



Groundwater Remediation

Subjects

Groundwater cleanup, aquifer remediation

Audience

Legislators, governmental officials, environmental organizations, industry, general public

Background

Groundwater is a vast resource that underlies the Earth's surface. Forty-six percent of the U.S. population uses groundwater for their drinking water source, including virtually all rural residents. In addition, groundwater, provides much of the water used for irrigation and for industry. About a quarter of all U.S. rainfall becomes groundwater. Groundwater provides much of the flow of many streams; many lakes and streams are "windows" to the water table. In large part, the flow in a stream represents water that has flowed from the ground into the stream channel. It is estimated by the U.S. Geological Survey that about 30 percent of U.S. stream flow is from groundwater, although it is higher in some locations, and less in others.

About 90 percent of our fresh water supplies lie underground, but less than 24 percent of the water Americans use comes from underground sources.

Groundwater occurrence, including its vulnerability to contamination and its value and use as a resource, varies from place to place. In most cases, groundwater needs little or no treatment prior to use. However, in many instances natural groundwater quality is unsuitable without treatment. The vulnerability of groundwater to contamination depends on the hydrogeologic conditions, including the extent and location of the recharge

area, the depth of groundwater, the soil and rock composition overlying the aquifer, the recharge rate, and the specific properties of the chemical contaminants.

Groundwater contamination has been documented in every state of the United States. It is recognized that a wide variety of human activities may adversely impact the resource. Once groundwater is contaminated, it is often very difficult and expensive to clean up.

Issue

What is the appropriate response when groundwater contamination is detected?

Position

It is the position of the National Ground Water Association that where groundwater contamination is present, different standards for cleanup vs. protection may be appropriate depending on site-specific circumstances.

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Factors such as the potential for groundwater use, the importance of the resource for local water supply and the availability of alternatives, the technical feasibility of cleanup, risk analysis, and cost should influence the determination of an appropriate cleanup level. In some places, groundwater contamination will have little or no significant impact on human health or the environment. In other cases, the contamination will have to be accepted and managed because the situation is economically or technically irreversible. Our policies and programs should be sufficiently flexible and

practical to operate in recognition of these different situations, providing adequate effective protection for human health and the environment.

Contact

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References

Estimated Use of Water in the United States in 2000. U.S. Geological Survey Circular 1268, March 2004.

Ground Water Use for America, National Ground Water Association, August 2009.

Sustainability of Ground-water Resources, U.S. Geological Survey Circular 1186, 1999.

Dates

Originally adopted by the NGWA Board of Directors May 4, 1990, NGWA issue briefs are updated as needed to reflect changes in information, as noted here: technical amendment made February 4, 1992; brief reformatted August 2009; contacts updated April 19, 2012; technical update June 19, 2013; technical update July 21, 2014; technical update March 26, 2015; technical update February 24, 2016.

The National Ground Water Association is a not-for-profit professional society and trade association for the global groundwater industry. Our members around the world include leading public and private sector groundwater scientists, engineers, water well system professionals, manufacturers, and suppliers of groundwater-related products and services. The Association's vision is to be the leading groundwater association advocating for responsible development, management, and use of water.



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