



# Protecting Drinking Water Sources



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The 1996 Amendments to the Safe Drinking Water Act (SDWA) took a major new step in drinking water protection by mandating that states perform a source water assessment for each public water system. States are responsible for completing assessments for public water systems in major metropolitan areas, small towns, schools, restaurants, and other public facilities that have a well or surface water supply. (Private wells are not included in this effort.)

After a state's Source Water Assessment Program (SWAP) is approved by the United States Environmental Protection Agency (US EPA), the state has two years, with a possible 18 months extension, to conduct an assessment for each public water system and make these assessments available to the public. US EPA has approved 52 SWAP programs. States must complete all the assessments in the state no later than 3 years after US EPA approves the programs.

The source water assessment programs established by each state differ, depending on the nature and threats to the water resources and the drinking water program priorities in a particular state. However, each assessment program must include four major elements:

- delineating (or mapping) the source water protection areas
- conducting an inventory of potential sources of contamination in those areas
- determining the susceptibility of public water systems to those contamination sources
- releasing the results of the determinations to the public

Following successful completion of these elements for each assessment, communities can use the resulting information to identify priority actions for protecting their drinking water sources.

## Source Water Assessments

The four assessment steps are described in more detail below.



### Step 1:

Delineate the source water assessment area

For each ground water well or surface water system that supplies public drinking water, states must delineate and map the boundaries of each protection area.

For ground water systems, states commonly use available information about ground water flow and recharge to determine the source water protection area around a well or well field.

For surface water systems drawing water from a stream, river, lake, or reservoir, the land area in the watershed upstream of the intake is identified on a map. A topographic map is used to identify the perimeter of the area that provides water to the water system's intake. Some states plan to divide the watershed area into segments—areas that are closest to the intake where most types of contamination sources may be found to be significant, and other more distant areas. The entire watershed area up to the state's boundaries is required to be delineated and mapped, but the level of detail in the inventory of potential pollution sources and the susceptibility determination can vary in the different segments. Coordination across state boundaries is encouraged where appropriate.

### Step 2: Conduct an inventory of potential sources of contamination

In the second step of an assessment, the state identifies the potential sources of pollutants that could contaminate the water supply. This inventory

usually results in a list and a map of facilities and activities within the delineated area that may release contaminants into the underground water supply (for wells) or the watershed of the river or lake (for surface water sources).

Some examples of the many different types of potential pollutant sources include landfills, underground or above-ground fuel storage tanks, residential or commercial septic systems, urban runoff from streets and lawns, farms and other entities that apply pesticides and fertilizers, and sludge disposal sites.

### **Step 3:** Determine the susceptibility of the water supply to contamination

In the third step—the susceptibility determination—the state combines the inventory results with other relevant information to decide the likelihood of contamination of the water supply by the identified significant potential sources of contamination. This critical step makes the assessments useful for communities. It helps local decision-makers consider priority approaches for protecting the drinking water supply from contamination. Some states prioritize the potential for contamination from the specific potential contamination sources or to individual chemicals that could pollute the water. Other states assign a susceptibility ranking of high, medium, or low to the water sources.

### **Step 4:** Provide the assessment results to the public

After the state completes the assessment for a particular water system, it will summarize the information for the public. Such summaries will help communities better understand the potential threats to their water supplies and identify priority needs for protecting the water from contamination. This summary information must be included in water systems' Consumer Confidence Reports (annual water quality reports). Local communities, working in cooperation with local, regional, and state agencies, can use the information gathered through the assessment process to create a broader source water protection program to address current and future threats to the quality of their drinking water supplies.

## **Source Water Protection**

While source water protection was not specifically mandated by SDWA, US EPA and its partners encourage states, tribes, and communities to use the information from source water assessments to protect the delineated source water protection areas from identified pollution sources of major concern. Using a partnership approach, community groups and local officials can plan how to best manage those identified potential sources and prevent new contaminant threats in the source water area.

Many source water protection areas will include multiple jurisdictions, i.e., the city or county where the source water intake or wellhead is located, and other

towns, counties, or states upstream or upgradient from the public water system. Local political authorities may be able to adopt protection measures within their jurisdiction, but to achieve effective protection beyond their boundaries, they will usually have to work with neighboring jurisdictions or federal or state authorities.

Communities use a wide array of different source water protection methods to prevent contamination of their drinking water supplies. One management option involves regulations, such as prohibiting or restricting land uses that may release contaminants in critical source water protection areas. Along with regulations, many communities hold local events and distribute information to educate and encourage citizens and businesses to recycle used oil, limit their use of pesticides, participate in watershed cleanup activities, and a multitude of other prevention activities. Another aspect of a source water protection program can be the purchase of land or the creation of conservation easements to serve as a protection zone near the drinking water source. For an effective protection program, communities should consider using a variety of prevention measures.

To assist their efforts to protect areas which surround surface water sources of drinking water, local authorities can look to Section 303 of the Clean Water Act. This section requires each state to review its water quality standards every three years. The review must consider the "use and value" of the water as a drinking water supply. States that adopt water quality standards to protect all public water supplies and prospective supplies can enforce these standards under state and federal law to control pollution.

To augment local ground water protection efforts, some states use ground water quality standards that work much like the Section 303 program for surface water. Some states also use a permit program to regulate pollution that can contaminate ground water. The federal Underground Injection Control (UIC) program regulates the use of wells as a means to dispose of waste, and the Resource Conservation & Recovery Act (RCRA) regulates the management of hazardous and non-hazardous waste that can contaminate ground water.

### **For More Information:**

For further information on your state's source water assessment program and how to participate, contact the agency in your state that is managing the program. Call the Safe Drinking Water Hotline at 1-800-426-4791, or visit the safewater web site at [www.epa.gov/safewater](http://www.epa.gov/safewater) for more information, state contacts, and links to other organizations that may be active with source water protection in your area. Your local water supplier may also have more information about opportunities to become involved in the source water assessment process. You can call the phone number on your water bill or contact your local health department for information on your water supplier.