Prepared in cooperation with the Sweetwater Authority

Installation of multiple-depth monitoring well

Hydrogeologic investigations of the San Diego area, California

Summary

Multiple-depth monitoring wells provide critically important data to aid in understanding complex hydrogeology, such as that found in the coastal San Diego area. Because no comprehensive study of groundwater resources has been done for the San Diego area, a major element of the present USGS study is to install multiple-depth wells in selected areas of four coastal river basins.

During February 2010, a well will be installed at the San Diego Country Club. The well will be about 1,500 feet deep, and will have five separate two-inch PVC piezometers, installed to selected depths. These piezometers will be monitored for groundwater levels and sampled for groundwater quality. The well site will be a permanent installation and will provide data for decades.

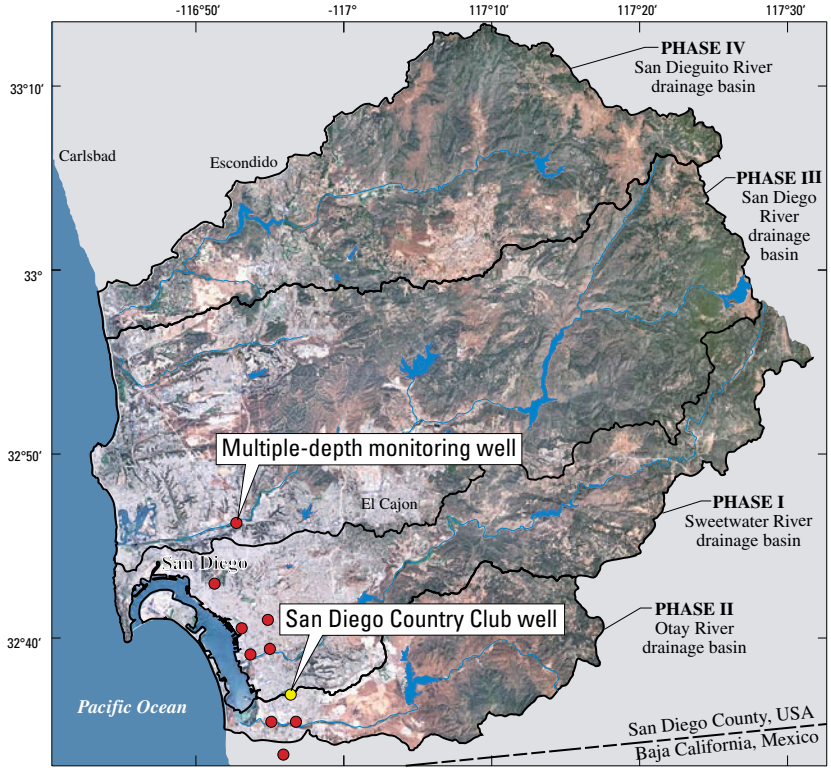

Figure 1. Location of multiple-depth monitoring wells, San Diego area, California.

Well Site

The United States Geological Survey (USGS), in cooperation with the Sweetwater Authority, will be installing a 1,500-foot-deep monitoring well on the northeast corner of the San Diego Country Club (fig. 1). This site was chosen to determine hydrologic conditions between the Sweetwater and Otay Rivers, identify geologic units, integrate data from other wells, ensure long-term data collection, and provide for water management.

Results from the drilling will help define the quantity and quality of groundwater in the coastal San Diego area. If sufficient groundwater is identified, it may provide an additional local resource, possibly via desalination.

Well Drilling and Construction

Drilling will take about four weeks. The hours of operation each day, including weekends, are 7 am to 7 pm. During the first three weeks, noise levels will be typical of those associated with heavy equipment (fig. 2). During the final week, noise will be reduced as the well is constructed and the site is restored to its original condition. Subsequent well development and water-quality sampling will be relatively unobtrusive. Visiting the site during drilling can be arranged by contacting Wes Danskin below.

All data will be available on the project website. Typical photographs of the drilling process and completed well installation are shown in figure 3.

Contacts

For questions concerning the USGS hydrogeologic study of the San Diego area, please contact:

USGS Project Chief, Wes Danskin, Research Hydrologist, 858-663-6832, wdanskin@usgs.gov, or

refer to the project website,

http://ca.water.usgs.gov/sandiego

For all questions concerning the well site or drilling, please contact:

Sweetwater Authority, Jack Adam, 619-420-1413, jadam@sweetwater.org

or

USGS site supervisor Tony Brown, 619-578-1294, anbrown@usgs.gov.

Figure 2. Typical drill rig used to construct a multiple-depth monitoring well.

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Figure 3A. Educational outreach area with samples, storyboard, and shade structure. Drill rig is in background.

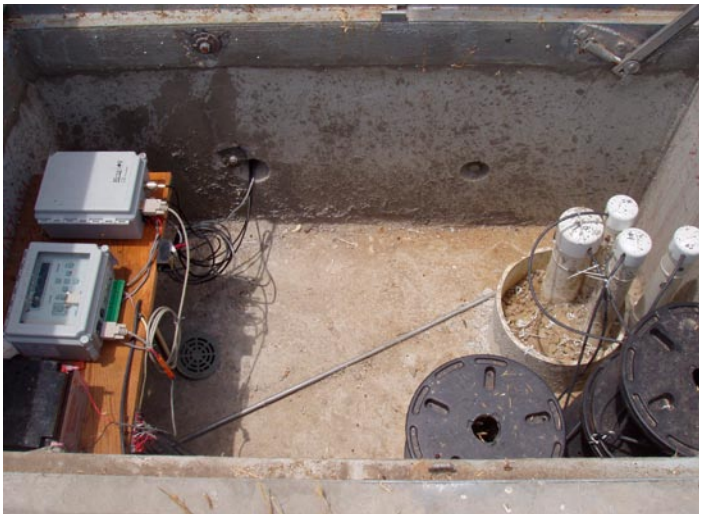

Figure 3D. Inside of a typical vault showing piezometers, transducer wires, data logger, and satellite link. Real-time data is provided via the Internet.

Figure 3B. Installation of 2-inch PVC pipe which will allow access to specific depths to measure water levels and sample water quality. Note 3 other piezometers are installed already.

Figure 3E. Typical final installation of 3 by 5 foot, traffic-rated vault. USGS and well ID are welded on top of vault.

Figure 3C. Core samples are taken from selected depths using a wire-line device. Cores help correlate geologic layers.

Figure 3F. Final installation of vault, solar panel, and satellite antenna at El Toyon Park, National City, CA.