



DIVISION OF WATER RESOURCES

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MEMORANDUM

TO: Well Owners within Colorado flood areas
FROM: Colorado Division of Water Resources
DATE: September 16, 2013
**SUBJECT: Placing wells back in service following Inundation by flood waters —
Decontamination of the well structure is imperative**

Background

The September 2013 Colorado flood waters have inundated large land areas where domestic, agricultural, commercial, and industrial water supply is provided by water wells. As the 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 will 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 can 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 DWR website at <http://water.state.co.us/groundwater/BOE/Pages/LicensedContractors.aspx>. 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 State of Colorado Water Well Construction Rules (2 Colorado Code of Regulations 402-2; <http://water.state.co.us/DWRIPub/Documents/constructionrules05.pdf>).

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 Andrew Ross of the Colorado Water Quality Control Division (303-692-3395) 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 Matt Sares (ext 8290) or Chief Well Inspector, Nolan Lloyd (ext 8271).

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 redrilling 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 can be found at <http://water.state.co.us/DWRIPub/Documents/2004-1.pdf>.

For questions about the well permitting process to replace a damaged well, call the DWR Groundwater Information Desk at (303) 866-3587. Well permit application forms are available on DWR's website at: <http://water.state.co.us/DWRDocs/Forms/Pages/WellPermittingForms.aspx>. 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 wells online using DWR's well database at: <http://www.dwr.state.co.us/WellPermitSearch/default.aspx> OR use the mapping tool (AquaMap) at: <http://water.state.co.us/DataMaps/GISandMaps/AquaMap/Pages/default.aspx>.

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 your communities in the ongoing recovery efforts.