



Abandoned wells pose safety hazards

Every so often abandoned wells capture widespread attention when a child falls into an open shaft and disappears. However, abandoned wells pose numerous safety concerns every day that don't receive as much attention as a dramatic rescue or fatal accident.

Wells can be found almost anywhere, especially in Iowa where rural communities and farms depend on them for drinking water. As small farms merge into larger ones, however, farmsteads are abandoned, leaving thousands of unused wells throughout the state. Communities also have developed extensive public water systems, making individual wells obsolete.

It's difficult to determine the number of abandoned wells in Iowa. County assessors' records show there may be at least 35,000 unused wells, and census data suggest many, many more than that. In 1900, there were about 250,000 active farms in Iowa, compared to only 102,000 in 1992. More than 145,000 farmsteads have been abandoned in Iowa since the turn of the century, and most had at least one well.

Old windmills or pump houses make some abandoned wells easy to spot. Others are hidden beneath grass, brush, or collapsed buildings. These hidden holes can lead to personal injury or equipment damage. Worse yet, many hand-dug or bored wells are large enough to trap an unsuspecting child, wild animal, or pet.

Abandoned wells also threaten groundwater quality. Layers of soil and rock that cap groundwater supplies naturally filter out silt, bacteria, and some chemicals. This protection is destroyed when open holes drilled through the protective layers allow contaminants to directly enter groundwater. Contaminants also enter nearby private water supplies through missing or defective well caps and leaky casings on abandoned wells.

The safe solution

The only way to reduce safety hazards and groundwater contamination caused by abandoned wells is to plug them. However, there's more to plugging a well than simply dumping something down an open hole.

Plugging materials must be strong, durable, and free from contaminants. To prevent migration of contaminants through the well bore and into valuable underground water sources, the well should be plugged with water-tight "sealing materials." When this is not economical, Iowa law allows "fill materials," such as clean sand, gravel, agricultural lime, or crushed stone, to be used with the sealing materials.

Effective well plugging calls for experience with well construction materials and methods, and a working knowledge of the geology of the well site. Inappropriate materials and methods can lead to settling, sudden collapse, and continued groundwater contamination. Once materials are in place, they're almost impossible to remove in correcting a defective job.

Farmstead safety

How much do you know?

1. Open, abandoned wells are dangerous because
 - a) bacteria and pesticides can enter them and contaminate groundwater.
 - b) people or animals can become trapped in them.
 - c) people could stumble on wells hidden beneath grass or brush.
 - d) farm equipment operators could mistakenly drive over them.
 - e) all of the above.
2. Wells abandoned since April 1990 must be plugged within 90 days. True or false?
3. According to Iowa law, landowners are responsible for plugging unused wells on their property. True or false?
4. County assessors' records show there may be how many abandoned wells in Iowa?
 - a) more than 35,000
 - b) about 20,000
 - c) about 10,000
 - d) less than 2,000

See answers on back.

Furthermore, most plugging operations require special tools to remove old pumps and piping, pumps to properly install sealing materials inside the well, and excavating equipment to remove the top four feet of casing, which is required by state law. Compacted soil also must be mounded over the well site to prevent water from collecting above the abandoned well.

Because of the difficulties, it is recommended that most wells be plugged by a certified well contractor. Check resources at the bottom of this page for more details.

State requirements

Recognizing the safety hazards caused by abandoned wells, the Iowa Legislature included well plugging in the 1987 Groundwater Protection Act. The Iowa Department of Natural Resources established a priority for plugging wells with highest priority given to wells that pose the greatest threat to personal safety and groundwater quality.

For more information

■ There's more to plugging a well than simply dumping something inside the casing. For more information and a description of the Iowa law, get a copy of the publication, *Successfully Plugging Your Abandoned Well*, PM-1328.

■ Service clubs and other groups wanting to learn more about abandoned wells may borrow an 18-minute slide/tape presentation, "Plugging Abandoned Wells."

In general, the law requires wells abandoned since April 25, 1990, to be plugged within 90 days of abandonment. Exceptions can be granted for wells designated as "standby wells," as long as they are in good repair and do not permit entry of contaminants. The responsibility for plugging an abandoned well falls on the landowner, although cost-sharing grants are available. More details are available at the bottom of this page.

For the future

It's difficult to convince every landowner to plug abandoned wells. Proper well plugging requires time and money, and costs vary considerably with well depth, diameter, and local geology.

Some people may say that well plugging is like "pouring money down the drain." However, open wells threaten safety and precious water resources. A few hundred dollars to plug an abandoned well could prevent contamination of drinking water or avoid a serious accident involving family or friends.

■ For more details about well plugging practices, obtain *Guidelines for Plugging Abandoned Wells*, Technical Information Series #15, from the Geological Survey Bureau of the Iowa Department of Natural Resources.

■ To see if grants are available for plugging wells, contact the county board of supervisors or the county environmental health officer.

Prepared by Tom Glanville, extension agricultural engineer. Reviewed by Charles Schwab, Extension farm safety and health specialist.

Farmstead safety

What can you do?

Open, abandoned wells are a safety hazard. Consider these tips to reduce your risks:

- ❑ Locate all abandoned wells in your operation. Look closely around old homesteads or buildings used for livestock.
- ❑ When you rent new property, contact landowners about well locations.
- ❑ Discuss location and dangers of abandoned wells with all family members and workers.
- ❑ Make sure all active and "standby" wells are in good repair and do not permit entry of contaminants.
- ❑ Get bids from certified well contractors to plug wells that are in bad repair or will not be used again.

Answers to quiz: 1-e; 2-True; 3-True; 4-a



Safe Farm is an Iowa State University Extension and Outreach project helping to make Iowa farms a safer place to work and live.

For more safety information, check the web at: www.abe.iastate.edu.

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