

**NM ENVIRONMENT DEPARTMENT - GROUND WATER POLLUTION PREVENTION SECTION
MONITORING WELL CONSTRUCTION AND ABANDONMENT GUIDELINES**

Purpose: These guidelines provide minimum construction and abandonment standards for drilled monitoring wells to be sampled for general chemistry analyses. There may be additional requirements if hydrocarbons or other chemicals are involved. Different guidelines may also apply for other types of well construction (eg., driven wells)

General Drilling Specifications:

1. No contaminants shall be present in the drilling fluids.
2. All drill bits, drill rods, and down-hole tools shall be thoroughly cleaned immediately prior to the start of drilling. The bore hole diameter shall be drilled a minimum of 4 inches larger than the casing diameter to allow for the emplacement of sand and sealant.
3. After completion, the well should be allowed to stabilize for 24 hours before development is initiated.
4. The well shall be developed so that formation water flows freely through the screen and is not turbid, and all sediment has been removed from the well.

Well Specifications: (Refer to figure on reverse side.)

1. Schedule 40 or heavier PVC pipe, not less than 2 inches ID, shall be used as casing. The casing shall extend from the top of the screen to at least one foot above ground surface. No glues shall be used at casing joints; threaded PVC is preferred. The top of the casing must be protected by a cap, and the exposed casing must be protected by a locking shroud. The shroud shall be large enough in diameter to allow easy access for removal of the plastic cap on the PVC casing.
2. A 20-foot section of machine slotted or other manufactured screen shall be installed. A slot size of 0.010-inch is generally adequate for most installations. (No hack-saw slotting.)
3. The top of the screen shall be 5 feet above the water table to allow for seasonal fluctuations. A variance should be sought for screening intervals in very shallow groundwater (< 10 feet).
4. The screen section shall have centralizers at the top and bottom.
5. The annular space from 2 feet below the bottom of the screen to 2 feet above the top of the screen shall be packed with clean, medium to coarse sand. The sand pack shall be properly sized to prevent fine particles in the formation from entering the well. For wells deeper than 30 feet, the sand shall be placed by a tremmie pipe. The well should be surged or bailed to settle the sand pack and additional sand added, if necessary, before the bentonite/cement is emplaced.
6. The annular space above the sand pack shall be grouted or sealed at least 2 feet above the sand pack. Pressure grouting with bentonite or cement using a tremmie pipe is preferred. An alternative is to form a bentonite seal by emplacing and hydrating bentonite pellets (0.25 or 0.5 inch in size). Adequate time should be allowed for the bentonite/cement to cure before placing materials on top of the seal. The annular space above the bentonite/cement seal can be filled with uncontaminated drill cuttings, clean sandy clay or fine grained soil to within 10 feet of the ground surface. The remaining 10 feet must be sealed with a bentonite-cement grout seal (2 to 8% bentonite by weight) and allowed to cure for at least 24 hours before installing a surface pad.
7. A 2-foot minimum radius, 4-inch minimum thickness concrete pad shall be poured around the shroud. The concrete and surrounding soil shall be sloped to direct rainfall and runoff away from the shroud.

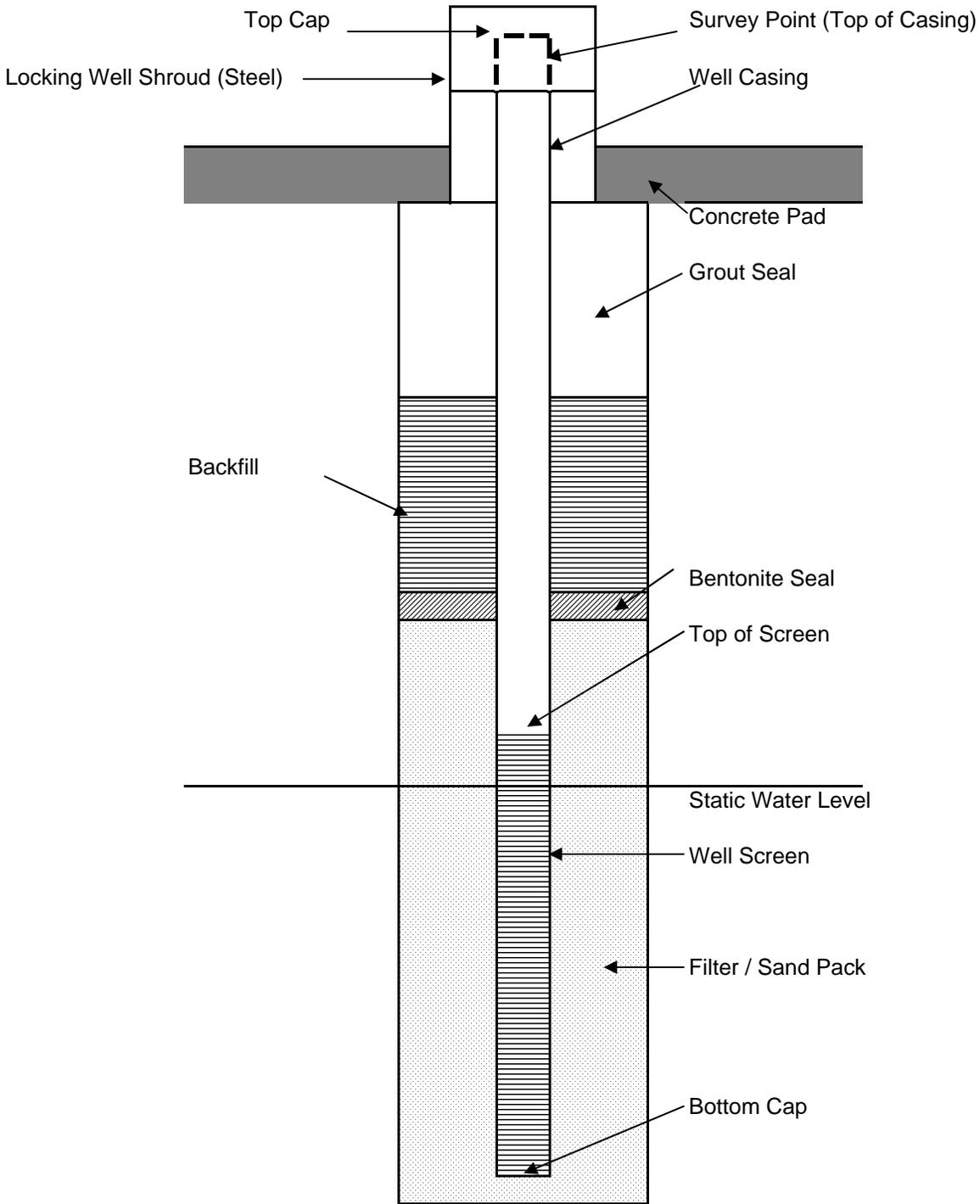
Abandonment:

1. Monitoring wells no longer in use shall be plugged in such a manner as to prevent migration of surface runoff or ground water along the length of the well casing. Where possible, this shall be accomplished by removing the well casing and pumping expanding cement from the bottom to the top of the well using a tremmie pipe. If the casing cannot be removed, the casing shall be ripped or perforated and pressure grouted along its entire length.
2. Filling with bentonite pellets from the bottom to the top is an acceptable alternative to pressure grouting.
3. After abandonment, written notification must be submitted to the GWPPS with date and method of abandonment.

Variances: Requests for variances from these guidelines shall be submitted in writing to the Program Manager, NMED Ground Water Pollution Prevention Section (GWPPS), 1190 St. Francis Drive, P.O. Box 26110, Santa Fe, NM 87502. Each request shall explain in detail the evidence supporting the request. The GWPPS approval also shall be in writing.

Signed: _____
Maura Hanning, Program Manager, GWPPS

Date:



Generalized Monitoring Well Schematic (Not to Scale)