

**Barton Springs/ Edwards Aquifer Conservation District
Well Plugging Guidelines**

Abandoned and deteriorated wells have the potential of channeling contaminated water straight into our aquifer. Older wells may be particularly vulnerable since they often have been inadequately sealed or may have a deteriorated well casing. Additionally, improperly plugged wells may also cause aquifer contamination

Unless granted an exception by the General Manager, all abandoned wells that are not capped in accordance with District rules and all deteriorated wells, must be plugged in accordance with District rules and state standards. Penalties and violations may be assessed for failure to plug or cap abandoned wells in accordance with District rules and Well Construction Standards. The below well plugging guidelines apply to all wells located within the district's boundary.

Each contemplated well shall require a **plugging application, application fee, video log, and a detailed plugging schematic** to be submitted in writing and approved by the District **prior** to the commencement of any plugging activities. If all items are submitted and are complete then it will typically take a couple of days to review and approve the plugging application.

PLUGGING APPLICATION

For the plugging application please remember to include the following or we cannot proceed:

- Owner must sign the application
- The application must be notarized (we have a notary here at the office)
- A \$125 application fee must be submitted (check or cash only)
- Ownership documents for the property which the well is on must be submitted
- Location of well is needed in the form of an address and latitude/longitude coordinates along with photos of the well head
- Downhole Video survey

In order for a well driller to properly plug a well there is certain information that they need to determine:

- **State Well Report** – The well owner or contractor should attempt to locate a State Well Report (SWR). This SWR is a key tool to determining what the condition of the well may be. A SWR indicates when the well was drilled and how the well was constructed.
- **Total Depth** - The well owner should work with a licensed well contractor to properly determine the total depth of the well. Total Depth is important to know because this is what determines how much grout will be required during the plugging.
- **Well Condition** – It is important for the driller to know what the current condition of the well is. In order to assess the current condition of the well, the District requires a video log of the well to be submitted.

PLUGGING COMPLETION STANDARDS - HAND DUG WELLS

- Large hand dug and bored wells 36-inches or greater in diameter to one hundred (100) feet in depth may be plugged in accordance with the following procedure (See Figure):
- Any debris or other man-made material that can be readily and safely extracted shall be removed from the well.
- If the well contains standing water, it shall be chlorinated by adding chlorine bleach at a rate of one (1) gallon of bleach for every five hundred (500) gallons of standing water.
- Any casing or cement, tile, rock, or brick wall used for lining the upper portion of the well shall be removed.
- The well shall be backfilled with compacted clay or caliche to a point three (3) feet below land surface. For hand dug wells that encounter voids or enlarged solution cavities; sand, gravel, or cobbles may be placed in the well to block off such voids prior to placement of compacted clay.
- The remainder of the well shall be filled with soil comparable to that of the adjacent area and mounded above the surrounding surface to compensate for settling. For hand dug wells that encounter voids or enlarged solution cavities, the top of the well shall be filled with cement or concrete to one (1) foot below the surface, topped with soil comparable to that of the adjacent area, and mounded above the surrounding surface to compensate for settling. Alternatively, the cement or concrete cap may be poured level with the land surface.

PLUGGING COMPLETION STANDARDS FOR ALL WELLS

Once the total depth and well condition are known then the driller can move forward with developing a proper well plugging schematic. Keep in mind that at times a plugging schematic will need to **incorporate perforations** to any existing and non-removable well casing.

- All removable casing should be removed
- Any existing surface completion shall be removed
- The well/borehole shall be pressure filled with grout from the top of the gravel/sand interval back up to the land surface.
- The well shall be topped with at least 2ft of cement grout to serve as an atmospheric barrier
- Perforate casing at 50ft intervals, unless the driller can successfully pull all the casing, there is less than 30 ft of casing, or it can be proved that casing is deteriorated and then perforations are not needed.
- A State of Texas Plugging Report and other pertinent data shall be submitted to the District office within 30 days after plugging is complete.
- Grout material shall consist of cement grout, bentonite grout, or cement bentonite grout.
- For wells where the formation water to be sealed off contains high chloride concentrations, high hardness concentrations or hydrocarbons are present, Bentonite grout shall not be used. (Chloride > 1500mg/L; Ca++ & Mg++ > 500mg/L)
- For wells where the formation water to be sealed off contains high sulfate concentrations, sulfate resistant grout (Type V or Class H cement) shall be used. (Sulfate > 1500mg/L)

PLUGGING SCHEMATIC REQUIREMENTS

- **A plugging schematic must be submitted with grouting calculations prior to the District Staff granting approval to move forward.**
- The schematic should be developed by a licensed well driller and should include: Total Depth, Casing Depth, Casing size, Borehole size, Water Level, and Washed Gravel depth level
- **For wells in the Edwards Management Zones:**
 - Water Table Zone (i.e. unconfined zone, recharge zone) - the well/borehole shall be partially filled with a well-washed, disinfected sand or gravel to a level 10 feet above the static water level or to forty 40 feet below the land surface (whichever is deeper).
 - Artesian (i.e. confined zone) and Saline Edwards Zones - the well/borehole shall be partially filled with a well-washed, disinfected sand or gravel to level of 10ft into the Edwards Group (10ft below the Del Rio/ Georgetown contact) or to forty 40feet below the land surface (whichever is deeper).
- **For wells in the Trinity Management Zones:**
 - All wells that penetrate through the bottom of the Edwards group shall be pressure filled via tremie pipe with grout from the bottom up to 50ft above the bottom units of the Edwards group. The remainder of the well/borehole shall be plugged in accordance with the Edwards plugging standards.