



Countywide Services Agency

Environmental Management
Department

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DESTRUCTION OF SUPPLY WELLS AND EXPLORATORY HOLES (BORINGS)

Well destruction must be performed by a licensed well driller holding a C-57 license.
See Sacramento County Code section 6.28.030.A.1.

All abandoned wells and exploratory holes (borings) shall be destroyed in such a way that they will: (1) not act as a conduit for the infiltration of surface drainage or inter-aquifer flow that could result in the deterioration of the quality of water in one or more aquifers, and (2) eliminate any potential physical hazard. Per Sacramento County Code, Chapter 6.28, the following procedures shall be followed when destroying an abandoned well or exploratory hole. Any deviation from these procedures must have prior approval from the Environmental Management Department.

GENERAL REQUIREMENTS

1. All abandoned wells and exploratory holes (borings) shall be destroyed. Destruction shall consist of the complete filling of the well or exploratory hole (from bottom to top) in accordance with Sacramento County Code, Section 6.28.040.B. (Destruction of Wells).
2. A permit and fee is required for each well or exploratory hole to be destroyed. Multiple soil or geotechnical borings may be grouped on one permit with prior approval from the Department.
3. A permit may only be issued to the legal owner of the property on which the well or exploratory hole is to be destroyed, to a driller holding a valid California C-57 Contractor's License or to the owner's or driller's authorized representative.
4. The permittee must notify the enforcement agency a minimum of twenty-four (24) hours prior to placement of the sealing material. Inspections shall be scheduled to be conducted during normal business hours, unless otherwise negotiated.

PRELIMINARY WORK

1. Before the well is filled, it shall be investigated to determine its condition, the details of construction, and whether there are obstructions that will interfere with the process of filling and sealing. Well logs (when available) should be used to identify construction details and water bearing zones. Down-hole video cameras should be used to determine the condition of the well and verify construction details.
2. Obstructions, debris, oil, pollutants or contaminants shall be removed prior to filling the hole. If the obstruction is hardware, and cannot be removed, a tremie pipe must be passed below the obstruction to place sealing material to the full depth of the well, leaving the obstruction sealed in the well. Alternatively, a water well may be destroyed by over-drilling and removing all material from the hole.
3. To insure that sealing material fills any annular space or voids, or that appropriate water bearing zones are sealed off, casings shall be perforated or otherwise punctured.
4. Open bottom cavities may be allowed to be filled with approved material to the bottom edge of the casing.
5. A hole at least one foot larger in diameter than the original drilled hole shall be excavated around the outside of the well casing to a depth of five feet below ground surface and the well casing cut off six inches above the bottom of the excavation, and removed. The sealing material shall spill over into the excavation to form a cap. After the sealing material has set, the excavation shall be filled with compacted native soil.

SEALING MATERIAL

1. Acceptable impervious sealing materials include neat cement, sand-cement grout and concrete (cement with sand and pea gravel). Bentonite may be added to cement-based mixes, up to six (6) percent by weight of cement used.
2. Acceptable filler materials include sand and pea gravel. The material shall be washed and free of organic matter.
3. Cuttings from drilling, or drilling mud, shall not be used for any part of the sealing process.
4. Water shall be clean and free of suspended matter and contaminants.

5. Cement shall meet ASTM C150, "Standard Specification for Portland Cement."
6. Bentonite clay may only be used as a sealing material at the approval of the Enforcement Agency. Bentonite shall be naturally mined (non-pelletized) sodium montmorillonite, listed by NSF, and shall be contained within the original manufacturer's container or sack.
7. Cement based sealing material shall be constituted as follows:
 - A. Neat cement: Shall be mixed at a ratio of one 94-pound sack of Portland Cement to 5 to 6 gallons of water.
 - B. Sand-cement grout: 188 lbs sand per 94 lb sack cement (2 parts sand to 1 part cement by weight) and 7 gallons of water. Shall be equivalent to a "ten" (10) sack mix.
 - C. Concrete (cement with sand and pea gravel): Six 94-pound sacks of cement per cubic yard of aggregate. Aggregate size shall not exceed 3/8". Shall be equivalent to a "six (6) sack mix."
 - D. The grout shall be mixed thoroughly to provide uniformity and ensure that no lumps exist.

PLACEMENT OF SEALING MATERIAL

1. The well shall be filled with appropriate material from the bottom of the well up.
2. Sealing material shall be placed in the interval to be sealed by methods that prevent free fall, dilution and/or separation of aggregates from cementing materials (tremie). The sealing material must be placed by mechanical pumping when there is water present in the interval to be sealed. The discharge end of the tremie device shall be continuously submerged in the sealing material until the zone to be sealed or filled is completed.
3. As a minimum, the entire depth of the well shall be filled with approved sealing material pumped under pressure. If it can be demonstrated that conditions exist otherwise, a seal of less depth may be allowed. NOTE: Wells that are being destroyed because of contamination must be filled entirely with sealing material that is pumped under pressure.
4. Where the head (pressure) producing flow is great, special care must be used to restrict the flow while placing the sealing material. In such cases, the casing must be perforated opposite the area to be sealed and the sealing material forced out under pressure into the surrounding formation.

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5. In destroying gravel-packed wells, the casing shall be perforated or otherwise punctured opposite the area to be sealed. The sealing material shall then be placed within the casing, completely filling the portion adjacent to the area to be sealed and then forced out under pressure into the gravel envelope.
6. When pressure is applied to force sealing material into the annular space, the pressure shall be maintained for a length of time sufficient for the cementing mixture to set.
7. To assure that the well is filled and there has been no jamming or "bridging" of the material, the applicant shall verify that the volume of material placed in the well installation at least equals the volume of the empty hole.