

Design and Construction Techniques for Recharge and Recovery Wells

Presented by:

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This workshop will include a comprehensive presentation of the procedures and considerations for the design, installation, and management of recharge wells, recovery wells, and aquifer storage and recovery (ASR) wells. The workshop will also include the presentation of case studies from several Arizona municipalities that have utilized recharge and recovery technology to augment their water resources portfolios. We will present the principles of well design and installation, from the initial well design, through construction oversight, to final acceptance and testing of the new well. Methods of evaluating and rehabilitating existing wells will also be addressed.

The common water well drilling methods and techniques will be described (including mud-rotary, air-rotary, reverse rotary, cable tool, and dual rotary drilling methods), with graphic illustrations to clarify the advantages and limitations of each drilling technique. This workshop will also cover borehole analysis methods (such as lithologic logging, geophysical log interpretation, depth-specific groundwater sampling, hydrologic testing of open boreholes, and drilling fluid analysis), and construction management operations (such as documentation methods, calculations, and decision-making processes) while the well installation process is ongoing. Methods of evaluating and rehabilitating existing wells will also be addressed.

Well completion and development of wells will also be discussed, and post-construction analyses (such as plumbness & alignment tests, video surveys, and spinner log analyses, etc.) will be addressed, along with health and safety considerations and trouble-shooting methods. Finally, the workshop will address contract documents and criteria for acceptance or rejection of the well by the owner, and procedures for assuring that the acceptance criteria are met in a fair and equitable manner.

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