Tuscan Aquifer INVESTIGATION

QUARTERLY NEWSLETTER

September 2011

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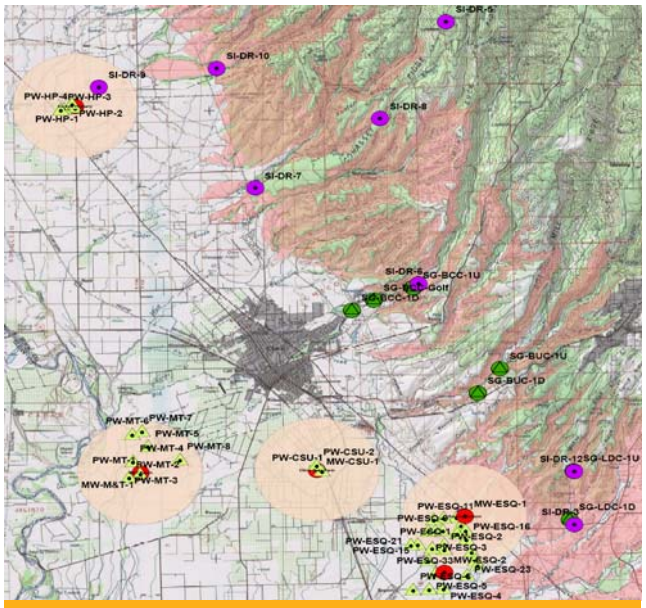
Field Study Underway

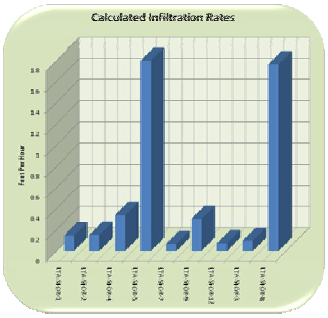


Locations of Field Activities

Field work has been performed over a majority of the study area. Three multicompletion monitoring wells have been installed. Infiltrometer testing has been performed in the foothills. Many stream gauges have been installed, stream rating curves are being developed, and flows are being measured. Aquifer testing has been performed in two locations and was postponed in one area.

Dual Ring Infiltrometer Testing Performed

Dual ring infiltrometer tests were performed at nine locations throughout the study area. Permeability tests help the study better understand how fast water can move through the ground immediately below the infiltrometer. The infiltrometer must seal against the ground to prevent water from leaking during the test, and was set on bentonite clay chips in areas with hard ground to prevent leaking. Initial results show variability in infiltration, and will be further analyzed during the study.



UPCOMING ACTIVITIES

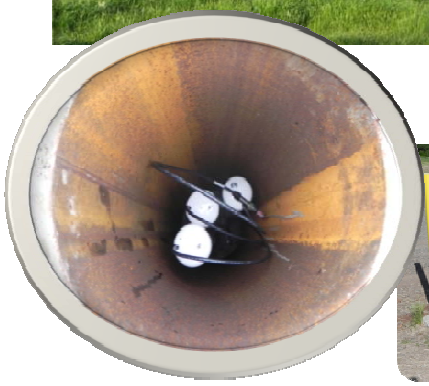
- Additional aquifer testing
- Continued stream gauging
- Temperature profiling
- Continued outreach

Additional information is available at the project web site at www.buttecounty.net/WaterandResourceConservation/TuscanAquiferInvestigation/

This newsletter is funded under the California Water Security, Clean Drinking Water, Coastal and Beach Protection Fund of 2002, administered by the State of California, Department of Water Resources.

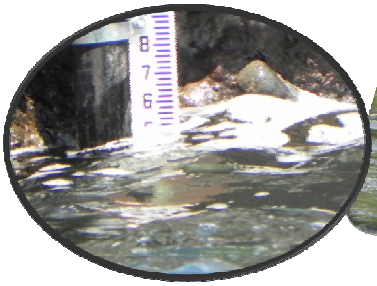
Monitoring Well Photos

Completed multicompletion monitoring wells are comprised of a lockable outer steel casing, and 2 inch diameter plastic pipes. The plastic pipe makes up the monitoring wells. There are three monitoring wells at each multicompletion monitoring well location. The extra space inside the outer casing is used to house cabling that is connected to pressure transducers, which measure groundwater levels.



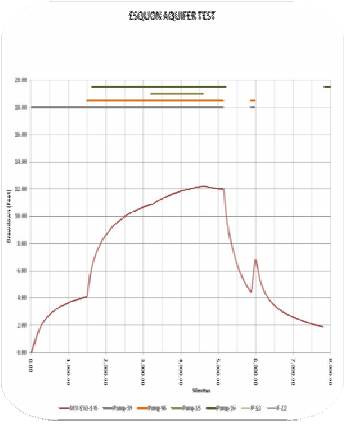
Stream Gauging

Stream gauges have been installed on Mill, Deer, Big Chico, Butte, and Little Dry Creeks. Each stream gauge includes a staff gauge, stilling well, and pressure transducer. The pressure transducer measures the pressure of water above it, and converts that reading into a water level measurement, which is stored in memory. Depth of water measurements are converted into stream flow measurements by determining the stream's cross-sectional profile. Profiles must be taken at multiple flow levels to accurately reflect the stream bed at different flows. Profiles are still being collected for the streams listed above, using an RDI—Stream Pro Acoustic Doppler Current Profiler, called "The Boat" by the project team. The Boat uses sound waves to detect the stream bed to provide an accurate stream bed profile.



Aquifer Performance Testing

The aquifer performance testing has been conducted on Esquon Ranch and the Hackett property, however the test has not been performed at the M&T ranch at this time. Testing at the M&T Ranch may occur later this year or next summer depending on weather conditions and operations at the ranch. Aquifer performance testing at these operating ranches has been made possible by using temperature sensors on nearby pumping wells, which identify when production wells in the test area are on or off. Groundwater level information collected during the test is analyzed in conjunction with pumping well information to calculate aquifer parameters.



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