

Design and Install Production and ASR Wells City of Phoenix

As part of four independent projects, Clear Creek Associates was retained by the City of Phoenix to provide consulting services for the permitting, design, construction management, and testing of Aquifer Storage and Recovery (ASR) and public water supply wells. City of Phoenix Well No. 299, Well No. 300, and the Cave Creek ASR Well are ASR wells with 16-inch and 18-inch diameters, and 1,420-foot, 1,320-foot, and 820-foot cased depths, respectively. These ASR wells provide recharge capacities of approximately 1,800 gpm, 350 gpm, and 1,000 gpm, respectively, along with water production rates that exceed their projected recharge capacity rates. At the Cave Creek ASR Well, we also developed and successfully executed the first pilot testing of manufactured glass bead filter pack material in an ASR well in the United States. Well No. 301 is a 16-inch diameter 1,240-foot deep public supply well, which was tested at over 1,200 gpm, while producing water quality within drinking water standards. The Well 301 installation presented logistical challenges associated with potential disturbance resulting from its location within a residential neighborhood, in close proximity to occupied homes. Clear Creek Associates specified 24-foot tall sound abatement barriers to be installed by the drilling contractor during site work, and background noise monitoring was in conjunction with a proactive community notification and involvement plan. These steps to mitigate potential public relations problems successfully addressed the noise concerns of neighboring residents. During each of these well installation projects, Clear Creek Associates coordinated the activities of the drilling contractor and our subconsultants. Specific tasks associated with each borehole drilling included: conceptual design; permitting; lithologic logging of each pilot borehole (with depths of up to 1,950 feet); geophysical logging; coordination and collection of 7-10 depth-specific groundwater samples in each pilot boring; performance of falling head tests in each sample interval to assess depth-specific aquifer production characteristics. On the basis of the site-specific and depth-specific data that were obtained from each pilot borehole, Clear Creek Associates developed a final well design, and provided construction management on a 24-hour per day basis during the well installation. We also provided oversight and monitoring during the development and testing (aquifer testing and flow profile analysis) of each new well. Each well was successfully designed for maximum pumping/recharge rates while maintaining water quality within drinking water quality standards. Clear Creek Associates is currently underway with the City of Phoenix Deer Valley ASR Well design and installation (which would be the fifth sequential well installation for the City of Phoenix).



Glass Bead Filter Pack Material

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