

**Ketchikan Public Utilities
2007 Annual Water Quality Report**

**Ketchikan Public Utilities
2930 Tongass Avenue
Ketchikan, AK 99901**

Date

Name

Address

City, State Zip

Ketchikan Public Utilities (KPU) believes it is important to help our customers become better informed about where their drinking water comes from, what is involved in the delivery of safe drinking water, and the importance of source water protection at Ketchikan Lakes. We are pleased to present this, our ninth report, for the period between January and December 2007.

This report contains important information about your drinking water. For the benefit of those non-English speaking Ketchikan residents, please have the report translated, or speak with someone who understands it. In Tagalog; Mahalaga ang impormasyong ito. Mangyaring ipasalin ito. In Spanish; Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien.

Ketchikan enjoys one of the purest and most plentiful supplies of drinking water in the world. Nevertheless, many of us who once gave no thought to the water that comes from our faucets are now asking the same question; "Is my water safe to drink?" Despite the presence of a particular group of disinfectant byproducts (discussed in greater detail on page 3 of this report) that are higher than EPA standards, our answer remains: Yes, it is!

Why am I receiving this report?

Congress passed the Safe Drinking Water Act 26 years ago in response to nationwide concern about the safety of public drinking water supplies. The Environmental Protection Agency (EPA) was authorized to establish minimum standards and requirements for all public water suppliers. Continuing legislation since that time has included the requirement that consumers of water (including those with special health needs) be provided with information, which will allow them to make informed decisions regarding their drinking water.

What if I have questions about my water?

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 Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

For more information about your drinking water, please call John Kleinegger, KPU's Water Division Manager, at 225-1000, Ext. 399. Also, you are welcome and encouraged to attend public meetings of the Ketchikan City Council. They meet on the first and third Thursdays of every month at 7:00 pm in the City Hall's Council Chambers located at 334 Front Street.

Copies of the annual sanitary survey of the entire municipal water system as well as our source water assessment completed in September 2003 are available upon request to KPU.

Where does our water come from?

The Ketchikan Lakes water supply includes over 11 square miles of watershed consisting of the drainage area surrounding Ketchikan Lakes and Granite Creek. These two drainage basins feed Fawn Lake through a series of tunnels and penstocks. Leaving Fawn Lake, another series of tunnels then conducts water down to the intake of the water system located on Fair Street across from the City Park. The raw surface water is then thoroughly mixed with chlorine and spends additional time at the Bear Valley Reservoir before entering the municipal water system. This extra disinfection time is necessary to ensure that any viruses, bacteria, or other pathogens that may have been present are completely destroyed before entering your drinking water.

What contaminants might be in our water?

As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in our source water include:

- A) Microbial contaminants, such as viruses and bacteria, which may come from wildlife and human activity.
- (B) Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from storm water runoff.
- (C) Organic chemical contaminants, including synthetic and volatile organics, which are by-products of industrial processes, and can also come from storm water runoff.

Are there contaminants in Ketchikan's water?

We send water samples every year to independent, certified laboratories for analysis using the latest, modern equipment. Of all the regulated inorganic contaminants we tested for, only minute amounts of lead and copper were found present. In each case, all of these were well below the EPA maximum standards for these contaminants. All of the other inorganic contaminants we tested for were below the detection limits of the analytical equipment.

As an unfiltered water system, we are required to monitor our turbidity continuously. Turbidity is a measure of the cloudiness of the water and we test for it because it is an indicator of microbiological quality. During periods of heavy rainfall following a dry spell, we do experience turbidity swings and take additional microbiological tests. Volatile organic contaminants were also found. These are created when the naturally occurring organics are produced during the wood decay process and are carried by rainfall runoff into the Ketchikan Lakes. Both Total Trihalomethanes (TTHM's) and haloacetic acids (HAA5) are created as disinfection byproducts when naturally occurring organic matter combines with the chlorine disinfectant added to kill microorganisms.

Testing for the 59 compounds, which collectively form the TTHM group, found that they continue to be at a level well below the EPA's maximum contaminant level (MCL) standards. Samples were also collected quarterly by KPU for haloacetic acids analysis at selected sampling points throughout the municipal water system ranging from the point of entry to the furthest

reaches of our system. The overall average was 57.0 parts per billion (ppb) for all of 2007's analytical tests which is less than the haloacetic acid MCL of 60 ppb. However, informational notices were still required and were sent to each ratepayer every 4 months as the quarterly haloacetic averages ranged between 44.0 and 67.1 ppb. The greater amount occurred during the summer months when Ketchikan Lake warms up and the amount of dissolved organics in the water increases. Other than this single group of regulated compounds, Ketchikan has continued to meet or exceed all Federal drinking water standards every year since 1995.

This is not an immediate risk. If it had been, you would have been notified immediately. You do not need to use an alternative (e.g., bottled) water supply.

The risk of disease for drinking water that is not disinfected is much more immediate than that of getting cancer for drinking water over many years containing disinfection byproducts. People who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer. The U. S Environmental Protection Agency (EPA) defines this additional increased risk as statistically greater than 1 extra chance in 10,000 and less than 1 chance in 1,000,000. This information is published by the EPA, Risk Assessment Forum, Guidelines for Carcinogen Risk Assessment, Washington DC, p.1-17

Is our water safe for everyone?

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, 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/Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

In the Table below, you will find many terms and abbreviations you might not be familiar with. To help you better understand these terms we've provided the following definitions:

Non-Detects (ND) - laboratory analysis indicates that the contaminant is not present.

Parts per million (ppm) or Milligrams per liter (mg/l) – corresponds to one part per million parts. For ease of comparison, illustrations of just how small a part per million (ppm) is are the following examples; a ppm is equal to one minute in 2 years or 1 penny in \$10-thousand dollars.

Parts per billion (ppb) or Micrograms per liter – corresponds to one part per billion parts. Similarly, illustrations of just how small a part per billion (ppb) is are the following examples; a ppb is equal to one minute in 2000 years or 1 penny in \$10-million dollars.

Nephelometric Turbidity Unit (NTU) - nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

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

Treatment Technique (TT) - A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

Maximum Contaminant Level - The “Maximum Allowed” (MCL) is 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.

Maximum Contaminant Level Goal - The “Goal”(MCLG) is 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.

TEST RESULTS						
Contaminant	MCL Violation	Level Detected	Unit Measurement	MCLG	MCL	Likely source of contamination to the best of our present knowledge
Microbiological Contaminants						
Turbidity (2007) Note (1)	No	2.44	NTU	n/a	5	Soil runoff
Note (1) turbidity is a measure of the cloudiness of the water. We test it because it is an indicator of microbiological quality.						
Inorganic Contaminants						
Copper (2006) Note (2)	No	0.478	ppm	1.3	AL=1.3	Corrosion of household plumbing
Lead (2006) Note (3)	No	14.4	ppb	0	AL=15	Corrosion of household plumbing
Note (2) None of the forty samples exceeded the current action level of 1.3 ppm. Next test cycle is due in 2009.						
Note (3) Three of the forty samples exceeded the current action level of 15 ppb. They were 23, 19, and 18 ppb respectively. Next test cycle is due in 2009.						
Volatile Organic Contaminants						
TTHM (Total Trihalomethanes) (2007) Note (4)	No	56.0	ppb	n/a	80	By-product of water chlorination
HAA5 Haloacetic Acids (2007) Note (5)	No	57.0	ppb	n/a	60	By-product of water chlorination
Note (4) In 2007, a total of 16 samples were taken throughout the distribution system. The TTHM analytical results ranged between 28 and 86.2 ppb.						
Note (5) In 2007, a total of 16 samples were taken throughout the distribution system. The HAA5 analytical results ranged between 37.5 and 84.7 ppb.						

Disinfection Byproducts (DBP) Contaminants:

Beginning in 2004, both the Long Term 1 Enhanced Surface Water Treatment Rule and the Stage 1 Disinfectants/ Disinfection Byproducts Rule (Stage 1 DBPR) placed additional responsibility upon Ketchikan to meet increased water quality requirements. For Ketchikan to remain as an unfiltered system, our drinking water must be analyzed for each of these identified contaminants and the results must be less than the MCL. With the exception of a group of disinfection byproducts collectively identified as five different haloacetic acids (HAA5) and discussed above, Ketchikan remained in compliance with all aspects of the pertinent EPA

regulations.

As reported in prior Consumer Confidence Reports, KPU has continued to make operational changes to reduce the formation potential of HAA5's. KPU is continuing to actively flush hydrants throughout the community on a regular basis to minimize the amount of time that water remains within the system. Within operational constraints, we have also reduced the amount of unreacted chlorine residual entering the distribution system. 2008's first and second quarters of testing for haloacetic acids resulted in an overall average throughout our system of 51.6 ppb.

There are less naturally occurring dissolved organic materials available to react with the chlorine disinfectant during the cooler and wetter months of the year. This results in reduced haloacetic acids' formation although the amount of dissolved organic materials will increase during the summer month's warmer weather. These operational changes KPU has made may result in a lesser amount of disinfection byproducts created this summer than has occurred in previous years.

Since 2003, KPU has been working with CH2M Hill, a nationally known engineering firm, to develop an optimum solution that will reduce the amount of haloacetic acids present and bring Ketchikan into compliance with the Stage 1 DBPR. The Ketchikan City Council has approved our planned approach of using chlorine and ultraviolet light (UV) as dual disinfectants followed by ammonia injection to reduce the formation of disinfection byproducts. This combination may reduce the amount of haloacetic acids formed and still provide adequate disinfection at all times. The project design is complete and has been conditionally approved for construction by the Alaska Department of Environmental Conservation (ADEC). The project has been advertised for bid and will be awarded by the Ketchikan City Council at their meeting of July 17th. An aggressive construction schedule will have the new equipment fully operational in late 2009 and Ketchikan will again be in full compliance with existing EPA regulations including two recently adopted regulations; the Stage 2 Disinfectants/ Disinfection Byproducts and Long Term 2 Enhanced Surface Water Treatment Rules.

Funding for this project will be through a combination an already approved \$6.5-million low-interest loan from the State of Alaska's Drinking Water Loan Fund and a 50% Municipal Matching Grant for \$3.25-million that was approved by the Legislature and the Governor in 2007.

Concerning radioactivity in our water:

Samples of Ketchikan's water were collected for four consecutive quarters and then analyzed in an independent laboratory in 2005 to determine if our water contains any radioactive isotopes. The results are negative as they were in 2001 when our water was tested for radon. Any emitted alpha and beta particles from these regulated element isotopes are either at or below the minimum detectable threshold of the laboratory's analytical equipment.

Concerning lead in our water:

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. KPU 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 the water for drinking or cooking.

If you are concerned about lead in your water, you may wish to 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 (800-426-4791) or at <http://www.epa.gov/safewater/lead>. As reported in the Table above, in 2006 KPU collected three water samples from within residences constructed with lead soldered plumbing that exceeded the EPA's lead MCL of 15 ppb. However, extensive testing has also demonstrated that the water throughout the community delivered by KPU's water mains is always much less than the EPA's lead MCL. The 18 samples collected in 2006 from KPU's water mains ranged between 0.5 and 1.8 ppb lead.

Concerning arsenic in our water:

Nationwide, there was significant discussion during 2002 concerning the amount of arsenic permissible in drinking water. As a result, the Maximum Contaminant Level (MCL) was lowered by the EPA from 50 ppb to 10 ppb. Ketchikan's arsenic level is tested every year by an independent laboratory and has always been below the 2.5 ppb detection limits of the analytical equipment.

2007 Operational Highlights

The most important item that KPU's Water Division has been involved in all year is ensuring continuing compliance with the EPA's present Administrative Order (AO). For the past fourteen years, this Order has allowed Ketchikan's municipal water system to remain unfiltered and has saved the community much of the cost of constructing a water filtration plant with an estimated cost of well over \$20-million as well as the additional annual operating costs for chemicals, electricity, and labor. Issued in July 1993, the AO required KPU to make several major system modifications, install additional instrumentation, and begin additional continuous water quality testing before we met EPA standards. These modifications included the construction of the Bear Valley Reservoir that increased the chlorine disinfectant contact time and thereby ensured complete deactivation of all pathogens that may be present. Constructed over the next year and a half, this 3-million gallon reservoir first went into service on January 26, 1995. Since that date, Ketchikan has remained in compliance with all the governing criteria of the EPA's Surface Water Treatment Rules with the exception of the aforementioned haloacetic acids.