

Ketchikan Public Utilities 2004 Annual Water Quality Report

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

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 sixth report, for the period between January and December 2004.

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 25 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. In no case did we exceed the maximum allowable turbidity.

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 are at a level well below EPA maximum contaminant standards. However, the five-haloacetic acids did exceed the EPA maximum contaminant standards. During 2004, KPU analyzed for haloacetic acids at selected sampling points throughout the municipal water system from the point of entry to the furthest reaches of our system. The average of all of these analytical tests exceeded the haloacetic acid MCL of 60 parts per billion (ppb) by 7.0 ppb. 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 EPA defines this additional increased risk as statistically greater than 1 extra chance in 10,000 and less than 1 chance in 1,000,000.¹

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).

¹ U. S Environmental Protection Agency, Risk Assessment Forum, Guidelines for Carcinogen Risk Assessment, Washington DC, p.1-17

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 (2004) Note (1)	No	1.10	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 (2003) Note (2)	No	0.55	ppm	1.3	AL=1.3	Corrosion of household plumbing	
Lead (2003) Note (3)	No	11	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 due in 2006.							
Note (3) Two of the forty samples exceeded the current action level of 15 ppb. Next test cycle due in 2006.							
Volatile Organic Contaminants							
TTHM (Total Trihalomethanes) (2004) Note (4)	No	47.4	ppb	n/a	80	By-product of water chlorination	
HAA5 Haloacetic Acids (2004) Note (5)	Yes	67.0	ppb	n/a	60	By-product of water chlorination	
Note (4) In 2004, a total of 21 samples were taken throughout the distribution system. The TTHM analytical results ranged between 20.4 and 75.5 ppb.							
Note (5) In 2004, a total of 21 samples were taken throughout the distribution system. The HAA5 analytical results ranged between 32.7 and 105.2 ppb.							

Disinfection Byproducts (DBP) Contaminants:

Beginning in 2004, both the Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR) 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 discussed in 2003's Consumer Confidence Report, KPU has continued to make operational changes to reduce the formation potential of HAA5's. We have been actively flushing hydrants throughout the community on a regular basis to minimize the amount of time that water remains within the system. The amount of unreacted chlorine residual entering the distribution system has also been reduced. The net effect has not, however, been sufficient to achieve the 60 ppb MCL or less for haloacetic acids. Thus far, two quarters of additional testing in 2005 have resulted in an overall average throughout our system of 63.7 ppb and 69.8 ppb respectively. These results still slightly exceed the MCL with little margin remaining for seasonal variations.

If this program does not reduce the haloacetic acid content below the MCL, filtration to remove the organic matter prior to disinfection may be an alternative that the community will have to consider. This could require the design and construction of a filtration plant. To offset the cost to ratepayers, KPU would aggressively pursue financing through a combination of governmental loans and grants. Should construction of a filtration plant become necessary, KPU anticipates that a three- to five-year period for planning and construction will be required.

For Ketchikan to remain as an unfiltered surface water system in the future, there are some forthcoming regulations that are even more restrictive and must be met. Although the EPA's Stage 2 Disinfectants/ Disinfection Byproducts Rule (Stage 2 DBPR) will not go into effect before late 2005, the first phase requires that by five years later (2010) all systems are expected to be in compliance with the 60 ppb overall average MCL and also not exceed 100 ppb average at the furthest reaches of our system. This is where maximum haloacetic acid formation occurs. In 2004, just the samples taken from the furthest reaches averaged 80.1 ppb and individual samples ranged between 32.7 and 105.2 ppb.

Concerning radioactivity in our water:

Ketchikan's water was last analyzed in 2001 for radon and is not due for quarterly analysis throughout 2005. The level of radon has always been below the detection limits of the analytical equipment of 1.00 picocuries/liter. The U.S. Environmental Protection Agency's (EPA) regulation for radon specifies a Maximum Contaminant Level for radon of 300 picocuries/liter. Radon is a radioactive gas that occurs naturally in groundwater and is released from water into the air during household use. At high exposure levels, it can cause lung cancer. Radon readings in our water are below the detection limit and should not be any cause for concern.

Concerning lead in our water:

Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline (800-426-4791).

Concerning arsenic in our water:

Nationwide, there was significant discussion during 2002 concerning the amount of arsenic permissible in drinking water. The Maximum Contaminant Level was lowered by the EPA from 50 ppb to 10 ppb. While the new arsenic standard of 10 ppb is not enforceable until 2006, the rule's requirements for reporting arsenic levels in your annual Consumer Confidence Report are in effect now. Ketchikan's arsenic level has always been below the 2.0 ppb detection limits of the analytical equipment.

2004 Operational Highlights

Although the time remaining for Ketchikan to continue as an unfiltered system may be closing, 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. For the past eleven 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 over \$20-million as well as the annual operating costs for chemicals, electricity, and labor. Issued in July 1993, it 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 to increase the chlorine disinfectant contact time to thereby ensure 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.

Third Avenue Extension

The 5,000 feet of new 16-inch water main between the Forest Avenue/ Schoenbar Road intersection and the Washington/ Third Avenue intersection is complete. We now have an alternate route that will deliver water to the west end of our community should an emergency occur along the waterfront viaduct portion of Tongass Avenue.