



## **GUIDELINES, POLICIES, AND PROCEDURES FOR SUBSURFACE ENVIRONMENTAL AND GEOTECHNICAL DRILLING**

San Mateo County Environmental Health Services (EHS) is the local permitting agency in San Mateo County as established by Section 4.68 of the San Mateo County Ordinance Code. San Mateo County Environmental Health Services Groundwater Protection Program (GPP) reviews all subsurface drilling permit applications for environmental and geotechnical purposes. San Mateo County Environmental Health Services Land Use Program (LUP) reviews all water well permit applications for:

- Public supply wells
- Domestic wells
- Agricultural wells
- Cathodic protection wells
- Exploratory wells
- Geothermal heat exchange wells
- Construction, destruction, and permit applications for all reconnaissance, investigation, and excavation work strictly for land use purposes

Please contact the LUP at (650) 464-0613 to discuss permitting, notification, and drilling requirements for these types of wells and drilling.

The intent of this document is to clarify the GPP's requirements on several aspects of the State of California Well Standards designated for interpretation by the local permitting agency. The following is a brief itemized list of the requirements. For further explanation, please refer to the text following the itemized list.

- Permits are required from GPP for any drilling in San Mateo County at or below 10 feet below ground surface or at any depth below ground surface in which groundwater is encountered. A copy of the permit must be on site.
- For any drilling in San Mateo County which requires a permit from GPP, notification to GPP is required at least two business days prior to the scheduled drilling date. Separate field work notification to the case worker is additionally required. If the site is an open corrective action case... The drilling cannot be scheduled with the GPP until a permit has been issued.
- All equipment must be cleaned prior to entering any borehole to prevent potential cross contamination from another site or other boreholes on site.
- All waste generated during the drilling must be stored in accordance with applicable laws and regulations regarding investigative derived residual waste. Soil cuttings may not be used to backfill any part of the boring. Contaminated groundwater displaced from wells and boreholes during grout tremie activities must be contained and disposed of properly.
- All annular space material must be placed with tremie pipe if water enters the borehole or the borehole is greater than 30 feet deep in accordance with the State of California Well Standards. The tremie pipe must remain below the level of groundwater to avoid grout



dilution. All sand pack materials need to be settled after placement and prior to placement of the bentonite transition seal. If the bentonite transition seal is above the water table, then it needs to be hydrated in six (6) inch lifts. For any well deeper than 40 feet, centralizers must be installed every 20 feet.

- All grout must be mixed at a ratio not to exceed 7 gallons of water (maximum) to every 94-pound sack of cement.
- Borings greater than 30 feet below ground surface or containing groundwater must have the grout tremied into the boring during destruction with the tremie pipe extending to the base of the boring and not raised above the level of groundwater. Enough grout should be mixed to ensure one continuous pour to grout the entire boring.
- All well boxes must be removed at destruction unless the monitoring well owner and the current property owner are the same. In this circumstance, the well box may be left in place after being completely filled with cement.
- For monitoring well destructions, a work plan must be submitted and approved by GPP staff. For wells proposed to be destroyed via pressure grouting, anticipated grout volume must be calculated and approved by GPP staff. The driller should be able to demonstrate the grouted monitoring well can maintain twenty-five (25) psi of pressure for at least five (5) minutes. Wells unable to accept sufficient grout or maintain pressure must be drilled out, preferably prior the grout setting up.
- Well Completion Reports (Form 188) must be filled out and filed through The Online System for Well Completion Reports (OSWCR) with the Department of Water Resources for every well that is constructed, altered, or destroyed.
- Field activities may begin at the start time the environmental consultant scheduled with the GPP during the notification, but not before, without GPP approval.

## PERMITS

Subsurface drilling for environmental or geotechnical purposes is prohibited in San Mateo County without a permit issued from the GPP unless the drilling will terminate prior to ten (10) feet below ground surface AND groundwater is not anticipated to be encountered.

Examples (but not an all-inclusive list) of subsurface drilling include:

- Hollow stem augering
- Solid stem augering
- Hand augering
- Direct push or Geoprobe rod advancement
- Mud rotary
- Air rotary
- Rotosonic



If groundwater is unexpectedly encountered prior to ten (10) feet below ground surface during drilling, then please contact the appropriate case worker for the area you are drilling at (650) 372-6200 to receive further instructions (i.e. potentially wait for inspector to arrive on site per verbal instructions or grout up hole [after all environmental samples collected] in accordance with the State of California Well Standards). Leave a detailed voicemail message if inspector is not immediately available. A subsurface drilling permit application or geotechnical drilling notification will be required along with a written report describing all field activities.

The subsurface drilling permit application and annual geotechnical drilling permit application are available online at GPP website [smchealth.org/gpp](http://smchealth.org/gpp). Completed subsurface drilling permit applications need to be submitted for each assessor's parcel for all borings greater than or equal to ten (10) feet below ground surface or if groundwater is anticipated, and for all monitoring and vadose-zone well installations or destructions (including the installation of inclinometers or other cased structures). Subsurface drilling permits expire four (4) months after the date of issuance. Annual geotechnical permits are issued to environmental consultants but geotechnical drilling notification forms and site plans showing the proposed drilling locations must be submitted to GPP at least two (2) business days prior to drilling. A representative of the driller must sign all subsurface drilling permit applications or geotechnical drilling notifications to verify the use of their C-57 license.

The registered professional (Registered Geologist or Civil Engineer) must submit the subsurface drilling permit application or geotechnical drilling notification data at least three (3) days prior to the anticipated drilling date and notify the GPP two (2) business days prior to the finalized drilling date. However, the driller should verify that a subsurface drilling permit has been issued prior to performing the work. GPP always sends a copy of the subsurface drilling permit directly to the driller's address listed on the subsurface drilling permit application. A copy of the subsurface drilling permit must be on site.

Knowingly drilling in San Mateo County without a required permit will result in referral to the State of California's Department of Consumer Affairs for both the registered professional and the C-57 license holder and may result in the suspension of issuance of future permits to the registered professional and the C-57 license holder. Additionally, drilling in San Mateo County without a required permit is a misdemeanor, and may be referred to the District Attorney for enforcement action.

## DRILLING

GPP requires all augers, rods, and any other instruments that may be placed down the boreholes (i.e. water level indicator, sampling instruments, temporary casing, etc.) to be cleaned appropriately prior to entering the borehole to prevent any potential cross-contamination from another site or other boreholes on site. All waste generated during the drilling must be stored in accordance with applicable laws and regulations regarding investigative derived residual waste. Soil cuttings may not be used to backfill any part of the boring without prior approval of GPP. Care must be taken to prevent any potential discharge of soils, sawcutting mud, potentially contaminated groundwater, or decontamination liquids (particularly to storm drains). All drilling and sampling will be directed by the registered professional in charge of the site.



## WELL CONSTRUCTION

GPP requires use of a tremie pipe to place all annular-space material below the water table or greater than 30 feet below grade in accordance with the State of California Well Standards. Material placement, such as grout, via tremie pipe shall not be conducted with slotted screen. Filter pack material and screen slot size should be based on the surrounding formation. Additionally, GPP requests all sand-pack materials to be settled after placement and prior to placement of the bentonite transition seal. If the bentonite transition seal is above the water table, then it needs to be hydrated in six (6) inch lifts. For any well deeper than 40 feet, centralizers must be installed every 20 feet.

## WELL OR BORING DESTRUCTION

All wells or borings must be destroyed in accordance with the State of California Well Standards. The total depth of the well must be verified and confirm the construction details of the wells. All grout must be mixed at a ratio of 7 gallons of water (maximum) to every 94-pound sack of cement. Drillers should be prepared to demonstrate to GPP staff the amount of water (i.e. measured out in 5-gallon buckets) used in the mixing of the grout. Only borings less than thirty (30) feet below ground surface, which have not encountered groundwater, may be grouted via free falling providing the boring will remain open after withdrawal of drilling rods. Borings greater than 30 feet below ground surface or containing groundwater must have the grout tremied into the boring. Enough grout should be mixed to insure one continuous pour to grout the entire boring. The registered professional should be able to roughly calculate the amount of grout needed to properly destroy the hole, if it was not already calculated in the work plan.

An unusual amount of grout required to properly destroy a boring, compared to the amount calculated by the registered professional, should be investigated and noted in all reports and by all field staff to insure subsurface utilities have not be encountered.

The grout must come within two (2) feet of ground surface. All well boxes must be removed unless the monitoring well owner and the current property owner for the site with the monitoring well are the same. In this circumstance, the well box may be left in place after being completely filled with concrete. All groundwater which is discharged from the boring should be contained and prevented from discharging to the ground surface or nearby storm drains. If the grout will not go down the tremie pipe being used via gravity, then the grout will have to be pumped down the tremie pipe. The tremie pipe shall not be raised above the water level to facilitate gravity flow. The driller should be prepared on all sites to actively pump grout down the tremie pipe.

For monitoring well destructions via pressure grouting which have been approved by GPP, the driller should be able to demonstrate to GPP staff that the grout volume is sufficient based on approved calculated volumes and that the grouted monitoring well can hold twenty-five (25) psi of pressure (either with a pressure gauge or the specific pump specifications as indicated in letter accompanying drilling permit application) for at least five (5) minutes. If the total depth of the well at the time of the destruction does not agree with the construction details, then the well will need to have all materials removed prior to destruction via pressure grouting to have the total depth of the well agree with the construction details. Any failed well destructions via pressure grouting will



need to be drilled out preferably prior to grout setting up.

## WELL COMPLETION REPORTS (WCR)

California Water Code Section 13751 requires that anyone who constructs, alters, or destroys a water well, cathodic protection well, groundwater monitoring well, or geothermal heat exchange well must file with the Department of Water Resources (DWR) a report of completion within 60 days of the completion of the work. Drillers submit their well completion reports with the Online System of Well Completion Reports (OSWCR, say "Oscar"). OSWCR users create an account based on their C-57 license that the DWR will validate. Upon approval users will be able to submit Well Completion Reports: [civinet.resources.ca.gov/DWR\\_WELLS/](http://civinet.resources.ca.gov/DWR_WELLS/).

## CHEMICAL INJECTIONS

All injections of chemicals must be approved by GPP (and the RWQCB) prior to the injection (i.e. proposed in approved work plan). Please be sure to have an appropriate health and safety plan on site when dealing with hazardous materials (i.e. peroxide, permanganate).

## GPP INSPECTIONS

Although two (2) business day notification is required prior to drilling, the GPP may choose not to be on site during any of the drilling, construction, grouting, or destruction activities. Field activities may begin at the start time the environmental consultant scheduled with the GPP during the notification, but not before, without GPP approval.

Any of these requirements may be modified on a site-specific basis only by the GPP. This document may be updated with the most recent version available online at the San Mateo County Environmental Health Services website [smchealth.org/gpp](http://smchealth.org/gpp). If you have any further questions, please contact the GPP at (650) 372-6200.