

Geotechnical Drilling at SFPUC Reservoir Sites

Frequently Asked Questions

Geotechnical drilling is the process of utilizing a drilling rig to extract soil and rock samples from a bore hole to investigate the subsurface materials. Samples are typically extracted using different types of sampling equipment and used for material testing in the laboratories.

Q. What is the purpose of geotechnical drilling in or near a reservoir?

A. A geotechnical engineer reviews and tests the samples to evaluate the make-up and other characteristics of the ground being examined. The understanding of the material characteristics allows assessing soil behavior under normal and severe loading conditions (earthquakes, extreme floods etc.). If performed near a known existing trace of a fault, geotechnical drilling and retrieved samples also allow study of fault activity. This information forms the basis for analyzing the performance of an existing dam and if needed, also evaluate the suitability for potential placement of new dam/retrofits. design and execution.

Q. How large (and deep) are the bore holes?

A. The depth of the borehole is decided by the engineers on a case-by-case basis depending on the depth of interest. Typically, a borehole extending to the bedrock provides all information about the type of soil above the bedrock. Boreholes extending into bedrock are drilled when the information about the bedrock is needed. Soil samples extracted from the depths above the bedrock are typically 3-5 inches in diameter and up to 5 long. Rock cores are also typically 3-5 inch in diameter and allow extraction of a near continuous bed rock sample.



Q. How do you determine the number of holes drilled/samples to be taken?

A. Our dam project and geotechnical engineers determine the location and number of samples required based on a variety of factors including ongoing observation of existing conditions, previous work done in the area, future plans for new work and the importance of any particular features to the overall stability of the dam and reservoir.

Q. How do you fill in the holes when you are done?

A. The holes we take samples from are re-filled by injecting them with grout (a liquid cement) that creates a seal and ensures the ground remains stable.

Q. Does taking core samples next to a reservoir (or within it) affect the dam and other structures or landscape features nearby?

A. Geotechnical drilling does not impact the dam, the reservoir or nearby structures or landscape features.

Q. How does geotechnical drilling affect wildlife and plants?

A. All of our proposed drilling sites are subject to environmental review by the Bureau of Environmental Management or BEM. Our projects are designed to execute drilling carefully and with minimal impacts, and to mitigate any impacts that might arise.

Q. Which organizations have oversight over geotechnical drilling on dams?

A. The regulatory entity overseeing each dam varies by location. In the case of the Turner Dam and San Andreas Dam, the California Division of Dam Safety is responsible for reviewing and approving our plan.

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