



STATE OF ALASKA
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SPILL PREVENTION AND RESPONSE
PREVENTION AND EMERGENCY RESPONSE PROGRAM



Flood

Public Health and the Environment

Flood

Definitions:

- Riverine** - Periodic overbank flow of rivers and streams.
- Flash** - Quickly rising small streams after heavy rain or rapid snowmelt.
- Urban** - Overflow of storm sewer system usually due to poor drainage following heavy rain or rapid snowmelt.
- Coastal** - Flooding along coastal areas associated with severe storms, hurricanes or other events.

Many areas of the state are at risk to flooding from heavy rains, spring ice jams, rapid snow melt, tidal storm surges and wave run-up. Floods account for approximately 40% of the state's disaster emergencies. Most floods are of the Riverine variety, as defined above. The South-central, Western, and Interior Regions of the state are especially prone to spring flooding. Coastal areas of the state, especially the Western Region, are prone to storm driven waves that can flood a community. Floods can also cause additional natural/environmental emergencies such as erosion and landslides.

Many existing populated areas are known to be located within flood vulnerability zones. Consequences to property and people would include a disruption of vital services such as water, sewer, power, gas, communication, transportation, damage or destruction of roadways, buildings, structures, bridges, port and harbor facilities, airports, and vehicles.

The Alaska Department of Environmental Conservation (ADEC) is available to provide technical assistance to homeowners on their environmental issues associated with floods. See the list of ADEC offices at the back of this pamphlet. The following is information that homeowners may find helpful in assessing their property during disaster recovery.

Drinking Water Supply System

If your property has been impacted by flooding, ADEC advises that precautionary measures be taken to disinfect your drinking water system prior to resuming use of the well. ADEC also recommends that your water be tested to ensure that it is safe to drink.

Wells that have been flooded may be impacted by contaminants carried by surface waters or saturated soil. Contaminants may include bacteria, viruses, protozoa, and/or petroleum products from fuel spills in nearby areas. These forms of contamination may constitute a hazard to public health. ADEC recommends that homeowners monitor their wells for standing water near the well casing. If this condition exists, as an initial precaution, ADEC advises that water used for drinking, cooking, hand washing, or dish washing, should first be boiled for at least 5 minutes. Sand point wells, or other shallow wells near the river or flood areas, may be at increased risk even when the wellhead itself has not been flooded.

Fuel spills from underground or above ground fuel tanks, or from fuel containers that were stored around someone's property, can flow easily and far in flood waters. A visible sheen and/or fuel odor would indicate fuel in the water. If you detect a fuel spill near your well, contact your local ADEC office to report the spill. You may want to have your well water tested to see if it may be contaminated with petroleum products that could pose a health risk to you and your family. For specific testing of your well water, ADEC recommends that you talk with an independent, state certified laboratory about the problem you suspect and their recommendation for sampling analysis. A standard, and the least expensive, screening test for petroleum hydrocarbons is called TPH (total petroleum hydrocarbons). A TPH analysis could be done if you are unsure of the type of petroleum contamination that may be in your well. If the TPH test indicates the presence of petroleum hydrocarbons, additional testing may be needed to determine if it is gasoline or diesel. If you suspect gasoline contamination, you could have your water tested for VOC's (volatile organic compounds). If you suspect diesel contamination, you could have your water tested for DRO (diesel range organics). Again, it is best to discuss your suspected problem with a laboratory specialist to determine the best analysis of your water.

The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that the presence of total coliform bacteria indicates a possible health concern. Total coliforms are generally not harmful themselves. The presence of these bacteria in drinking water generally is a result of a problem with water treatment, or with the well or pipes that distribute the water, and indicates that the water may be contaminated with other bacteria, viruses, or protozoa that can cause diseases. Disease symptoms may include diarrhea, cramps, nausea, jaundice, and associated headaches and fatigue. These symptoms, however, are not just associated with disease-causing organisms in drinking water, but also may be caused by a number of factors other than your drinking water.

Bacterial contamination can enter a well from inadequate pressure in the water lines

resulting in backflow contamination from faucets, cracked well casings, waterline leakage, or infiltration of surface water into the well. Once the flooding has subsided, ADEC recommends that homeowners disinfect their well with chlorine bleach, and the water be tested before consuming the water. See the ADEC handout titled, “Disinfection of Wells and Distribution Lines in Small Water Systems”. During the disinfection procedure, the water will not be drinkable; therefore, a 24-hour supply of either bottled or boiled water (boiled for at least 5 minutes) should be on hand before the procedure is started. Plan to disinfect the well late at night or at other times when there is little need for water. After the disinfection procedure is completed, ADEC recommends that you have your water tested for total coliform bacteria, to ensure that it is safe to drink.

NOTE: Chlorine disinfection will not eliminate fuel contamination in your well water.

Water that is contaminated with coliform bacteria, or other contaminants, should not be used for potable (drinkable) purposes, until it has been adequately disinfected and re-tested to verify that it is free of contamination. For more information regarding water disinfection procedures, or where to have your water tested, call your local ADEC office.

Wastewater Disposal System

If flooding has impacted your property, ADEC recommends that precautions be taken to reduce any threats to public health and the environment from onsite sewer systems. Homeowners are advised that onsite sewer systems and holding tanks may be damaged due to flooding and/or high groundwater levels. Homeowners with onsite sewer systems that have been flooded, or are in the vicinity of flood waters, should inspect their system as follows:

1. Check for any evidence of sewage on the ground. If found, you should disinfect the area using large amounts of lime (finely ground garden lime will work) or a strong solution of water and chlorine bleach. Apply the disinfectant to the ground surface in the affected area. Make sure that you keep people (especially children) and pets away from any contaminated areas prior to and during disinfecting.
2. Check for any changes in the ground surface that might indicate movement or damage to any part of the system. Raised areas may indicate that the septic/holding tank may have floated upward due to buoyant forces. If this has occurred, damage to the tank and/or piping is likely. Depressed areas may indicate a collapsed tank, or that the upper soils have sunk downward into the drainfield. The system should be checked for damage by a qualified system installer or a professional engineer. ADEC recommends that for safety reasons, you keep people and pets away from these areas prior to repairs.
3. Floodwaters may have raised the groundwater to levels at or near the ground surface in many locations. Onsite sewer systems do not provide proper wastewater treatment under these conditions. Use of systems under these

conditions may lead to groundwater contamination, surfacing of sewage, and/or sewage backing up into your home. All of these conditions pose a significant health threat. It may take some time for the surrounding ground to dry up enough for the drainfield to recover and resume its normal absorption capability. During the time when the groundwater level is above or near the level of the drainfield area of your sewer system, your system will not function properly. During this period, avoid discharging wastewater to your onsite sewer system. When use of your sewer system is resumed, ADEC recommends that you closely monitor its performance and limit water use for at least 30 days.

4. Once the flood waters and groundwater levels have receded, the septic tank may be pumped, which can give the drainfield a resting period before introducing additional wastewater to the drainfield from the tank. Prior to pumping a septic or holding tank, the homeowner should verify that their tank is anchored down to prevent floatation when pumped, and that groundwater levels have receded enough to prevent further inflow of groundwater into the tank, and/or damage to the tank and piping when pumped out.
5. Cleanout pipes and monitoring tubes should be inspected to assure those joints and connections have not been damaged, and that caps are in place.

For more information regarding disinfection procedures and sewer system monitoring to detect damage, call your local ADEC office.

Solid Waste Disposal

Cleanup of flood impacted property can expose you to potential hazards or hazardous materials. Filter masks and protective clothing are suggested. Many household items soaked with floodwater, such as clothing, bedding, linens, leather goods, books, papers, appliances, furniture, and rugs and carpets, can be salvaged by cleaning and disinfecting. These items, and other solid waste debris, can also be disposed of at the local landfill. Household hazardous materials, such as kitchen and bathroom cleaning products, paints, solvents, batteries, and asbestos containing material, need to be properly handled and disposed of.

For more information on what can be disposed of in the local landfill, contact your local landfill operator or your local ADEC office.

Fuel / Oil / Hazardous Substance Spills

If a flood has caused a release of fuel, oil, or other hazardous substance, report the spill to your local Fire Department or Village Public Safety Officer, and also to ADEC at (907) 269-3063 in Anchorage, 451-2121 in Fairbanks, or 465-5340 in Juneau. Outside normal business hours, call 1-800-478-9300.

Propane Tanks

Propane suppliers recommend homeowners contact them for an inspection of the tank and fittings prior to reusing the system. The tank may have shifted which can cause fuel lines to kink or weaken, or there may be loosened or damaged fittings that may be unsafe. Valves should be turned off and remain closed until the propane supplier inspects the system.

Home Heating Fuel Tanks

Heating oil suppliers recommend homeowners contact them for an inspection prior to reusing their system. If you have an above ground fuel tank, the tank may have shifted or fallen from the stand causing fuel lines to kink or weaken, or there may be loosened or damaged fittings and filters. If you have a buried fuel tank, water may have seeped into the tank and contaminated the heating oil. You should contact your fuel supplier to have the contents of the tank checked. If you have questions on the integrity of the tank, fuel lines, tank stand, or the fuel, or need assistance in moving the tank or returning it to service, contact your fuel supplier.

If the heating tank spilled and you have soil or water contamination, report the spill to ADEC at (907) 269-3063 in Anchorage, 451-2121 in Fairbanks, or 465-5340 in Juneau. Outside normal business hours, call 1-800-478-9300.

Food

If you have food items that have been in contact with floodwaters, and are not in watertight containers, they should be thrown away. Root vegetables can be used, but they should be thoroughly washed in clean water, peeled and cooked before eating.

Canned foods should be checked carefully for leaks. Any questionable cans should be thrown out. Containers with tight seals should be washed first and then disinfected by soaking for approximately 15 minutes in chlorine water. Adding one tablespoon of household bleach to one gallon of water can make this solution. Chlorine is poisonous, so be careful not to breathe the vapors or swallow any of the chlorine water. After sterilizing the container, be sure to rinse it thoroughly in fresh water.

If you have a freezer, either a chest or upright, which was covered with floodwaters, chances are the food inside has been damaged through seepage. All of this food should be thrown away. If the electricity has been cut off, but no floodwater has seeped into the freezer, the food will last for awhile depending on the amount of food in the box. A fairly full freezer should last two or three days without much loss of quality or flavor. Partially thawed meat should be refrozen at once. If meat has been completely thawed, it should be used at once, or may be cooked and refrozen. Any meat, poultry, fish, or

containers of fruit and vegetables that show any sign of spoilage should be thrown away.