

2010 WATER QUALITY REPORT



Birch Bay Water & Sewer District PWSID 95904U

This report describes your drinking water sources and quality, and explains how this quality compares to stringent federal water quality standards. This publication conforms to the federal regulation requiring water utilities to provide water quality information annually.



Although this report is necessarily technical, we are attempting to provide it in a user-friendly format. Our goal is to help you understand what is in your water – and what isn't. Your drinking water is tested by the City of Blaine and the District to ensure the water delivered to your home meets all federal and state water quality standards.

We are pleased to report that your drinking water meets or exceeds all Federal and State requirements.



BLAINE WATERSHED SUPPLIES YOUR DRINKING WATER

Blaine's water source is a system of deep wells tapping into aquifers underlying the City's forested reserve east of Boblett Street, south of H St, and west of Harvey Rd.



WHY MONITOR?

The sources of drinking water (both tap & bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface or under the ground, it dissolves naturally occurring minerals and can pick up substances resulting from the presence of animals or human activity.

ALL DOH TEST DATA (for any system in WA) is available on-line at <http://www.doh.wa.gov/ehp/dw/sentry.htm>.

Contaminants that may be present in source water include:

Microbial Contaminants (viruses, parasites, bacteria)

Inorganic Contaminants (salts & metals, naturally occurring or as a result of runoff, industrial discharges, mining, farming), **Pesticides & Herbicides** (from agriculture, stormwater runoff, residential uses),

Organic Chemicals (byproducts of industrial processes, gas stations, septic systems), and,



Radioactive Contaminants (naturally occurring or as a result of mining and/or oil & gas production).

WHO DECIDES WHAT?

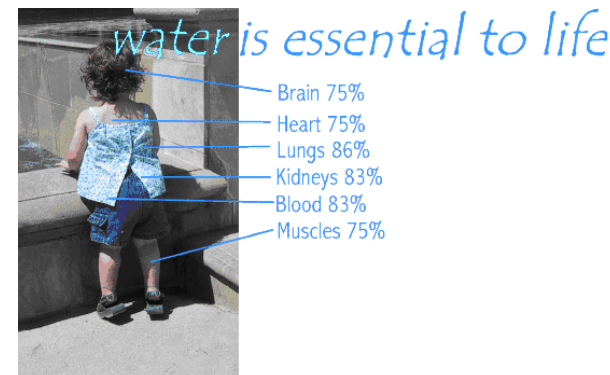
In order to ensure that **tap water** is safe to drink, the WA Department of Health and the **United States Environmental Protection Agency (EPA)** prescribe regulations that limit the amount of certain contaminants in water provided by public water systems.

The Food & Drug Administration (FDA) and the Washington Department of Agriculture regulations establish limits for contaminants in **bottled water**.

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (1-800-426-4791).



Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC (Center for Disease Control) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).



The **City of Blaine** protects, provides, and treats our water supply. Various monitoring occurs at specific frequencies (continuously, daily, monthly, quarterly or annually) and at different locations (prior to treatment, entering the distribution system, and throughout the distribution system) in accordance with federal and state regulations. The City testing includes inorganic substances (IOCs), synthetic organic compounds (SOCs), volatile organic compounds (VOCs), microbial substances, and chlorine disinfection by-products.



The **Birch Bay Water & Sewer District** purchases water from Blaine, designs, operates, repairs, and maintains your local water storage and distribution system. The District also checks chlorine levels, monitors & inspects new construction, and follows coliform bacteria, lead & copper, chlorine byproducts, and asbestos sampling & monitoring plans in which water sample tests are taken at various locations and frequencies to assure water quality. Specific District water quality questions can be directed to the District's Operations Manager, Mike Sowers, at (360) 371-7100.

Maximum Contaminant Levels (MCLs) are set at very stringent levels. To understand the possible health effects described for many regulated constituents, *a person would have to drink two liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.*

ARSENIC: Your drinking water meets EPA's standard for arsenic. However, it does contain low levels of arsenic as can be seen in the Test Results on the flip side. There is a small chance that some people who drink water containing low levels of arsenic for many years could develop circulatory disease, cancer, or other health problems. Most types of cancer and circulatory diseases are due to factors other than exposure to arsenic. EPA's standard balances the current understanding of arsenic's health effects against the costs of removing arsenic from drinking water.



Chlorine is added by Blaine to ensure the water is safely disinfected, however; residual chlorine within our system is minimal, much less than most surrounding communities. Within our system, **free-chlorine residual averages about 0.05 ppm** (parts per million); this is about 80X less than the maximum residual disinfectant limit of 4.0 ppm.



CHLORINE MONITORING:

The District recently installed a second continuous chlorine monitoring analyzer. The District can now ensure that all water brought into the system from Blaine has a slight free chlorine residual (for protection) at *all* times. These monitors will provide alarms in the event that chlorine becomes too low (and/or too high) and will allow the District to take a proactive approach to protect our system if such an event happens.

FLUSHING: The District is continuing with an aggressive flushing program to provide optimum water quality. The intent is for every hydrant and blow-off to be flushed at least once every 3 years. Temporary discoloration of lines may occur during flushing. If discoloration occurs, avoid doing laundry or using hot water. If discolored, run the COLD water tap or an outside hose faucet until the water is clear.



A+

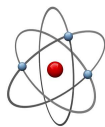
ALL SAMPLES WERE GOOD!

We are pleased to report that all monitoring & compliance sample results for 2010 were good: no contamination or *potential* contamination and/or samples were below guidelines & limits. This included disinfection byproduct, lead & copper, and, over 100 coliform samples.

CHROMIUM - This inorganic contaminant is receiving attention, particularly in CA, as a result of the Erin Brockovich story. The potentially allergic dermatitis or cancer-causing contaminant can occur naturally, but high levels can be a result of industrial activity. Levels of chromium in our water varied from .005 to 0.01 ppm over the last 9 years. This is 10x to 20x less than the WA state maximum contaminant level of 0.1 ppm.

RADIONUCLIDES

A radionuclide is an atom with an unstable nucleus which, to become more stable, emits energy in the form of rays or high speed particles. This is called ionizing radiation because it can create "ions" by displacing electrons in the body e.g. in the DNA, disrupting its function.



Approximately 80% of our exposure to radioactivity is natural and another 20% is from man made sources, although more frequent use of diagnostic imaging involving radiation (x-rays, CT scans) is increasing exposure from this source. Natural occurring radiation includes radon gas emanating from rocks & soil, and cosmic radiation from space. We also carry small amounts of potassium-40 in our bodies from the foods containing potassium. Depending on the type of rocks where you live, 55 to 70% of natural exposure comes from radon gas, while cosmic radiation (which is greater at higher

altitude) represents about 11%, and potassium-40 about 5%. Radiation may exist in drinking water from nuclides dissolved in the water from natural sources in the earth or occasionally from releases from laboratories or nuclear power plants

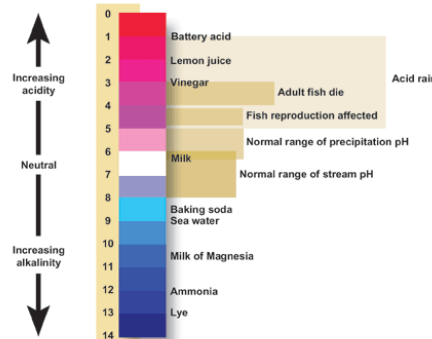
TEST RESULTS

HARDNESS: Our water's hardness is between 46 and 86 ppm; considered *moderate*. Hardness is NOT a health hazard, but if water is too hard, deposits & scaling can occur, and a water softener may be needed.

Classification	mg/l or ppm	grains/gal
Soft	0 - 17.1	0 - 1
Slightly hard	17.1 - 60	1 - 3.5
Moderately hard	60 - 120	3.5 - 7.0
Hard	120 - 180	7.0 - 10.5
Very Hard	180 & over	10.5 & over

pH

Your water varies between a pH of 7.8 and 8.2, with an average of about 8.0.



MICROBIAL:

Over 100 samples were drawn and tested for total coliform (fecal & e.coli) bacteria within the District. Samples are drawn on a monthly, rotating basis, throughout the entire distribution system. All tests were satisfactory.

DEFINITIONS and ACRONYMS

AL - Action Level The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

MCL - Maximum Contaminant Level The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MCLG - Maximum Contaminant Level Goal The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

n/a - Non-applicable. No MCLG established for this compound.

ppm - parts per million (milligrams per liter) One part per million corresponds to one minute in two years; a single penny in \$10,000.

ppb - parts per billion (micrograms per liter) One part per billion corresponds to one minute in 2,000 years; a single penny in \$10,000,000.

pCi/L - Picouries per liter. A unit of measuring radionuclide levels

INORGANIC CONTAMINANTS

(Measured at wells)

Detected Compounds	Violation Yes/No	Detected Range	Average	Units	MCLG	MCL	Likely Source of Contamination
Arsenic*	No	2	2	ppb	n/a	10	Erosion of natural deposits; runoff from orchards; runoff from glass & electronics production wastes
Barium*	No	0.02	0.02	ppm	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Flouride*	No	0.2	0.2	ppm	4	4	Erosion of natural deposits; discharge from fertilizer and aluminum factories; additive (in some communities) which promotes strong teeth
Nitrate (as Nitrogen)*	No	0.05-1.06	0.65	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Chromium**	No	0.005	0.005	ppm	0.1	0.1	Industry, natural al deposits
Radionuclides Radium 228 **	No	0.2-1.3	0.59	pCi/L	Zero	5.0	Naturally Occurring, Labs, Power Plants

* Testing conducted in 2010 by City of Blaine. Frequency as per DOH

** Jun 2010 by COB.

VOLATILE ORGANIC CONTAMINANTS

(Measured in the distribution system)

Contaminant	Violation Yes/No	Level Detected	Units	MCLG	MCL	Likely Source of Contamination
HAA* (Haloacetic Acids)	No	0.00 to 1.10	ppb	n/a	60	Byproduct of drinking water disinfection (chlorine)
TTHM* (Total trihalomethanes)	No	0.00 to 7.75	ppb	n/a	80	By-product of drinking water chlorination (chlorine)

* Quarterly Tests (4 samples) from Aug 2008-May 2009 by BBWSD.

INORGANIC PARAMETERS

(Measured at home sites)

Detected Compounds	Violation Yes/No	Detected Range	90th Percentile	Units	MCLG	AL	Typical source
Lead*	No	.001-.002	.001	ppm	0	.015	Corrosion of household plumbing systems, erosion of natural deposits
Copper*	No	0.005 - 0.128 mg/l	0.090	ppm	1.3	1.3	Corrosion of household plumbing systems; erosion of natural deposits
Asbestos**	No	0.13		# of fibers/L x 10 ⁶ > microns	7 MFL	7 MFL	Naturally occurring, asbestos-cement pipe. Asbestos in excess of MCL over many years may increase chance of developing intestinal polyps.

*Samples drawn between Sep 23 and Sep 24, 2010 from 20 residences within BBWSD system. Frequency per DOH.

** Aug 2010 by COB. MFL = Millions of Fibers per Liter, where a value of "7" = 7 million fibers greater than 10µm in length, per liter. "90th Percentile" = Only 10% of the samples had higher values

SECONDARY/OTHER PARAMETERS

Detected Compounds	Violation Y/N	Detected Range	Average level detected	Units	MCL
Manganese*	No	0.016	0.016	ppm	0.05
Iron*	No	0.015	0.015	ppm	0.3
Chloride*	No	43	43	ppm	250
Sulfate*	No	5.8	5.8	ppm	250

* Testing conducted by COB in June 2010.

BBWSD = Birch Bay Water & Sewer District
COB = City of Blaine
DOH = WA Department of Health

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