



## MEMORANDUM

**TO:** Well Owners within Fire Areas  
**FROM:** Matthew Sares, Chief, Hydrogeology Section  
**DATE:** 2020 Fire Season  
**SUBJECT:** Prevention of groundwater contamination through wells damaged by fire

Many areas of Colorado have endured wildfires this year. Often wildfires burn areas where the primary source of water supply for homes and businesses is groundwater provided by wells. If you own a well within a burn area, it is important to implement some immediate protection for your damaged well.

Inspect the wellhead structure of your well. Is the steel surface casing or the well cap compromised by melting or cracking in a way that creates an opening to the surface? If so, action must be taken to minimize the contamination risk to your well and to the local groundwater aquifer. In addition, the well cap usually has two gaskets that seal the metal cap between the well casing and the well seal and another on the removable cap. If fire has damaged the gaskets, they need to be replaced.

The wells most likely to have significant damage are those that are completed with PVC plastic casing, which is typically white in color. Fire can burn hot enough to melt the PVC production casing even though it was enclosed within a larger diameter steel surface casing. It is possible that in some older wells, the well was constructed without steel surface casing and the PVC casing that extended above the ground surface has been burned or melted down to or below the ground surface.

In cases where the surface casing and the PVC production casing has been damaged and the well is open to possible infiltration of surface water and sediment, it is imperative to protect the wellhead and eliminate the potential for groundwater contamination. Any significant rainfall in the burn area will mobilize ash and sediment in surface runoff that could flow into the well, compromising its future operation and contaminating groundwater resources. It is imperative that any open well be secured to protect your asset and the groundwater.

The following are the preferred methods to protect your well and the groundwater in your aquifer if your damaged well is now open to infiltration of surface water, ash, and sediment.

- 1) Contact a [local licensed water well driller or pump installer](#). These professionals can assess the condition of your well to determine if it can be repaired, or is beyond repair and must be abandoned. If the well cannot be repaired, the licensed professional can abandon (plug and seal) the well as required by the Water Well Construction Rules and help the well owner submit an application for construction of a replacement well.



In areas where many wells have been fire-damaged, it is likely that there will be significant delays in the ability of the water well driller or pump installer to address your situation. In the meantime, the well owner must protect their damaged well and the aquifer from potential contamination. The following are temporary methods to protect your well until such time that a water well professional can craft a permanent solution.

- 2) Protect the wellhead by installing a temporary surface casing around the well with a cap. This can be composed of steel pipe, PVC pipe, galvanized culvert pipe, or wood frame.
  - A1) From a local pipe supplier, purchase an 18-inch (or longer as required) length of pipe and well cap with a diameter at least 2 inches larger than the existing damaged well casing.  
OR
  - A2) Construct a wooden box open on one side (its base) with 2x4 lumber and plywood such that the box is 18 inches tall (or taller as required) and wide enough to fit over the damaged well.
  - B) Dig a trench around the well 6 inches deep to imbed this temporary surface casing below ground surface. Try to have a minimum of 12 inches of the temporary casing extend above ground.
  - C) Backfill and forcefully compact the soil in the trench around the temporary casing. Ensure that the ground surface slopes away from the wellhead.
  
- 3) As a quick but less satisfactory solution, place a 5-gallon bucket over the wellhead and embed it below ground surface (as above) as deep as possible. Depending on the height of your wellhead, the bucket may not be tall enough to cover the wellhead and embed below the surface; if this is the case use the methods above (which are preferable anyway).

Note: PVC, galvanized pipe, wood, and plastic are not approved surface casing materials for permanent wellheads. These are only allowed as a temporary surface casing in these unusual circumstances.

If your steel surface casing appears intact and undamaged, and the well cap is undamaged it should prevent surface contamination of the well even if the interior PVC production casing is damaged. Contact your local licensed water well driller or pump installer to assess your well as soon as practical.

If you have any questions regarding the information above, please contact our Denver office at (303) 866-3581 and direct your call to Matt Sares (x 8290) or Chief Well Inspector, Doug Stephenson (x 8270). The form to request a permit to replace a well ([Form GWS-44](#)) is available on DWR's [well permitting webpage](#). For questions about the well-permitting process to replace your damaged well, please go to the [AskDWR web page](#) and fill out the form with your question. Well permitting personnel will respond to your question as soon as possible. The [DWR Water Division office](#) is also a helpful source of information.

Protecting your damaged well from contamination is important to your long-term water supply. If you implement the steps outlined in this letter you will be helping yourself and your neighbors now and into the future. The Colorado Division of Water Resources wishes you the best in rebuilding your community.