

Sanitation

Many people in rural Alaska live without piped water and sewer. A honey bucket is a bucket that is used in place of a flush toilet in rural situations and communities that lack a water-borne sewage system. The waste may be disposed to sloughs, beaches, rivers, tundra ponds, outhouses, or straight to a sewage lagoon or sewage waste dumping location, usually by way of a four-wheeler all terrain vehicle. (Source information: Joe Sarcone: 2008).



Honey bucket
Photo: T. Hanson

Sanitation and Disease

“Raw sewage contains biological organisms like bacteria, viruses, fungi and parasites that can cause serious illness and even death.” “Tetanus is caused by a toxin produced by the bacterium *Clostridium tetani* that is common in soil and in sewage. The bacterium enters the body via open wounds. There is a high risk of death occurring if infected. Anyone who may be exposed to sewage or soil should have prophylaxis tetanus vaccinations every ten years” (Source information: Workers Health Centre, Lidcombe, Australia).

Preventing Disease

If bugs like flies or mosquitoes breed near human waste they can carry diseases such as typhoid fever, so it is very important to protect against them. They can be “easily controlled in outhouses by enclosing the top of the pit with tight fitting boards or concrete, using a toilet hole cover that is closed after every use, and by using fine-grid insect screen to cover the inlet and outlet vent holes. This prevents flying insect entry by all possible routes” (Source information: Wikipeda Distributed under <http://creativecommons.org/licenses/by-sa/3.0/>).



Outhouse
Photo:
T. Hanson

Credits

Telida Village has developed a series of environmental health brochures to contribute towards keeping the tribal members healthy and the environment clean for future generations, fulfilling the Indian General Assistance Program’s objective to reduce the risk to human health and the environment.

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Information Credits

Alaska Department of Environmental Conservation. Drinking Water Program. (2002). *The Updated Plain English Guide to Alaska Drinking Water and Wastewater Regulations*. State of Alaska website.
Alaska Department of Environmental Conservation. Drinking Water Program. *Think Before You Drink*. State of Alaska website.
Centers for Disease Control. (No date). *Bam, Body and Mind*. Centers for Disease Control website.
Alaska Department of Fish and Game. (No date). *Water Treatment*. State of Alaska website.
Joe Sarcone. (2008). *A Measure and Process for Improving Human Excreta Disposal Practice in Rural Alaska Villages*. Heartland Center for Public Health Preparedness website.
Wilkes University Center for Environmental Quality Environmental Engineering and Earth Sciences. (No date). *Water Testing Bacteria, Coliform, Nuisance Bacteria, Viruses and Pathogens in Drinking Water*. Wilkes University website.
Wikipeda. (2010). *Outhouses* Wikipeda website.
Workers Health Centre, Australia. (2004). *Sewage Spill Fact Sheet*. Workers Health Centre Website.

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Drinking Water And Sanitation In Rural Alaska



Roof with rain catchment drain made of Blazo cans, Telida Alaska

(Photo Courtesy of Teresa Hanson)

Information Brochure By Telida Village

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Drinking Water and Sanitation

We cannot live without water. It is a basic human need. Our bodies are made up of 60-70% water. It makes sense then that we look at the water we drink, and how it is handled from its source to its resting place, once it has completed its use in our bodies.

History

Before there were water pipes, sewer or septic tanks, we used to go down to the river and get water. In the winter,



Kuskokwim River
Photo: Teresa Hanson

we cut holes in the ice to reach the water for our drinking usage. We used to cut and thaw big chunks of ice too for our drinking water. We would scoop or chop them from fresh water lakes. Then we had to pack

it up the hill with sleds, birch bark baskets, buckets, or with a big barrel on a snow machine or 4 wheeler. We also used to catch the rain water as it came off the roofs of our homes. We used outhouses, honey buckets, or the great outdoors for our bodies' waste removal needs. There was no good sanitary system for getting rid of honey buckets and we didn't have roads in the village.

Drinking Water Sources

There are a couple of sources of water for villages. Some utilities and families get their water from groundwater wells, while others get water from lakes, rivers, or other surface water sources. "A few use both."

"It is important that you know what contaminants could get in your water and how they can affect your health. This is a matter of common sense. What is near your water supply that could contaminate the water? Are any chemicals stored nearby? Is there any fueling of aircraft, snow machines, cars, or machinery nearby? How close is your sewage lagoon or wastewater outflow to your water intake? Where are your honey buckets being dumped? How can your water source be protected?" (Source of Information: Alaska Department of Environmental Conservation: 2002).

Germs in Water

What are germs? The term "germs" refers to the microscopic bacteria, viruses, fungi and protozoa that can cause disease. "Bacteria are single-celled organisms. Bacteria have the tools to reproduce themselves, by themselves. They are filled with fluid and may have threadlike structures to move themselves, like a tail" (Source Information: Centers for Disease Control: n.d.).

"Human and animal wastes are a primary source of bacteria in water." These sources of bacterial contamination include runoff and seepage from sewage lagoons, outhouses, dog runs, and other land areas where human and animal wastes are deposited. "Bacteria from these sources can enter water sources and wells that are either open at the land surface, or do not have water-tight casings or caps."



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Another way bacteria can enter a water supply is through flood waters or by surface runoff. "Flood waters commonly contain high levels of bacteria." Sewage lagoons, outhouse pits, landfills and any other small depressions filled with flood water provide an excellent breeding ground for bacteria" (Source Information: Wilkes University for Environmental Quality Environmental Engineering and Earth Sciences: n.d.).

"Viruses have a core of genetic material, but no way to reproduce it on their own. Viruses infect cells and take over their reproductive machinery to reproduce. Protozoa are very small. Most live in water. They are parasites, which means they live off other organisms, in some cases humans" (Source Information: Centers for Disease Control: n.d.).

Diseases Spread by Unclean Water

Typically occurring diseases that are spread by unclean or scarce drinking water are: Giardiasis (Beaver Fever); Cryptosporidiosis; Cholera; Typhoid fever; Gastrointestinal Illnesses; Avian Influenza; and Respiratory Disease.

Giardia lamblia, or *Giardia* for short, is found worldwide and is the most commonly reported human intestinal parasite in the United States. It is a tiny single-celled protozoan (Source Information: Alaska Department of Environmental Conservation Drinking Water Program: n.d.) "This parasite lives in the intestines of infected humans or animals, including many common Alaska mammals such as beavers, muskrats, moose, caribou, and deer." "You can get giardiasis, sometimes referred to as "beaver fever," by drinking contaminated water or by using utensils that have been washed in contaminated water." "Giardiasis can be successfully treated with proper medical care." (Alaska Department of Fish and Game: n.d.).



Muskrat
Photo: USFWS

Disease Prevention

How do you keep from getting diseases that are spread by unclean water? Boiling water before you use it is the most reliable method to kill almost any other microscopic organism that can hurt you. "If you boil the water for a full three minutes, you will kill any protozoa or viruses the water contains. However, boiling all your drinking water takes a lot of time and fuel." If there is not enough fuel to boil all your water, purchase a good quality water filter that removes "Giardia and other small disease causing organisms. They are a good investment" (Source information: Alaska Department of Fish and Game: n.d.).



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