

TTHM SAMPLE RESULTS			HAA5 SAMPLE RESULTS		
2016 – 2022			2016 – 2022		
YEAR	TTHM	RANGE	YEAR	HAA5	RANGE
2016	27.0 ppb	10.0 TO 49.0	2016	27.2 ppb	0 TO 55.0
2017	21.8 ppb	10.0 TO 37.7	2017	30.1 ppb	21.6 TO 30.0
2018	25.6 ppb	14.0 TO 34.5	2018	24.5 ppb	3.6 TO 48.0
2019	38.3 ppb	22.0 TO 59.0	2019	27.7 ppb	8.8 TO 52.0
2020	45.2 ppb	36.3 TO 52.3	2020	28.8 ppb	15.2 TO 49.4
2021	50.1 ppb	36.0 TO 65.5	2021	27.9 ppb	23.3 TO 30.0
2022	45.0 ppb	32.4 TO 55.7	2022	33.7 ppb	25.3 TO 51.0
AVERAGE		36.1	AVERAGE		28.5

Additional Information

For questions or more information, contact:

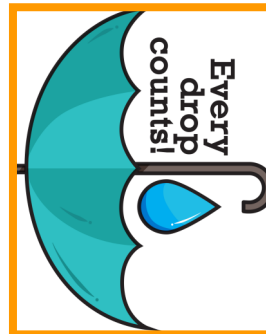
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2022
HAINES BOROUGH
DRINKING WATER QUALITY
REPORT
Postal Customer



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Haines Borough

How Safe Is Your Water?

We are pleased to present this year's *Annual Water Quality Report* (Consumer Confidence Report or CCR) as required by the Safe Drinking Water Act (SDWA).

This report provides details about where your water comes from, what it contains, and how it compares to standards set by regulatory agencies. This report is a snapshot of water quality for calendar year 2022

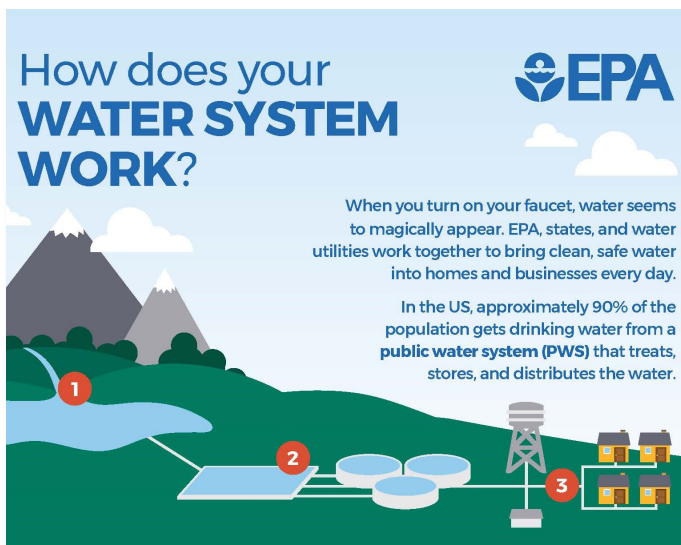
We are committed to providing you with information because informed customers are our best allies. We routinely test for over 80 contaminants as scheduled. Test results showed no levels higher than what the US Environmental Protection Agency (EPA) and the Alaska Department of Environmental Conservation (ADEC) allow.

What Precautions Do You Need to Take?

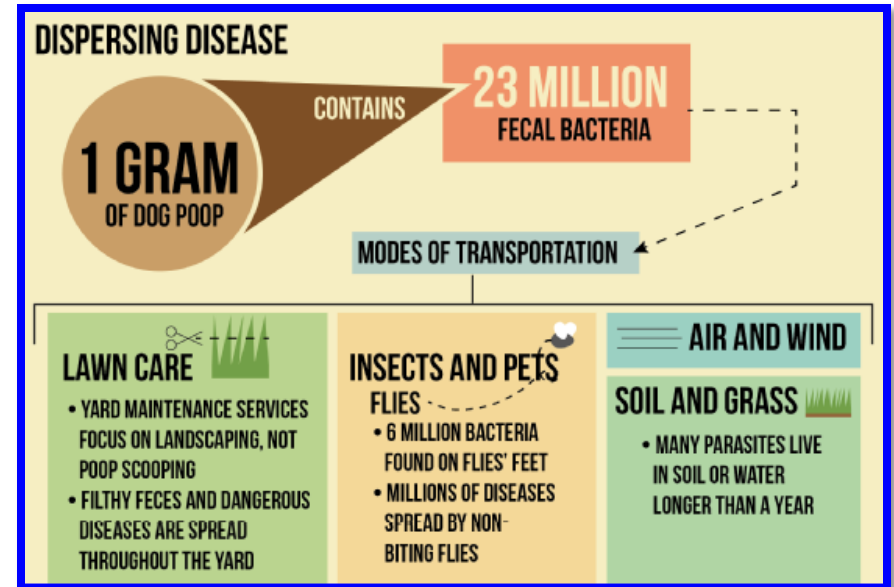
Some people may be more vulnerable to contaminants in water than the general population. Immuno-compromised persons, such as those undergoing cancer chemotherapy, persons who have organ transplants, people with HIV/AIDS and other immune system disorders, some elderly, and infants can be particularly at-risk from infections. These people and/or their caregivers should seek advice about drinking water from their health care providers.

EPA and the Centers for Disease Control & Prevention (CDC) guidelines with suggestions to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Water Drinking Hotline at:

800-426-4791



- 1. Water Sources
- 2. Water Treatment
- 3. Water Storage & Distribution



Monitoring & Reporting of Data Compliance Violations

Violations

- The July 2022 Monthly Operator Report was submitted late.
- Only one total coliform sample was received for December 2022.

Copper Action Level Exceeded

- Copper (Cu) is a reddish metal that is commonly used in household plumbing. It is also an essential nutrient for humans in small amounts; however, too much copper can cause adverse health effects. Water that is corrosive can leach Cu from pipes into drinking water. Water Treatment Plant Operators use soda ash to adjust the pH and reduce corrosivity. The longer water has stood idle in copper pipes, the more likely Cu will be in your water.
- The EPA Action Level for copper was exceeded at two of the 10 testing sites in 2015 and 2016. Monitoring for copper and lead was increased from 10 samples per year to 40 samples (quarterly tests at 10 sites) in 2015 and 2016. 20 samples were taken in 2017; 10 samples in 2018; and three samples in 2019. All sample results from consumer taps since 2016 have been below the 90th percentile Action Level, including the 2022 samples taken from 10 consumer taps.

How To Reduce Copper Exposure

- To reduce exposure to copper, run your household water used for cooking and drinking until the water is colder (30 to 60 seconds) anytime it has not been used for more than six hours to clear the pipes and bring in fresh water. Hot water dissolves copper more quickly than cold water; if you need hot water for cooking or drinking, take water from the cold tap and heat it.

See page 16 for trend data regarding disinfection byproducts.

More Water Quality Data & Definitions

CONTAMINANTS	MCLG or MRDLG	MCL, TT or MRDL	YOUR WATER	RANGE		SAMPLE DATE	VIOLATION	TYPICAL SOURCE
				LOW	HIGH			
Radioactive Contaminants								
LILY LAKE								
Alpha Emitters PCI/L	NA	15	0	NA	NA	2017	No	Erosion of natural deposits
Radium 226/228 PCI/L	NA	5	0.12 0.18	NA	NA	2017	No	Erosion of natural deposits
CRYSTAL CATHEDRAL								
Alpha Emitters PCI/L	NA	15	2.0	NA	NA	2017	No	Erosion of natural deposits
Radium 226/228 PCI/L	NA	5	0.11 0.69	NA	NA	2017	No	Erosion of natural deposits
PIEDAD SPRING								
Alpha Emitters PCI/L	NA	15	0	NA	NA	2017	No	Erosion of natural deposits
Radium 226/228 PCI/L	NA	5	0.048 0	NA	NA	2017	No	Erosion of natural deposits

IMPORTANT DRINKING WATER DEFINITIONS

Term	Definition
AL	Action Level: concentration of a contaminant that triggers treatment or other requirements for the water system
HAAS	Haloacetic Acid: a byproduct of drinking water chlorination
MCL	Maximum Contaminant Level: highest level of a contaminant allowed in drinking water; MCLs are set as close to the MCLGs as feasible using the best available treatment technology
MCLG	Maximum Containment Level Goal: 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
MFL	Million Fibers per Liter (fibers >10 micrometers)
MNR	Monitored Not Regulated
MRDL	Maximum Residual Disinfectant Level: highest level of a disinfectant allowed in drinking water; convincing evidence shows that the addition of a disinfectant is necessary for control of microbial contaminants
MRDLG	Maximum Residual Disinfection Level Goal: level of a drinking water disinfectant below which there is no known or expected risk to health; MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants
NA	Not Applicable
ND	Not Detected
NR	monitoring Not Required but recommended
PCi/L	Picocuries per Liter (a measure of radioactivity)
PFAS	Per- and polyfluoroalkyl substances
ppb	parts per billion or micrograms per liter (µg/L)
ppm	parts per million or milligrams per liter (mg/L)
TT	Treatment Technique
TTHM	Total Trihalomethanes: group of disinfection byproducts that form when chlorine compounds are used to disinfect water.



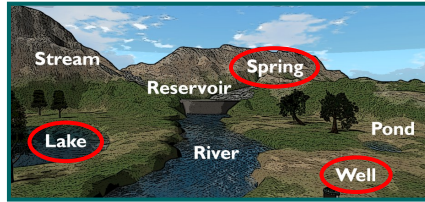
The primary source of Haines drinking water is Lily Lake, located 2.5 miles southeast of the Haines Townsite on the Chilkat Peninsula. In 2022, 41 percent of the Haines drinking water was supplied from the Piedad Spring System, a groundwater source located 1.5 miles northwest of the Haines Townsite. The Crystal Cathedral wells provided limited supplies, only 0.4 percent of the 110 million gallons of community water consumed (see page 11 for more detail).



Learn More About Local Water Quality

Three Source Water Assessments Very High, Medium & Low Susceptibility Ratings

The public water system for the Haines Townsite is a Community Water System consisting of three sources. The *Source Water Assessment* for each of these sources is available at the Haines Borough Administration Offices. These assessments are used by the by Haines Borough staff to assess water quality risks and can be used as a foundation for local volunteer protection efforts.



Lily Lake Source Water Assessment (LLSWA) - Surface Water Source

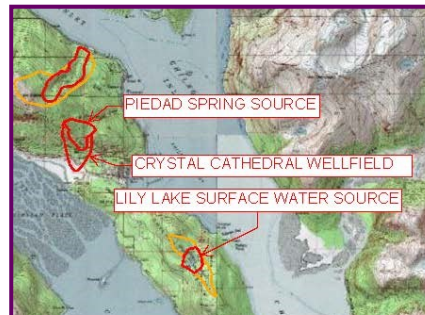
- The overall protection area received *Susceptibility Rating of Very High*.
- The overall protection area received a *Vulnerability Rating of Medium* for metals, other organic chemical and synthetic chemicals.

Piedad Spring Source Water Assessment (PSSWA) - Ground Water Source under Direct Influence of Surface Water

- The combined score for the Wellhead and Aquifer has a natural *Susceptibility Rating of Medium* (the Wellhead and Aquifer each received an individual *Susceptibility Rating of Medium*).
- The combined score for the Wellhead and Aquifer received a *Susceptibility Rating of Low* for:
 - * Bacteria/ Viruses
 - * Nitrites/ Nitrates
 - * Volatile Organic Chemicals
 - * Heavy Metals
 - * Synthetic Organic Chemicals
 - * Other Chemicals

Crystal Cathedral Source Water Assessment (CCSWA) - Ground Water

- The combined score for the Wellhead and Aquifer has a natural *Susceptibility Rating of Medium* (the Wellhead and Aquifer each received an individual *Susceptibility Rating of Medium*).
- The combined score for the Wellhead and Aquifer received a *Susceptibility Rating of Medium* for:
 - * Bacteria/ Viruses
 - * Nitrites/ Nitrates
- The combined score for the Wellhead and Aquifer received a *Susceptibility Rating of Low* for:
 - * Volatile Organic Chemicals
 - * Heavy Metals
 - * Synthetic Organic Chemicals
 - * Other Chemicals



CONTAMINANTS	MCLG or MRDLG	MCL, TT or MRDL	YOUR WATER	RANGE		SAMPLE DATE	VIOLATION	TYPICAL SOURCE
				LOW	HIGH			
CRYSTAL CATHEDRAL								
Barium – ppm	2	2	0.04	NA	NA	2013	No	Erosion of natural deposits; Discharge of drilling wastes & metal refineries
Chromium - ppb	100	100	1.24	NA	NA	2013	No	Erosion of natural deposits; Discharge from steel & pulp mills
Fluoride – ppm	4	4	0.17	NA	NA	2013	No	Erosion of natural deposits; Water additive; Discharge from fertilizer & aluminum factories
Selenium - ppb	50	50	0.90	NA	NA	2013	No	Erosion of natural deposits; Discharge from mines, petroleum & metal refineries
Beryllium - ppb	4	4	0.27	NA	NA	2009	No	Discharge from metal refineries & coal-burning factories, electrical, aerospace & defense industries
Arsenic - ppb	10	10	0	NA	NA	2017	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass & electronics wastes
Inorganic Contaminants								

2022 Water Quality Data

CONTAMINANTS	MCLG or MRDLG	MCL, TT or MRDL	YOUR WATER	RANGE		SAMPLE DATE	VIOLATION	TYPICAL SOURCE
				LOW	HIGH			
LILY LAKE & PIEDAD SPRING								
Inorganic Contaminants								
Barium - ppm	2	2	0.016	NA	NA	2013	No	Erosion of natural deposits; Discharge of drilling wastes & metal refineries
Chromium - ppb	100	100	0	NA	NA	2013	No	Erosion of natural deposits; Discharge from steel & pulp mills
Fluoride - ppm	4	4	0	NA	NA	2013	No	Erosion of natural deposits; Water additive; Discharge from fertilizer & aluminum factories
Selenium - ppb	50	50	0	NA	NA	2013	No	Erosion of natural deposits; Discharge from mines, petroleum & metal refineries
Beryllium - ppb	4	4	0	NA	NA	2013	No	Discharge from metal refineries & coal-burning factories, electrical, aerospace & defense industries
Arsenic - ppb	10	10	0	NA	NA	2017	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass & electronics wastes

What Contaminants Are Found in Your Drinking Water?

Drinking water, including bottled water, may be reasonably 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 Environmental Protection Agency (EPA) Safe Drinking Water Hotline at:

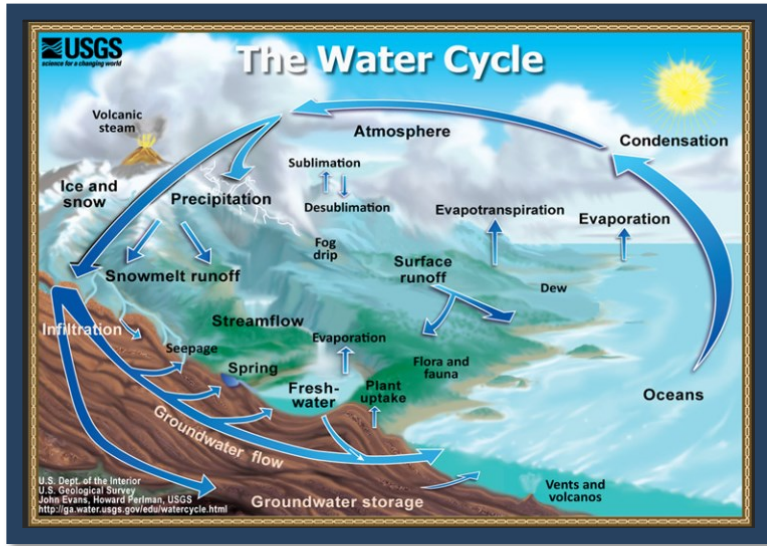
800-426-4791

The sources of drinking water, both tap water and bottled water, include: rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the grounds, it dissolves other substances, including:

- Naturally occurring minerals
- Substances resulting from the presence of animals or human activity
- Microbial contaminants, such as viruses and bacteria (from sewage treatment plants, residential/commercial wastewater systems, livestock operations, wildlife and pets

- Inorganic contaminants, such as salts and metals (which can occur naturally or result from urban storm-water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming)
- Pesticides and herbicides (which may come from a variety of sources such as agriculture, urban storm-water runoff, and residential uses)
- Organic chemical contaminants, including synthetic and volatile organic chemicals (which are byproducts of industrial process and petroleum production and can also come from gas stations, urban stormwater runoff, and residential / commercial wastewater systems)
- Radioactive contaminants (which can be naturally occurring or be the result of oil and gas production and mining activities)
- PFAS, a large group of man-made, carbon-fluorine chemicals used for products resisting heat (fire-fighting foam), oil, stains and water (*Scotch Guard*, *Gore-Tex*); these very persistent *forever chemicals* can impact water quality; EPA will release its final rule for water testing in 2023





Citizen Involvement: Public Meetings & Protective Actions

Citizens may get involved by attending the Haines Borough Assembly meetings. The dates and agenda are posted online at: www.hainesborough.us
 Meeting dates and agenda are also posted at the Borough Offices, Library and Post Office.

Source Water Protection Tips

- Protection of drinking water is everyone's responsibility. You can help protect community drinking water source in several ways:
- Pick up after your pets.
 - Eliminate excess use of lawn and garden fertilizers and pesticides; they contain hazardous chemicals that can reach drinking water sources.
 - If you have a residential wastewater system, properly maintain your system with regular septic tank pumping or ATU servicing to reduce leaching to water sources.
 - Dispose of hazardous substances and other chemicals properly, including used motor oil.



FREE HOUSEHOLD HAZARDOUS WASTE COLLECTION

The Borough sponsored a Household Hazardous Waste collection event on July 19—20, 2022, collecting 995 gallons and 4 cubic yards of waste. The next collection even will be held summer 2023.

POTABLE WATER USAGE: TREND DATA															
LEAK DETECTIONS CONSERVE WATER															
CONTAMINANTS	MCL/G	YOUR WATER	SAMPLE DATE	# OF SAMPLES EXCEEDING AL	EXCEEDS AL	TYPICAL SOURCE	ANNUAL VOLUME BY SOURCE, 2016 - 2022					TOTAL			
							LILY LAKE	PIEDAD	WELLFIELD	YEAR	LILY LAKE		PIEDAD	WELLFIELD	
Inorganic Contaminants															
Lily Lake															
Asbestos - MFL	7	0	2021	0	No	Decay of asbestos cement in water mains; Erosion of natural deposits	7	0	0	0	No	77.1	20.9	2.0	100.0
System Wide: 10 Consumers Sampled Every 3 Years; 90th Percentile Values Shown															
Copper - ppb Range: 11.5 to 330	1,300	293	2022	0	No	Corrosion of household plumbing systems; Erosion of natural deposits	1,300	293	0	0	No	73.9	25.7	0.4	100.0
Lead - ppb Range: <0.2 to 0.53	0	0.35	2022	0	No	Corrosion of household plumbing systems; Erosion of natural deposits	0	0.35	0	0	No	78.4	21.6	0.0	100.0
ANNUAL VOLUME BY SOURCE, 2016 - 2022							PERCENTAGE OF TOTAL VOLUME								
MILLIONS OF GALLONS							PERCENTAGE OF TOTAL VOLUME								
YEAR	LILY LAKE	PIEDAD	WELLFIELD	TOTAL	YEAR	LILY LAKE	PIEDAD	WELLFIELD	TOTAL	YEAR	LILY LAKE	PIEDAD	WELLFIELD	TOTAL	
2016	82.574	22.434	2.106	107.114	2016	77.1	20.9	2.0	100.0	2016	77.1	20.9	2.0	100.0	
2017	75.795	26.329	0.415	102.539	2017	73.9	25.7	0.4	100.0	2017	73.9	25.7	0.4	100.0	
2018	83.723	23.020	0.000	106.743	2018	78.4	21.6	0.0	100.0	2018	78.4	21.6	0.0	100.0	
2019	78.986	22.222	4.556	105.764	2019	74.7	21.0	4.3	100.0	2019	74.7	21.0	4.3	100.0	
2020	61.851	29.251	1.260	92.362	2020	67.0	31.7	1.4	100.0	2020	67.0	31.7	1.4	100.0	
2021	46.205	37.737	0.276	84.218	2021	54.9	44.8	0.3	100.0	2021	54.9	44.8	0.3	100.0	
2022	64.468	45.132	0.413	110.013	2022	58.6	41.0	0.4	100.0	2022	58.6	41.0	0.4	100.0	
AVERAGE	70.5	29.4	1.3	101.3	AVERAGE	69.2	29.5	1.3	100.0	AVERAGE	69.2	29.5	1.3	100.0	

2022 Water Quality Data

CONTAMINANTS	MCLG or MRDLG	MCL, TT or MRDL	YOUR WATER	RANGE		SAMPLE DATE	VIOLATION	TYPICAL SOURCE
				LOW	HIGH			
Disinfectants & Disinfectant By-Products There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.								
TTHMs - ppb	NA	80	45.0	32.4	55.7	2022	No	By-product of drinking water disinfection
HAA5 - ppb	NA	60	33.7	25.3	51.0	2022	No	By-product of drinking water disinfection
Nitrates There is health concern with nitrates in drinking water, especially for infants under 6 months of age, as exposure can result in methemoglobinemia. One of the Haines Borough PWS sources, Piedad Springs, had detectable levels of nitrates in 2019 and 2021.								
Nitrate – ppm	10	10	0.00	0	0.00	2022	No	Agriculture runoff and septic tanks
Volatile Organic Compounds Haines Borough staff sample for a variety of volatile organic compounds quarterly. Of the 21 chemicals regularly tested, none were above detection limits. All three Haines Borough public water system sources had no detectable amount.								
Xylenes, Total - ppm	10	10	0	0	0	2022	No	Discharge from petroleum and chemical factories

Water Conservation Tips — see www.epa.gov/watersense

Do you know that the average U.S. household uses approximately 300 gallons of water per day or 75 gallons per person per day? In the Haines Townsite, the estimate usage is over double this average, at 168 gallons per person per day. Luckily there are many low-cost and no-cost ways to conserve water. Small changes can make a big difference.

- * Take short showers: a five-minute shower uses four to five gallons of water compared to up to 50 gallons for a bath.
- * Shut off water while brushing your teeth, washing your hair and shaving to save up to 500 gallons a month.
- * Use a water-efficient showerhead; these are inexpensive, easy to install, and can save up to 750 gallons a month.
- * Run your clothes washer and dishwasher only when they are full to save up to 1,000 gallons a month.
- * Fix leaky toilets and faucets. Faucet washers are inexpensive and take only a few minutes to replace. To check your toilet for a leak, place a few drops of food coloring in the tank and wait; if it seeps into the toilet bowl without flushing, you have a leak. Fixing it or replacing it with a new, more efficient model can save up to 1,000 gallons a month.
- * Adjust sprinklers to water only your lawn. Apply water as fast as the soil absorbs it and during the cooler part of the day to reduce evaporation.
- * Teach your kids about conserving water to ensure future generation uses this resource wisely. Make conservation a family effort.

HUMAN DISEASES TRANSMITTED BY DOG POOP

FROM BACTERIA

- Campylobacteriosis
- E. coli
- Salmonellosis
- Yersiniosis

FROM PARASITES

- Cyclospora
- Cryptosporidium & Giardia
- Worms: Round, Hook & Whip
- Tapeworms
- Toxoplasmosis

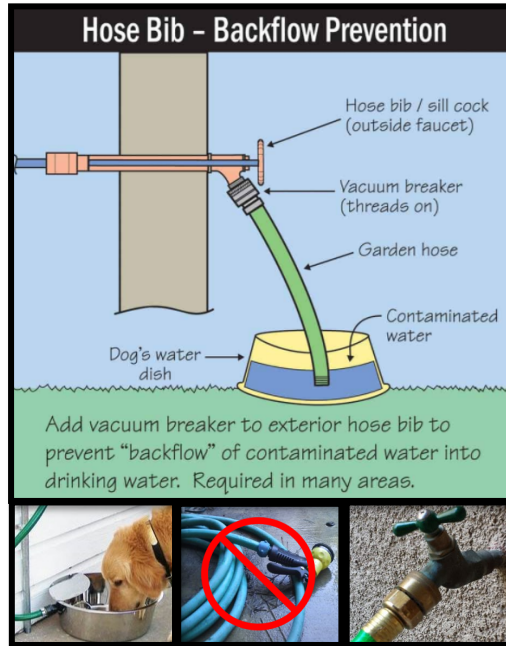
More Source Water Protection Tips

- * Contact Takshanuk Watershed Council and volunteer to help at: www.takshanuk.org or 907-766-3542
- * Organize a storm-drain stenciling project with the local government. Stencil a message next to the street drain reminding people: *Dump No Waste - Protect Our Water.*
- * Produce and distribute a flyer for households to remind residents that storm drains dump directly into local water bodies.

Cross Connection Control

It is important to determine whether a cross-connection may exist at your home or business. A cross connection is an unprotected or improper connection to a public water distribution system that may cause contamination or pollution to enter the system. The Haines Borough is responsible for enforcing cross-connection control regulations and insuring that no contaminants, under any flow conditions, can enter the distribution system. A vacuum breaker, available from a local hardware store, installed on a hose bib prevents back siphoning. Do not leave a hose in a puddle on the ground or in a bucket full of water as back siphoning could occur. If you have any of the devices listed below, please contact us to discuss the issue, and, if needed, to survey your connection and assist you in isolating it if that is necessary.

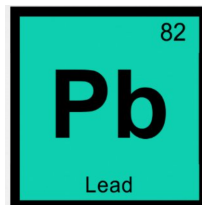
- * Boiler / radiant heater (water heaters not included)
- * Underground lawn sprinkler system
- * Pool or hot tub (whirlpool tubs not included)
- * Additional source(s) of water on the property
- * Decorative pond
- * Watering trough



More Information about Lead

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Haines Borough is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you can have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at:

www.epa.gov/safewater/lead



2022 Water Quality Data

Water Quality Regulations

In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of contaminants in water provided by public water systems. The table below lists all of the drinking water contaminants that we detected during the calendar year of this report. Although many more contaminants were tested, only those substances listed below were found in your water. All sources of drinking water contain some naturally occurring contaminants. At low levels, these substances are generally unharmed in drinking water. Removing all contaminants would be extremely expensive, and in most cases, would not provide increased protection of public health. A few naturally occurring minerals may actually improve the taste of drinking water and have nutritional value at low levels.

In 2016, the two Public Water Systems — Haines Borough and Crystal Cathedral — were combined into a single water system. The following data tables show information for the combined system as well as some data for the original PWSIDs. Testing is done in the calendar year of the report (2022).

The EPA or ADEC requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not vary significantly from year to year, or the system is not considered vulnerable to this type of contamination. As such, some of these data, though representative, may be more than one year old. (Data for 2022 is highlighted blue.) In these tables you will find terms and abbreviations that might be unfamiliar. A table of terms and definitions follows (see page 14).

Water Treatment Process

Our water is treated by disinfection. Disinfection involves the addition of chlorine or other disinfectant to kill dangerous bacteria and other microorganisms that may be present. Disinfection is considered one of the major public health advances of the 20th century. Disinfection does create disinfection by-products that are monitored to ensure they remain at a safe level. Lily Lake and the Piedad Spring are also filtered prior to disinfection.

