



May 26, 2011

Can I Re-Use My Flood-Submerged Equipments?

In the wake of the recent flooding that has affected much of Arkansas; UAEX offers the following special series of Energy E-Tips to provide quick information on what you can do to re-use (if possible) your flood-submerged equipments in your home or farm. This edition of Energy E-Tips continues the special series (May 10th, 11th, and 25th editions) of Energy E-Tips and focuses on On-Farm Equipments. Before starting, make sure that the electricity has been completely turned off in your home or farm building before entering.

Electrical and structural safety when you return home or farm

Returning to your home or farm during the daylight hours helps you clearly see the surroundings and possible dangers in the area. Look out for downed power lines, structural damage, and gas leaks. Power lines downed by wind and fallen trees are dangerous and should be reported to the electric company. Stay clear of them, as well as any charged water where power lines have fallen.

Shut off the electricity at the meter, even if the electric company has turned off power to your area when working with your electrical items. Use an extension cord for appliances run by a portable generator. Do not connect the generator to your building because it could cause damage to the power lines or neighbors. Structural damage to homes and other buildings may cause them to be unstable and unsafe.

Gas leak

- If you smell a gas leak, which smells like rotten eggs, leave your home right away and call the gas company to report the leak.
- If your gas meter is outside and you are able to safely access it, shut it off. Have someone with you to help in case something goes wrong.
- Don't smoke or have anything that uses a spark or flame near the house. Remember, one spark is all it takes to ignite the gas.
- Find the valve next to the gas meter. If the valve is parallel to the pipe, the gas is on.
- Using pliers or a wrench, turn the valve 90 degrees (a quarter turn) until the valve is perpendicular to the pipe. This turns the gas off.
- To make sure the gas is off, write down the numbers on all the dials on the meter. Check the dials in 5 or more minutes. If the numbers have changed, gas is still flowing.
- If you are not certain whether the gas is off, contact the utility company and stay clear of the area until the gas has stopped flowing.
- Once the gas is off, if it was leaking leave doors and windows open and allow time for the gas to dissipate until you can no longer smell it.

Pumps

Pumps are usually damaged by sediment deposited in the bearings. Be sure to clean the pump completely before reusing by:

1. Checking valves for silt and sand,
 2. Removing all dirt and water from the gears in the gear box, and
 3. Replacing the lubricant with fresh oil.
- **Submersible Pumps:** The bearings on water-lubricated pumps will not be damaged by flood waters, since these bearings are constantly submerged in water. As soon as possible, flush clean water down the casing to remove sediment and silt. Then disinfect the well.
 - **Centrifugal Pumps:** Centrifugal pumps contain two sets of oil-lubricated bearings along the drive shaft between the motor and pump. If the pump has been flooded, dismantle the container bracket and remove the bearings. Clean the bearings, or replace them if worn out. Close-coupled centrifugal pumps contain no bearings, so there is little chance of flood damage, except to the electric motor.
 - **Injector-type Pumps:** These pumps usually contain water-tight packing at the ground surface, with sealed impellers. Flood waters will probably not damage this type of pump.

Wells

Wells will probably not be damaged structurally from floods, but they may be contaminated. Have your well tested by health officials before you use the water. If the well is located in a low spot, it may be partly contaminated with silt from flood waters draining into it. If so, the well and entire water system should be disinfected. To disinfect the well system:

- Pump the well until water is clear.
- Pour a solution of 1 quart liquid laundry bleach (hypochlorite solution) mixed in 3 gallons of water into the well casing. Leave it there at least 4 hours, or preferably overnight.
- Pump the chlorinated water into the piping system, and leave it there for at least 2 hours or even overnight.
- The next day, pump and flush out the system until the odor of chlorine is no longer apparent. Two days after you have disinfected the water system, take a sample of water according to recommended procedure, and have it tested for purity. Boil or treat all drinking water until a water test indicates that water is safe for all purposes.

Storage tanks and piping

The storage tank and piping should be useable unless muddy water was pumped through it. If tank is contaminated, disinfect the entire system with a strong chlorine solution. Use liquid laundry bleach as described above or check with local health department for recommended solution strength.

Open all faucets while the system is being filled. Do not close the spigot until a definite smell of chlorine is evident. Do not use the system for 24 hours. Then start the pump and run water from all faucets until the chlorine odor is gone.

Cisterns

Do not drink water from a flooded cistern until you disinfect the cistern and the entire piping system. To disinfect the cistern:

- Use an auxiliary pump to remove the water and empty the cistern. Do not pump water through the pipeline distribution system.
- Wash down the walls and ceiling with clean water, and pump out the dirty water with an auxiliary pump.
- Check the cistern walls, ceiling, and floor for cracks where ground water could come in.

- Disinfect the interior with a solution of 1 quart liquid laundry bleach in 3 gallons of water. Be sure the bleach contains no soap. Apply the chlorine solution with a sprayer or scrub with a stiff broom. Swab or pump out the disinfecting solution that collects in the bottom of the cistern.
- The piping system may have been contaminated, so flush it with a solution of bleach and water mixed according to directions above. Leave the chlorine solution in the pipes for at least 2 hours (overnight if possible) before you drain them.
- Fill the cistern with water for use. This water will have a chlorine taste for a while, but it will be safe for all purposes.

References:

- Electric Units Require Care After Flood
<http://www.extension.iastate.edu/disasterrecovery/info/electricunits.htm>
- FLOOD RECOVERY: ELECTRIC MOTORS AND APPLIANCES
<http://www.dep.state.pa.us/dep/deputate/watermtg/GENERAL/FLOODS/fs1951.htm>
- The Disaster Handbook 1998 National Edition. Institute of Food and Agricultural Sciences. University of Florida. <http://disaster.ifas.ufl.edu/PDFS/CHAP04/D04-12.PDF>
- THE DISASTER HANDBOOK FOR EXTENSION AGENTS
<http://www.uwex.edu/ces/news/info/disaster.pdf>
- Disaster Response Handbook <http://www.aragriculture.org/disaster/>
- K-State Flood Survival and Recovery Fact Sheet MF-1131, Kansas State University Agricultural Experiment Station and Cooperative Extension Service.
- Coping With Floods
http://www.wvdhsem.gov/WV_Disaster_Library/Library/FLOODS/NDSU-Electric%20Unit%20Care.htm

Samy Sadaka ssadaka@uaex.edu
Rachel Lipsey rlipsey@uaex.edu

University of Arkansas, United States Department of Agriculture and County Governments Cooperating.
The Arkansas Cooperative Extension Service offers its programs to all eligible persons regardless of race, color, national origin, religion, gender, age, disability, marital or veteran status, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer.