Washington County

Office of the Sheriff

Commitment to Excellence

Dan Starry
Sheriff

Brian R. Mueller
Chief Deputy

To all Sunnybrook Lake area residents,

This letter comes to you as part of an information packet related to flooding concerns in your neighborhood. Recently, public officials met with Mayor Huber to discuss the current status of flooding in Grant, and both short-term and long-term threats from additional flooding this fall and next spring.

As some of you may be aware, the current circumstances throughout the county are that ground water levels have reached some of the highest thresholds we have ever seen. This fact has profound impacts on potential mitigation strategies as nearly every action has cause and effect reaction creating unintended consequences.

The City of Grant, the Sheriff's Office, Washington County Public Health, the Valley Branch Watershed District, as well as several other agencies are working to find best case scenario responses to the critical issues you are facing. In this packet there are resources pertaining to FEMA's National Flood Insurance Program, Septic Systems, and other resources that may be of help in making decisions.

Sheriff's Office emergency management staff is committed to the role of supporting the city during this incident and the challenges it may offer next spring. We are also here to answer your questions, and when applicable, share information for access to resources.

In partnership,

Doug Berglund

Doug Berglund
Emergency Management, Director
Douglas.Berglund@co.washington.mn.us

The Benefits of Flood Insurance Versus Disaster Assistance

Flood Insurance

- You are in control. Flood insurance claims are paid even if a disaster is not declared by the President.
- More than 20 percent of NFIP claims come from outside of mapped Special Flood Hazard Areas.
- There is no payback requirement.
- Flood insurance policies are continuous, and are not non-renewed or canceled for repeat losses.
- Flood insurance reimburses you for all covered building losses up to $250,000 for residential occupancies and up to $500,000 for businesses. Contents coverage is also available up to $100,000 for residential occupancies and up to $500,000 for businesses.
- The average cost of a flood insurance policy is about $600 annually. The cost of a preferred risk policy is less than $200 annually, if you live in a moderate-to-low-risk area.

Disaster Assistance

- Most forms of Federal disaster assistance require a Presidential declaration.
- Federal disaster assistance declarations are not awarded in all flooding incidents.
- The most typical form of disaster assistance is a loan that must be repaid with interest.
- The duration of a Small Business Administration (SBA) disaster home loan could extend to 30 years.
- The average Individuals and Households Program award for Presidential disaster declarations related to flooding in 2008 was less than $4,000.
- Repayment on a $50,000 SBA disaster home loan is $240 a month or $2,880 annually at 4 percent interest.

For more information about the NFIP and flood insurance, call 1-800-427-4661, or contact your insurance company or agent.
For an agent referral, call 1-888-435-6637 • http://www.floodsmart.gov •
http://www.fema.gov/national-flood-insurance-program

F-217 (Revised 11/12)

FEMA Fact Sheet

National Flood Insurance Program

In or Out of the High-Risk Flood Area, *Everyone* Needs Flood Insurance

In the wake of Hurricane Harvey in 2017, nearly half of all flood insurance claims were for properties located outside high-risk flood zones-for properties that, on flood maps, are shown to be at low -to -moderate flood risk.

Did you know?...

- ✓ Floods are the nation's most common and costly natural disaster and cause millions of dollars in damage every year.
- ✓ Homeowners and renters insurance does not typically cover flood damage.
- ✓ Floods can happen anywhere--more than 20 percent of flood claims come from properties outside the high risk flood zone. Check out *The Big Cost of Flooding,* at www.fema.gov/media-library/assets/documents/132744.
- ✓ If your property is in a low-to-moderate flood risk area, your flood insurance could be much more affordable than you might think.
- ✓ Flood insurance can pay regardless of whether or not there is a Presidential Disaster Declaration, at www.fema.gov/disaster-declaration-process.
- ✓ Most federal disaster assistance comes in the form of low-interest disaster loans from U.S. Small Business Administration (SBA) and you have to pay them back.
- ✓ A claim against your flood insurance policy could, and often does, provide more funds for recovery than those you could qualify for from FEMA or the U.S. Small Business Administration after a disaster declaration--and you don't have to pay it back.

No homeowner or renter can afford not to have flood insurance. Call your insurance agent and buy a policy today. If your community participates in the NFIP, you can buy flood insurance for your property. There's typically a 30-day wait period between when you purchase the policy and when it becomes effective. Discuss this and find questions to ask to ensure you get the coverage you need, at www.fema.gov/national-flood.

"FEMA's mission is to support our citizens and first responders lo ensure that as a nation)lie work together to build, sustain, and improve our capability to prepare for, protect against, respond to, recover from, and mitigate all hazards." March 2018

FEMA

Fact Sheet

Federal Insurance and Mitigation Administration

National Flood Insurance Program Fact Sheet

The National Flood Insurance Program (NFIP) was established with the passage of the National Flood Insurance Act of 1968. The NFIP is a federal program enabling property owners in participating communities to purchase flood insurance as protection against flood losses, while requiring state and local governments to enforce floodplain management ordinances that aim to reduce future flood damage. More than 22,100 communities in the U.S. participating in the NFIP and more than 5.1 million NFIP policies in force, providing $1.25 trillion of content and building coverage.

Financial Protection Against Flood Loss

Floods are the most common and costly natural disaster in the United States. Fortunately, property owners who live in communities participating in the NFIP can purchase affordable protection to insure against flood losses. Since 1978, the NFIP has paid nearly $52.5 billion dollars in flood insurance claims that have helped hundreds of thousands of families and businesses recover from flood events.

To participate in the NFIP, a community must adopt and enforce floodplain management ordinances that meet or exceed the minimum requirements of the Program. These requirements are intended to prevent loss of life, loss of property, reduce taxpayer costs for disaster relief, as well as minimize economic and social hardships that result from flooding. The specific requirements that a community must adopt depend on the type of flood hazard faced by the community.

The NFIP has an arrangement with private insurance companies to sell and service flood insurance policies. See a list of those companies at: http://www.fema.gov/wyo_company.

Andrea Booher/FEMA Photo

Myths and Misconceptions

A common misconception is that homeowners' policies cover flood damage. In fact, most homeowner . In fact, most homeowner and business multi—peril policies do not cover flooding. In addition, federal disaster assistance will not always pay for flood damage. The President must declare a major disaster before most forms of federal disaster assistance can be offered and most forms of disaster assistance are loans that must be repaid with interest. In 2016, the average flood policy costs about $700 a year and the average total paid claim has been more than $31,000.

Everyone Needs Flood Insurance

While flood insurance is not mandatory for homeowners outside of a high-risk area, anyone can be financially vulnerable to floods. People outside of high-risk areas file more than 20 percent of NFIP claims and receive one-third of disaster assistance for flooding. Residential and commercial property owners who are not located in high-risk areas should ask their agents if they are eligible for the Preferred Risk Policy, which provides affordable flood insurance protection, starting as low as $137 a year in 2016.

Flood Insurance Requirements

Residents and business owners who own property in high-risk areas (sometimes referred to as Special Flood Hazard Areas [SFHAs]) are required to purchase flood insurance if they have a mortgage from a federally regulated or insured lender. They also must carry the insurance for the life of the mortgage. Residents and business owners with a mortgage on a building outside high-risk areas can also purchase flood insurance and may be eligible for lower-cost Preferred Risk Policies.

Waiting Period

In general, a policy does not take effect until 30 days after the purchase of flood insurance. However, if a policy is purchased in connection with making, increasing, extending, or renewing a loan there is no waiting period and only a one day waiting period if purchase is related to the revision or update of a Flood Insurance Rate Map (FIRM) within 13 months of the new FIRM's effective date.

What Is Not Covered by Flood Insurance

Physical damage to a building or personal possessions that are directly caused by a flood are generally covered by flood insurance. For example, damage caused by a sewer backup is covered if the backup is a direct result of flooding. However, if the backup is caused by some other problem, the damage is not covered.

The Flood Insurance Program is Evolving

The NFIP is focusing making America truly "Flood Smart." The NFIP is a comprehensive program that encourages property owners to seriously consider their risks and ways they can lessen those risks—and flood insurance is obviously a key component.

Purchasing flood insurance is still the most powerful action survivors can take to mitigate the financial risk of flood before and recover after a flood event. Flood insurance is both a mitigation and recovery tool. This means customers need to understand how flood insurance works, the value of the product, and be able to navigate processes—like the claims process.

In addition to building trust with policyholders, improving communication and making processes simpler to understand and navigate, the NFIP is also focusing on its commitment to strengthening partnerships and engagements with communities. Historically, with things like Climate Change occurring, and population movements into flood-prone areas, floodplain management

has never been more important. Communities must make excellent decisions that will help them reduce damage from future flood events and the NFIP is supporting them in new, innovative ways.

For Additional Information

For additional information about the NFIP or the FloodSmart campaign, visit: FloodSmart.gov or FEMA.gov.

FEMA

NATIONAL FLOOD INSURANCE PROGRAM

Preferred Risk Policies: A Small Investment Protects You from a Big Problem.

Get Lower-Cost Flood Insurance for Homeowners and Renters with a Preferred Risk Policy.

Protect the Life You've Built

Flooding can be an emotionally and financially devastating event. It only takes a few inches of water to cause tens of thousands of dollars in damage to your home.

Without flood insurance, most residents have to pay out of pocket or take out loans to repair and replace damaged items. Disaster assistance comes in the forms of loans that must be paid back with interest, and FEMA grants that provide about $5,000 on average per household. By comparison, the average flood claim in 2017 was more than $90,000.

Flood insurance reduces the financial burden of a flood event, making it easier to make your house a home again.

PRPs are available in most communities across the country, wherever flood insurance is available to homeowners and renters.

Flood Risk is Real

Every year, thousands of homeowners and renters experience devastating flooding events, even though they don't live near a river or coastline. In fact, floods are the most common and costly natural disaster in the U.S. Despite the risk, only a fraction of residents protect themselves against the cost of flooding by purchasing flood insurance.

Get Flood Insurance Today

There are nearly 70 insurance companies that sell PRPs through the NFIP, all for the same low price. It's never too soon to contact an insurance agent. And remember, flood insurance typically goes into effect 30 days after your purchase.

DID YOU KNOW?

- More than 20 percent of flood insurance claims come from outside of high-risk flood areas.
- PRPs can be purchased for as little as $325 per year.
- Most homeowners insurance doesn't cover flood damage.
- Most homes in moderate and low-risk areas qualify for the National Flood Insurance Program's (NFIP) Preferred Risk Policy (PRP).
- PRPs offer the same quality of coverage as a Standard Flood Insurance Policy (SFIP) and can cover your home and its contents.

About the NFIP

The NFIP aims to reduce the impact of flooding on individuals and communities across the country. It does so by providing flood insurance to property owners like you—who live in communities that adopt and enforce floodplain management standards. These efforts reduce the costs and consequences associated with flooding and help families recover more quickly. For more information about PRPs, call your agent or call the NFIP Help Center at 1-800-427-4661.

Resources from FEMA, NWS, and MN Homeland Security (HSEM)

FEMA Flood Resources

https://www.ready.gov/floods

FEMA Flood Map Service Center

https://msc.fema.gov/portal/home

Minnesota Homeland Security and Emergency Management (HSEM)

https://dps.mn.gov/divisions/hsem/Pages/default.aspx

National Flood Insurance Program and NFIP Flood Fact Sheet

https://dps.mn.gov/divisions/hsem/hazard-mitigation/Pages/mitigation-in-the-news.aspx

Flood Fact Sheet

https://www.fema.gov/pdf/hazard/midwestfloods_factsheet2008.pdf

National Weather Service (Twin Cities)

https://www.weather.gov/mpx/

Fact Sheet

Department of Public Health and Environment

Washington County Government Center
14949 62nd ST N • PO Box 6
Stillwater MN 55082-0006
651-430-6655 • TTY 651-430-6246

Washington County Service Center – Cottage Grove
13000 Ravine PKWY
Cottage Grove MN 55016
651-430-4036

Washington County Service Center – Forest Lake
19955 Forest RD N
Forest Lake MN 55025
651-275-7270

SEPTIC SYSTEMS AND FLOODS

Much of Washington County relies on subsurface sewage treatment systems, or septic systems, and also has many areas affected by flooding. This may seem like a undesirable combination, but easy steps can be taken to mitigate both the affect the flood waters has on a septic system and the affect the septic system may have on public health and the environment. This fact sheet will discuss recommendations for a homeowner before, during and after a flood event and also list what is required of septic systems located in a floodplain in Washington County.

Washed away SSTS in eroded stream bank

FLOODING EVENTS

A homeowner can take these steps with a septic system to mitigate damage to the system and the dwelling before, during, and after a flood:

BEFORE A FLOOD

- Install a polyethylene sheet over any below grade drains, such as a floor drain, shower drain, etc. Place a sandbag over the poly sheet. This may prevent sewage from rising flood waters from backing up into the dwelling during the flood event.
- DO NOT pump the contents of the septic system. Pumping the tanks prior to a flood event could create the tanks to become buoyant with the rising groundwater and cause them to pop out of the ground.
- Locate and protect the soil treatment area (drainfield, mound, etc.) from compaction by keeping all traffic off the area.

DURING A FLOOD

- It is required to discontinue discharging wastewater to the system. All water use in the dwelling must cease during the flood.
- If the septic system has a pump tank, the circuit that controls the pump must be disconnected. Otherwise, the pump will run continuously during the flood and could create an electrical hazard.

AFTER A FLOOD

- Conduct a visual inspection of the system to determine if any damage has occurred to the system. This could include physical damage to the system's components (tanks, drop boxes, pumps, etc.) and damage to the vegetation over the septic tank and soil treatment area. Make sure to check the septic tank and pump tank's manhole covers are secure and that inspection pipes have not been damaged or blocked.

- Check electrical connections for damage or wear before turning the electricity back on.
- Contact a licensed septic system Maintainer to have all septic tanks and pump tanks pumped to remove any silt and sand that may have entered the tanks. This should occur as soon as possible after the flood recedes and prior to resuming use of the system.
- Contact a licensed septic system installer to make any necessary repairs to the system that may have occurred during the flood.
- Repair erosion damage by sodding or reseeding as necessary to provide a good vegetative cover.

Flood damaged SSTS electrical box

REQUIREMENTS

Section 18 of the Washington County Development Code, Chapter Four, Subsurface Sewage Treatment System Regulations (Washington County Ordinance #206) has the following design, installation, and maintenance requirements for systems located within a floodplain:

- Allowed use of systems in floodplains must be according to state and local floodplain requirements.
- An SSTS must not be located in a floodway and, whenever possible, placement within any part of the floodplain should be avoided. If no alternative exists, a system is allowed to be placed within the flood fringe if the requirements of this section are met.
- There must be no inspection pipe or other installed opening from the distribution media to the soil surface.
- An SSTS must be located on the highest feasible area of the lot and must have the location preference over all other improvements, except the water supply well. If the ten-year flood data are available, the bottom of the distribution media must be at least as high as the elevation of the ten-year flood.
- If a pump is used to distribute effluent to the soil treatment and dispersal system, provisions shall be made to prevent the pump from operating when inundated with floodwaters.
- When it is necessary to raise the elevation of the soil treatment system to meet the vertical separation distance requirements, a mound system is allowed to be used with the following additional requirements:
    - The elevation of the bottom of the mound bed absorption area must be at least on-half foot above the ten-year flood elevation, if ten-year flood data are available.
    - In no case shall the sand fill for the mound exceed 48 inches below the mound bed absorption area.
    - Inspection pipes must not be installed unless the top of the mound is above the 100-year flood elevation.
    - The placement of clean sand and other fill must be done according to any community adopted floodplain management ordinance.
- When the top of a sewage tank is inundated, the dwelling must cease discharging sewage into it.
- Backflow prevention of liquid into the building when the system is inundated must be provided.
- If a holding tank is used to serve a dwelling, the holding tank's capacity must equal 100 gallons times the number of bedrooms times the number of days between the ten-year stage on the rising limb of the 100-year flood hydrograph and the ten-year stage on the falling limb of the hydrograph, of 1,000 gallons, whichever is greater. The holding tank must be accessible for removal of tank contents under flooded conditions.
- Whenever the water level has risen above the top of a sewage tank, the tank must be pumped to remove all solids and liquids after the flood has receded and before use of the system is resumed.

For more information call the Washington County Public Health and Environment Department at 651-430-6655.

MINNESOTA POLLUTION CONTROL AGENCY

www.pca.state.mn.us

What to do with your septic system after a flood

Should I pump my septic tank if the drainfield is flooded or saturated?

No! At best, pumping the tank is only a temporary solution. Under worst conditions, pumping the tank empty could cause it to try to float or pop out of the ground and damage inlet and outlet pipes. The best solution is to not use water or to drastically reduce water use.

What should I do with my septic system after the flood?

Once floodwaters have receded, there are a few things you should consider:

- Do not drink well water until the well has been tested for contamination. Contact your county health department for well-testing procedures.
- Don't use the septic system if the soil is still saturated or flooded. Consider turning off power at the circuit box if the septic system has a pump. The wastewater will not be treated and will become a source of pollution.
- Any floodwater in the house should not be dumped into a sink or toilet because it will go into the overloaded septic system.
- If sewage has backed up into the basement, clean the area and disinfect thoroughly.
- Keep children and pets away from areas where sewage was present on the ground surface. Sewage may contain organisms that can make you sick.
- Do not open the septic tank for pumping while the soil is saturated. Mud and silt may enter the tank and be discharged to the drainfield. Pumping out a tank in saturated soils may cause it to pop out of the ground.
- Flooding of the septic tank may have lifted the floating crust of fats and grease in the tank. Scum may have floated and/or partially plugged the outlet tee. If the septic system backs up into the house, your septic maintainer (your "pumper") should check the tank for outlet blockage.
- Don't wait too long to have your septic system inspected and serviced if you suspect damage. Signs of damage include settling or inability to accept wastewater. Septic tanks and pump tanks can fill with silt and debris, so they may need to be properly cleaned by a Minnesota Pollution Control Agency- (MPCA-) licensed individual sewage treatment system (ISTS) maintainer after the water recedes.
- Conserve water while the septic system dries out. Once the area around the septic system has dried out, the septic tank (and pump tank) should be evaluated to determine whether they need to be cleaned out.
- Take care not to compact soil over the drainfield or mound by driving or operating equipment in the area. Saturated soil is susceptible to compaction, which reduces the ability of septic systems to function properly.
- Examine electrical connections for damage before restoring electricity to use a pump.
- Be sure the septic tank's manhole covers are secure and inspection pipes have not been blocked or damaged.
- Check the vegetation over your septic system. Repair erosion damage and sod or reseed to provide good grass cover. Direct any surface water away from your septic system, too.

What if I use my septic system to dispose of wastewater from my home-based or small business?

Small businesses may use their septic systems to dispose of wastewater containing chemicals as well as raw sewage. If your septic system receives chemicals and it backs up into a basement or drainfield, take extra precautions to prevent skin, eye and inhalation contact. The proper cleanup depends on which chemicals are in the wastewater. Contact your county or the MPCA for more information.

Where can I find information about maintaining my septic system?

Contact your county for additional advice and assistance. A document on the University of Minnesota website, at http://septic.umn.edu/factsheets/protectfromflood.html, has related information for septic system owners. Or, you can call the Minnesota Pollution Control Agency at 800-657-3864 or 651-296-6300 for additional information.

Well Management Section
625 North Robert Street
P.O. Box 64975
St. Paul, Minnesota 55164-0975
651-201-4600 or 800-383-9808
health.wells@state.mn.us
www.health.state.mn.us/wells

DEPARTMENT OF HEALTH

Disinfecting Flooded Private Water Wells

If your well has been flooded, it may be contaminated with bacteria, viruses, or parasites that could make you ill. For Bacterial Safety of Well Water (https://www.health.state.mn.us/communities/environment/water/wells/waterquality/bacteria.html) information contact the Minnesota Department of Health (MDH) Well Management Section at 651-201-4600 or 800-383-9808 or visit our website. Water from a flooded well cannot be regarded as safe for drinking or food preparation until the well and plumbing system have been flushed and disinfected, and a water test shows that it is safe. If you must use the well water for drinking or food preparation before the well has been disinfected and tested, the water must be **brought to a full rolling boil for at least one minute**. Bottled water is another option.

You can perform a simple disinfection of most types of private wells yourself by following the step-by-step instructions below. If you are uncertain about any of the instructions, you can contact a well specialist at MDH (see locations on back) or your local health department. If you prefer to have the well professionally cleaned and disinfected, contact a licensed well contractor or pump installer, listed in the Yellow Pages under Well Drilling and Service or the Well Management Section website at: Licensed Well and Boring Contractor Directory (www.health.state.mn.us/lwcsearch).

Important! Read all the Instructions Before Starting

***Caution*: Well pits** can be very hazardous – people have died from asphyxiation or electrocution in well pits. Before entering any well pit, please obtain professional help or guidance on proper safety precautions.

STEP 1. Make sure the electricity to the well pump is OFF. Inspect the well and pumping system for any visible damage or missing parts. If the well cap is missing or is not watertight, or the well casing (pipe) is damaged, debris or sediment may have entered the well. Starting the pump under such circumstances could damage the pump. If the well appears damaged, if electrical controls have been under water, or if you suspect that debris or sediment has entered the well, contact a licensed well contractor for a professional evaluation of the system. If the well appears to be undamaged, proceed to STEP 2.

STEP 2. The electricity to the well pump should be OFF. If the outside of the well is covered with debris or sediment, remove as much sediment from around the well casing as possible, and clean the well cap and the outside of the casing with a solution of 1/8 cup (1 ounce) of laundry bleach in 2 gallons of clean water. Then rinse the cap with clean water. Make sure that the casing and pumping system are completely dry before proceeding to STEP 3.

STEP 3. Once you are certain that it is safe to do so, turn on the electricity to the well pump. If the pump works, open an outside faucet and run the water onto the ground for 15 minutes to an hour, or until the water runs clear. If contaminated water has entered the plumbing system, run water from each faucet until it also runs clear. Close all the faucets, and turn off the electricity to the pump.

STEP 4. Disconnect any household water filters or water softeners. If the filters or softeners have been exposed to flood water, consult with your dealer for instructions on disinfecting them. Make sure that the gas or electricity to the water heater is **off**, and then drain the water heater, being careful to avoid injury from the hot water.

(Over)

STEP 5. Open the well either by:

- removing the well cap or a threaded plug in the cap; or
- disconnecting a shallow well jet pump.

Note: If the water discharge pipe extends through a sanitary well seal in the top of the well casing and there is no threaded removable plug, **or** if the well has a "packer-type" jet pump, you should contact a licensed well contractor or pump installer to perform the disinfection.

STEP 6. Prepare a solution of common laundry bleach (Clorox, Hilex, etc.) and water. Bleach should be unscented and nondetergent. Do not use swimming pool bleach. Be careful mixing the bleach; eye protection and rubber gloves are recommended. Prepare the solution as follows:

If your well casing diameter is:

- **2 inches or less**, mix 1/4 cup of bleach in 1 gallon of clean water.
- **3 to 4 inches**, mix 1 cup of bleach in 1 gallon of clean water.
- **5 to 6 inches**, mix 2 cups of bleach in 1 gallon of clean water.

If the well casing diameter is greater than 6 inches or the well is greater than 100 feet deep, increase the amount of bleach proportionately and mix with 2 gallons of clean water. If you know that your well was submerged by floodwaters, use up to 4 times the amount of bleach shown above. If you have a dug well with a diameter greater than 18 inches, use 2 to 4 gallons of bleach added directly to the well. (Please note that many dug wells are difficult or impossible to disinfect due to their unsanitary construction).

STEP 7. Pour the diluted bleach solution into the well. Avoid pouring directly onto the pump wiring. Reconnect and prime a shallow well jet pump if you had to remove it. After turning on the electricity, circulate the solution in the well either by placing a garden hose into the top of the well and running the water for 2 hours (the best way) or by starting and stopping the pump several times. Check the water coming out of the hose periodically. If the water appears cloudy, has dislodged encrusted materials from the well, or sediment; discharge the water to waste until the water is clear rather than continuing to circulate this material within the well as it can interfere with well disinfection and can damage pumps and water system components.

STEP 8. Open every water outlet on the system, one at a time, run the water until you can smell the chlorine, and then close the faucet. Flush the toilets. Refill the water heater. Allow the chlorine solution to remain in the system for at least 8 hours.

STEP 9. After 8 hours, flush the system by connecting a garden hose to an outside faucet, and discharge the water on the ground until the chlorine smell is gone. Drain the water heater. Avoid running the chlorinated water into a septic system or onto lawns or gardens. Flush the remaining chlorine from the plumbing by opening the rest of the faucets. The small amount of chlorinated water flushed from the water pipes can be run into a septic tank.

STEP 10. After all the chlorinated water has been completely flushed from the system, have the water tested for bacterial safety. Obtain a water test kit from a **certified** water testing laboratory, and follow the instructions that come with the kit. **You must continue to boil your water until the laboratory reports that the water is safe.**

Once you receive a safe test result, the water can be consumed, but it is a good idea to have the water tested again in two weeks to assure that the disinfection has been completely effective.

Minnesota Department of Health District Offices

Bemidji	218-308-2100	Duluth	218-302-6166	Fergus Falls	218-332-5150
Mankato	507-344-2700	Marshall	507-476-4220	Rochester	507-206-2700
St. Cloud	320-223-7300	St. Paul	651-201-4600 or 800-383-9808		

To obtain this information in a different format call 651-201-4600.
Printed on recycled paper.
origs\Flood Precautions for Private Water Wells 03/06/2019R

DEPARTMENT OF HEALTH

Flood Response Resources

MARCH 2019

Drinking Water

- Flooding is one the most common hazards to drinking water systems, with the potential to cause more damage than any other severe weather related event. It is MDH's goal to provide information, resources, and assistance to public drinking water systems to help them withstand a flooding event, minimize damage, and rapidly recover from any disruptions due to flooding. With the heightened risk of flooding this spring, the MDH Drinking Water Protection Program has set up a new webpage to help public drinking water systems proactively prepare for, and know how to respond to, any flooding related impacts.
- https://www.health.state.mn.us/communities/environment/water/com/flood

Well Management

- With the increasing possibility of flooding in many parts of the state, MDH recently issued a news release (link provided below) with information about how private well owners can protect their well from potential floodwaters and recommendations on how to ensure the safety of private well water after a flood. You can use this news release to communicate to private well owners and others in your area.

  If flooding impacts your county, MDH can assist by providing information on flood impacts, well disinfection, and testing. Questions about flooded wells can be referred to MDH's district offices listed in the link below. Other useful links are provided below as well.

  If floodwaters affect large numbers of private wells in your area and you would like assistance with responding to flooded well water testing requests, contact MDH's Well Management (WM) Section to discuss distribution of well test kits from MDH to owners of flooded private wells. The test kits and bacteria analysis will be of no charge to the county or the private well owner. Well Management staff will notify well users of their results, or if the county prefers to have the sample results emailed to them and to contact the well owners, that can be arranged. To lean more contact MDH's Well Management Section at 651-201-4600 or health.wells@state.mn.us.

- Link to Press Release Concerning Flooded Wells: https://www.health.state.mn.us/news/pressrel/2019/wellflood031819.html
- Link to WM Map/District Offices: https://www.health.state.mn.us/communities/environment/water/wells/contactus.html
- WM Page on Flood Precautions for Private Water Wells: https://www.health.state.mn.us/communities/environment/water/wells/natural/floodprecautions.html

- Licensed Well Contractor Directory: https://www.health.state.mn.us/communities/environment/water/wells/lwc/index.html
- MDH Accredited Labs: https://eldo.web.health.state.mn.us/public/accreditedlabs/labsearch.seam

Behavioral Health

- Natural disasters such as floods create stress and anxiety for individuals and the community. Handouts are available on the MDH Behavioral Health web page that are designed to help disaster responders, adults/families, teens, and children to understand and manage disaster stress.
- The MDH Behavioral Health web page is at: https://www.health.state.mn.us/communities/ep/behavioral/index.html

Vaccinations

- There is usually no increased risk of getting vaccine-preventable diseases, like tetanus or hepatitis A, during a flood. However, those working in clean up may be wounded and exposed to soil that contains the bacteria that causes tetanus. Most people get a tetanus shot that is combined with vaccines for diphtheria and pertussis. Children should have a basic series of four tetanus shots at 2-18 months of age and should receive booster shots at 4-6 years and 11-12 years. Adults should get a tetanus booster shot every 10 years.
- Our tetanus basics, that includes information about floods, can be found here: https://www.health.state.mn.us/diseases/tetanus/tetanusfacts.html

Minnesota Department of Health
Center for Emergency Preparedness and Response
625 North Robert Street
PO Box 64975
St. Paul, MN 55164-0975
651-201-5700
health.phep@state.mn.us
www.health.state.mn.us

03/19/19

Center for Disease Control and Prevention (CDC), Environmental Protection Agency (EPA) & Minnesota Department of Health (MDH) Resources for Floods

Preparing for a Flood, Floodwater Safety and Returning Home
https://www.cdc.gov/disasters/floods/index.html

Flood Infographic
https://www.cdc.gov/cpr/infographics/00_docs/beready_floods.pdf

Health Risks from Floodwaters
https://www.cdc.gov/healthywater/emergency/extreme-weather/floods-standingwater.html

Drinking Water Advisory Toolkit, Tools and Templates
https://www.cdc.gov/healthywater/emergency/dwa-comm-toolbox/index.html

Flood Precautions for Private Water Wells
https://www.health.state.mn.us/communities/environment/water/wells/natural/floodprecautions.html

Environmental Protection Agency (EPA) - Flooding
https://www.epa.gov/natural-disasters/flooding

Preparedness and Safety Messaging for Hurricanes, Flooding, and Similar Disasters - CDC
https://www.cdc.gov/cpr/readiness/00_docs/CDC_Hurricanes_PreparednessSafetyMessaging_July2018_508.pdf

Community Thread's vision is a community where all people are engaged, enriched and connected. Our mission is to leverage resources and volunteers to improve the quality of life for adults and their families in our local community.

Community Thread's role in Emergency Response throughout Washington County is to assist with volunteer recruitment efforts for homeowners in need. This is done on a first-come first-serve basis and is based on volunteer availability. Homeowners will be asked to complete a request for services form before volunteers will be sought to help.

For more information or if you are in need of help please reach out the Community Thread's Volunteer Center at 651.439.7434 or volunteer@communitythreadmn.org

AE626 (Revised)

Sandbagging
for Flood Protection

Kenneth Hellevang, Extension Engineer

A sandbag dike must be built properly to prevent or reduce flood damage.

Managing Volunteers

Since a dike will fail if not built correctly, training people on proper procedures for placing sandbags is very important. In the rush, volunteers will do something, but the result frequently is a dike that performs poorly or fails. Put a high priority on planning and organization. Identifying a supervisor for the project is recommended.

Sandbags

Bags are made from various materials, but the most common is woven polypropylene. They usually measure about 14 inches wide and 24 to 26 inches long. Other sizes of bags also are available, but bags are easier to handle if their weight with filling in them is limited to 35 to 40 pounds.

Sand is the easiest material for filling and shaping sandbags. Silt and clay in bags will form a good dike, but working with those materials is more difficult. Fill sandbags slightly more than one-half full.

Contact your county emergency management office for information on where to obtain sandbags.

Site Selection

When selecting the location for the dike, take advantage of natural land features that keep the dike as short and low as possible.

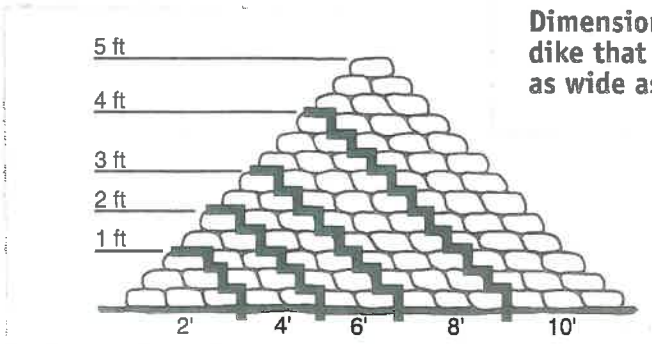
Avoid obstructions that would weaken the dike. Do not build the dike against a building wall due to the forces the dike may place on the building. Leave at least 8 feet to maneuver between the dike and buildings for observation, pumping seepage water and other activities.

Since friction holds a dike from sliding, create a good bond between the ground and the dike. Remove ice and snow since it will melt permitting water to flow under the dike. Remove anything else that is "slippery." If the dike is to be more than about 3 feet high, dig a bonding trench where the dike will be placed if possible. The trench should be about 4 to 6 inches deep and 18 to 24 inches wide.

Estimate Sandbags Needed

Build the dike at least 1 foot higher than the projected crest level to allow for fluctuations in the water level. Local experience will assist in determining the amount of freeboard to provide.

The U.S. Army Corps of Engineers recommends building a dike with a width at the base that is three times the dike height. For example, a 4-foot-high dike would have a base width of 12 feet. The corps indicates that each foot of finished dike length requires one bag, each foot of height requires three bags, and each 2.5 feet of width requires three bags. This results in each bag having placed dimensions of about 4 inches high by 10 inches wide by 14 inches long.



Dimensions of a dike that is twice as wide as it is tall

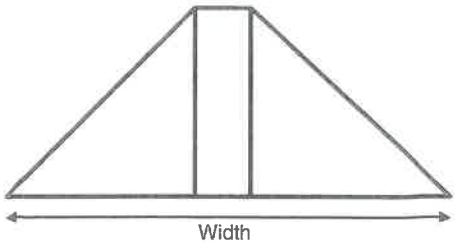
NDSU | EXTENSION

North Dakota State University, Fargo North Dakota

Reviewed May 2018

Estimated cubic yards of sand needed per 100 feet of dike length for various dike heights and ratios of height to width. An additional 2 cubic yards will be needed for bags to hold the plastic.

		Dike Height (ft.)								
		1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0
Cubic Yards of Sand	Width 3 x H	7	15	25	38	54	73	95	119	145
	Width 2 x H	6	11	18	27	38	50	65	82	100



This volume is calculated based on a center section that is 9 inches wide and the remainder is in a triangular shape.

Use the following equation to estimate the number of bags required per linear foot of dike for a dike with a **base width that is three times the height**.

N = (3 x H) + (9 x H x H) / 2

N – Number of bags required per linear foot of dike

H – Dike height (feet)

Example:

Estimate the number of bags required per linear foot for a dike 3 feet tall.

N = (3 x 3) + (9 x 3 x 3) / 2 = 45 bags

The ***estimated*** number of bags needed for 100 linear feet of dike is:

1-foot-high dike: 600
2-foot-high dike: 2,100
3-foot-high dike: 4,500
4-foot-high dike: 7,800

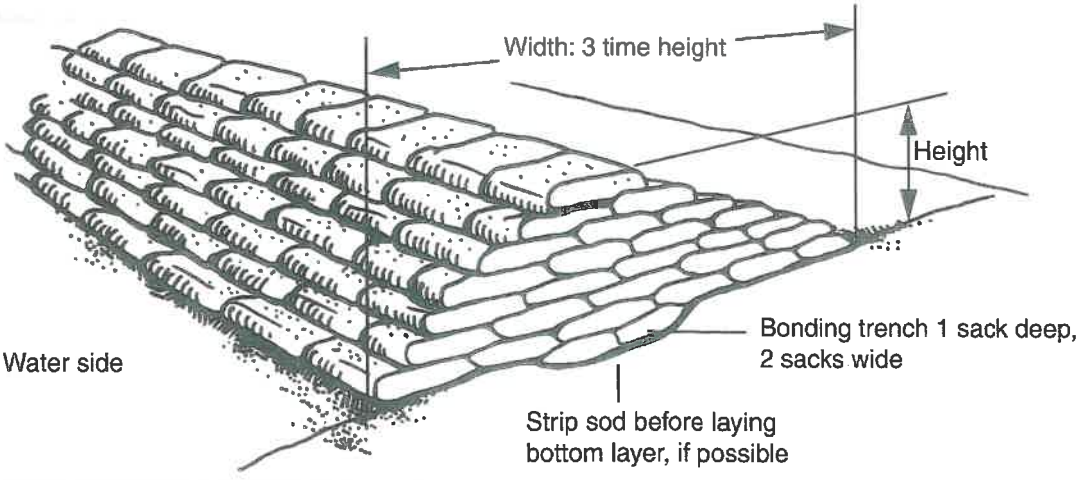
A common recommendation is to make the dike twice as wide as its height. This is a minimum width-to-height ratio that should be used. The estimated number of bags needed for this ratio is in the following table. This is based on each bag having placed dimensions of about 4 to 5 inches high by 9 to 10 inches wide by 14 inches long.

The ***estimated*** number of bags needed for 100 linear feet of dike that it **twice as wide as its height** is:

1-foot-high dike: 600
2-foot-high dike: 1,700
3-foot-high dike: 3,000
4-foot-high dike: 5,500
5-foot-high dike: 9,000

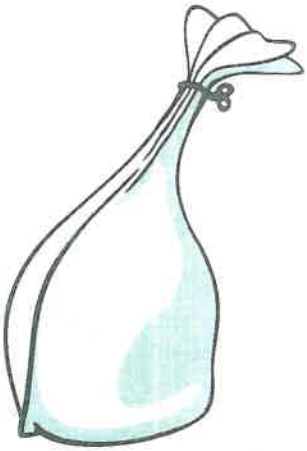
A cubic yard will fill about 100 30-pound sandbags or about 75 40-pound bags, assuming the sand weighs 110 pounds per cubic foot. Sand weighs 100 to 130 pounds per cubic foot, depending on moisture content and packing. A cubic yard is 27 cubic feet. Each 14-inch by 24-inch bag will hold about 0.4 cubic feet if filled about one-half full. Based on volume, each yard will fill about 67 bags one-half full.

Stacking sandbags with a base width three times the height



Filling Sandbags

Fill the bags about one-half full and tie the bag near the top, if it is tied, which permits the sand to move easily in the bag to create a good dike. Overfilled bags and bags tied too low leave gaps in the dike, which allows water to seep through. Sandbags do not need to be tied unless they are transported. Filling sandbags usually is a two-person operation. One member of the team holds the bag on the ground slightly in front of his or her spread feet and the second shovels the sand into the bag. Use gloves to protect the bag holder's hands. The use of safety goggles is desirable, especially during dry and windy days. For large-scale operations, filling sandbags can be expedited by using bag-holding racks, funnels on the back of dump trucks used for sanding operations and various power loading equipment. However, the special equipment required is not always available during an emergency.



YES! Fill the sandbag about one-half full and tie near the top, if it needs to be tied

NO! Sandbag filled too full

NO! Sandbag tied too low

Stacking Sandbags

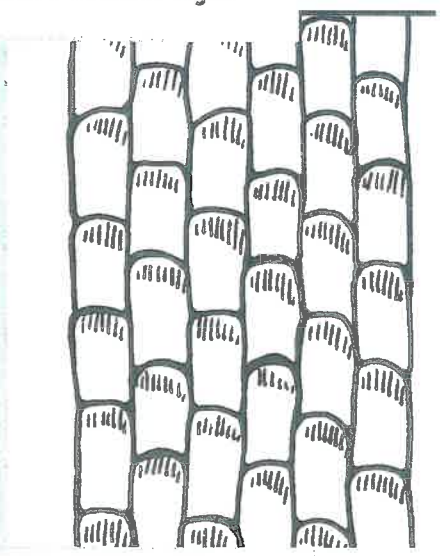
Lift bags using your legs and limit twisting of your back. Gently hand the sandbag to the next person in a sandbag brigade or line.

A triangular or pyramid shape for the dike is not necessary if the height will be 1 foot or less. Support the wall of sandbags with "clusters" of bags every 5 feet to stabilize the sandbag wall so it does not tip over from the force exerted by the floodwater.

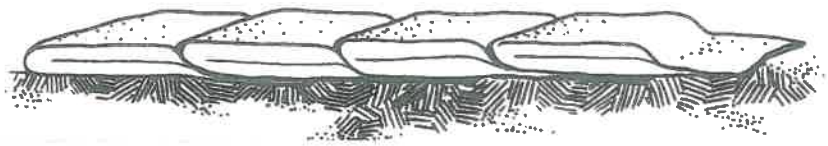
Place the first layer of bags lengthwise on the dike (parallel to the flow), lapping the bags so the filled portion of one bag lies on the unfilled portion of the next, with the tied or open end of the bag facing downstream. Offset adjacent rows or layers by one-half bag length to eliminate continuous joints, similar to what is done laying bricks. Compact and shape each bag by walking on it to develop dike strength and create a tight seal. Continue to walk on the bags as succeeding layers are placed.

The base of the dike should be about two to three times as wide as the dike is high to provide adequate strength and friction surface area. Water exerts a tremendous force against the dike. Estimate the pressure on the dike

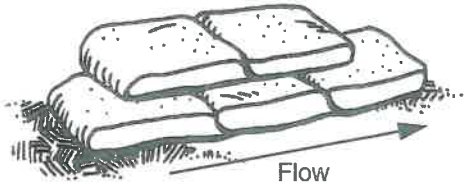
Plan of bottom layer

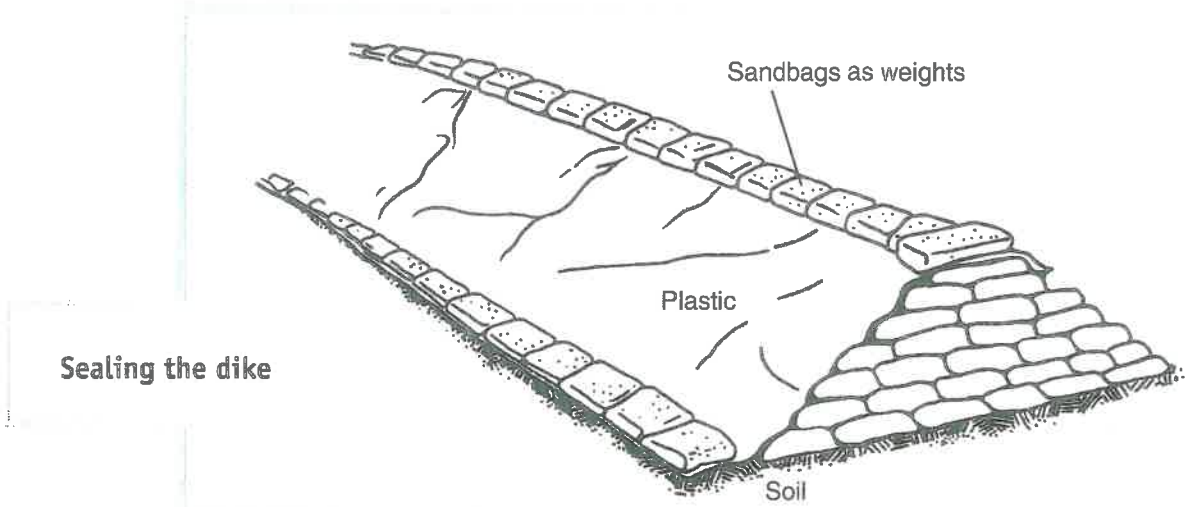


Lapping sandbags



Place bags parallel to the flow of water





Sealing the dike

base by multiplying the water depth by 62 pounds. For example, the pressure that 5 feet of water exerts on the base of a dike is about 310 pounds per square foot. The force of 5 feet of water on a vertical wall is about 775 pounds per linear foot of wall. Flowing water striking the dike exerts even more force on the dike. A triangular-shaped dike permits the weight of the water to push down on the dike to help hold it in place.

Sealing the Dike

The finished dike should be sealed with a sheet of plastic to improve water tightness. Spread a layer of soil or sand 1 inch deep and about 1 foot wide along the bottom of the dike on the water side. Lay polyethylene plastic sheeting so the bottom extends 1 foot beyond the bottom edge of the dike over the loose soil or sand. The upper edge should extend over the top of the dike. Poly sheeting at least 6 mils thick is preferred. It generally is available in 100-foot rolls from construction supply firms, lumberyards and farm stores. Do not put plastic sheeting under the bags since that will increase the potential for the dike to slide.

If more than one sheet of plastic is used, the poly sheeting should be placed from downstream to upstream and the next sheet upstream overlapped by at least 3 feet. Overlapping in this direction prevents the current from flowing under the overlap and tearing the poly loose.

Lay the plastic sheeting down very loosely. The pressure of the water will make the plastic conform easily to the sandbag surface. If the plastic is stretched too tightly, the water force could puncture it. Place a row of sandbags on the bottom edge of the plastic to form a watertight seal along the water side. Place sandbags to hold down the top edge of the plastic. Avoid puncturing the plastic with sharp objects or by walking on it.

Controlling Seepage

Use a sump or skimmer pump to remove water that permeates through the dike. A 5-gallon pail with numerous holes drilled in the side and placed in a hole dug into the ground can be used as a sump to collect seepage water. Use ground fault circuit interrupters on circuits or extension cords to reduce the risk of electrocution.

Disposing of Used Sand

Floodwater is generally considered as polluted, so sand from bags exposed to flood water should not be used for children's sand boxes. It can be used for typical construction applications.

This material is based upon work supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, under Agreement No. 2009-41210-05965.

For more information on this and other topics, see **www.ag.ndsu.edu**

3M-3-09, 2M-3-10, 5M-2-11

Resources for Sandbagging and Sandbagging Safety

- **NDSU: Sandbagging for Flood Protection**
  https://www.ag.ndsu.edu/publications/disasters/sandbagging-for-flood-protection/ae626.pdf

- **NDSU: Sandbagging Safety Tips Video**
  https://www.youtube.com/watch?v=AJj4B8t38-Q

- **Sandbagging for Flood Protection PowerPoint**
  https://www.lakecountyil.gov/DocumentCenter/View/4212/Sandbagging-for-Flood-Protection-Presentation-PDF

- **OSHA Fact Sheet: Filling, Moving and Placing Sandbags During Flooding Disasters**
  https://www.osha.gov/Publications/osha_sandbaggingFS.pdf

- **US Army Corps of Engineers: Flood Fighting, How to Use Sandbags**
  https://www.wsask.ca/Global/Lakes%20and%20Rivers/Flood%20Watch/How%20To%20Use%20Sandbags.pdf

Fact Sheet

Department of Public Health and Environment

Washington County Government Center
14949 62nd ST N • PO Box 6
Stillwater MN 55082-0006
651-430-6655 • TTY 651-430-6246

Washington County Service Center – Cottage Grove
13000 Ravine PKWY
Cottage Grove MN 55016
651-430-4036

Washington County Service Center – Forest Lake
19955 Forest RD N
Forest Lake MN 55025
651-275-7270

SOLID WASTE AND FLOODS

Before and during flood events steps can be taken to help mitigate the effects of floods and the management of solid waste. Solid waste includes garbage, refuse, and waste generated by households. This fact sheet will discuss recommendations for a homeowner before, during and after a flood event and also list helpful resources.

BEFORE A FLOOD

- Hazardous household materials should be moved to a safe area that is likely to remain dry throughout the flooding (e.g. drain cleaner, batteries, propane, motor-vehicle oil, pesticides).
- Solid waste should be disposed of properly before a flood event.
- Solid waste should also be moved to a safe location that is not prone to flooding if possible.
- Contact your solid waste hauler to inquire about how floods may affect service.

AFTER A FLOOD

- When doing any cleaning it is recommended to wear rubber gloves, facemask, and safety glasses to avoid direct contact with floodwaters.
- Clean and disinfect everything that got wet.
- Air out affected areas, move out furniture or other house hold goods out of the affected area, tear out any damaged materials, clean out any debris and disinfect, and then thoroughly dry out the area.
- Remove and replace any drywall or paneling that has been underwater.
- Throw out any food that was not maintained at a proper temperature or was exposed to flood waters.
- Washington County may establish special procedures and/or temporary storage sites to accommodate the large volumes of damaged materials generated by flooding,
- If your basement has become flooded:
    - Ventilate before and during cleaning with chemical solutions and if oil is present.
    - There may be sewage mixed in with flood water. It is important to disinfect surfaces to eliminate odor and bacteria.

- If oil has been spilt:
    - Notify the Minnesota Duty Officer at 651-649-5451 or 1-800-422-0798. Sorbent pads will be available, from MPCA, to assist with clean up.
    - If oil has been spilled in the basement, use a detergent to clean oil off the surfaces. Sheetrock and paneling should be removed and properly disposed of. Some surfaces may have soaked up oil, if that occurred they will need to be sealed with epoxy paint once they have dried out.
    - When pumping out water from an area, pump down to a level that allows you to lay sorbent pads on the surface to soak up oil, but does not allow the oil to come into contact with the floor.
    - Any material that has been soaked with oil or sewage, and are not salvageable, will need to be disposed of properly. Oil soaked pads or saturated oil sorbents should be placed in garbage bags and securely closed. Contact your solid waste hauler and local emergency center for information on disposal of used oil sorbents.
- Asbestos-containing material:
    - Asbestos-containing material is found in many homes and buildings. Some common materials asbestos can be found in are: pipe insulation, flood coverings, textured surface materials, siding, and furnace insulation.
    - If any asbestos-containing material must be repaired or removed due to flooding contact a specially trained asbestos removal contractor.

RESOURCES

- MPCA Floods: Minimizing pollution and flood risks. https://www.pca.state.mn.us/waste/floods-minimizing-pollution-and-health-risks#cleanup
- MDH: Disasters and Emergencies Preparing and Responding. https://www.health.state.mn.us/communities/environment/emergency/index.html

For more information call the Washington County Public Health and Environment Department at 651-430-6655.