

Article 580 - Destruction of Test or Exploration Holes

Adopted by the CGA Board of Directors on October 9, 1999

BACKGROUND

General

Destruction procedures for cased wells are described in some detail in the Department of Water Resources Bulletin 74- 81 and the Bulletin 74-90 update. Although reference is made in Bulletin 74-81 and 74-90 to uncased holes (test or exploration holes), procedures for their destruction are not clearly discussed in either bulletin. Some procedures are discussed in Bulletin 74-90 regarding destruction of test holes for small diameter monitoring wells that were never completed into cased wells.

Therefore, the purpose of this standard is to provide guidance where local jurisdictional agencies may rely on Bulletin 74 as a reference for their requirements for test hole destruction. These guidelines are not meant to conflict with or supersede those for test or exploration hole destruction put forward by jurisdictional agencies such as, for example, municipalities, counties, or local water districts.

DISCUSSION

Application

This standard does not apply to "test wells" as defined in Bulletin 74-90, page 11, as follows:

"J. Test Wells. Wells constructed to obtain information needed for design of other wells. Test wells should not be confused with 'exploration holes' which are temporary. Test wells are cased and can be converted to other uses as ground water monitoring and, under certain circumstances, to production wells."

This standard applies only to test or exploration holes as defined in Bulletin 74-90, page 11, as follows:

I. "Exploration hole or boring: An uncased, temporary excavation whose purpose is the determination of hydrologic conditions at a site."

We include in this definition driven probes such as cone penetrometers, Hydropunch, or BAT probe. However, for purposes of this guideline, we exclude such test holes as percolation borings less than 15 feet deep that are made for septic system disposal feasibility and design.

Some drillers and engineers utilize large diameter pilot holes for the initial exploration hole. The pilot hole is then reamed into the final well borehole. For this reason, some drillers and engineers make a distinction between test or exploration and pilot holes. Due to the tremendous cost of sealing these large diameter pilot holes to the bottom, the technique is strongly discouraged. In any event, for purposes of this standard, if a pilot hole is not reamed and converted into a permanent hole, it shall be treated the same as a test or exploration hole.

The philosophy or objective is to restore as nearly as possible those subsurface conditions which existed before they were "disturbed" by the drilling activity. Every exploration or test hole, if improperly abandoned, provides a potential conduit for leakage of surface runoff containing contaminants, or cross contamination between aquifers of different water quality penetrated by the borehole. The fact that contamination has not been previously identified at the site should have no bearing on the standard for destruction.

CGA Standard Practice Series

Sealing Materials

As stated in Bulletin 74-90, materials used for sealing exploratory test holes:

"...shall have low permeabilities so that the volume of water and possible pollutants and contaminants passing through them will be of minimal consequence. Sealing material shall be compatible with the chemical environment into which it is placed, and shall have mechanical properties consistent with present and future site uses."

Acceptable sealing materials are as defined in Bulletin 74-81 and Bulletin 74-90.

RECOMMENDATIONS

The California Groundwater Association recommends the following practices with regard to test or exploration hole destruction.

1. Reasonable efforts should be made to clear the borehole of obstructions within the depth to be sealed, as specified below. It should be recognized that in some instances, such as recovery of broken drilling stem and lost bits, or clearing of cave-ins in flowing sand formations, such efforts will generally be futile and the clearing of obstructions shall be required only to the extent feasible.
2. Destruction should normally occur within 24 hours after active evaluation operations (such as geophysical logging) or other activities such as water-level measurements have ceased, unless the hole is to be immediately reamed and converted into a sampling well or production well.
3. Unless it can be conclusively demonstrated that the borehole will never present a cross-contamination potential, all destructions should be carried out as though contamination were already present at the site. Accordingly, in alluvial formations, most boreholes should be sealed from the surface to a minimum of ten feet into the impervious layer above the lowest pervious alluvial formation. If there is no impervious layer, then the seal should be taken to the bottom of the hole. The only exception is where the impervious layer can be positively identified as only existing locally at the particular test hole site, and therefore does not represent a physical barrier between potential water bearing formations downgradient.
4. In a hard rock environment, such as granite, if the bore hole is dry, and contains no crevices or fractures, the sealing material should extend to the depth required by the well permit or local ordinance if not specified in the permit; in no case shall seal be less than 20 feet deep.
5. In a hard rock environment where either significant water-bearing or dry fractures are encountered during drilling, the seal should be taken from the top of the lowest continuous fracture zone to the surface.
6. Sealing material should be placed by grout or tremie pipe with its lower end on the bottom of the hole or the depth to be sealed. A grout or tremie pipe is not necessary where the interval to be sealed is less than 30 feet deep and if no water is present, in conformance with Bulletin 74-81 Section C. The sealing material should be placed while gradually raising the grout or tremie pipe at a rate calculated to keep the lower end of the pipe 2 to 3 feet below the level of the ascending sealing material. The lower end of the pipe should not rise above the ascending level of the sealing material. The placement should continue until the sealing material begins to mound at the ground surface.
7. At the ground surface, if no finish specifications are provided, the seal should be finished to grade level of the surrounding material, or below the "plow pan" in an agricultural area.

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