



County of Santa Cruz

Health Services Agency – Environmental Health



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March 27, 2024

Purpose

This letter serves as a clarification from the Santa Cruz County Environmental Health Department (EHD) to our regulated community members regarding acceptable materials and methodologies for sealing exploratory soil borings.

References

- California Department of Water Resources. 1981. Water Well Standards: State of California, Bulletin 74-81. December 1981.
- California Department of Water Resources. 1991. California Well Standards, Bulletin 74-90, (Supplement to Bulletin 74-81). June 1991.
- California Department of Water Resources. 2015. Statewide Advisory: Sealing Materials for Water Wells, Monitoring Wells, Cathodic Protection Wells, and Geothermal Heat Exchange Wells. September 2015.
- Santa Cruz County Code. Chapter 7.70, Water Wells.
<https://www.codepublishing.com/CA/SantaCruzCounty/>

Background

EHD requires a soil boring construction/destruction permit for any soil boring in Santa Cruz County that intersects groundwater or is used to determine hydrologic conditions. Exploratory soil boring destructions must adhere to the standards outlined in DWR Bulletin 74-81 and Bulletin 74-90 (Santa Cruz County Code [SCCC] 7.70.090).

Sealing Exploratory Borings

Permitted exploratory borings must be entirely sealed with an acceptable sealing material from the bottom of the boring to the top. In areas where excavation, grading, farming, or trenching are possible, the sealing material should be placed to 5 feet below ground surface (bgs), backfilled with clean fill up to the surface or one foot bgs, and then finished to grade with the property owner's or encroachment permit agency's choice of material.

Acceptable sealing materials include:

- Neat cement consisting of 5 to 6 gallons of water per 94-pound sack of Type I or II Portland cement (2.5 to 3 gallons of water per 47-pound sack).
- Sand cement containing no more than 188 pounds sand per 94-pounds of Type I or II Portland cement, mixed with approximately 7 gallons of water (also known as "10.3 sack mix") (94 pounds sand per 47-pounds cement with approximately 3.5 gallons of water).
- High solids bentonite grout with solids content ranging from 64% to 72% by dry weight of solids (sand and sodium bentonite) to the total weight of mixed grout (solids and water).
- Non-slurry bentonite (e.g., bentonite chips and pellets) with EHD approval. Non-slurry bentonite is only permitted for placement in shallow soil borings less than 20 feet deep with a water

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column less than 10 feet in the borehole. Use of non-slurry bentonite products must also follow manufacture specifications.

- Any other compound approved by the EHD staff (e.g., variances to grout mixture ingredients ratios can be approved to protect drilling pump equipment or to ensure proper grout flow into the filter pack during pressure grout well destruction methods).

Sealing material may be placed by free-fall only where the interval to be sealed has no more than 3 feet of water and no more than 30 feet in depth. A tremie device (e.g., pipe, hose, augers, or rods) is required for sealing exploratory borings that exceed 30 feet in depth or that have more than 3 feet of water present. The discharge end of the tremie device must be continuously submerged in sealing material during sealing operations (SCCC, Chapter 7.70.100 C).

On a case-by-case basis, EHD may permit the free fall of non-slurry bentonite to destroy an exploration soil boring with a depth of 20 feet or less, provided the interval to be sealed can be visually inspected during placement of chips (Appendix B, DWR Well Bulletin 74-81). Dry bentonite pellets or chips may be placed directly into a maximum of 10 feet of groundwater column during exploration soil boring destruction. Care shall be taken to prevent bridging during the placement of bentonite seal material.

Please note that in areas of environmental concern, suspected areas of contamination, or fracture bedrock environments (due to bentonite being washed out over time), bentonite seals are not appropriate. In these situations, cement-based seals will be required.