Source Water Protection: Plain and Simple

Source Water Awareness

What is Source Water Protection

Source water protection has a simple objective: to prevent the pollution of the lakes, rivers, streams, springs and ground water that serve as sources of drinking water. It is part of the growing effort to protect drinking water sources before they become contaminated. Wellhead protection, for example, seeks to prevent the contamination of ground water that supplies public drinking water wells. Many States have successful wellhead protection programs in operation. Local governments promote source water protection of surface water through sound land management around a reservoir, using local land use planning and zoning authority as the key. Most source water protection programs address both surface water and ground water issues.

Particularly in rural areas, ground water protection is essential to preserve health and safety and to sustain the local economy. Half of all Americans, and more than 95 percent of the country's rural population, depend on underground sources for their household water supplies. Ground water provides about half of all agricultural irrigation and a third of the water needs for industry. The other half of the population gets its drinking water from surface water supplies. This includes most of the larger metropolitan areas of the United States.

For generations, water quality was taken for granted. The passage of the Clean Water Act of 1972 initiated the first concerted federal effort to recognize and address water quality issues. Since then, the nation has made much progress and learned a lot about where pollution comes from and how it may be controlled.

The Safe Drinking Water Act (SDWA) amendments of 1996 extended our understanding of drinking water issues once again, with their focus on preventing contamination, rather than simply removing it when detected.

Source Water Protection Process

But moving from treatment to prevention will be a real challenge for local governments. Except when contamination occurs, drinking water has largely been out of sight and out of mind. The SDWA, however, initiated a two-stage process to develop a coordinated, national Source Water Protection initiative.

First, all public water systems (PWS) will receive a *source water assessment* of potential contaminant problems. These reports will be provided under each State's Source Water Assessment Program (SWAP). (Many States will provide public water systems or communities in which they are located with the opportunity to conduct parts of the assessment or to enhance the State's assessment by supplying more detailed local information.)

Second, public water systems will be strongly encouraged to develop appropriate *source water protection plans* based on the assessment results. These plans may be drawn up either individually, or in partnership with neighboring systems in the water-

shed. EPA has set a goal that by the year 2005, 50 percent of all community water system (CWS) customers will be served by systems with source water protection in place.

The risk of possible drinking water contamination, however, remains high almost thirty years after the passage of the original Clean Water Act. The U.S. Environmental Protection Agency reports that, "more than 80 percent of all drinking water systems report having at least one potential source of contamination within two miles of their water intake or well."

An overwhelming number of the SWAPs propose to pay for all or a substantial portion of the cost for local assessments with the funding available through the 1997 Drinking Water State Revolving Fund (DWSRF) allocation. The source water protection, or problem-solving stage, however, will depend largely on local leadership and local dollars. While the 1997 DWSRF allocation was targeted only for assessments, clearly Congress intended for these assessments to lead to action.

Here are the six basic steps that lead to source water assessment and protection:

- delineating source water protection areas;
- identifying sources of contamination within those delineated areas that may impact the public water system;
- determining susceptibility to the contaminants or the contaminant sources identified;
- making the results of the assessments available to the public;
- implementing measures to manage the identified sources; and
- establishing a contingency plan for responding to contamination incidents and planning for the future.

Source water protection clearly helps safeguard community water supplies and may save money in treatment costs. Despite obvious health and economic benefits, EPA reports that just over five percent of the nation's public water systems have instituted protection measures. Unquestionably, the private and public sectors and individual citizens are the key stakeholders in source water protection. It is the people living and working in communities across the country who have the most to gain or lose from the quality of their drinking water.

Many public drinking water systems are operated on a private, non-profit or special district basis. Yet local governments that are not directly involved in providing drinking water must still take the lead in preventing contamination. Towns, townships, small cities and counties may possess or share the legal authority for enacting and enforcing protection measures that include:

- zoning and other land use controls;
- point source pollution restrictions, requirements or controls for fixed sources, such as waste processing plants;
- health regulations (including sanitary setbacks for septic tanks or sewer lines from drinking water wells);

- land acquisition authority that provides protective zones around water sources;
- best management practices (ensuring that municipal operations, for example, do not impact drinking water supplies through such activities as pesticide application, dispensing fuel, etc.); and
- public education and outreach campaigns.

The list above includes mandatory and voluntary measures that must be carried out by individuals, local government, agriculture, business and citizen organizations. Therefore, these efforts will only succeed when local elected leaders enlist the broadest possible range of community support.

Benefits of Source Water Protection

Since source water protection is a new approach, there is little data on its long-term financial benefits. Benefits can be measured in terms of what the costs might be, if this protection was not provided. Some of the areas for which costs can be estimated are: increased treatment; remediation; consulting services; and staff time. There also may be significant costs to satisfy public and media interest and concern, if source water contamination does occur. The most dramatic costs involve locating a new water supply and the legal costs of litigating those responsible for contamination of an existing well or reservoir. Even if only a part of a town's water supply is lost, diminishing the reserves from other sources and installing new lines all have their costs.

Communities with effective source water protection programs may also enjoy substantial savings in complying with SDWA regulations. Source water protection programs, for instance, could help water suppliers avoid costs related to the Disinfection Byproducts Rule: cleaner source water simply requires less disinfection, thereby reducing the costs for removing byproducts related to disinfection. Water suppliers with source water protection programs in place may also be eligible for waivers from periodic monitoring requirements. Such waivers have already saved water systems in Massachusetts over $75 million in three years. Under the Surface Water Treatment Rule's filtration waiver program, huge savings are potentially available to surface water systems with good source water quality and a working source water protection program. In Maine, 15 systems saved an average of $7 million each in capital costs by avoiding filtration.

Safe drinking water is essential to community quality of life and to continued economic growth. Source water protection helps maintain real estate values in areas served by protected water supplies. When water supplies are not safe, towns may have to calculate the revenues lost in foregone tax revenues and new jobs because businesses refuse to locate or remain in communities with known or suspected problems.

Public Water Systems

Let's look briefly at the universe of public water systems that are affected by the source water protection measures in the SDWA. Each of these systems can benefit when the whole community joins in a concerted protection effort.

Most people receive their drinking water from the nation's nearly 175,000 public water systems (PWS). These systems range in size from regional utilities that serve millions of customers

to privately constructed operations that may supply a single trailer park. By definition, these systems must serve a minimum of 25 customers or have at least 15 service connections. Within this grand total, are nearly 55,000 community water systems (CWS) that provide year round service to about 80 percent of all public water consumers. Local governments may own and operate a CWS or may be served by a CWS that is operated on a private or non-profit basis. In some States, water is supplied either through special districts that may be created by local government, or through independent authorities serving more than one jurisdiction.

The remaining 20 percent of public water consumers are served by either *non-transient, non-community water systems* (NTNCWS) that provide water to a relatively unchanging clientele at locations such as businesses and schools, or by *transient, non-community water systems* (TNCWS) that serve the travelling public at camp grounds, motels and restaurants. Federal requirements apply only to those non-community systems that operate at least six months out of the year. In 1996, there were approximately 20,000 NTNCWS and 96,000 TNCWS. Many of these systems are small, with limited financial and management capacity, and may have difficulty meeting the full range of federal requirements. Local leaders should be in contact with these systems, if there are any plans for consolidation or regional approaches to water supply and protection.

Conclusion

Since the beginning of time, a safe and dependable source of water has been a major factor in where people settled. Currently, we depend on wells, springs, reservoirs, lakes, streams and rivers for our ever-expanding need for water. Once a water source is located, we usually do not question its safety and dependability. If the drinking water looks good, tastes good and smells good, we assume it is safe to drink. Progress, however, has not left water in its natural state.

In the last century, both population and business activity have exploded. Yet there is no more fresh water today than there was a million years ago. While 70 percent of the earth is covered with water, 97 percent is salt water. Of the three percent that is fresh water, two thirds is frozen. Industry, agriculture and the growth of cities have all contributed to greater use and greater contamination of water sources. Many places in this country face a critical water shortage, at the same time that the quality of their water is at risk. Until recently, public water systems have relied on testing and treatment to provide safe drinking water. The passage of the SDWA brings a new focus on prevention and protection. Source water protection is the first line in preventing drinking water contamination and the cornerstone of efforts to save future costs in treatment and possible replacement of local water supplies.

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This material has been drawn from *A Small Town Source Water Primer* published by the National Center for Small Communities. It may be downloaded from: *<http://natat.org/ncsc/Action%20Guide/WebBlurb.htm>*

The guide explains how source water protection can help local elected leaders and other decision-makers maintain a safe, affordable water supply for home, business, agriculture and recreation.

For more information, contact the National Center for Small Communities at (202) 624-3552 or the International City/County Management Association at (202) 962-3585.

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