

HYDROLOGY DIVISION WATER QUALITY UNIT

ADWR CONTACT

AZ Dept of Water Resources
Water Quality Unit
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WQU Responsibilities

- Well construction reviews
- Plume migration studies
- Well Inventories
- Special well construction requirements
- Database Management
- Liaison to ADEQ

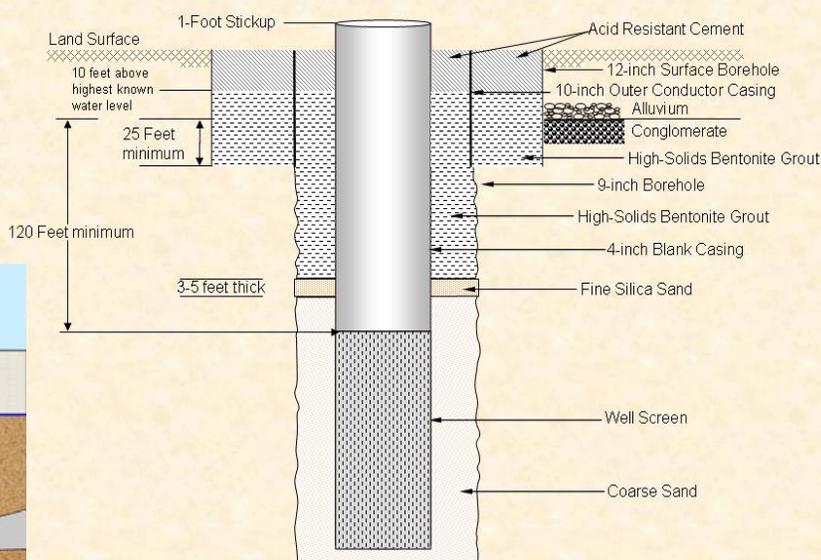
Special Well Construction and Abandonment Procedure Documents

- Special Requirements for Wells in Areas of Groundwater Contamination
- Pinal Creek WQARF Site
- Yuma Marine Corps Air Station CERCLA Site

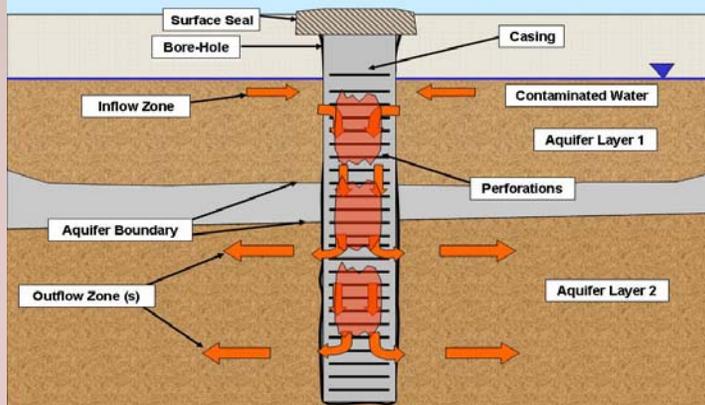
The ADWR Water Quality Unit (WQU) provides hydrologic support to ADWR water quality activities and is the agency's primary liaison with the Arizona Department of Environmental Quality (ADEQ).

Together with ADEQ, the WQU reviews construction plans of proposed wells near areas with groundwater contamination to assure that the construction meets state minimum standards and is protective of the aquifer. An improperly constructed well may act as a conduit for vertical cross-contamination within an aquifer or between aquifers, spreading existing contamination into previously uncontaminated drinking water supplies. The WQU has developed special well construction requirements to be implemented in areas of groundwater contamination.

Special Well Design for a Well Installed in a Shallow Contaminated Alluvial Aquifer in a Mining Area



Conceptual Model for Vertical Cross-Contamination Through Casing Flow



The WQU also determines whether new groundwater withdrawals will likely cause contaminated groundwater to migrate and contaminate other existing wells. If other existing wells are impacted, ADWR recommends mitigation alternatives to the applicant.

Well Inventories

The WQU conducts comprehensive well inventories at Water Quality Assurance Revolving Fund (state Superfund) sites in Arizona. Information on wells in Arizona is often incomplete or inaccurate, leading to erroneous interpretation of water quality or geological information. Well records from various databases are joined and matched whenever possible.

All wells within the project area are field verified. Well information is captured and entered into a computer database in the field.



A side benefit to field verification of wells is the discovery of uncapped wells. Uncapped wells can pose a high threat to public safety, as does this old uncapped 20-inch irrigation well, unexpectedly found within a 1/4 mile of a populated area.



Well locations are measured with a Global Positioning System to accurately and reliably generate geographic coordinates for wells. Field verification of wells has been invaluable to correcting and updating state well and water quality databases.



Open wells also pose a potential threat to the environment, as this small diameter well (in a residential area). This well presents an opportunity for contaminants to be introduced into the subsurface, either accidentally or intentionally.

