

## Information and Standards

Conditions of approval of a replacement well permit generally require that the old well be plugged and sealed according to the Water Well Construction Rules. A blank report form is provided to the well owner when a replacement permit is issued. This report is also used to affirm that other types of wells and holes have been plugged and sealed.

### **RULE 16 STANDARDS FOR PLUGGING, SEALING, AND ABANDONING WELLS AND BOREHOLES**

**16.1 General** - The plugging, sealing, and abandonment of all wells, monitoring and observation wells, monitoring and observation holes and test holes that are no longer intended for use, and the plugging, sealing, and abandonment of collapsed or unusable boreholes, and other incomplete wells or excavations is necessary to prevent contamination of groundwater and the migration of water through the borehole. It is the ultimate responsibility of the well owner to have an existing well properly plugged, sealed, and abandoned. The well construction contractor or authorized individual is responsible for notifying the well owner in writing of these plugging requirements.

**16.1.1** In the event a borehole(s) is not completed for the intended purpose, the contractor will notify the well owner of the well owner's responsibility for the proper abandonment of the borehole(s) according to Rule 16.1. If the well owner does not agree to allow the contractor to abandon the borehole(s), the contractor must notify the Board of Examiners, in writing, of the existence of the borehole(s) and the contractor's effort to notify the well owner of the well owner's abandonment responsibilities under Rule 16.1

**16.1.2 Persons Authorized to Plug, Seal, and Abandon Wells:**

**16.1.2.1** Licensed water well construction contractors are authorized to plug, seal, and abandon all types of wells or holes.

**16.1.2.2** Licensed pump installation contractors may plug, seal and abandon only those wells that do not require the removal of casing that penetrates more than one aquifer or the ripping or perforating of casing opposite confining layers.

**16.1.2.3** Authorized individuals may plug, seal, and abandon only those monitoring and observation wells and holes, dewatering wells, piezometer holes, and test holes that do not penetrate through a confining layer.

**16.1.2.4** Well owners may plug, seal, and abandon only those wells they own that do not require the removal, ripping, or perforating of casing in accordance with this Rule 16. Well owners abandoning their own wells must consult with a licensed water well construction contractor or Board staff prior to abandoning their well.

**16.1.3** Materials used for backfilling must be clean, inert, and free from contaminants. The well casing may be cut off below land surface so that it will not interfere with the anticipated use of the land. If the casing is cut off below land surface, the uppermost five (5) feet of the remaining casing must be filled with grout or a watertight cover must be permanently attached to the remaining casing and the excavation filled with materials that are not more permeable than the surrounding soils and adequately compacted to prevent settling.

**16.2 Abandonment of Wells or Boreholes in Type I Aquifers (confined aquifers)** Wells which were constructed through more than one aquifer must be plugged and sealed by placing a cement grout plug at the confining layer above each aquifer. If well construction records do not show that the casing opposite each confining layer was grouted when originally installed, the casing must be either completely removed from the hole, or perforated or ripped opposite such layer prior to placing the grout plug. Plugs must be no less than sixty (60) feet in length and must be designed to withstand the maximum potential hydrostatic pressure differential between the aquifers. The well casing, except for the grout plug intervals, must be completely filled to the land surface with clean native clays, cement, or high-solid bentonite grout. A watertight cover must be permanently welded or attached to the top of the casing. Code of Colorado Regulations 54

**16.3 Abandonment of Wells or Boreholes in Type II (unconfined bedrock aquifers) and Type III Aquifers (unconsolidated aquifers)**-Wells completed into unconfined bedrock aquifers and unconsolidated aquifers must be plugged, sealed, and abandoned by filling the well to the static water level with clean sand or clean gravel. Between the static water level and the ground surface, the borehole must be filled with clean native clays, cement, drill cuttings, or high solid bentonite grout to the ground surface. The uppermost five (5) feet of casing must be filled with grout or a permanent watertight cover must be installed at the top of the casing. If casing is removed, the hole must be filled as described above to within five (5) feet of the ground surface. The top five (5) feet of the hole must be filled with materials that are not more permeable than the surrounding soils that are adequately compacted to prevent settling.

**16.4 Abandonment of Other Structures:**

**16.4.1 Abandonment of Dewatering Wells, Monitoring and Observation Holes, and Piezometer Holes**-Dewatering wells, monitoring and observation holes, and piezometer holes must be plugged, sealed, and abandoned either (1) pursuant to Rules 16.2 or 16.3, as appropriate, or (2) by removing all casing that was installed and by filling the hole(s) with clean native clays, cement, or high solid bentonite grout to within five (5) feet of the ground surface. If the casing cannot be removed, the top five (5) feet of the hole must be filled with materials that are not more permeable than the surrounding soils that are adequately compacted to prevent settling.

**16.4.2 Abandonment of Test Holes**-Test holes must be plugged, sealed, and abandoned pursuant to the requirements of Rule 16.4.1 or by removing any casing or equipment from the hole and backfilling the hole with drill cuttings, clean native clays, cement, or high solid bentonite grout to the ground surface, and adequately compact the material to prevent settling.

**16.5** A well for which a replacement well has been permitted and constructed must be plugged, sealed, and abandoned within sixty (60) days after the completion of the replacement well, unless otherwise re-permitted by the State Engineer.