

Ketchikan Public Utilities 2005 Annual Water Quality Report

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

Ketchikan Public Utilities (KPU) believes it is important to help its 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. The KPU Water Division is pleased to present this, its seventh report, for the period between January and December 2005.

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 that are higher than EPA standards (discussed in greater detail on page 3 of this report), the KPU Water Division's answer remains the same: 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. The City Council meets on the first and third Thursdays of every month at 7:00 pm in 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 the Water Division's source water assessment, which was 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 your 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 your 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?

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

As an unfiltered water system, the Water Division is required to monitor its turbidity continuously. Turbidity is a measure of the cloudiness of the water and KPU tests for it because it is an indicator of microbiological quality. During periods of heavy rainfall following a dry spell, the Water Division does experience turbidity swings and takes 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 are at a level well below EPA maximum contaminant standards. However, the five haloacetic acids did exceed the EPA maximum contaminant standards throughout all of 2005. Samples were 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 the distribution system. The overall average of all of these analytical tests exceeded the haloacetic acid MCL of 60 parts per billion (ppb) by 14.3 ppb. The quarterly haloacetic averages ranged between 63.7 and 96.6 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

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

Is KPU's treated 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 KPU has 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	MCL G	MCL	Likely source of contamination to the best of our present knowledge	
Microbiological Contaminants							
Turbidity (2005) Note (1)	No	10.32	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. Although a landslide in the Granite Basin area raised the incoming turbidity for 4 hours on Nov. 8 th , extensive testing over the next 24 hours did not show any effect on the disinfected water.							
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) (2005) Note (4)	No	46.5	ppb	n/a	80	By-product of water chlorination	
HAA5 Haloacetic Acids (2005) Note (5)	Yes	74.3	ppb	n/a	60	By-product of water chlorination	
Note (4) In 2005, a total of 16 samples were taken throughout the distribution system. The TTHM analytical results ranged between 20.5 and 93.3 ppb.							
Note (5) In 2005, a total of 16 samples were taken throughout the distribution system. The HAA5 analytical results ranged between 49.9 and 105.7 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, the Utility's drinking water must be analyzed for each of these identified contaminants and the results must be less than the MCL. With the exception of the group of disinfection byproducts collectively identified as five different haloacetic acids (HAA5) discussed above, Ketchikan remained in compliance with all aspects of the pertinent EPA regulations.

As reported in 2004's Consumer Confidence Report, KPU has continued to make operational changes to reduce the formation potential of HAA5's. The Water Division is now 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 2006 have resulted in an overall average

throughout the distribution system of 67.2 ppb and 77.9 ppb respectively. These results still exceed the MCL with little margin remaining for seasonal variations.

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 the Water Division's planned approach of using ammonia injection to reduce the formation of disinfection byproducts as well as using ultraviolet light (UV) as a secondary disinfectant. The entire project is now in the pre-design phase. By the fall of 2009, an aggressive construction schedule will have the new equipment operational and Ketchikan will again be in full compliance with EPA regulations. These planned disinfection modifications will also meet the EPA's recently adopted Stage 2 Disinfectants/Disinfection Byproducts (Stage 2 DBPR) and Long Term 2 Enhanced Surface Water Treatment Rules.

Anticipated funding for this project will be a combination a \$6.5-million low-interest loan from the State of Alaska's Drinking Water Loan Fund that was submitted this past March and a 50% Municipal Matching Grant to the Alaska Department of Environmental Conservation that will be submitted this August. Although nothing is certain until the agreements are signed, the Water Division believes that its March loan request will be favorably received. If so, the next step will be to place it on October's General Election ballot and request approval of the voters to accept the loan obligation.

Concerning radioactivity in your water:

Samples of Ketchikan's water were collected for four consecutive quarters and then analyzed in an independent laboratory in 2005 to determine if the water contains any radioactive isotopes. The results are negative as they were in 2001 when the 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 your 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 your 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 is tested every year and has always been below the 2.5 ppb detection limits of the analytical equipment.

2005 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. For the past twelve 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, the Administrative Order required KPU to make several major system modifications, install additional instrumentation, and begin additional continuous water quality testing before the Utility met EPA standards. These modifications included the construction of the Bear Valley Reservoir to increase the chlorine disinfectant contact time to 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.

Heckman Street

In a joint venture with the Public Works Department, a design was prepared and a contract let to completely rebuild Heckman Street. The water, sewer, and storm drains were all replaced with new, modern plastic materials that are not subject to electrolysis with new services extended to the property lines. New concrete curb, gutter, and sidewalk and asphalt pavement were also installed. The result is a totally rebuilt street that should serve the community for many years without significant additional maintenance

Tongass Avenue

Funding through the 50% Municipal Matching Grant program and a State of Alaska Drinking Water Loan will allow replacement of a segment of Tongass Avenue's water and sewer mains between the Borough Ferry Terminal and Bryant Street. This will be the first of three phases of a multi-year program jointly developed by KPU and Public Works to simultaneously replace the municipality's substandard, defective utilities in Tongass Avenue.