

Decommissioning of Wells and Boreholes

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Position Paper

Subjects

Groundwater protection, aquifer protection, contamination prevention

Audience

Legislators, governmental officials, environmental agencies, water well industry, oil industry, general public

Background

Direct contamination of groundwater and cross-contamination of aquifers have been documented throughout the United States. One potential groundwater contamination source is abandoned wells and boreholes which penetrate aquifers or which breach a zone that provides a significant barrier to contaminant migration. Cross-contamination may occur in abandoned wells or boreholes when two or more aquifers are penetrated and a seal has not been placed or is no longer intact between the zones to prevent the water from mixing. The potential for direct groundwater contamination exists in abandoned wells and boreholes along the borehole if an adequate surface seal was not installed originally or if it has deteriorated.

The majority of states have regulations specifying plugging methods for abandoned water wells, but these regulations may not encompass all wells or boreholes of concern. Difficulty also arises in locating abandoned wells and boreholes and then encouraging the owner to properly address the structure and pay for the work. Since 46 percent of the U.S. population uses groundwater as its drinking water supply source, this situation should be addressed.

Issue

What should be done about abandoned wells and boreholes which penetrate aquifers or breach a zone that provides a significant barrier to contaminant migration?

Position

It is the position of the National Ground Water Association that all abandoned wells and boreholes which penetrate aquifers or breach a zone that provides a significant barrier to contaminant migration should be decommissioned. By decommissioning it is meant that such wells and boreholes must be plugged so as to prevent any contamination from entering or circulating within or leaving such structures. Wells and boreholes which have been modified to serve a new and approved purpose, such as water level monitoring, or which have been temporarily capped and maintained on an inactive basis are exceptions to this assertion.



Phone/ Toll-free 800 551.7379/ 614 898.7791 Fax/ 614 898.7786
Web/ www.ngwa.org and www.wellowner.org
Address/ 601 Dempsey Road/ Westerville, Ohio 43081-8978 U.S.A

State regulations or applicable industry standards should be followed in plugging operations. The goal of plugging abandoned wells or boreholes is to restore the hydrogeologic characteristics of the site and prevent the abandoned well or borehole from being a potential conduit for surface contamination or cross-contamination of the aquifer.

Abandoned wells or boreholes for purposes of this issue brief are those that have permanently ceased to serve any useful purpose or are in such a state of disrepair that their original purpose cannot be reasonably achieved. Examples of wells or boreholes that should be properly plugged if they are abandoned and if they penetrate an aquifer or breach a zone that provides a significant barrier to contaminant migration include water wells; monitoring wells; oil and gas wells; cathodic protection wells; exploration boreholes drilled for oil and gas, mineral, geothermal, geological, geotechnical, or geophysical purposes and blast holes.

NGWA recommends further that a well completion or decommissioning report for each of the above-named wells or boreholes be submitted to an appropriate state agency or its designated local agency following construction or decommissioning. Well owners should be held responsible and penalized for failure to decommission abandoned wells or boreholes in a timely and proper manner. Regulations regarding proper decommissioning procedures and materials should be promulgated by an appropriate state agency along with meaningful enforcement powers. The state agency should work with local groundwater industry members and consult applicable industry standards in developing regulations to minimize costs while promoting effective groundwater protection.

All existing abandoned wells or boreholes should be decommissioned. Because of problems in discovering and determining ownership of these structures, public education regarding abandoned wells and boreholes is an important part of achieving compliance with any state requirements.

Contact

Jonathon Jenkins
NGWA Industry Practices
601 Dempsey Rd.
Westerville, OH 43081-8978
614 898.7791
fax 614 898.7786
creimer@ngwa.org

References

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Manual of Water Well Construction Practices, National Ground Water Association, 1998.

Date

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