What should I do if my well water is contaminated?

A well water professional should be consulted when you have a contaminated well. Visit **wellowner.org** to find a well water contractor.

Metals (such as arsenic and lead) and Nitrates can be removed from water by several methods, but installing a **reverse osmosis filtration system** is most common.

Bacteria (coliform and iron/sulfur bacteria) can be removed by full well **disinfection.**

For any installed systems, make sure to follow all manufacturer maintenance schedules.

Office of Environmental Health

150 N 18th Avenue, Suite 140

Phoenix, AZ 85007

Phone: (602) 364-3118

Fax: (602) 364-3146

Toll Free: (800) 367-6412

www.azhealth.gov

ARIZONA DEPARTMENT OF HEALTH SERVICES

Protect Your Health

a guide for **private well** owners in Arizona



GROUNDWATER

supplies water to over 160,000 families in Arizona through private well systems.

Be aware of common groundwater contaminants in your area and **get your well tested** to protect your family from illness.

Groundwater contaminants occur naturally in the environment, but some are the result of human activities, such as incorrect use of fertilizer, malfunctioning septic systems, resource extraction, and chemical spills.

Some may cause **potentially adverse health effects** depending on the concentration, composition of the contaminant, and the amount consumed.

Private well water is **not tested or regulated by any government organizations**, so it is up to individual owners to keep their drinking water safe.

What are the most common contaminants in Arizona groundwater?

Arsenic

Arsenic may be naturally present due to arsenic-containing rocks, which can leach into groundwater. High arsenic levels are found throughout Arizona.

Bacteria

Bacteria can be present due to a septic system leak or animal waste. Test water for "total coliform bacteria," which will indicate the presence of bacteria that can harm human health.

Fluoride

Fluoride is present in most water sources from fluoride -rich minerals. It is particularly important to test your well water for fluoride if you have children.

Nitrates

Nitrates can be present due to agricultural activities, septic systems, or natural sources. It is particularly important to test your well water for nitrates if you have children.

Uranium

Uranium and other radioactive elements exist in groundwater. Uranium is one of the easiest and most inexpensive elements to test for in well water.

When should I get my well tested? What should I test for?

All New Wells	Once a Year	Every 5 Years
• Arsenic • Bacteria (total coliform) • Fluoride • Lead • Nitrates • TDS* • Uranium	• Bacteria (total coliform) • Nitrates	• Arsenic • Fluoride • Uranium

*Total Dissolve Solids

In addition to the schedule above, test your well when:

There are **known problems** with well water in your area.

You have experienced **problems near your well** (flooding, wildfire, land disturbances, nearby waste disposal sites).

You notice a change **in water quality** (taste, color, odor).

If anyone in your family has an **unexplained illness.**

Who can test my well water?

Independent laboratories can test the water from your private well.

For a list of current laboratories certified for testing water samples:

Visit http://azhealth.gov/labs4h2o
Or call (602) 364-0720



Test Your Water

A Private Well Owner's Checklist

Safe drinking water matters. Test your well water regularly for peace of mind and a healthy home. Use our checklist to stay on track with the recommended testing schedule.

You should also test your well if:

- There are known problems with well water in your area.
- Anyone in your household has an unexplained illness.
- You notice a change in water quality (taste, color, odor).
- You experience problems near your well (flooding, wildfire, land disturbances).

✓	Contaminant	Date Tested
New Wells		
	Arsenic	
	Bacteria (Total Coliform)	
	Fluoride	
	Lead	
	Nitrates	
	Total Dissolved Solids	
	Uranium	
Every Year		
	Bacteria (Total Coliform)	
	Nitrates	
Every 5 Years		
	Arsenic	
	Fluoride	
	Uranium	

Private labs offer water testing for a fee. To find the closest certified lab to test your water, visit the website below:

azhealth.gov/labs4h2o

Contact Us WellWaterQuality@azdhs.gov (602) 364-3118

EVACUATION OF YOUR PETS

As soon as you hear you may have to evacuate, move larger animals to safety, confine pets in the house, and have leashes, carriers, trailers, and medicines ready. Evacuate your pets with you. If you are headed for a hotel, call ahead and ask if they will waive "no-pet" policies.

If you are unable to keep your pets with you and need to find temporary housing for your pets, contact your county health department or local humane society.

CROWDED SETTINGS AND YOUR HEALTH

Minimize the spread of disease

____ Wash hands and use hand sanitizer frequently

____ Cover coughs and sneezes

____ Wear hard soled shoes to avoid wounds and infections

____ **DO NOT** *share things such as food, drinks, utensils, and pillows even with family members*

Maintain good general health

____ Drink and cook with bottled water unless officials have determined that the tap water is safe for use

____ Stay active and talk to each other about your experiences

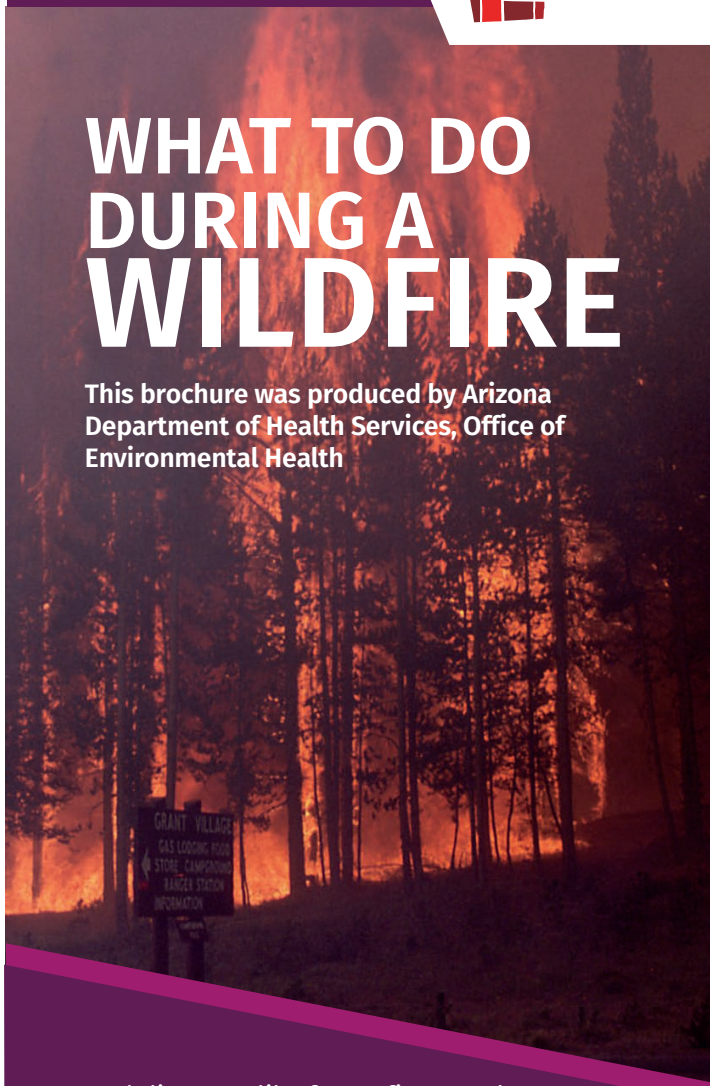
____ Follow advisories from health officials

For additional information, visit http://ein.az.gov or contact Arizona Department of Health Services, Office of Environmental Health Phone: (602) 364-3118 Web: www.azdhs.gov

Visibility in Miles	$PM_{2.5}$ or PM_{10} µg/m3, 1 to 3hr avg.	Health Category (AQI)	Cautionary Statements
10+	0–38	Good (0-50)	None
5–10	39–88	Moderate (51-100)	Unusually sensitive people should consider reducing prolonged or heavy exertion.
3–5	89–138	**Unhealthy for Sensitive Groups (101-150)**	**People with heart or lung disease, older adults, and children should reduce prolonged or heavy exertion.**
1.5–3	139–350	**Unhealthy (151-200)**	**People with heart or lung disease, older adults, and children should avoid prolonged or heavy exertion. Everyone else should reduce prolonged or heavy exertion.**
1–1.5	351–526	**Very Unhealthy (201-300)**	**People with heart or lung disease, older adults, and children should avoid all physical activity outdoors. Everyone else should avoid prolonged or heavy exertion.**
1 or less	526+	**Hazardous (≥300)**	**Everyone should avoid all physical activity outdoors; people with heart or lung disease, older adults, and children should remain indoors and keep activity levels low.**

ADHS

WHAT TO DO DURING A WILDFIRE



This brochure was produced by Arizona Department of Health Services, Office of Environmental Health

Natural disasters like forest fires can be stressful and chaotic times, having a checklist or plan in place can greatly relieve some of the pressures and allow you to focus on protecting the health and safety of you and your household. This brochure provides information that maybe helpful in organizing your family's plan.

Remember that you are not alone when disaster strikes. Your neighbors, your community, local fire departments, your county and the agencies of the State of Arizona are available to give you aid and comfort to the best of their abilities.

WHAT TO DO DURING A FIRE

WILDFIRE SMOKE AND YOUR HEALTH

Wildfire smoke is a mixture of small particles, gases and water vapor. The main concern for your health is from the small particles. The average diameter of human hair is 30 times bigger than the small particles.

These small particles can cause burning eyes, running nose, scratchy throat, headaches, and illness (i.e. bronchitis). They can also worsen chronic heart and lung disease (i.e. asthma).

WHAT CAN I DO TO PROTECT MY FAMILY'S HEALTH?

Pay attention to local air quality reports. Stay alert to news coverage or health warnings related to smoke.

Use visibility guides. See the table in this brochure for guidelines regarding air quality conditions and their health categories.

Use common sense. If it looks smoky outside, limit outdoor activities.

If you are advised to stay indoors, keep your windows and doors closed. Run your air conditioner with the air intake closed and a clean filter. Devices with filters that are at least medium or high efficiency should be used. Don't use devices that generate ozone, which pollutes even more.

Do not add to indoor air pollution. Don't use anything that burns, even candles. Don't vacuum or smoke.

Dust masks are not enough! Common masks will not protect your lungs from small particles in smoke. HEPA masks may filter out the small particles but are not suitable for people with lung diseases. Those with lung diseases should follow their respiratory management plan. Call a doctor if symptoms worsen.

STAY ALERT!

Stay tuned to your local TV and radio stations for updated information. There will be 30-second broadcasts by emergency officials through the Emergency Alert System.

IF THE FIRE IS NEAR AND YOU ARE STAYING IN PLACE

Actions to help to lessen the impact of a fire

FOOD SUPPLIES

- ☐ Crackers
- ☐ Dried fruit
- ☐ Dry cereal/granola
- ☐ Peanut butter or nuts
- ☐ Protein/fruit bars
- ☐ Canned foods/juices
- ☐ Bottled water
- ☐ Jarred baby food/ formula
- ☐ Pet food
- ☐ Vitamins
- ☐ Non-pasteurized milk

FOOD SAFETY

In the event of lost power

____ Frozen food is good for 24 hours, possibly up to 72 hours

____ Refrigerated food is usually only good for up to 4 hours

MEDICAL AND HEALTH SUPPLIES

____ Medical supplies, i.e. bandages or a thermometer

____ Medicines (prescribed and over the counter)

____ Pets' medicine

____ Soap and alcohol-based hand sanitizer

____ Tissue and disposable diapers

EMERGENCY SUPPLIES

- ☐ Batteries
- ☐ Battery-powered lantern
- ☐ Battery-powered radio
- ☐ Flashlight
- ☐ Manual can opener
- ☐ Power generator

If advised to evacuate, do so immediately!

GET READY, GET SET, GO!

GET READY

Create a family disaster plan. Use the buddy system—pair up and know your buddy's plans and whereabouts. Have a meeting point identified before leaving. Identify an out of town relative you can use as a message board, in case you can't make it to the designated meeting place.

GET SET

Start packing your check list

GO!



- ☐ Identification
- ☐ Cash, credit card and checks
- ☐ Medical insurance cards
- ☐ Medicine and prescriptions
- ☐ First aid kit
- ☐ Insurance policies
- ☐ Battery-powered radio
- ☐ Extra sets of keys
- ☐ Extra pair of eyeglasses
- ☐ 3-day supply of water and food
- ☐ Pet supplies and vaccination records
- ☐ Special items for infants, elderly and disabled family members

____ Drive with your headlights on so others can see you through the smoke

____ Keep windows rolled up to prevent embers from igniting your car's interior

____ Choose the safest route, constantly watching for changes in fire and smoke's speed and direction

GET YOUR PETS AND ANIMALS READY

Pay attention to your animals' health. Small particles can cause problems for animals. Don't let your animals run or work in smoky conditions.

Identification. Make sure ID tags are up-to-date and securely fastened to your animals. Have a current picture of your animal available.

ADEQ Arizona Department of Environmental Quality

Janice K. Brewer, Governor
Henry R. Darwin, Director

FACT SHEET

Recommendations for Private Domestic Wells Impacted by Flooding

WHAT SHOULD I DO IF MY WELL HAS BEEN FLOODED?

If you live in an area that was recently or is currently flooded, your private well may be in danger of contamination. In general, if flood waters have reached your well, or if you notice any change in the appearance or taste of your water, or even if you are unsure about the impact of flooding on water quality in your area, you should boil all the water you use for drinking, cooking or bathing. If you are unable to boil the water, you can purchase bottled water for drinking purposes or follow disinfection procedures outlined below.

WHY SHOULD I BE CONCERNED ABOUT THE SAFETY OF MY WELL WATER?

Surface waters are susceptible to many sources of contamination. This is particularly true during a flood event where sewage runoff and overflow from lakes, rivers and streams may be carrying bacteria, protozoa, or viruses.

IS THERE DANGER OF ELECTRICAL SHOCK IF MY WELL WAS SUBMERGED BY FLOODWATERS?

Yes, in addition to the danger of electrical shock you can also damage your well or pump by turning it on after it has been submerged. You will need to conduct a well and pump inspection before operating your well. After the flood waters have receded and the pump and electrical system has dried, do not turn on the equipment until the wiring system has been checked by a qualified electrician, well contractor or pump contractor.

WHAT DOES IT MEAN IF MY WELL WATER IS CLOUDY OR MUDDY?

Cloudy or muddy water is an indication that your well has been impacted by surface water. You should run water from an outside spigot with a hose attached until the water becomes clear and free of sediments. Once the water has cleared you will need to disinfect your well by following the instructions below or contacting a qualified well or pump contractor.

CAN MY WELL BE CONTAMINATED EVEN IF IT WAS NOT FLOODED?

Yes, your well can be contaminated even if it has not been submerged by floodwaters. Older wells, wells that are less than 50 feet deep, and those located close to surface waters can become contaminated from underground water.

IS MY WATER SAFE TO DRINK AFTER THE FLOODING SUBSIDES?

No, if your well has been flooded, you must first disinfect it. You can disinfect your well by following the instructions below or by contacting a qualified well or pump contractor.

EMERGENCY DISINFECTION OF WELLS THAT HAVE BEEN IMPACTED BY FLOODING:

Materials needed:

- One gallon of recently purchased non-scented household liquid bleach
- Rubber gloves
- Eye protection
- Old clothes
- Funnel

Step 1: Determine the type of well you have and how to pour the bleach into the well. Some wells have a sanitary seal with either an air vent or a plug that can be removed. If it is a bored or dug well, the entire cover can be lifted off to provide a space for pouring the bleach into the well.

Step 2: Take the gallon of bleach and funnel and carefully pour the bleach down into the well casing.

Step 3: After the bleach has been added, run water from an outside hose into the well casing until you smell chlorine coming from the hose. Then turn off the outside hose.

Step 4: Turn on all cold water faucets inside and outside of the house until the chlorine odor is detected in each faucet, then shut them all off. If you have a water treatment system, switch it to bypass before turning on the indoor faucets.

Step 5: Wait at least 8 hours and up to 24 hours before turning the faucets back on. It is important not to drink, cook, bathe or wash with this water during the time period as it contains high amounts of chlorine.

Step 6: Once the waiting period has passed, turn on all faucets inside the house. Turn on an outside spigot with a hose attached and run the water into a safe area where it will not disturb plants, lakes, streams or septic tanks. Run the water until there is no longer a chlorine odor. Turn the water off.

Step 7: The system should now be disinfected.

Step 8: Have your water tested for bacteria by a licensed laboratory. For a list of licensed laboratories in your area contact the Arizona Department of Health Services at (602) 364-0720.

CAUTION: Because of the speed and direction of groundwater flow affected by flooding, your well may not be a safe source of water for many months after the flood. The well can become contaminated with bacteria or other contaminants. Waste water from malfunctioning septic tanks or chemicals seeping into the groundwater can contaminate the groundwater even after the water was tested and found to be safe. It will be necessary to take long range precautions, including repeated testing, to protect the safety of drinking water.

Surface water can also enter your well through the underground aquifer particularly during flood events. If surface water enters your well it may contaminate the water that you rely on for drinking, cooking, washing and bathing.

ADDITIONAL EPA RELATED INFORMATION

For additional EPA related information, please check the following links:

www.epa.gov/safewater/privatewells/whatdo.html

www.epa.gov/safewater/faq/emergency_septic.html

www.epa.gov/ogwdw000/faq/emerg.html

Publication Number: FS 05-02
Updated May 2010