

CLEANING UP AFTER THE FLOOD

A GUIDE FOR HOMEOWNERS



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Foreword

A flooded basement presents hazards that require special precautions. Floodwater may be highly contaminated with disease organisms from raw sewage and other pollutants that can pose a serious danger to health. Electrical systems, gas systems, and appliances may be affected by the flooding, creating the possibility of electrical shock or explosion. Ceiling and wall structures may be weakened by water damage to the point of danger. Mould and mildew resulting from the dampness may also cause health problems.

The information in this booklet serves as a guide for people cleaning up homes that have been flooded. Proper clean up will help prevent the dangers of contamination.

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Insurance

If you must discard any items as a result of contamination and you are claiming these goods under an insurance policy, obtain permission to do so from your adjuster before discarding them. Otherwise your claim may not be honoured. Contact your agent or broker as soon as possible.

It may be helpful to photograph any damage as well as document and photograph any damaged or disposed of property. It is recommended that a record of all invoices and receipts be kept together with a log of all flood-related activities, such as time spent cleaning up.

BeforeCleaningup

CheckNaturalGasandPropane

Use a flashlight for the initial inspection. Do not strike a match or use an open flame unless you know that the gas has been turned off and the area has been ventilated. If your home has gas appliances or a gas furnace that may have been flooded, ensure that the gas is shut off before entering the home.

If the odour of gas is present, do not touch any electrical fixtures or switches (including telephones), to prevent a spark from igniting the gas. Leave the premises immediately, leaving doors open to ventilate the area. Contact local utilities immediately for instructions or assistance.

Natural gas and propane appliances and heating equipment should not be used until a qualified serviceman checks the entire system.

Check Electrical Systems

If an electrical system has been flooded, you should not enter the area until the power is disconnected. Stay away from downed power lines as water can travel more than 30 m (100 ft) through water.

Main breaker switches should be turned off. (It is suggested that non-conductive items, such as rubber gloves and/or dry clothing, be utilized for turning power off). Electrical power should not be turned back on until a qualified electrician has checked the entire system for electrical hazards, such as damaged or wet wiring. If the electrical panel was submerged, have a qualified electrician replace all circuit breakers.

Before appliances with electrical heating elements or controls are used, an electrician should check them.

Before using motor driven appliances, ensure that motor components have been thoroughly cleaned and dried. A qualified serviceman must replace soaked insulation in ovens, refrigerators, and freezers.

Electric outlet boxes, wiring, and sockets should be checked, cleaned, and dried. Make sure that the power supply is turned off before working on outlets and fixtures.

Consult with Sask Power, if you require assistance.

Check Building Structure

Before entering the house complete a perimeter check of your house and check for structural damage or weaknesses that could have been caused by the flood. Pay particular attention to the foundation and the supports for porch roofs and overhangs. If any significant damage is noted, contact a building inspector or structural engineer for advice.

Be careful when entering the building. A door sticking at the top may indicate that the ceiling is ready to fall.

If the ceiling is sagging, do the following before entering:

- Make a poker by attaching a sharp object to the end of a long stick (e.g. a nail on a broom handle).
- Stand away from the sag (in a doorway is the safest). Poke a hole in the edge of the sag. Do not start at the center because the ceiling can collapse suddenly.
- After the water drains, poke another hole lower down the sag. Repeat this process until all the water has been drained.
- Tear down the sagging ceiling with extreme caution, as the ceiling can be very heavy.

Check your home carefully for snakes, rodents and other small animals forced in by the floodwaters. Caution should be used when pumping out the basement. Floodwater should not be entered, in particular if the electricity has not been disconnected. Earth around the basement, which is saturated with water, may cause the walls to collapse. Caving in of foundation walls may rupture gas lines and underground electrical wiring.

Obtain Drinking Water

Water must be boiled or purified before use until flooded and contaminated wells, cistern, dugouts and dams have been treated and water samples analyzed. Until well and cistern water is made safe, three options are available.

1. Obtain water from another source that is known to be safe, such as bottled water.
2. Keep the water at a roiling boil for one minute. Ensure that the water has cooled before consuming.
3. Chlorination: Disinfect the available water according to 8 drops of regular unscented chlorine bleach for every 4.5 liters (1 gallon) of clear water. Add 16 drops of chlorine bleach if the water is cloudy. Allow the water to stand for 30 minutes. A slight chlorine taste should be present. If not, repeat the dosage and allow standing for another 30 minutes.

Home filters and treatment systems are NOT always sufficient to produce safe water such as many types of the following:

- Cartridge filters (under sink or point of entry into the home).
- Any carbon filter system (under sink or point of entry or water jug insert).
- Many other point of use or point of entry treatment units.

A treatment unit should carry an appropriate certification for the removal of the contaminants of concern, such as NSF 53 for cyst reduction as well as NSF 55 Class A for ultraviolet disinfection. NSF Protocol P231 is another valid certification under some conditions.

NSF 42, 44, 61 and 177 certifications do not indicate a system that is sufficient for treating contaminated water.

First Steps

1. Rescue the most valuable items first.
2. Protect your home from further damage.
 - a. Get fresh air moving through the home by leaving the doors and windows open (weather permitting).
 - b. Patch holes in the roof, walls or windows to prevent the further entry of rainwater.
 - c. Repair sagging floors or roof sections.
 - d. Remove debris.
 - e. Check for broken or leaking water pipes by shutting off all taps and then checking the water meter to see if water is flowing through it.
3. Carefully drain the basement, if required.

General Cleanup and Disinfection - General

When it is safe to re-enter your home, slowly pump or drain all water from the basement. If the water has been standing for some time, is visibly cloudy, and/or has a foul smell, it is likely polluted and requires urgent treatment and removal. Two liters of liquid chlorine can be added to any standing water in the house. The bleach should be stirred in as much as possible.

This should be repeated every four days for as long as the water remains. In order to prevent the walls from cracking or buckling, you must lower the water level slowly. Using a pump, lower the water level by approximately 1 meter. Mark the level and wait overnight. If the water has risen and covered the mark, it is too early to drain the house and you should wait 24 hours before trying again. When the levels stop going up, drain the standing water in stages, removing about 1/3rd of the original volume each day. Use caution and never enter a basement with standing water unless certain that the electricity has been shut off.

Check your home for signs of damage, broken glass and debris. All areas and contents contaminated by the floodwater must be thoroughly cleaned and disinfected. All debris, mud, silt and filth must be removed.

Flood debris must be treated as potentially dangerous waste and should be disposed of immediately in a sanitary manner. (i.e.: You can double-bag it in plastic garbage bags and take it to a waste disposal site). Avoid direct skin contact with contaminated material by wearing rubber gloves and other protective material. Be sure to wash thoroughly prior to eating or smoking and change all outer clothing before entering a clean residence.

Flooded surfaces should be cleaned with a good detergent and then rinsed with a disinfectant solution. (See section on Disinfectants).

Keep small children, pregnant women and people with health problems away from the flooded area until the clean-up is complete. Remember that many of the cleaning and disinfecting solutions are poisonous, so be sure to read and follow the labels' instructions. Keep all chemical products away from children.

In general start at the top and work your way down. Delay painting and redecorating until everything is completely dry or any efforts may be wasted. Remember: **WHEN IN DOUBT, THROW IT OUT!**

Keep in mind that rebuilding may require a building or plumbing permit. Contact your local authority to determine whether this is the case.

Contractors

If a contractor is hired, be sure that they are qualified to do the job. Ask for references and check them out. Be sure to get at least three written quotes that outline the work to be done, the total cost and the starting and ending dates. Do not make final payments until all work is completed to your satisfaction.

Disinfectants

The following disinfectants may be used to sanitize contaminated surfaces:

1. Chlorine Bleach (i.e.: Javex, HTH) plain and unscented.
1 liter of household bleach to 4 liters of warm water. Do not use bleach on linoleum or aluminum.
2. Quaternary Ammonium Based Disinfectants (i.e.: Roccal, Germicide).
3. Borax (5% to 10%) mixed with dishwashing detergent. In particular, this can be used on wooden surfaces that would be damaged by a chlorine solution.

These products should be diluted with water according to product label directions. NEVER mix bleach with ammonia since the fumes produced when mixed are toxic.

Caution should be used when using bleach in an area that has been cleaned with other products. Make sure the area has been thoroughly cleaned with uncontaminated water prior to applying a bleach disinfectant. Hazardous fumes may result if adequate rinsing does not occur. This is also a concern if another product is used in an area that has recently been bleached.

Be sure to test all materials that will be disinfected to be sure that the cleaning solution does not damage the surface.

Equipment

You may find that equipment such as scrapers, shovels, brooms, and a garden hose are useful for the initial cleanup. In addition, the following equipment and supplies should be assembled:

- rubber gloves, masks (N95 respirators if mould is likely to be present), hard hat and other protective gear;
- pails, mops, squeegees and plastic garbage bags;
- non-ammonia cleaning detergent (such as non-sudsing household cleaner, laundry soap or detergent);
- disinfectant (household disinfectant and sanitizers such as quaternary, phenolic, or pine oil disinfectant or diluted bleach);
- mildew removing products (household mildew remover or mildewcide; or 75 ml of washing soda or Tri-sodium phosphate (TSP) in 4.5 liters of water);
- you may also need to rent extension cords, submersible pumps, wet/dry vacuums and dehumidifiers or heaters;
- large containers for soaking bedding and clothing, and lines to hang them on to dry;
- flashlight;
- camera or video camera;
- crowbar, hammer, saw, etc.;
- rubber boots or waders;
- first aid kit;
- drinking water.

Do not use gas-powered generators, camping stoves or charcoal barbecues indoors. The fumes are hazardous and often unnoticeable until an individual falls unconscious. If immediate medical attention is not received, this may result in the death of the individual.

If a generator is needed to supply power, ensure that it is located:

- outside; and
- as far away from buildings as possible.

A generator should not be located:

- near a window;
- in your house;
- between buildings that are close together;
- in a garage;
- on a balcony;
- in a carport.

Cleaning

Keep the areas that are being cleaned well ventilated as cleaning products can affect the lungs and skin.

Food

Because floodwaters may carry disease from sewage, the only safe flood-exposed foods are those in sealed metal cans. Vacuum packed food should be discarded due to difficulty in cleaning the packaging. Throw out dented or damaged cans as they might contain leaks.

Thoroughly clean, disinfect, and dry the outside of the undamaged cans.

All bottles or containers of food with screw top lids that have been flooded should be discarded. Food that has come into contact with contaminated floodwaters and cannot be washed and disinfected should be discarded.

All perishable foods left in a refrigerator for more than 24 hours without electricity should be discarded.

Frozen food left in a freezer will stay frozen for a few days without electricity if the door is kept shut. These products can be refrozen if ice crystals are still present and the food has not been exposed to flood waters.

The old saying, "When in doubt, throw it out," is the safest approach.

Cosmetics and Medicines

All cosmetics, medicines, and other toiletries that have been exposed to flood waters should be disposed of. Consult your physician immediately to obtain any necessary medicines.

Walls and Floors

Concrete

Clean all mud from the premises, then scrub cement walls and floors thoroughly with detergent and water. Rinse and repeat. Concrete surfaces can be cleaned with a solution of TSP in water, mixed as one part TSP to forty parts of warm water (1/2 cup of TSP to 1 gallon water). TSP is highly corrosive and gloves and eye protection are required when using. Rinse well and disinfect with a suitable diluted disinfectant.

Wooden

This section also applies to woodwork as well as floors and walls.

Remove all mud and refuse. Clean, disinfect, and ventilate the area to dry the wood. Keeping the temperature at around 21 degrees Celsius (72 degrees Fahrenheit) will help the area to dry.

It may be necessary to partially remove basement floors and walls so that air can circulate to aid drying. Each wall and floor cavity should be ventilated by drilling or cutting holes in the surfaces. For walls, cut holes near the bottom just above the sill plate. Any wet insulation will have to be completely removed. This practice is recommended, otherwise, mould and mildew may grow and odors will remain.

Plywood and particleboard sub floors are usually not recoverable after having been submerged in water as they are constructed from non-waterproof glues, which separate when in contact with water.

Soaked wood floors, especially hardwood, may buckle. It may be possible to restore them but a new floor covering may be required.

Other

Let plaster walls and ceilings dry thoroughly before washing. Brush off loose dirt, wash with a detergent or other cleaner and then disinfect.

Break out walls and remove drywall, wood paneling, and insulation at least 500 mm above the high water line. It may be possible to save certain surfaces such as wood paneling, but gypsum board that has been immersed or exposed to high humidity for a prolonged period should be removed in their entirety and discarded. Ensure that all interior cavities and structural members are completely dry, which could take weeks, before closing the cavities.

Wallpaper will probably have to be replaced.

Linoleum and vinyl tile floors may be loosened or damaged by moisture. Consult a floor contractor to determine if the damage can be repaired.

Ceilings

If the ceiling has mould growth, treat it with full strength bleach solution, but be sure to check on the source of the problem and the condition of insulation.

Carefully clean ceilings that are only surface damp, to ensure that a thin film of mould did not grow when the air was very wet or muggy. Use a chlorine bleach solution.

Ceilings above the high water mark may appear dry and undamaged but should still be checked as water can wick upwards through the walls. Ceilings that are below the high water mark should be vented by removing ceiling tiles or cutting holes in each cavity between the floor joists. Clean and disinfect after checking.

Doors and Windows

Doors should be thoroughly cleaned and disinfected. Removing the doorknobs and laying the door on a level surface may help to prevent warping of wooden doors.

Locks that have been exposed to flood waters should be taken apart and cleaned, disinfected, dried and oiled before reassembling. Be careful with the oil as it could drip.

Doors and window frames could be warping and twisting and should be repaired if necessary. Sliding windows should be removed and both the windows and track cleaned. Sliding or bifold doors should be removed and both the door and tracks cleaned and disinfected.

Do not paint and redecorate until everything is completely dry.

Wooden Furniture

Remove all drawers and other working parts as soon as possible. Clean and disinfect thoroughly and allow drying. Wipe varnished furniture that has not been in direct contact with the floodwaters, but instead exposed to high humidity, with a cloth dampened in ammonia, spirits of camphor or essence of peppermint to remove white spots or scum. Immediately apply furniture wax or polish. Veneered furniture may need expert repair.

Particleboard furniture should be discarded.

Upholstery

Chairs, chesterfields and sofas with metal or wooden frames, which have come into contact with floodwater, can sometimes be salvaged but the covering, stuffing and padding must be discarded.

For mildewed upholstery which has not come in direct contact with floodwaters:

- Remove all dirt and debris, clean thoroughly and allow to dry in the sun, or use an electric heater or fan.
- If mould has grown on the fabric, remove loose mould from mildewed upholstery. If possible, this should be done outdoors to prevent spores from being spread inside the house. Vacuum the surface to remove more mould.
- If moulds have grown into the interior of the upholstery it may be necessary to have it professionally treated and disinfected. If the piece cannot be salvaged, it should be thrown away.

Rugs and Carpets

Remove loose dirt, shampoo with a product containing a disinfectant, and dry. (Make sure the disinfectant will not discolor the fabric). Sewage soaked carpets must be discarded.

To prevent mould and mildew it is essential to clean and thoroughly dry carpets as quickly as possible (within two days). You can do this by ventilating the area, applying heat, and using fans to circulate the air. Typically, homeowners can't effectively dry large areas of soaked carpets themselves and qualified professionals are required.

Glued down rugs and carpets may have to be removed if submerged, as the floodwaters will deteriorate the glue. Carpet underpads may need to be replaced.

Dishes and Utensils

Contaminated dishes and utensils must be thoroughly washed with disinfectant, rinsed and disinfected before being used. Typically, utensils soaked in a chlorine solution of 1% for fifteen minutes should be disinfected.

Wooden utensils should be thrown out.

Clothing and Bedding

Mattresses and comforters soaked with floodwaters cannot be adequately disinfected and should be discarded. Pillows filled with feathers or synthetic material should be disposed of.

Cotton and linen fabric soiled with red or yellow clay need special treatment. DO NOT immerse in hot soapy water, or the stains will set. Brush off all loose dirt and rinse until no more dirt can be removed, then wash in warm soapy water (several times if necessary). Add a disinfectant at the end of the washing cycle but be careful when using bleach.

Leather

Clean with a damp cloth, then buff with a dry cloth. Stuff newspaper into purses and shoes to help retain their shape. Leave suitcases open to dry out. Keep leather goods away from heat or direct sunlight while drying. Clean with saddle soap when dry. Use a suede brush or steel wool on suede. Rinse leather and suede garments in cold water and dry them away from heat or direct sunlight.

Books, Documents and Paper Goods

Water damaged books can be salvaged by careful, slow drying. However, sewage contaminated books should be disinfected or thrown away. After pages have been exposed to the air for a while they can be pressed to prevent crumbling. If they are not thoroughly dried, they may mildew.

Make every attempt to clean and save legal documents and other valuable documents, as this is less costly than paying to replace them.

Paper that is kept together in a wet state for several days may meld into a solid mass and become unsalvageable. Therefore, books and papers that have been damaged can be stored in a freezer until time is available to work on them. To do this:

- Rinse off dirt, towel dry by blotting (not rubbing).
- Wrap books loosely in freezer or waxed paper.
- Pack (spine down) in a sturdy container.
- Freeze.

If you have important books you wish to save or restore:

- Hold the book closed when rinsing.
- If the book is partially wet or damp, stand the book on the top or bottom edge with covers open at a 90° angle and air dry.
- If the book is very wet, lay it flat on a clean surface, interleave less than 20% of the book with absorbent material, and replace the interleaving when it becomes damp.
- After the pages have been exposed to the air for a while, press them to prevent crumbling.
- Alternate drying and pressing until the pages are thoroughly dry. Otherwise, mildew will result.
- Avoid drying books for too long in the full sun as this can damage the bindings.

Consult with a lawyer to determine whether flood damaged documents, or just the information in them, must be retained.

Photographs

Remove from enclosures or frames and carefully rinse with cool clean water. Be sure not to touch or blot surfaces. Hang to air dry with clips on a non-image area, or lay flat on absorbent paper. Keep the photographs from contact with adjacent surfaces or each other. If there are too many photographs to air dry in 48 hours, freezing them with freezer or wax paper interleaves may be able to preserve them for a time.

Framed Artwork

Remove paintings from the frames in a safe, dry place. DO NOT separate paintings from their stretchers. Keep wet paintings horizontal with the paint side up and nothing touching the surface. Avoid direct sunlight.

If the art has a glass frame and sticks to the glass, leave it in the frame and dry it with the glass side down.

Toys

Padded or stuffed toys such as stuffed animals should be discarded or taken to a professional cleaner. Plastic and metal toys should be cleaned with a detergent and a disinfectant. Toy clothing should be treated the same way as household clothing and bedding.

Sandboxes

The sand should be disinfected or removed and replaced.

Other Equipment and Appliances

Before using, allow small appliances (toasters, kettles) to dry completely and then thoroughly clean with a detergent solution, rinse and disinfect.

All lighting fixtures that were flooded should be removed and checked. Take floor and table lamps apart and clean parts thoroughly.

Throw away any extension cords that are not in excellent condition.

Your gas appliances should be cleaned and controls and gas lines checked by a qualified serviceman before re-use.

Appliances with foam insulation, such as some ovens, refrigerators, and freezers that were submerged in floodwater, may have to be discarded because they cannot be disinfected. Check with a qualified serviceperson as to whether or not it is possible to remove and replace the insulation.

If you have any questions, call an electrician. Do not try to operate any electric or motor-driven appliance before a qualified person checks it.

Telephone

Replace any telephone wiring that has been submerged. Even though the phone may still work, the floodwaters may cause corrosion, which could cause problems in the future.

Yard

Rake up and dispose of all flood-borne material from the yard. Be especially careful to remove all materials that attract insects or animals.

Locate garbage at a safe distance from the house and downgrade from any well.

After cleaning the interior of the home the refuse should be promptly removed from the yard or exterior.

HeatingSystems-General

For all heating systems, whether they are wood, gas, propane, grain or electric, ensure that the equipment is thoroughly inspected by a qualified technician before using again.

Remove sediment from all pipes and ducts. A contractor may have to be hired to perform this work.

GasFurnaces

Disconnect the vent connector from appliances and thoroughly clean the vent. Open the clean-out door at the base of the furnace chimney and thoroughly clean, removing mud and debris.

Hire a HVAC (Heating, Ventilation and Air Conditioning) contractor to remove and clean the fan assembly and to inspect and repair or replace any electric motors, switches, controls, insulation and filters. If the motor has been wet, have it checked by an electrician. It may be dangerous to use.

Have the heating system checked by a qualified gas fitter before using it again.

Coal and Wood-Burning Systems

Before lighting the furnace, examine the inside of the combustion chamber and clean it thoroughly.

If the heater has a jacket, clean between the heater and the outside casing.

Make sure the chimney isn't plugged. Remove any mud from the lower part of the chimney.

Water Heaters

Seek advice from your local heating and plumbing contractor regarding a water heater that has been wet. At a minimum, flush the water heater.

Water and Sewer Systems-Home Plumbing

Have floor drains and sump pumps flushed and disinfected. If a private sewage disposal system is used, ensure that chlorinated (or other disinfectant) water is not discharged to the disposal field.

During a flood, the water pressure in the plumbing lines can reverse, and water in hot and cold pipes can be contaminated with floodwater. Have a plumber inject bleach into the lines to disinfect them.

The footing drains outside your foundations may be partially or fully blocked because of the flooding. Have them checked by a qualified individual.

The municipality typically notifies households serviced by a municipal sewer when the sewage system has been restored.

Water Treatment Devices

If water treatment devices such as water softeners or iron filters have been flooded or contaminated, they should be cleaned as directed by the equipment supplier.

Please note that many water treatment systems are not adequate for treating contaminated water. Only treatment systems certified to the appropriate standard should be relied upon. Water treatment devices can be certified to a standard that does not guarantee the treatment efficiency. Contact your public health inspector for assistance.

Public Water Systems

If you are on a public water system, contact local officials in order to determine whether or not your water is safe to drink.

Private Water Systems-Cisterns

Cisterns must be emptied, thoroughly cleaned, and refilled with potable water. The following procedure should be used to get a cistern back into service.

- Remove all mud, cleaning the cistern thoroughly with a broom or brush.
- Disinfect by filling the cistern with a concentrated solution of chlorine bleach. The chlorine solution can be made by mixing 450 milliliters (2 cups) of plain household unscented chlorine bleach (5.25% strength) to 450 liters (100 gallons) of water.

- Pump the solution throughout the cistern system and then close all outlets. Operate all valves, faucets and outlets while chlorine is present.
- Allow the chlorine solution to remain in the system for 24 hours.
- After the 24 hours, there should be a chlorine residual of 10 mg/l, which should have a distinct chlorine smell.
- Rinse the cistern system well, as chlorine can corrode metal pipes and tanks.

Notes:

- Portions of the system, such as cistern lids, may not have been adequately disinfected and should be washed and disinfected using an appropriate disinfectant.
- Chlorination may damage certain home water treatment components such as carbon filters, reverse osmosis filters and softeners.
- Heavily chlorinated water should not be discharged to a private sewage system or septic tank.

Wells

If your well has been flooded, you will have to disinfect it before drinking the water.

Wells must be thoroughly pumped out and chlorinated prior to using. Follow the procedures below in order to put a well back in service:

- Pump out the well until the water is clear.
- Thoroughly clean bored or dug wells. Remove floating debris and scrub or hose foreign material from well cribbing or casing.
- Pump the well again until the water is clear or for 24 hours, whichever is greater.
- Shock chlorinate the well according to the Province of Saskatchewan's publication entitled "Low Level Chlorine Well Disinfection".
- Bacteriological samples of the well water should be submitted to an accredited laboratory for analysis following the requirements in the Well Disinfection publication. Do not drink the water until sufficient acceptable bacteriological testing results have been received from the laboratory. A minimum of three bacteriological samples should be taken each at least seven days apart, before considering a well supply to be safe.
- Ongoing monthly bacteriological sampling should occur for at least ten months.

Notes:

- Shallow wells may be re-contaminated by polluted groundwater. If a shallow well is present, ongoing bacteriological testing should be completed for at least ten months.
- Heavily chlorinated water should not be discharged to a private sewage system or septic tank.
- If the well is in a well pit, dangerous gases and a shortage of oxygen may occur. Proper ventilation should be supplied.
- If the groundwater has been contaminated, a new well may not solve your water quality concerns.
- For up-to-date information on water quality testing and best practices, please visit <http://www.saskatchewan.ca/residents/environment-public-health-and-safety/environmental-health/water-quality-and-testing> and [http://www.saskh2o.ca/WaterInformationFactSheet Drinking Private Health.asp](http://www.saskh2o.ca/WaterInformationFactSheet_Drinking_Private_Health.asp)

Dugouts and Dams

Follow this procedure to put a dugout back in service:

- Pump out and remove sludge and debris. If this is not feasible, coagulation may help clean up turbidity and nutrient issues.
- Make any repairs required.
- If necessary, refill the dugout.
- Consider installing an appropriate surface water treatment system that includes filtration and disinfection.
- Additional assistance can be obtained from your local Public Health Inspector. The most up-to-date list of contact information for inspectors can be found at:
<http://www.saskatchewan.ca/residents/health/understanding-the-health-care-system/saskatchewan-health-regions/regional-public-health-inspectors>

Private Sewage System

Private sewage systems often consist of two parts: a septic tank and a drain field. If a more advanced treatment scheme is present that includes such units as upflow filters and trickling filters, the manufacturer should be contacted for directions. In general, these systems will need to be washed and raked. Also, for all types of systems, ensure that any electrical and mechanical devices are safely inspected prior to reactivating.

Septic Tanks

Check the siphon/pumping chamber (second compartment) to ensure that the intake of the siphon or pump is not blocked. Septic tanks and holding tanks may have to be pumped out to remove all solids and liquids before operating properly. Do NOT have the septic tank pumped out under flooded or saturated conditions as it could cause the tank to try and float out of the ground and damage the inlet and outlet pipes.

Do not open a septic tank for pumping while the soil is still saturated or flooded. Mud and silt may enter the tank and end up in the drain field. However, after the ground has dried out it is important to have the septic system pumped out as mud and silt may have entered the tank and this material can clog the drain field. If the drain field becomes clogged with silt and mud, a new field may have to be constructed.

Be sure the manhole cover is secure and that inspection ports have not been blocked or damaged.

If the septic system backs up into the house, check the tank first for outlet blockage. Flooding of the tank may have lifted the layer of fats and grease and partially or completely blocked the outlet tee.

Never enter a septic tank without following the appropriate Occupational Health and Safety requirements such as using a certified air pack, safety harness and winch. The atmosphere in a septic tank can be lethal and cause death without the use of proper safety equipment. At least one observer must be present when anyone enters a septic tank.

DrainField

Flooding may cause damage to your private sewage disposal field. The disposal field should not be used until the field has dried and the water level in the disposal field is lower than the water level around the house. If your drain field area is flooded or very saturated, you might notice some problems such as drains in the house will run slow; toilets drain slowly or sound strange when flushed; and water may back up into floor drains in the basement.

If the drain field must be used (as may be the case for a permanent residence where other temporary options are not available), drastically reduce water use in the home. Remember that the drain field was designed to infiltrate the amount of water normally discharged from the house. When additional water from rain, snow or flooding is added to the drain field, its ability to handle and treat household waste is seriously limited. Some suggested ways to reduce water use are:

- Fix all leaking fixtures.
- Do not pump from the sump to the septic system.
- Do not let eavestroughs or sump pump discharge run over the drain field area.
- Reduce the number of times you flush the toilet.
- Reduce the number of showers and baths. One bath or shower every other day per person is a possible option.
- Do not use the dishwasher or garbage disposal.
- Do not do laundry in your home. If needed, take it to a laundromat.

In addition, the following actions should be taken to ensure that your drain field is operating properly:

- Examine the vegetation over your tank and absorption field. Repair erosion damage and sod or reseed as necessary to provide a vegetative cover.
- Do not compact the soil over the absorption field by driving or operating equipment over the area.

For general guidelines for private sewage systems, see Saskatchewan Health's Onsite Wastewater Disposal Guide: <http://www.saskatchewan.ca/residents/environment-public-health-and-safety/environmental-health/plumbing-sewage>

ReturningtoHome

Do not attempt to live in the house until the following precautions have been taken.

- An electrician checks the electrical system.
- A gas fitter has checked natural gas and propane appliances.
- A safe supply of drinking water is available.
- The sanitation facilities are working properly.
- All flood-contaminated rooms have been cleaned and disinfected.

Before rebuilding, ensure that the house is dry. Many problems result from rebuilding after a flood before everything dries.

Follow-up

After cleaning, it is important to dry out flooded areas by thoroughly airing them out in order to prevent the growth of mould and mildew. Rapid drying is important to prevent mould growth. When the outside weather conditions permits (low humidity and moderate temperature), open doors and windows and hasten the drying process with fans. If the outside weather is not suitable and/or the drying is not occurring fast enough, use dehumidifying equipment, which may have to be rented. Do not heat the home to above the outside temperature until all water has been removed.

To test whether a material is dry, tape clear food wrap to the surface of the item. If the covered section turns darker than the surrounding material, it is still damp. Dry the item until this no longer occurs.

Check for mould regularly for at least one month after finishing cleaning. If mould is encountered, kill again by using a chlorine solution or rubbing alcohol. If mould persists, contact a qualified professional for more detailed advice.

Additional information can be obtained from:

The Government of Saskatchewan's website - provides information on plumbing at <http://www.saskatchewan.ca/residents/environment-public-health-and-safety/environmental-health> .

For more information on this fact sheet and/or other plumbing topics, contact your local health region <http://www.saskatchewan.ca/residents/health/understanding-the-health-care-system/saskatchewan-health-regions/regional-public-health-inspectors>

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