

## National Ground Water Association **Design and Construction of Wells**

Course Description: A well is more than a hole in the ground that is used to produce water or for monitoring water quality. Each well needs to be designed and constructed to meet the unique aspects of the hydrogeologic environment and its intended purpose. The purposes range from obtaining thousands of gallons per minute from a heterogeneous sand aquifer to monitoring for contaminants in a fractured rock environment. What are the advantages and disadvantages of air rotary versus mud rotary or cable tool drilling techniques? How do you select a drilling technique for a given site? How big should the pump chamber casing be? Should a wire-wrapped well screen be used or louvered casing? What interval should be screened for a monitor well? How do you avoid change orders and driller problems during well construction? This course addresses these and other questions.

Both of the instructors for this course have a broad background in the design and construction of wells for a variety of purposes. They have well construction experience in drilling environments ranging from unconsolidated glacial and alluvial sediments to a variety of fractured rock settings including basalt, limestone, sandstone, granite and various metamorphic rocks. Water supply wells have ranged in depth to 2,000 feet and in yield to 3,000 gpm. The instructors have been involved in designing and constructing monitor wells in both sedimentary and fractured rock environments.

Topics presented in this course include: 1) general aspects of well design including meeting state and federal standards, 2) selection of a drilling technology to meet site conditions and well objectives, 3) design and construction of production wells, and 4) design and construction of monitor wells. Numerous case study examples will be presented during the course. Attendees will work individually or in small groups during the second day to do the detailed design of a production well (morning session) and a monitor well network (afternoon session).

This course has been pre-approved for eight (8) CECs.

**When:** February 2 & 3, 2006

**Location:** Hilton Portland & Executive Tower  
921 SW Sixth Ave  
Portland OR 97204

**Cost:** NGWA member: \$845  
Nonmember: \$995

**Contact and for more information:** Barbette Howell, NGWA (614) 898-7791 or (800) 551-7379 or see the NGWA's website at <<[www.ngwa.org](http://www.ngwa.org)>>