COLORADO
Division of Water Resources
Department of Natural Resources
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Placing Wells Back In Service Following Inundation By Flood Waters

Decontamination Of The Well Structure Is Imperative

Background

Widespread flooding can inundate large land areas where domestic, agricultural, commercial, and industrial water supply is provided by water wells. As the flood water recedes and cleanup and restoration of homes, businesses, and facilities proceeds, it is important that associated water wells are decontaminated and disinfected prior to placing the wells back in service.

In areas that were affected by high velocity water in and adjacent to canyons, gullies, and streams, many wells may be damaged to the extent that repairs cannot be made. These wells need to be properly abandoned to prevent groundwater contamination and physical hazards at the ground surface. In other areas inundated by slower moving flood water, water wells will be intact and may be reclaimed.

All wells that have been inundated by flood water over the well cap will have taken-in significant surface water. Recently constructed wells should be hydraulically sealed, BUT their well caps have a small vent port that allows air to move in and out of the well during barometric pressure changes. If the well cap has been inundated with flood waters, it will have collected surface water in the production casing. The pressure head of surface water accumulating in the well casing may be enough to push that water into the aquifer to some extent. Therefore, **it is important for well owners to ensure that the well is decontaminated** before putting the well back into service.

Procedures

The following are the preferred procedures for decontamination of your water well and protection of groundwater in the aquifer.

1. It is best to contact your local licensed water well driller or pump installation contractor to perform this work. For a list of licensed water well contractors please refer to the Division of Water Resources (DWR) website. This work may be performed by the homeowner, but most homeowners will not have the appropriate equipment or experience for proper decontamination of the well.

2. Requirements for proper decontamination of a well and its distribution system are outlined in Rule 15 of the Water Well Construction Rules (2 CCR 402-2), available on the Well Construction & Inspection page of our website.

3. Prior to performing the decontamination steps outlined in Rule 15, each inundated well should be pumped for a 1- to 2-hour period to vacate the surface water that has entered the well and, possibly, the aquifer. Longer times of pumping may be appropriate for deeper wells and wells with well casing diameters larger than six (6) inches. The well water pumped during this process should be discharged from the water system before entering the interior water distribution system of a home or business. This may be at a location between the well and the pressure tank or just after the pressure tank. The well owner should ensure that the discharge does not go to areas where flooding persists, which would make any existing situations worse.

4. Older wells may not have a seal on the wellhead that would appreciably restrict flood water infiltration. In these cases, the well may have also taken in a significant amount of sediment carried in the flood waters. For these situations, it may be necessary to ensure that the well pump is not encased by sediment before starting the pump, otherwise significant damage to the pump may result. On newer wells with sealed well caps, the barometric vent has a screen. That vent screen, if not damaged, should prevent significant sediment from entering the well.

5. Wells may be buried by sediment transported in the flood waters. If at all possible, those wells should be located and dug out to reveal the wellhead. If such a well can be salvaged for subsequent use, the well surface casing and/or production casing should be extended to bring the wellhead at least one foot above the ground surface. Subsequently, the steps above should be followed. If it is determined that the well cannot be salvaged, the well must be properly abandoned (per Water Well Construction Rule 16).

6. After performing the steps above and before putting a well into service again, a sample of the well water should be sent to a local laboratory to ensure harmful bacteria are not present in the well. Please contact the Colorado Water Quality Control Division or your county health department for the proper protocols involved and appropriate analytical labs.

Additional Information and Contacts

If you have any questions regarding the water well information above, please contact the Division of Water Resources (DWR) Denver office at 303-866-3581 and direct your call to Kevin Donegan (x8221) or Chris Jones (x8270).

If your well is able to be repaired and put back into use, there is no need for a new permit. If the well must be replaced, a permit for a replacement well must be obtained prior to re-drilling the well. For permitting purposes, DWR makes a careful distinction between well *repair* and well *replacement*. Your licensed water well contractor can assist you in this determination. A guideline memo that clarifies this distinction is: Guideline 2004-1 Differentiate between Well Repair and Well Replacement.

For questions about the process to obtain a well permit to replace a damaged well, call the DWR Groundwater Information Desk at 303-866-3587 (M-F, 9am-4pm) or submit an inquiry through AskDWR. Well permit application forms are available on the Division of Water Resources (DWR) website eForms page. Individual wells for domestic or livestock use will typically use the Residential form (GWS-44) and wells for irrigation, commercial, industrial, or other purposes will typically use the General Purpose form (GWS-45).

You can search for well permits online using DWR's well database at:
https://dwr.state.co.us/Tools/WellPermits.

You can also use the MapViewer tool at:
https://dwr.colorado.gov/services/data-information/gis.
Select "Map Viewer - Full Version" or "Map Viewer - Well Permits" to launch the tool.

Minimum Disinfection Standards can be found in Rule 15 and Standards for Plugging, Sealing and Abandoning Wells and Boreholes can be found in Rule 16 of the Water Well Construction Rules, available on the Well Construction & Inspection page of our website.

Decontamination and disinfection of your well is important to the long-term use of your well and the aquifer itself. Within our authority and ability, the Colorado Division of Water Resources will assist you and your community in the ongoing recovery efforts.