

**Arizona Department of Environmental Quality UST Program
Release Reporting & Corrective Action Guidance**

APPENDIX G WELL CONSTRUCTION

The following guidance should be used for the design and construction of groundwater monitor wells:

- C All monitor wells must be permitted and installed in accordance with the ADWR regulations and permit requirements. The UST Program will also utilize industry standards of practice, especially ASTM D 5092-90 (*Practice for Design and Installation of Ground Water Monitoring Wells in Aquifers*), to determine whether the monitor well design and construction is appropriate for site-specific conditions. In accordance with A.A.C. R12-15-811(H), the well registration number shall be identified on the vault cover or at the top of the steel well casing.

- C To ensure consistent treatment of all owners and operators regulated by the UST Program, a screened interval of 30 feet (20 feet into the groundwater and 10 feet above the groundwater) is requested. The screened interval should be positioned to intercept the historic high and low groundwater levels. Greater screened lengths may be justified where groundwater elevations fluctuate in excess of ten feet. The screened interval length may be modified as appropriate in cases where the aquifer thickness is less than 20 feet due to bedrock or aquitards. Placement of the screened interval may also be dependent upon the chemical-physical characteristics of the contaminants.

- C When selecting the casing diameter to be used during well installation, owners and operators should consider the possibility that wells may be used during groundwater remediation activities such as pump-and-treat, air sparging, free-product recovery, *etc.*

- C If wells are drilled through contaminated soil, special care should be taken during construction to prevent the introduction of contaminated soils to groundwater and inadvertent contamination of groundwater (*i.e.*, creation of false positives). An example of this type of preventative measure is construction of a well inside the hollow-stem of an auger or downhole casing of other drilling equipment.

- Special care should be taken to ensure that investigators do not unknowingly drill through an aquitard and risk cross-contaminating vertically separated aquifers, which is a violation of the ADWR requirements [A.A.C. R12-15-812(B)]. Such measures may include, depending upon site-specific conditions present, review of readily available hydrogeological literature, setting of a surface casing, a one-time drilling standby at a single location at the site to measure the potential for the presence of groundwater development and/or the depth to static groundwater, *etc.*

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- If wells are drilled into bedrock, care should be taken to properly seal the well annulus, thereby minimizing the likelihood of introducing a pathway of migration for contamination into non-contaminated areas of the bedrock formation and/or aquifer. For further information on installation and construction of wells into bedrock, please consult available and current ADWR statute, rules and guidelines.

- C The elevation of an established measuring point at the top of the north side of the casing should be determined relative to mean sea level, or other established benchmark, by an Arizona licensed surveyor or engineer.

- C After the UST Program issues a LUST case closure letter, the abandonment of groundwater monitor wells should be in accordance with ADWR statute, rules and guidelines.