water temperature of a water sample collected at the tap.

We suggest that this data be posted for public information in a public place, such as a bulletin board in your council office, post office, or otherwise be made available to your community's residents. Please be advised that the Minister of Environment and Conservation may release this data to any third party upon their request, and may also publicly disseminate the information details.

If there are any questions concerning the drinking water quality monitoring program or the attached reports, please contact the Department of Environment and Conservation's representative listed below:

- Paul James (709) 292-4220

Sincerely,

Ben Hammond
Environmental Scientist

cc: Mr. Haseen Khan, P.Eng., Director, Water Resources Management Division, Department of Environment and Conservation
Dr. Ann Roberts Medical Officer of Health

Attachments

Newfoundland Labrador Department of Environment and Conservation

Appendix C-1
THMs Summary for Public Water Supplies

Region: C

Community Name: Fogo Island

Serviced Area(s): Fogo

Source Name: Freeman's Pond

Trihalomethanes (THMs) are compounds which may form when source water containing natural organic matter, for example the decay products of living things such as plants, leaves, human and animal wastes, is treated with chlorine. THMs are chlorinated disinfection by-products. THMs formation is highly variable, being dependent upon a variety of factors including: source water quality, chlorine dose, temperature, pH, chlorine demand, distribution system characteristics, and contact time.

THMs samples are collected from drinking water faucets of one or more homes, public buildings, or business in your community. At each site, the chlorine residual (free and/or total) and water temperature are also measured.

The Department of Environment and Conservation has staff permanently assigned to work with communities where THMs levels are routinely higher than the recommended limit.

Please note that running annual averages of quarterly samples or simple averages are posted on the Department of Environment and Conservation's web site, and are updated periodically. If you have any questions please feel free to contact the nearest regional office of the Department of Environment and Conservation. If you have access to the Internet, more information is available at:

http://www.gov.nf.ca/env/Env/waterres/Surfacewater/THM/THM.asp

The Guidelines for Canadian Drinking Water Quality, Sixth Edition recommend an interim maximum acceptable concentration of 100 micrograms per litre (µg/L) for THMs in drinking water, based on a running annual average of quarterly samples, collected at a point with the highest potential THM levels.

The simple average THM concentrations for your community was 44.3 µg/L

Because samples were collected only in less than four seasons, this data cannot be compared to the recommended guideline. A minimum of four samples per year, one in each season, are required to determine if a particular water supply meets or exceeds the recommended guideline.

Newfoundland Labrador Department of Environment and Conservation

Appendix C-1
THMs Summary for Public Water Supplies

Region: C

Community Name: Fogo Island

Serviced Area(s): Joe Batt's Arm-Barr'd Islands-Shoal Bay

Source Name: Long Pond

Trihalomethanes (THMs) are compounds which may form when source water containing natural organic matter, for example the decay products of living things such as plants, leaves, human and animal wastes, is treated with chlorine. THMs are chlorinated disinfection by-products. THMs formation is highly variable, being dependent upon a variety of factors including: source water quality, chlorine dose, temperature, pH, chlorine demand, distribution system characteristics, and contact time.

THMs samples are collected from drinking water faucets of one or more homes, public buildings, or business in your community. At each site, the chlorine residual (free and/or total) and water temperature are also measured.

The Department of Environment and Conservation has staff permanently assigned to work with communities where THMs levels are routinely higher than the recommended limit.

Please note that running annual averages of quarterly samples or simple averages are posted on the Department of Environment and Conservation's web site, and are updated periodically. If you have any questions please feel free to contact the nearest regional office of the Department of Environment and Conservation. If you have access to the Internet, more information is available at:

http://www.gov.nf.ca/env/Env/waterres/Surfacewater/THM/THM.asp

The Guidelines for Canadian Drinking Water Quality, Sixth Edition recommend an interim maximum acceptable concentration of 100 micrograms per litre (µg/L) for THMs in drinking water, based on a running annual average of quarterly samples, collected at a point with the highest potential THM levels.

The running annual average THM concentrations for your community was 68.7 µg/L

This value meets the recommended guideline of 100 µg/L.

Newfoundland Labrador Department of Environment and Conservation

Appendix C-1
THMs Summary for Public Water Supplies

Region: C

Community Name: Fogo Island

Serviced Area(s): Seldom-Little Seldom

Source Name: Bullock Cove Pond

Trihalomethanes (THMs) are compounds which may form when source water containing natural organic matter, for example the decay products of living things such as plants, leaves, human and animal wastes, is treated with chlorine. THMs are chlorinated disinfection by-products. THMs formation is highly variable, being dependent upon a variety of factors including: source water quality, chlorine dose, temperature, pH, chlorine demand, distribution system characteristics, and contact time.

THMs samples are collected from drinking water faucets of one or more homes, public buildings, or business in your community. At each site, the chlorine residual (free and/or total) and water temperature are also measured.

The Department of Environment and Conservation has staff permanently assigned to work with communities where THMs levels are routinely higher than the recommended limit.

Please note that running annual averages of quarterly samples or simple averages are posted on the Department of Environment and Conservation's web site, and are updated periodically. If you have any questions please feel free to contact the nearest regional office of the Department of Environment and Conservation. If you have access to the Internet, more information is available at:

http://www.gov.nf.ca/env/Env/waterres/Surfacewater/THM/THM.asp

The Guidelines for Canadian Drinking Water Quality, Sixth Edition recommend an interim maximum acceptable concentration of 100 micrograms per litre (µg/L) for THMs in drinking water, based on a running annual average of quarterly samples, collected at a point with the highest potential THM levels.

The running annual average THM concentrations for your community was 153.3 µg/L

This value exceeds the recommended guideline of 100 µg/L.

Newfoundland Labrador Department of Environment and Conservation

Appendix C-1
THMs Summary for Public Water Supplies

Region: C

Community Name: Fogo Island

Serviced Area(s): Tilting

Source Name: Sandy Cove Pond

Trihalomethanes (THMs) are compounds which may form when source water containing natural organic matter, for example the decay products of living things such as plants, leaves, human and animal wastes, is treated with chlorine. THMs are chlorinated disinfection by-products. THMs formation is highly variable, being dependent upon a variety of factors including: source water quality, chlorine dose, temperature, pH, chlorine demand, distribution system characteristics, and contact time.

THMs samples are collected from drinking water faucets of one or more homes, public buildings, or business in your community. At each site, the chlorine residual (free and/or total) and water temperature are also measured.

The Department of Environment and Conservation has staff permanently assigned to work with communities where THMs levels are routinely higher than the recommended limit.

Please note that running annual averages of quarterly samples or simple averages are posted on the Department of Environment and Conservation's web site, and are updated periodically. If you have any questions please feel free to contact the nearest regional office of the Department of Environment and Conservation. If you have access to the Internet, more information is available at:

http://www.gov.nf.ca/env/Env/waterres/Surfacewater/THM/THM.asp

The Guidelines for Canadian Drinking Water Quality, Sixth Edition recommend an interim maximum acceptable concentration of 100 micrograms per litre (µg/L) for THMs in drinking water, based on a running annual average of quarterly samples, collected at a point with the highest potential THM levels.

The running annual average THM concentrations for your community was 270.8 µg/L

This value exceeds the recommended guideline of 100 µg/L.

Newfoundland Labrador

Department of Environment and Conservation

Appendix C-2
THMs Summary for Public Water Supplies

Region: C

COMMUNITY NAME	SERVICED AREA	SOURCE NAME	SAMPLE DATE	THM TOTAL
Fogo Island	Fogo	Freeman's Pond	September 20, 2011	63.30
Fogo Island	Joe Batt's Arm-Barr'd Islands-Shoal Bay	Long Pond	September 20, 2011	69.90
Fogo Island	Seldom-Little Seldom	Bullock Cove Pond	September 20, 2011	43.20
Fogo Island	Tilting	Sandy Cove Pond	September 20, 2011	301.00

µg/l - All THM values are reported in micrograms per litre (µg/l) which is the same as parts per billion.

LTD = Less Than Detect

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Appendix D-1
HAAs Summary for Public Water Supplies

Region: C

Community Name: Fogo Island

Serviced Area(s): Fogo

Source Name: Freeman's Pond

Haloacetic acids (HAAs) are compounds which may form when source water containing natural organic matter (for example decaying leaves and vegetation) is treated with chlorine. HAAs are a chlorinated disinfection by-product. HAA formation is highly variable both within and between drinking water systems. Factors affecting HAA formation include: source water quality (natural organic material, bromide, pH season, temperature) and treatment conditions (chlorine dose, chlorine demand, distribution system characteristics, and contact time).

HAA samples are collected from drinking water faucets of one or more homes, public buildings, or business in your community. At each site, the chlorine residual (free and/or total) and water temperature are also measured.
The Department of Environment and Conservation has staff permanently assigned to work with communities where HAA levels are routinely higher than the recommended limit.

Please note that running annual averages of quarterly samples or simple averages are posted on the Department of Environment and Conservation's web site, and are updated periodically. If you have any questions please feel free to contact the nearest regional office of the Department of Environment and Conservation. If you have access to the Internet, more information is available at:
http://www.gov.nf.ca/env/Env/waterres/Surfacewater/HAA/HAA.asp

The Guidelines for Canadian Drinking Water Quality recommend a maximum acceptable concentration (MAC) of 80 micrograms per litre (µg/L) for HAAs in drinking water, based on a locational running annual average of a minimum of quarterly samples taken in the distribution system. As per guideline, total HAAs refers to the total of monochloroacetic acid (MCA), dichloroacetic acid (DCA), trichloroacetic acid (TCA), monobromoacetic acid (MBA) and dibromoacetic acid (DBA).

The collect point for HAAs should be where historical data show the highest HAA concentrations. A minimum of four samples per year, one in each season, are required to determine if a particular water supply meets or exceeds the recommended limit.

Running Annual Average is computed when data is available for all of the past 4 quarterly sampling periods. Running Annual averages are directly comparable with the national guideline of 80 µg/l.

Simple Average is computed when data is not available for all of the past 4 quarterly sampling periods. This data cannot be compared to the recommended guideline.

The simple average HAA concentrations for your community was 77.9 µg/L

Because samples were collected only in less than four seasons, this data cannot be compared to the recommended guideline. A minimum of four samples per year, one in each season, are required to determine if a particular water supply meets or exceeds the recommended guideline.

Newfoundland Labrador Department of Environment and Conservation

Appendix D-1
HAAs Summary for Public Water Supplies

Region: C

Community Name: Fogo Island

Serviced Area(s): Joe Batt's Arm-Barr'd Islands-Shoal Bay

Source Name: Long Pond

Haloacetic acids (HAAs) are compounds which may form when source water containing natural organic matter (for example decaying leaves and vegetation) is treated with chlorine. HAAs are a chlorinated disinfection by-product. HAA formation is highly variable both within and between drinking water systems. Factors affecting HAA formation include: source water quality (natural organic material, bromide, pH season, temperature) and treatment conditions (chlorine dose, chlorine demand, distribution system characteristics, and contact time).

HAA samples are collected from drinking water faucets of one or more homes, public buildings, or business in your community. At each site, the chlorine residual (free and/or total) and water temperature are also measured.
The Department of Environment and Conservation has staff permanently assigned to work with communities where HAA levels are routinely higher than the recommended limit.

Please note that running annual averages of quarterly samples or simple averages are posted on the Department of Environment and Conservation's web site, and are updated periodically. If you have any questions please feel free to contact the nearest regional office of the Department of Environment and Conservation. If you have access to the Internet, more information is available at:
http://www.gov.nf.ca/env/Env/waterres/Surfacewater/HAA/HAA.asp

The Guidelines for Canadian Drinking Water Quality recommend a maximum acceptable concentration (MAC) of 80 micrograms per litre (µg/L) for HAAs in drinking water, based on a locational running annual average of a minimum of quarterly samples taken in the distribution system. As per guideline, total HAAs refers to the total of monochloroacetic acid (MCA), dichloroacetic acid (DCA), trichloroacetic acid (TCA), monobromoacetic acid (MBA) and dibromoacetic acid (DBA).

The collect point for HAAs should be where historical data show the highest HAA concentrations. A minimum of four samples per year, one in each season, are required to determine if a particular water supply meets or exceeds the recommended limit.

Running Annual Average is computed when data is available for all of the past 4 quarterly sampling periods. Running Annual averages are directly comparable with the national guideline of 80 µg/l.

Simple Average is computed when data is not available for all of the past 4 quarterly sampling periods. This data cannot be compared to the recommended guideline.

The running annual average HAA concentrations for your community was 334.5 µg/L

This value exceeds the recommended guideline of 80 µg/L.

Newfoundland Labrador Department of Environment and Conservation

Appendix D-1
HAAs Summary for Public Water Supplies

Region: C

Community Name: Fogo Island

Serviced Area(s): Seldom-Little Seldom

Source Name: Bullock Cove Pond

Haloacetic acids (HAAs) are compounds which may form when source water containing natural organic matter (for example decaying leaves and vegetation) is treated with chlorine. HAAs are a chlorinated disinfection by-product. HAA formation is highly variable both within and between drinking water systems. Factors affecting HAA formation include: source water quality (natural organic material, bromide, pH season, temperature) and treatment conditions (chlorine dose, chlorine demand, distribution system characteristics, and contact time).

HAA samples are collected from drinking water faucets of one or more homes, public buildings, or business in your community. At each site, the chlorine residual (free and/or total) and water temperature are also measured.
The Department of Environment and Conservation has staff permanently assigned to work with communities where HAA levels are routinely higher than the recommended limit.

Please note that running annual averages of quarterly samples or simple averages are posted on the Department of Environment and Conservation's web site, and are updated periodically. If you have any questions please feel free to contact the nearest regional office of the Department of Environment and Conservation. If you have access to the Internet, more information is available at:
http://www.gov.nf.ca/env/Env/waterres/Surfacewater/HAA/HAA.asp

The Guidelines for Canadian Drinking Water Quality recommend a maximum acceptable concentration (MAC) of 80 micrograms per litre (µg/L) for HAAs in drinking water, based on a locational running annual average of a minimum of quarterly samples taken in the distribution system. As per guideline, total HAAs refers to the total of monochloroacetic acid (MCA), dichloroacetic acid (DCA), trichloroacetic acid (TCA), monobromoacetic acid (MBA) and dibromoacetic acid (DBA).

The collect point for HAAs should be where historical data show the highest HAA concentrations. A minimum of four samples per year, one in each season, are required to determine if a particular water supply meets or exceeds the recommended limit.

Running Annual Average is computed when data is available for all of the past 4 quarterly sampling periods. Running Annual averages are directly comparable with the national guideline of 80 µg/l.

Simple Average is computed when data is not available for all of the past 4 quarterly sampling periods. This data cannot be compared to the recommended guideline.

The running annual average HAA concentrations for your community was 194.2 µg/L

This value exceeds the recommended guideline of 80 µg/L.

Newfoundland Labrador Department of Environment and Conservation

Appendix D-1
HAAs Summary for Public Water Supplies

Region: C

Community Name: Fogo Island

Serviced Area(s): Tilting

Source Name: Sandy Cove Pond

Haloacetic acids (HAAs) are compounds which may form when source water containing natural organic matter (for example decaying leaves and vegetation) is treated with chlorine. HAAs are a chlorinated disinfection by-product. HAA formation is highly variable both within and between drinking water systems. Factors affecting HAA formation include: source water quality (natural organic material, bromide, pH season, temperature) and treatment conditions (chlorine dose, chlorine demand, distribution system characteristics, and contact time).

HAA samples are collected from drinking water faucets of one or more homes, public buildings, or business in your community. At each site, the chlorine residual (free and/or total) and water temperature are also measured.
The Department of Environment and Conservation has staff permanently assigned to work with communities where HAA levels are routinely higher than the recommended limit.

Please note that running annual averages of quarterly samples or simple averages are posted on the Department of Environment and Conservation's web site, and are updated periodically. If you have any questions please feel free to contact the nearest regional office of the Department of Environment and Conservation. If you have access to the Internet, more information is available at:
http://www.gov.nf.ca/env/Env/waterres/Surfacewater/HAA/HAA.asp

The Guidelines for Canadian Drinking Water Quality recommend a maximum acceptable concentration (MAC) of 80 micrograms per litre (µg/L) for HAAs in drinking water, based on a locational running annual average of a minimum of quarterly samples taken in the distribution system. As per guideline, total HAAs refers to the total of monochloroacetic acid (MCA), dichloroacetic acid (DCA), trichloroacetic acid (TCA), monobromoacetic acid (MBA) and dibromoacetic acid (DBA).

The collect point for HAAs should be where historical data show the highest HAA concentrations. A minimum of four samples per year, one in each season, are required to determine if a particular water supply meets or exceeds the recommended limit.

Running Annual Average is computed when data is available for all of the past 4 quarterly sampling periods. Running Annual averages are directly comparable with the national guideline of 80 µg/l.

Simple Average is computed when data is not available for all of the past 4 quarterly sampling periods. This data cannot be compared to the recommended guideline.

The running annual average HAA concentrations for your community was 106.8 µg/L

This value exceeds the recommended guideline of 80 µg/L.

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Appendix D-2
HAAs Summary for Public Water Supplies

Region: C

COMMUNITY NAME	SERVICED AREA	SOURCE NAME	SITE #	SAMPLE DATE	MCA	MBA	DCA	TCA	DBA	HAA5	BCA	HAAs TOTAL
Fogo Island	Fogo	Freeman's Pond	03	September 20, 2011	4.10	0.00	59.20	60.70	0.00	124.00		124.00
Fogo Island	Joe Batt's Arm-Barr'd Islands-Shoal Bay	Long Pond	03	September 20, 2011	4.70	0.00	157.00	156.00	0.00	317.70		318.00
Fogo Island	Seldom-Little Seldom	Bullock Cove Pond	03	September 20, 2011	0.00	0.00	21.40	11.00	0.00	32.40		32.40
Fogo Island	Tilting	Sandy Cove Pond	03	September 20, 2011	2.10	0.00	4.10	20.10	0.00	26.30		26.30

Haloacetic acids (HAAs) are a chlorinated disinfection by-product. HAAs are compounds which may form when source water containing natural organic matter (for example decaying leaves and vegetation) is treated with chlorine. The Guidelines for Canadian Drinking Water Quality recommend a maximum acceptable concentration (MAC) of 80 micrograms per litre (µg/L) for HAAs in drinking water, based on a locational running annual average of a minimum of quarterly samples taken in the distribution system (see Appendix D-1 for your HAA Average).

As per the guideline, HAAs refers to the total of monochloroacetic acid (MCA), dichloroacetic acid (DCA), trichloroacetic acid (TCA), monobromoacetic acid (MBA) and dibromoacetic acid (DBA). These are the most commonly occuring HAAs and are refered to as HAA5. It is HAA5 that is used in calculating the running annual average which is compared to the guideline.These are the parameters in bold and outlined by the box above. The lab which analyzes your water quality also reports bromochloroacetic acid (BCA) and adds this to the sum of HAA5 to report HAA Total. These values are not used in the HAA Average calculation.

Discrepancies between the HAAs Total reported by the lab and the summing of the individual HAA components are related to the management and reporting of Less Than Detect (LTD) values.

µg/l - All HAAs values are reported in micrograms per litre (µg/l) which is the same as parts per billion.