

ILLINOIS CHAPTER
SOIL AND WATER CONSERVATION SOCIETY
GROUNDWATER PROTECTION POLICY POSITION
as it applies to
SEALING ABANDONED WELLS

The Mission of the Illinois Chapter of the Soil and Water Conservation Society:

As a multidisciplinary membership organization, we advocate the protection, enhancement, and sustainable use of soil, water, and natural resources. Through education and example, we promote an ethic that recognizes the interdependence of people and the environment.

The Illinois Chapter of the Soil and Water Conservation Society (IL SWCS) is concerned about the proper stewardship of groundwater resources of Illinois.

ISSUE:

Groundwater aquifers are one of our most valuable natural resources. An estimate of 49% of the total population use groundwater in their households, and approximately 400,000 private water wells tap into this underground resource. In Illinois most groundwater aquifers are located at shallow depths making them very susceptible to contamination.

Private water wells in Illinois provide drinking water to approximately 1.3 million people. Each year, many of these wells are abandoned when they are replaced with new wells or when homes are connected to community water systems. A large number of these abandoned wells are large diameter dug wells constructed with brick or stone casings, and ranging in

depth from 20 to 50 feet.

Abandoned wells pose a health and safety hazard if they are left unsealed or if they are improperly sealed. As a result, all groundwater aquifers are at risk of contamination.

BACKGROUND:

Even though Illinois EPA assesses overall statewide groundwater quality as being good, agriculture and development activities contribute to contamination problems. Data indicates that 12% of private rural wells in Illinois have nitrate-nitrogen levels exceeding drinking water standards of ten parts per million, and 25% of wells have bacterial contamination problems.

The purpose of this paper is to address the need to properly seal abandoned wells and improperly sealed wells to protect groundwater from contamination. Abandoned wells for purposes of this issue position 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.

DISCUSSION:

Direct contamination of ground water and cross contamination of aquifers have been documented throughout the United States. One potential ground water contamination source is abandoned wells and bore holes which penetrate aquifers or which breach a zone that provides a significant barrier to contamination migration. Cross contamination may occur in abandoned wells or bore holes 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 ground water contamination exists in abandoned wells and bore holes if an adequate surface seal was not installed originally or if the seal has deteriorated.

Abandoned or improperly sealed wells are a hazard to groundwater aquifers because contaminated surface water can

enter a well when the well cap is damaged or removed. Contamination can occur if there are holes in the well casing due to damage or deterioration with age. Contaminated surface water can seep down along the casing of an improperly constructed well. Most older water wells do not meet present day construction standards. Well covers in flood-prone and low areas can also allow contamination to enter the aquifer during heavy rainfall or snowmelt. Open wells offer tempting disposal receptacles for liquid and solid waste.

Many states have regulations specifying methods for properly sealing abandoned water wells, but these regulations may not encompass all wells or bore holes of concern. It is also difficult to locate abandoned wells and bore holes and then encourage the owner to properly address the structure and pay for the work.

In 1987 Illinois enacted legislation to protect groundwater from contamination. The Illinois Groundwater Protection Act (P.A. 85-0863) responds to the need to manage groundwater quality through a prevention-oriented program.

In 1990, President George Bush made a water quality statement that clearly issued responsibility to farmers for avoiding contamination of water resulting from management practices that they apply to the land. Following this statement, the USDA implemented a three part Water Quality Program Plan that included: Education and Technical Assistance, Research and Development, and Data Base Development and Evaluation.

It is the position of IL SWCS that all abandoned wells and bore holes must be plugged so as to prevent any contamination from entering, circulating within, or leaving such structures. Wells and bore holes 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.

State regulations or applicable industry standards should be followed in plugging operations. The goal of plugging abandoned wells or bore holes is to restore the hydro-

geologic characteristics of the site and to prevent the abandoned well or bore hole from being a potential conduit for surface contamination or cross contamination of the aquifer.

Examples of wells or bore holes 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 bore holes drilled for oil and gas, mineral, geothermal, geological, geo-technical, or geophysical purposes, and blast holes.

IL SWCS further recommends that a well completion or decommissioning (sealing) report be submitted to the appropriate state agency following construction or decommissioning. Well owners should be held responsible and penalized for failure to decommission abandoned wells or bore holes in a timely and proper manner.

Regulations regarding proper decommissioning procedures and materials should be promulgated by an appropriate state agency along with needed enforcement powers. The state agency should work with local ground water industry members and consult applicable industry standards in developing regulations to minimize costs while promoting effective ground water protection.

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

POLICY POSITION:

The IL SWCS is concerned about the proper stewardship of groundwater resources of Illinois. Therefore, IL SWCS recommends a three stage approach to protect groundwater resources that includes: 1) provide information and education opportunities to increase awareness about groundwater protection problems; 2) develop networking relationship between individuals, groups, local, state and federal government entities to relate up-to-date information and treatment technology; and, 3) advocate stronger protection standards to eliminate the hazard of groundwater contamination through abandoned wells or improperly sealed bore-holes.

The Board of Directors of the IL SWCS recommends the following position regarding groundwater protection as related to abandoned wells, and bore holes based on the issues detailed in the preceding discussion:

Illinois Water Well Construction Code which requires the owner of a well, boring, or monitoring well to properly seal the well within 30 days after it is abandoned and no longer used, must be followed and enforced.

If a well or boring is in such a state of disrepair that it has the potential for transmitting contaminants into the groundwater or otherwise threatens the public health or safety, it must be sealed.

Where an abandoned well is found to contaminate another potable water well, the owner of the abandoned well is responsible for providing a safe and sufficient supply of water to the owner of the well that has been contaminated.

More effort should be placed on encouraging landowners to investigate, identify, and adequately seal abandoned wells.

Landowners who receive assistance from natural resource agency personnel should be made aware of abandoned wells or active wells present on their property during site inventories, practice implementation, and follow-up status reviews. Natural resource agency personnel should make the landowner aware of their responsibilities for protecting human safety and water quality by properly sealing any hazardous well.

REFERENCES:

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