OFFICE OF INSPECTOR GENERAL

Catalyst for Improving the Environment

Evaluation Report

Source Water Assessment and Protection Programs Show Initial Promise, But Obstacles Remain

Report No. 2005-P-00013

March 28, 2005

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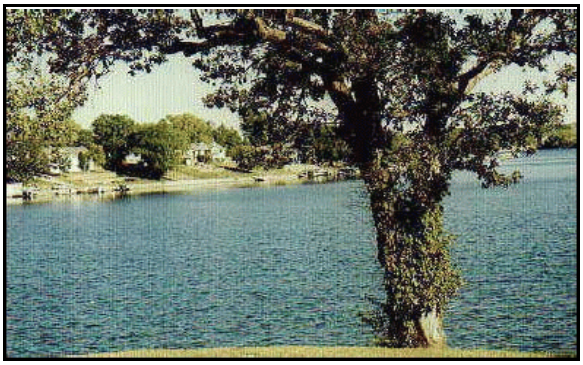
Abbreviations

BLM	Bureau of Land Management
DWSRF	Drinking Water State Revolving Fund
EFC	Environmental Finance Center
EPA	Environmental Protection Agency
IDEQ	Idaho Department of Environmental Quality
MOU	Memorandum of Understanding
NDEQ	Nebraska Department of Environmental Quality
NRWA	National Rural Water Association
OGWDW	Office of Ground Water and Drinking Water (EPA)
OIG	Office of Inspector General
PWS	Public Water System
RWA	Rural Water Association
SDWA	Safe Drinking Water Act
SWAP	Source Water Assessment Program
SWAPP	Source Water Assessment and Protection Programs
SWPP	Source Water Protection Program
TDEC	Tennessee Department of Environment and Conservation
USFS	United States Forest Services
WHPP	Wellhead Protection Program

Cover photo: Cleveland Utilities, Tennessee Wellhead Protection Area.
Photo below: Beaver Lake, Nebraska, reservoir.
(Both photos by EPA Office of Inspector General)



U.S. Environmental Protection Agency
Office of Inspector General

2005-P-00013
March 28, 2005

At a Glance

Catalyst for Improving the Environment

Why We Did This Review

We conducted this review to determine how well the Source Water Assessment Program (SWAP) and the voluntary Source Water Protection Program (SWPP) are helping to protect public drinking water quality.

Background

The Safe Drinking Water Act Amendments of 1996 provide the means to protect the Nation's drinking water at its source. With SWAP, EPA requires States to conduct source water assessments to analyze existing and potential threats to public drinking water quality. SWAP intends for States to follow the assessment process by developing protection programs. Though source water protection is not mandated by the statute, EPA's SWPP supports States and communities in these efforts.

For further information, contact our Office of Congressional and Public Liaison at (202) 566-2391.

To view the full report, click on the following link:

www.epa.gov/oig/reports/2005/20050328-2005-P-00013.pdf

Source Water Assessment and Protection Programs Show Initial Promise, But Obstacles Remain

What We Found

Source water assessments are being used by (1) some States to improve the overall drinking water protection program by prioritizing protection efforts and program resources, and by (2) assistance organizations in education and outreach efforts in developing and implementing protection measures. However, at the local level, assessment use is limited. While seen as a good starting point, some limitations of the assessments themselves and other barriers hinder their potential for success in leading to local-level initiation and implementation of source water protection measures.

While States continue to make progress on completing source water assessments and many are developing and implementing source water protection strategies, we have identified several obstacles that hinder States' efforts to protect source water. Despite EPA's best efforts, the program remains vulnerable. For the SWAP and SWPP to support drinking water protection over the long term, EPA needs to develop a more secure and consistent funding source. States and local entities will also have to rely strongly on intra- and inter-agency coordination, program integration, partnerships, and collaborative efforts to leverage human and financial resources, technical assistance, and outreach to utilities and communities.

What We Recommend

To improve the success of Federal, State, and local source water protection programs, we recommend that the Assistant Administrator for Water:

- Issue a public statement to re-affirm that the Source Water Assessment and Protection Programs are a priority for EPA.
- Encourage States to target assessments not only to utilities, but also to local governments, councils, planners, building and zoning officials, and other stakeholders.
- Provide guidance to States on how to leverage financial and technical resources from other EPA programs, partners, and stakeholders.
- Continue to improve cooperation and coordination between States and EPA assistance contractors.
- Work with Regions and States to (1) integrate environmental programs and (2) determine how best to disseminate locally-applicable best practices for contaminant source management and motivation.

EPA generally agreed with our findings and recommendations and in some cases has taken actions to address them.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
INSPECTOR GENERAL

March 28, 2005

MEMORANDUM

SUBJECT: Evaluation Report: Source Water Assessment and Protection Programs Show Initial Promise, But Obstacles Remain
Report No. 2005-P-00013

FROM: Dan Engelberg /s/
Director of Program Evaluation, Water Issues

TO: Benjamin Grumbles
Assistant Administrator for Water

This is our final report on the Source Water Assessment and Source Water Protection Programs conducted by the Office of Inspector General (OIG) of the U.S. Environmental Protection Agency (EPA). This report contains findings that describe the problems the OIG has identified and corrective actions the OIG recommends. This report represents the opinion of the OIG, and the findings contained in this report do not necessarily represent the final EPA position. Final determinations on matters in this report will be made by EPA managers in accordance with established audit resolution procedures.

On January 25, 2005, the OIG issued a draft report to EPA for review and comment. A response was submitted on March 4, 2005, and an exit conference was held on March 10, 2005. EPA agrees that source water assessments have potential to improve drinking water protection, while acknowledging that the assessment content, utility, and availability can be improved. EPA also agrees that moving from assessment to voluntary protection will require substantial effort, including State and local capacity building, program integration, and inter-agency coordination. EPA generally concurred with our recommendations and in some cases has taken actions to address them. EPA provided an update on State assessment completion progress and details as to the actions the Agency is taking to support State and local protection efforts. The OIG has incorporated these comments, as well as technical corrections and supplemental information provided by EPA, into the final report.

Action Required

In accordance with EPA Manual 2750, you are required to provide a written response to this report within 90 calendar days of the date of this report. You should include a corrective action plan for agreed upon actions, including milestone dates. We have no objections to the further release of this report to the public. For your convenience, this report will be available at http://www.epa.gov/oig. In addition to providing a written response, please e-mail an electronic version to Brass.Ira@epa.gov.

If you or your staff have any questions regarding this report, please contact me at (202) 566-0830 or Ira Brass at (212) 637-3057.

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Appendices

Chapter 1
Introduction

Purpose

Our overall evaluation question was to determine how well the Source Water Assessment and Protection Programs (SWAPP) were protecting public drinking water quality. We addressed the following questions:

- What is the status of source water protection implementation?
- How effective are source water assessments in assisting States and communities to successfully implement drinking water protection measures?
- What is the potential for the SWAPP to support State and local water protection goals?

Background

The Safe Drinking Water Act (SDWA) Amendments of 1996 (Amendments) aim to protect the nation's drinking water at its sources (source water) to reduce water treatment costs and risks to public health. The term "source water" refers to untreated water from streams, rivers, lakes, or underground aquifers that supplies private wells and public drinking water.

The SDWA Amendments require each State to develop a source water assessment program. A State source water assessment program serves as a plan to analyze existing and potential threats to public drinking water quality. Examples of threats to drinking water include pesticide and nutrient run-off from agricultural lands, petroleum from leaking underground storage tanks, and pathogens from failing septic tanks. At the Federal level, the EPA Drinking Water Protection Division of the Office of Ground Water and Drinking Water (OGWDW) administers the Source Water Assessment Program (SWAP) along with EPA's 10 regional drinking water programs to assist States in the assessment process**.** SWAP is one of several provisions of the Amendments (including water system operator certification, capacity development, funding for infrastructure improvement, and public education) aimed at protecting drinking water.

Once an assessment is completed for each public drinking water source, the expectation is that they can be used to develop and implement drinking water protection activities so that contamination and subsequent health impacts and/or water supply closure may be avoided. EPA's Source Water Protection Program (SWPP) is intended to support States and local entities in protection activities. However, protection is not mandated by the Amendments; the SWPP relies on voluntary State and local efforts. Responsibility for source water assessment and

protection programs at the State level is assigned to either environmental or health agencies. The principle underlying these programs is that prevention is more effective and efficient than treatment. The ultimate goal of an assessment and protection program is to prevent public drinking water source contamination, subsequent expensive treatment, and consumer health threats.

SWAP was intended to encourage States and local entities to form voluntary partnerships to develop source water protection strategies. This voluntary approach is encouraged because protection of source water requires attention to land use activities to control non-point sources of pollution. Land use decisions are typically made at the local level because of the authority granted to municipalities by States. It is therefore difficult for State and Federal governments to intervene in such decisions.

Every State has the opportunity to access Federal money [a portion of the Drinking Water State Revolving Fund (DWSRF)] to accomplish source water assessment and protection efforts. Up to 10 percent of a State's DWSRF may be set aside for State program management and to support source water protection programs (31.5 million expended through June 2004). Funds could also be made available from a State's capitalization grant for local protection activities, land acquisition and conservation easements, voluntary incentive-based source water protection programs, or for continued implementation of other drinking water protection activities, such as State wellhead protection programs ($66.7 million expended through June 2004).

Drinking water sources are facing large and growing threats. Because water is the universal solvent, many materials that are produced or discharged are readily dissolved, and can then be transported into streams or aquifers that are used as drinking water sources. If detected and found to exceed drinking water standards, this contamination can result in wells being shut down or necessitating expensive treatment to remove the pollutants. If undetected, or if no drinking water standard covering the pollutant exists, this contamination could subject consumers to health risks.

Across the nation, numerous wells have been closed as a result of source water contamination. For example, according to press reports, drinking water supply wells in Escambia County, Florida, have been contaminated with dry cleaning solvents, pesticides, or petroleum products from Superfund hazardous waste sites, dry cleaning facilities, and petroleum storage tanks. The contamination has

resulted in a moratorium in constructing new wells in the vicinity of the Superfund site, well closures, and water filtration. This demonstrates that even inadvertent behaviors can endanger drinking water sources.

In another recent case in Iowa, drinking water wells were shut down after EPA detected the chemical perchlorate. EPA believes that this contamination may have happened when partially exploded fireworks that were ground up during a harvest released the chemical, which then migrated to the groundwater. Clearly, controlling sources of contamination is extremely complex because effective protection involves individual behavior to a greater extent than other environmental protection activities. This situation raises difficult issues of the rights of individuals and governments.

Source water protection is just one component of the multiple-barrier approach to providing safe drinking water (including source water protection, treatment as appropriate, distribution system maintenance, and monitoring). Drinking water quality depends on the effectiveness of Federal and State regulations in place to protect surface and groundwater, local land use decisions, commercial sector operations, and can be negatively affected by the actions of individual citizens. Therefore, even if SWAPP were effectively executed, it cannot protect all sources, nor ensure safe drinking water.

Scope and Methodology

We conducted our evaluation from May 2004 through November 2004 in accordance with *Government Auditing Standards*, issued by the Comptroller General of the United States. To gain a broad perspective of source water protection activities, we interviewed staff at EPA's OGWDW and all 10 Regions. We also interviewed officials in State environmental and/or health offices in Colorado, Delaware, Nebraska, New Hampshire, and Tennessee; officials of local governments, utility districts, and watershed groups in those States; industry and assistance organizations; and representatives of two Federal agencies, the United States Forest Service and Bureau of Land Management. We list all participants we visited and interviewed in Appendix A.

We conducted structured interviews with all participating Regions and States. Regions were provided with a questionnaire in advance to aid the discussion. We reviewed and analyzed SWAP plans to determine the source water protection approach States had in place or were planning to develop, local protection plans, and land use regulations.

We selected the States based on several factors, including (1) differing protection approaches, (2) geographic diversity, (3) varying assessment and implementation progress, and (4) varying water quality and management issues. We avoided selecting any States visited during our preliminary research (included in the recent report discussed below) and those States visited by other Office of Inspector General (OIG) water assignment teams during the course of our field work. To aid in our decision making, we sought advice of OGWDW and Regional officials because of their greater familiarity and broader view of the overall program. We also sought advice from State officials in selecting the localities we visited. Our findings and recommendations are based on visits and interviews conducted during preliminary research and fieldwork. Although our conclusions are drawn from commonalities among participants, this study did not employ a statistical sampling approach.

On May 27, 2004, the OIG issued *States Making Progress on Source Water Assessments, But Effectiveness Still to Be Determined* (Report No. 2004-P-00019), detailing our preliminary research work on source water assessments. Only 40 percent of the States had fully completed their community water system assessments and made them public by September 30, 2003. Still, the States had made significant progress since 2002; the States we visited were working hard toward completing the task. The assessments appeared to have been beneficial. While State approaches differed, the consensus was that the information obtained from the assessment process and the quality of the assessments were sufficient to lead to protection efforts, and that the assessments could be incorporated into other water quality management programs. Nonetheless, several stakeholders raised concerns about the usefulness of some assessments. We also found that EPA's program measures evaluated process rather than results, and that States were unsure how to balance the program requirement of public availability of the assessments with security concerns.

We recommended that in the EPA/State workgroup discussions to finalize the SWAP measures and reporting requirements, EPA should revisit the State agency concerns raised in this report, solicit and evaluate alternatives, and resolve the concerns to the satisfaction of the group. We also recommended that EPA continue its effort to develop and issue guidance for States on what information is appropriate for release to the public. EPA generally agreed with our recommendations and has indicated it is taking appropriate corrective actions.

Results in Brief

States continue to progress in completing source water assessments and many are developing and implementing a variety of source water protection strategies. We found that States and assistance organizations are using source water assessments in education and outreach efforts in developing and implementing protection measures. However, assessment use has been limited at the local level. While

States see assessments as a good starting point, limits of the assessments themselves and other barriers hinder their potential for success in leading to local-level initiation and implementation of source water protection measures.

Several obstacles have been identified that hinder States' efforts to protect source water. These obstacles are such that despite EPA's best efforts, the program is vulnerable. For SWAPP to support drinking water protection over the long term, a more secure and consistent funding source will be necessary. States and local entities will also have to rely strongly on intra- and inter-agency coordination, program integration, partnerships, and collaborative efforts to leverage human and financial resources, technical assistance, and outreach to utilities and communities.

The EPA Office of Water, in its response to the draft report (March 4, 2005), agreed that source water assessments have the potential to improve drinking water protection, while acknowledging that the assessment content, utility, and availability can be improved. EPA also agreed that moving from assessment to voluntary protection will require substantial effort, including State and local capacity building, environmental program integration, and inter-agency coordination. EPA generally concurred with our recommendations and in some cases has taken actions to address them.

Chapter 2
States Making Progress on Assessments and Protection, Though Obstacles Exist

States continue to make progress on completing source water assessments. Many are developing and implementing source water protection strategies, and States are using a variety of approaches to source water protection, including outreach and technical assistance, regulations, watershed management, wellhead protection programs, and integration with Clean Water Act and Resource Conservation and Recovery Act programs. Nonetheless, obstacles exist that hinder States' ability to ensure drinking water quality.

States Making Progress on Assessment and Protection

According to the 1996 SDWA Amendments and EPA guidance, States were required to complete their source water assessments and make them available to the public within 2 years of EPA approval of a State source water assessment program plan. Draft plans were due to EPA for review by February 1999, and EPA was to approve the assessment program plans within 9 months. Therefore, a plan submitted to EPA by February 1999 and approved 9 months later (November 1999), would mean that the assessments would be expected to be completed by November 2001. However, SDWA allowed an 18-month extension to this 2-year timeframe (to May 2003), which many States received. Approximately 60 percent of the scheduled deadlines fell on or before May 2003, though scheduled deadlines ranged from January 2003 to June 2004. Although not required, States were then expected to begin developing a source water protection approach, as outlined in their EPA-approved assessment plan. States had a great deal of flexibility in how to proceed toward source water protection.

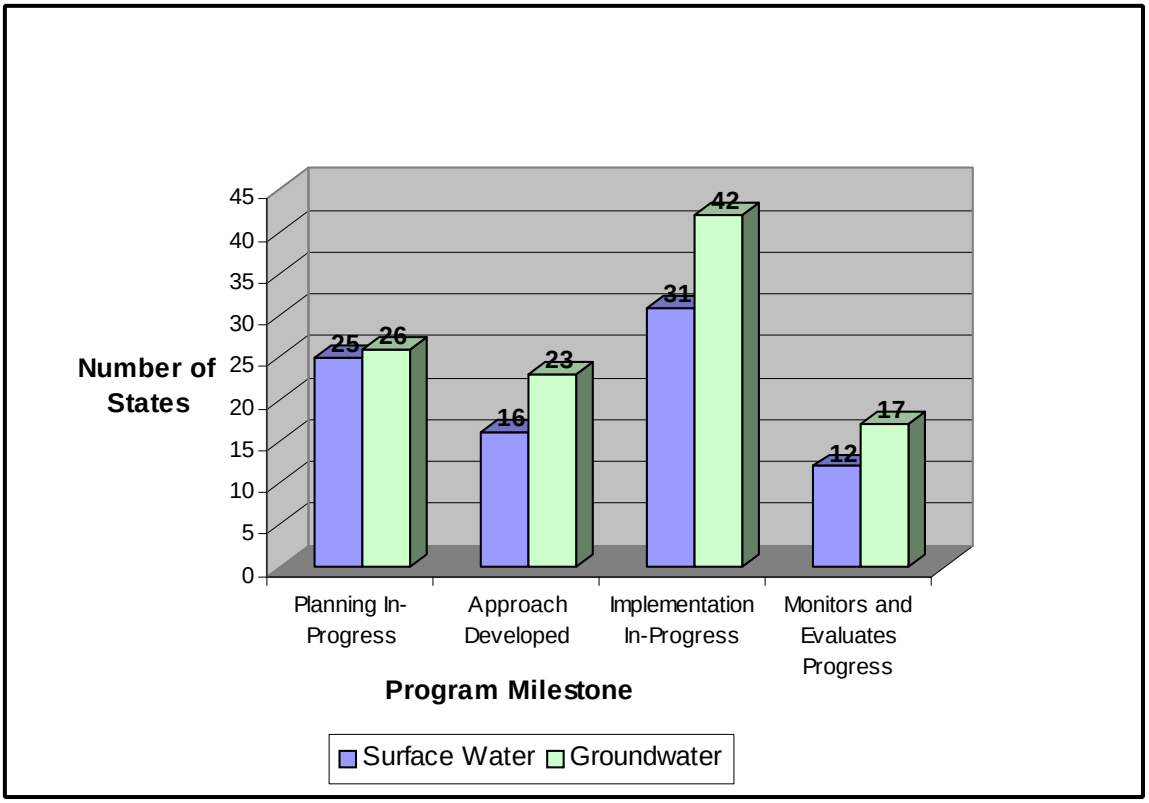
EPA OGWDW reports that as of February 2005, States have completed assessments for 93 percent of community drinking water systems and 83 percent of non-community systems (86 percent of all assessments are completed). Thirty-four States, plus Washington D.C, have completed community and non-community system assessments and have made them available to the public (for details see Appendix D-Agency Response). Twenty States had completed community systems only as of September 2003**.**

States are at various stages of developing and implementing source water protection strategies. The number of States implementing protection strategies is greater than the number that have developed approaches because some States are involved in these activities simultaneously. Many more States are planning and implementing groundwater than surface water protection because they had an

active Wellhead Protection Program (WHPP)[1] in place prior to the SWAP. A State WHPP is similar to a State SWAP. Some States are using their WHPP as a framework to develop a surface water protection strategy, but progress can be delayed when groundwater and surface water programs are managed by different agencies or divisions. Twelve States have not yet begun to develop a surface water protection strategy, compared to three for groundwater. In these cases, drinking water may be protected indirectly in some areas through watershed management programs. However, EPA Regional officials did not necessarily report these activities as a State source water protection approach.

Figure 2.1 shows State implementation progress to date as reported by EPA OGWDW. Our study did not evaluate the effectiveness of protection activities in preventing contamination.

Figure 2.1: Source Water Protection Status



[1] WHPP was established in 1986 by the SDWA; it is a pollution prevention and management program used to protect underground based sources of drinking water. All States, except Virginia, have EPA-approved State WHPP programs

States Are Using a Variety of Approaches to Source Water Protection

Though the SDWA and EPA do not mandate that States implement source water protection, the SWAP intended for States to follow the source water assessment process by developing protection programs. There are many approaches States may take with varying degrees of State involvement and coordination with other programs. State approaches to source water protection generally fall into four categories, though these are not mutually exclusive. The majority of States use a combination of approaches. Examples of the approaches used alone or as part of a State strategy are as follows:

State-Driven Local Management Approach

The State is proactive in assisting communities and public water systems (PWS) with financial, technical, and/or administrative support in protection efforts, education and outreach, and/or other guidance; the State has a law requiring protection, e.g., water systems must complete Source Water Protection Plans; and/or the State regulates development and/or other activity within source water protection areas or designated buffer zone.

State-Driven Local Management Approach
Nebraska manages a Source Water Protection Grant Program ($200,000/year) and funds Natural Resource District representatives to assist communities in developing and implementing WHPPs.

Comprehensive Approach

The State uses a watershed approach, comprehensive aquifer protection program, or wellhead protection program that minimizes risk from various potential contaminant sources.

Comprehensive Approach
Washington State's Growth Management Act requires ordinances to classify, designate, and regulate land use in order to protect critical aquifer recharge areas and watersheds.

Integrated Approach

The State uses its assessment and protection program to highlight or better integrate drinking water protection goals into ongoing water quality management and other environmental programs; or the State uses assessment information to prioritize resources and promote drinking water and environmental protection goals across State and Federal agencies.

Integrated Approach
In Idaho, the Clean Water Act and SDWA are integrated through using Nonpoint Source Pollution grants to prioritize and fund groundwater and surface water protection projects.

Local Initiation Approach

The State provides assessment information only; will assist communities that express interest or ask for technical assistance, but provides little or no active support in assisting communities and PWS to develop or implement source water protection activities.

Local Initiation Approach
In California, protection initiation and decision-making are locally driven. However, voters passed Proposition 50 in 2002, which provides $14 million in State grants for drinking water protection.

These approaches are not mutually exclusive; over one-half of the States are using a combination of approaches. For example, Region 1 States have Comprehensive State Groundwater Protection Plans whereby groundwater protection is integrated throughout environmental programs (comprehensive and integrated approaches) and also include an education and outreach component (State-driven management approach). Although some of the State source water protection strategies have been in place prior to SWAP, such as in Region 1 States, EPA Regional officials note that as a result of SWAP, there is an increased awareness of the location and significance of source water areas and that the process has benefitted existing programs.

Of the many source water protection approaches States are employing, the most common are the comprehensive and State-driven management approaches. EPA Regions report that of the 40 States developing or implementing a surface water protection strategy, 26 States are using a comprehensive approach either alone or in concert with other approaches. Of the 48 States developing or implementing a groundwater approach, 31 are incorporating a comprehensive approach.

According to EPA Regional officials, a similar number of States are employing a State-driven management approach alone or as part of their overall strategy (26 and 30 for surface and groundwater, respectively). The State-driven management approach may consist of outreach and education efforts. For example, in Tennessee and Nebraska, State SWAP managers and partner assistance organizations visit communities and facilitate developing protection plans to address potential contaminant sources. This approach may also include enacting State regulations, such as in Delaware, where State law requires communities with populations over 2,000 to pass land use regulations to protect drinking water sources by 2007. Fourteen States have incorporated a regulatory component to their source water protection strategy. Table 2.1 below shows State approaches being implemented throughout the country.

Table 2.1: State Source Water Protection Approaches

Source Water Protection Approach	No. of States[1] that include this approach as part of their source water protection program[2]	
	Surface water protection	***Groundwater protection***
State-driven Local	26	30
Comprehensive	26	31
Integrated	19	21
Local Initiation	8	9

[1] Includes those States (plus Puerto Rico and Washington, DC) that have either developed or are developing a source water protection approach (40 for surface water and 48 for groundwater).

[2] Numbers will be greater than 40 or 48 because many States employ multiple protection approaches.

Obstacles Hinder State Efforts to Protect Source Water

While we found that States are making progress on assessment completion and protection planning and implementation, we have identified several obstacles that hinder State efforts to protect source water. We asked EPA Regional officials to identify the most significant challenges their States face in both initiating and implementing a source water protection strategy. (In Appendix B, we list the challenges we provided to EPA Regions.) Regional officials reported the most significant challenges as:

- Lack of financial resources;
- Lack of human resources;
- No direct EPA legal authority for source water protection; and
- Lack of authority of States to require protection.

Several Regions noted the link among the lack of financial and human resources, competing interests, and absence of an EPA mandate for protection. For example, Region 7 officials stated that State revenues are declining in all four of their States, which limits the ability of States to conduct the necessary public outreach. Region 9 officials noted that given the many mandates States must comply with to ensure drinking water quality and other environmental protections, as well as regulations outside the environmental sector, voluntary programs such as source water protection will receive a lower priority for implementation when resources are limited. Further, several States in Region 7 prohibit passing legislation more stringent than Federal regulations and therefore cannot go beyond a voluntary approach.

Conclusion

States are making progress on assessment completion and many are in the process of protection planning and implementation. However, the success of a source water protection programs lies in States' capability to sustain protection efforts. The lack of financial and human resources and the absence EPA and State authority to require protection hinders States' ability to protect source waters. The impact of these obstacles on States' and communities' ability to protect source waters and recommendations to address these challenges is discussed in greater detail in Chapter 4.

Agency Comment and OIG Evaluation

EPA provided an update on State assessment completion progress. The OIG has incorporated this data, as well as technical corrections and clarification provided by EPA, into the final report.

Chapter 3
Source Water Assessments Valuable, But Use and Accessibility are Limited

States and assistance organizations[2] are utilizing the source water assessments, but local level use is limited. Assessments are only a tool. Outreach and public education are necessary to inform people that the assessments are available, to help the public understand the information presented, and to show local entities how to take the next step toward addressing risks to drinking water quality.

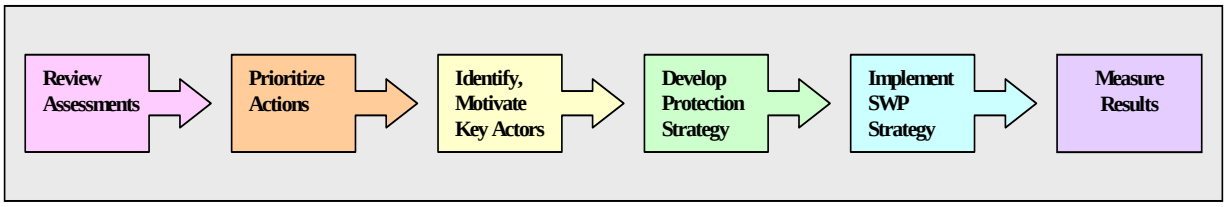
A significant commitment of time and resources is needed to move from assessment to protection, but there is a lack of technical and human resources at the local level to facilitate this transition. Typically, outside assistance from third party groups such as non-governmental organizations is required to encourage utilities and communities to develop protection measures, assist in developing strategies to address potential contaminant sources, and implement the chosen strategies.

Several utilities and local officials acknowledged that they could not have proceeded toward their protection program without an outside facilitator assisting them. EPA Regional officials indicated that third party groups, such as the State and Regional chapters of the National Rural Water Association, have played a significant role in the protection progress ongoing in their States. Followup assistance and a continuing source of funding for certain activities are necessary for sustainability.

According to the EPA Office of Water, the purpose of the source water assessments is to inform and motivate State and local source water protection activities. As noted earlier, the assessments can be utilized in a variety of ways at the State level. At the local level, they are expected to provide a basis for a community or public water system to develop and implement a source water protection plan. The "Path to Protection" (see Figure 3.1) shows the steps in the local protection planning and implementation process.

[2]EPA, in its role to assist States and localities in utilizing the assessment information to develop management strategies, contracted with several partners (Environmental Finance Center, Trust for Public Land, Clean Water Coalition, and National Rural Water Association) to assist communities in source water protection planning and implementation and to facilitate inter-jurisdictional source water protection efforts. Other groups that have served in this capacity include the League of Women Voters and State-level resource management entities.

Figure 3.1: Path to Protection



Source: Adapted from EPA's "Path to Protection," 2003. http://www.epa.gov/safewater/protect/conference/pdf/pathtoprotection.pdf.

States and Assistance Organizations Making Good Use of Assessments

Source water assessments are being successfully used in different ways depending on the assessment user. State agencies are using the assessments to improve their overall drinking water protection program by prioritizing protection efforts and program resources and upgrading contaminant inventories. For State agencies and assistance organizations, the assessments also serve as the starting point in education and outreach efforts toward developing and implementing protection measures.

All five States we visited had active drinking water protection activities ongoing throughout the State and are incorporating the SWAPP provisions in different ways. Three of these five States (Delaware, Nebraska, and Tennessee) are incorporating the assessments into their protection programs. Of the two States that are not utilizing the assessments to a significant degree, New Hampshire already had a sophisticated drinking water protection program (Comprehensive State Groundwater Protection Plan, monitoring waiver provisions, and matching funds provided for land acquisition in source water areas) and Colorado has not yet completed and released its assessments to the public.

All six of the non-governmental assistance organizations interviewed were actively using the assessments or some portion of the information to assist water utilities and communities in developing source water protection plans through education and outreach. Some of these groups are also serving to facilitate inter-jurisdictional source water protection efforts.

Assessment Use Limited at Local Level

Of the 15 local governments/utilities/watershed organizations we visited, 14 were involved in source water protection efforts. However, only three were actually using the assessment document to develop and implement a protection plan. This situation is a significant problem because utilities and local governments are the primary customers of SWAPP.

All three communities using the assessment were doing so with outside assistance. In these cases, the assessments have served as a starting point to performing a more detailed contaminant source inventory, leading to developing a protection program. Protections programs can include both public outreach/education and land use ordinances to address the various contaminant threats. Assessments may also be used as a starting point in discussions with decision-makers as to the importance of protecting a high-quality resource from degradation.

According to an EPA Regional official, Congress did not require protection because it hoped that the assessment information itself would spur action at the local level, but this situation was not realistic. State and local entities, as well as assistance organizations, noted that a significant commitment of time and resources is needed to transition from assessment to protection. Often a lack of outreach and assistance exists at the State level as well as a lack of technical and human resources at the local level.

Based on our visits with States and local entities, we found that assessment use is limited at the local level for several reasons:

Independent assessment activities conducted

Of those not using the assessment, several local entities conducted their own contaminant source inventory or were assisted in doing so prior to the State assessment completion, recognizing that some form of assessment is necessary as a precursor to protection.

Some local officials unaware of assessment availability

Several local officials we met with were not aware that the assessments had been conducted and completed for their community's water system (even though some were active in protection prior to and independent of the State's assessment process). In some States, assessments are provided to both utilities and local officials representing the community served. However, in others, assessments are distributed to the utility only, and it is then the responsibility of the utility to make the assessment available to the public.

The utility is not always the most effective point of contact/distribution because (1) utility officials may not understand the assessments' intended purpose;[3] (2) in larger utilities, the individual who receives the mailing once the assessment is completed may not be the individual charged with responsibility for source water protection; (3) in smaller utilities, water

[3]Not all utilities had input into the SWAP planning phase and therefore information regarding assessments' intended use and purpose was not adequately disseminated; according to an Environmental Finance Center representative, many system operators were unaware of their assessment's intended purpose and the assessment seemed to appear "out of the blue" to utilities.

operators have many roles and often do not have the time to devote to voluntary protection initiatives; and (4) in some cases, the utility officials believe it is against its interest to publicize risk to drinking water.

EPA has made substantial efforts in promoting using the assessments. EPA funds assistance organizations such as the Environmental Finance Center (EFC), Clean Water Network, and Rural Water Association chapters to facilitate inter-jurisdictional protection planning, conduct source water protection workshops, and assist in developing community source water protection plans. EPA also provides resources on its Source Water Protection Website such as the manuals, *Consider The Source: A Pocket Guide to Protecting Your Drinking Water*, *Funding for Source Water Protection Activities*, and *Source Water Awareness Media Toolkit*, which provide information on best management practices, funding sources, and ideas on how to raise community awareness. However, it appears that these resources and efforts have not always resulted in widespread awareness of assessment availability.

Water system operators have difficulty interpreting the results

The intention of assessments, technical information, and/or the source's susceptibility rating may not be understood by utilities or other entities receiving them. In addition, the information may not be provided in a format that can be utilized "as is." A Colorado Department of Public Health and Environment official acknowledged that "the assessments can be heavy; you need to want to know what is in them."

A Tennessee Association of Utility Districts representative stated that the system operators often do not understand the reason for the low/moderate/high source water susceptibility designation. According to this official, utilities often need guidance in interpreting the assessment and implementing protection.

Based on working with drinking water system operators in New Mexico, an EFC representative stated that smaller system operators tended to have trouble interpreting the assessments, but in Texas, highly competent officials of large drinking water systems could not understand their 1,300-page assessment document. The EFC representative added that officials of three additional systems she interacted with in Texas had no idea what to do with their assessment document.

While generally meeting EPA guidance specifications, assessments are incomplete

Assessments were often based on State regulatory databases. Therefore data gaps exist and contaminant source locations must be verified at the

local level prior to initiating development of a protection strategy. Data gaps include (1) raw water quality data (i.e., potential contaminants present prior to treatment or disinfection); (2) non-regulated entities that could pose a potential threat, such as junkyards and small automobile mechanics; (3) inaccurate or missing source locations (many of the contaminant source inventories were not verified for location accuracy or completeness); and (4) evaluation of potential risk from future threats such as emerging contaminants, development or other land use change, and/or forest fires.

Local officials and utility managers acknowledged that regardless of whether the assessment had been more detailed, they could not have taken the process to the next step because they did not know where to start. A Tennessee Association of Utility Districts representative stated that even existing motivated watershed groups receive outside information and assistance. We found this situation to be true of the Schuylkill River Watershed that serves drinking water to the City of Philadelphia. While the Philadelphia Water Department took the lead on preparing the assessment and developing relationships with over 200 watershed stakeholders, the water system representative stated that source water assessment and protection goals could not be accomplished without the support of the Federal, State, and non-governmental agencies.

Assessment Limitations Impede Transition to Protection

The availability of assessments is not being adequately promoted, limiting accessibility to the information and reducing their potential as tools to initiate protection efforts. States should target not only utilities, but also local governments, councils, planners, building and zoning officials, and other stakeholders, and follow-up with interpretation. Even in large cities, such as Philadelphia, where the utility has taken the lead role in assessment and protection, the Philadelphia Water Department representative stated that an important component of source water protection is the education of municipal officials and developers.

A significant commitment of time and resources is required from the time of assessment review to development of a protection strategy. Assistance to utilities and communities is often required to interpret the assessment results, address data gaps, and transition from assessment to protection (e.g., developing protection measures to address contaminants, providing education, and facilitating among competing interests). Assessment availability alone is not likely to drive local action. Follow-up assistance and a continuing source of funding for certain activities will likely be required for sustainability.

Data gaps and lack of future risk analysis could become significant limitations to source water protection implementation if they are not addressed as part of a source water protection plan. For example, in the Walden Ridge Utility District, Tennessee, the source water assessment conducted for the groundwater sources supplying the district determined that the source water was at a low risk for contamination given the primarily residential land use in its source water area. However, several individual property owners within the wellhead protection area conducted activities that could be considered potential contaminant sources (e.g., automobile maintenance). These activities were not included in the assessment, but were discovered when the utility began the more detailed inventory of activity in the area after a groundwater well was contaminated with waste solvent.

Nonetheless, data gaps and lack of future risk analysis are limitations that can be overcome with adequate support to local entities. In Nebraska, the contaminant inventories provided to utilities contained a listing of State-regulated entities only and were not mapped within the source water areas. However, the staff of the Natural Resource Districts, which manage groundwater quantity and quality at the regional level in Nebraska, work with community members and facilitate contaminant source inventories. According to Natural Resource District representatives, these inventories are conducted by residents knowledgeable of the area, include many more potential contaminant sources than the State list, and are accurately mapped based on field surveys. The Natural Resource District staff can then use the local inventories as a basis to assist communities in developing a source water protection plan.

An analysis of future growth and development was not typically included as a potential contaminant source in the assessment process, nor was there a mandate to include this type of analysis in the assessment process. However, if undeveloped land within a source water area is zoned for residential, commercial or industrial land use, the future development could impact water quality. The Lakes Region Planning Commission in New Hampshire recognized this and incorporated potential growth and development patterns into a risk analysis for future water quality.

The Lakes Region Planning Commission developed a plan with and for the three communities of Belmont, Northfield, and Tilton to manage their shared groundwater resource for present and future benefit. The report provides information to be used in community planning such as population trends, road traffic statistics, and an analysis of existing land use ordinances and subdivision regulations to project what type of future land use is likely to take place inside the aquifer recharge area. This information can be used to calculate future changes in impervious surfaces from development and serve as a basis for land use decision-making. Further, the EPA Assistant Administrator for Water agrees that States and localities should consider future land use changes in assessment updates to keep ahead of these changes.

Conclusion

Source water assessments can be a valuable tool and serve as a starting point to develop and implement a drinking water protection plan. But while States and assistance organizations are utilizing the assessments, use is limited at the local level. A significant commitment of time and resources is needed to augment the contaminant inventories and to move from assessment to protection. There is a lack of technical and human resources at the local level to facilitate this transition.

In addition, the source water assessments' availability is not being adequately promoted, limiting accessibility to the information and reducing their potential to initiate protection efforts. While some have been able to address these limitations, the program could benefit from better publicity and distribution of the assessments as well as education and outreach to local officials charged with making decisions related to water quality**.**

Recommendation

We recommend that the Assistant Administrator for Water:

3-1 Encourage States that have not yet released their assessments to the public to target not only utilities, but local governments, councils, planners, building and zoning officials, and other stakeholders. States that have released the assessments should be encouraged to provide copies of the assessments to these additional stakeholders during the protection phase of the program. States should also be encouraged to the greatest extent possible to follow assessment distribution with interpretation and direction on how to take the next step. States can help by identifying opportunities for technical assistance and financing for protection planning and implementation.

Agency Comment and OIG Evaluation

In a March 4, 2005 response to our draft report (see Appendix D), the EPA Assistant Administrator for Water agreed that assessment content, utility, and availability can be improved. The Agency stated that it is aware that there are variations among States in the amount of local information presented in assessments based on time and resources available and that it considers the

assessments released "initial assessments." The Agency expects that utilities and community representatives would verify the assessment information, make additions where needed, and update as necessary.

We believe this is a valid expectation. However, resources and technical ability vary greatly at the local level and, as we have found, there are cases where the

utility or community representative requires substantial assistance to enhance the assessment for practical use. Therefore, it is crucial to the success of this program that EPA and States assure that locales get the technical assistance needed to verify and update their assessment as well as to organize efforts to implement source water protection activities. Further, EPA agrees with the recommendation that it should encourage States to follow assessment distribution with local level assistance in assessment interpretation and in planning and implementing the next steps in protection.

In response to OIG's recommendation 3-1, the EPA Assistant Administrator states that while the Agency agrees that key community stakeholders need to see the State assessments, water utilities should be the initial and primary target audience. EPA states that once the utility adds information to the assessment (either for accuracy or to update in the future), States should work with the water system operator to incorporate information from other stakeholders.

The OIG agrees that the utility is an appropriate first target, but in order to ensure that all potential stakeholders have ready access to the information, EPA should encourage States to work with utilities to see that the assessment reaches other interested parties. This chapter identifies obstacles to assessment distribution where the utility is the primary point of contact. Expanding assessment distribution will allow decision-makers greater access to the information. The greater access there is to the assessment, the greater the probability it will receive public attention and generate action.

Chapter 4
Substantial Obstacles Faced, But Opportunities to Overcome Exist

The potential for the SWAPP to achieve drinking water protection goals will depend on how well States address program needs and obstacles in the coming years. Based on interviews with State SWAP managers, the greatest gaps in State SWPP needs are human resources, financial resources, enforcement capability, and environmental program coordination. The most common and significant challenges[4] to State and local source water protection identified by States are:

- Lack of financial resources
- Competing interests (e.g., infrastructure, security)
- Drinking water utilities have no zoning enforcement capabilities
- Limited inter-jurisdictional control among neighboring municipalities
- Difficult to regulate practices on private land
- Resistance by those opposed to reduction of their pollution
- Lack of public buy-in

In addition, EPA Regional and State officials identified geographic region-specific challenges, such as limited local control over activities on Federal lands.

However, we found several States and localities working to overcome some of these gaps and obstacles in innovative ways, as well as motivating factors and ways to increase program participation. This chapter describes the most pressing obstacles to success in drinking water protection and ways to begin to overcome them.

State Programs Face Obstacles to Protection Goals

Lack of human and financial resources are obstacles that many programs face, and SWPP is no exception. As noted by officials in one Region, these resources have and will always be limited; the question is just how big is the gap between resource need and what is available. Further, the nature of source water protection planning is such that a significant level of hands-on local level outreach and education is required to achieve goals and objectives.

[4]States were provided list of challenges, which they ranked on a scale of 1-5, where 1=not an issue of concern, and 5=prohibitive. "Most common" challenges were those ranked at least "2" by four or more States; "most significant challenges were those ranked "4" or "5" by at least three States. This list includes those challenges that are considered *both* the most common and most significant.

Adequate enforcement of existing environmental regulations, coordination among environmental programs, and cooperation among State and Federal agencies are necessary to support State and local source water protection efforts and ensure their sustainability.

The current level of State source water protection staff is not sufficient to reach all communities in need of assistance

As stated in Chapter 3, assessments alone are not likely to stimulate local action. A facilitator, particularly a local presence with the ability to build rapport with utility managers and community leaders, can significantly improve participation in source water protection planning and implementation. However, building trust can take a long time – 6 months or more – according to Idaho Department of Environmental Quality (IDEQ) officials. Given that the number of drinking water systems in a State may be in the hundreds or thousands, State program staff cannot achieve this alone. Further, given that source water protection activities are voluntary, protection programs tend to be understaffed when mandatory programs are given priority in terms of human and financial resources.

Not only are State staff not sufficient in number to reach all communities in need of assistance, but State SWAP lead agencies are losing staff and expertise because in some cases as employees leave an agency, they are not replaced due to State government employment caps and hiring freezes. Therefore, even if EPA provided additional financial resources, some States still could not hire additional people to carry out the protection programs.

Financial resource limitations leave State programs vulnerable

Sustainability of a State source water protection program relies on continuing financial support. While current financial resources may be sufficient to support programs in the short term, State source water protection programs are vulnerable in the long run. In addition, although funding options are available through other State and Federal programs[5], there is no single consistent and secure source of funding for source water protection activities. Four out of the five States we visited during fieldwork reported that they rely solely on the DWSRF set-aside for protection program administration and implementation. To continue the program each year would require renewal of this funding. This leaves the sustainability of the program vulnerable because the DWSRF is an annual appropriation. If Congress decides to cut the funds, there is a danger that States would cut their source water protection program.

In addition, both Colorado representatives and EPA Region 9 officials identified a funding gap for drinking water protection projects with surface water sources. Nationally, 67 percent of the US population relies on surface water sources of drinking water. The DWSRF set-aside intended for the Wellhead Protection

[5]EPA released *Funding for Source Water Protection Activities* (2003), which can be found at: http://www.epa.gov/safewater/protect/pdfs/guide_swp_swp_funding_matrix.pdf.

Program may be used for groundwater protection projects only; there is no corresponding funding source specifically for surface drinking water protection projects. According to EPA Office of Water, Congress is considering re-authorization of the fund but to date no action has been taken to change the provision to include surface water protection project eligibility. EPA Region 9 noted that this is a significant barrier hindering Nevada's development of a surface water protection strategy since 90 percent of Nevada's population serviced by public drinking water relies on surface water sources.

Lack of State enforcement capability can counter current and future protection benefits

States identified the lack of enforcement capability as a significant gap in program needs. Both New Hampshire and Tennessee reported that enforcement capability was prohibitively lacking due to limited staff and effectiveness of State enforcement efforts outside source water assessment and protection programs. The lack of SWAP managers' authority to enforce water resource protection regulations requires increased reliance on outside programs and agencies through program integration and coordination.

Overall, it is difficult to enforce against actions that endanger source waters. For example, even in Nebraska, where the Nebraska Department of Health and Human Services has the authority to enforce water quality violations, the agency is still limited because it cannot enforce measures to prevent contamination. Delaware officials noted that they rely on other programs for enforcement.

Environmental program coordination needs improvement

Three of the five States surveyed during fieldwork reported less than adequate environmental program coordination within the SWAP lead agency. Based on interviews with EPA Regions, 23 States are developing or implementing environmental program integration as part of a source water protection strategy. While States recognize the importance of coordination, they are still in the early stages of communication. For example, Colorado SWAP managers stated that they may need to integrate with other programs but have not yet done so.

Lack of coordination can put water quality at risk. Tennessee Department of Environment and Conservation (TDEC) officials have identified several petroleum underground storage tank sites within wellhead protection areas that have been impacted by a contaminant release. TDEC officials noted that these sites are classified by the TDEC Division of Underground Storage Tanks as "non-drinking water areas." The EPA OGWDW and the Office of Underground Storage Tanks issued a joint memorandum encouraging coordination of source water assessment results with the Underground Storage Tank program to reduce the risk of underground storage tanks to drinking water. According to TDEC source water protection officials interviewed, a TDEC Division of Underground Storage Tanks staff member has requested certain data from their office, but these

officials have not observed any subsequent action. Challenges to coordination include lack of data compatibility and perceived disinterest on the part of the Division of Underground Storage Tanks.

Inter-state agency cooperation in early stages

States reported being in better shape in terms of inter-state agency cooperation (i.e., with State Departments of Transportation), though this was also in the early stages. TDEC reported recent communication with the Tennessee Department of Transportation with regard to erosion control and damage to watersheds. The New Hampshire Department of Environmental Services has a memorandum of understanding (MOU) with the New Hampshire Department of Agriculture, Markets, and Food on complaints, and with the New Hampshire Department of Transportation regarding road building to keep road drainage out of wellhead areas.

Cooperation with Federal agencies varies by agency and location

Source water protection also presents challenges that impact certain geographic areas of the United States more than others. For example, States and local entities have little or no control over activities on Federal lands. Region 8 officials stated that protection from contaminants generated on Federal lands is a significant barrier in the region. In 11 western states, the Federal government owns at least one-half of the land area in approximately 60 percent of the region's watersheds. Federal lands and associated activities such as timber harvesting, road construction, grazing, recreation, and mining have been identified as contributing a substantial portion of pollutant loadings to waterbodies in several western States.

IDEQ officials stated that land management for water quality varies by region. For example, IDEQ staff indicated that the United States Forest Service (USFS) in southeast Idaho tends to cooperate with the IDEQ, whereas the agency is less cooperative in the northern part of the State. This was reportedly due to regional variation in resource availability. In one instance, the USFS installed a septic system located above a well field in one of its campgrounds in Idaho. Aware of this, according to IDEQ representatives, the agency claimed that it was not required to respect source water protection areas. However, the IDEQ also acknowledged that some individual USFS regions have expressed the desire to incorporate the source water assessment delineations into their forest management plans. In another example of cooperation, USFS officials we met with in Grand Junction, Colorado stated that the agency in this district invites public participation in their forest management planning process.

The City of Grand Junction, Colorado, is served by surface water atop Grand Mesa Mountain, and its watershed contains land owned by the City of Grand Junction, the USFS, and the Bureau of Land Management (BLM). The City of Grand Junction has managed the watershed under MOUs with the USFS since

1915. In 1990 the City coordinated with BLM to develop the Grand Mesa Slopes Special Management Area Plan to manage the multiple uses of the watershed area (drinking water, recreation, wildlife habitat, etc.), but specifically for protection of the land and water, and to preserve open space from development.

Despite these agreements, agency missions can counter and supersede local protection goals. For example, while BLM and USFS officials both operate under "multiple use" mandates with staff responsible for water quality management activities, they also believe a municipality has the responsibility to treat its drinking water.

In this particular case, BLM sold gas leases in the Grand Mesa watershed located near a drinking water intake. The City then attempted to pass a watershed protection ordinance to prevent the potential release of toxic chemicals and sediment from gas development activities. The ordinance was strongly opposed by the USFS and BLM, both citing that cities were not permitted to exercise extraterritorial control on Federal land. According to USFS officials, several towns in their jurisdiction had proposed watershed ordinances with the intent to restrict activities on federal land. USFS representatives noted that they were concerned that if the Grand Junction ordinance passed, other towns would attempt to follow suit in trying to restrict Federal activities, particularly gas development on watershed lands, without the legal authority to do so.

The USFS worked with the City of Grand Junction to resolve the issue and to resolve similar issues in their district by entering into a five-year MOU (the existing MOU had expired). Although gas development proceeded in the Grand Mesa watershed, the City is in the process of drafting another MOU with BLM to address future land use issues.

While all parties involved are working to resolve watershed management issues in Grand Mesa without participation of higher level agency officials or State government, the outcome is not without struggle, and cooperation across States can vary greatly by USFS and BLM agency district. Ten Federal agencies (including EPA) signed the 1999 Federal Multi-Agency Source Water Agreement in which these agencies pledged to "support State and tribal government efforts to complete drinking water source assessments nationwide and support source water protection programs with the primary goal of protecting the nation's drinking water." USFS officials we spoke with were unaware of this agreement; BLM officials were familiar with the agreement, but any action taken would be via mandate from State-level managers.

Key Factors in SWAPP Potential for Success

The obstacles presented above impose significant challenges to States and communities in providing adequate protection of drinking water sources. However, we identified the following practices that have the potential to bridge some of this gap.

Leverage human, financial, and technical resources from assistance organizations

Assistance organizations not only have the ability to reach out to more communities and provide more direct assistance than can an individual State, but can also contribute to the overall success of State protection programs given their non-governmental status and ability to build community relationships and rapport.

Obstacles Addressed:
Lack of financial resources
Competing interests
Lack of public buy-in

Many States rely on assistance organizations such as the State chapters of the National Rural Water Association (NRWA), whose staff helps communities interpret the assessment and move toward protection. Rural Water Association (RWA) chapters help communities prioritize contaminant sources, determine which ones they can address, and help to develop a protection plan of management strategies. While the RWA will facilitate the process, in some States a local leader is also chosen. In Idaho, the Idaho RWA makes sure the group continues to meet regularly after the plan's implementation to followup on the implementation schedule**.**

However, some States have had mixed results working with RWAs. At times, the RWAs seem to pursue their own agenda apart from the State goals and success can depend on the skill and personality of the individual technician. In Nebraska, the Nebraska Department of Environmental Quality (NDEQ) works with Natural Resource Districts and the Nebraska RWA, but officials stated that there is no requirement for cooperation between the State and RWA noted in the EPA contract. According to NDEQ officials, Nebraska's RWA chapter staff told utilities not to cooperate with the State. Nebraska overcame this obstacle by working with the RWA and discussing concerns. EPA Office of Water officials stated EPA is working with Regions, States, and NRWA to increase coordination and communication efforts. For example, EPA is taking steps to balance the needs of NRWA technicians and State government officials. Officials note that this process will take some time.

Form partnerships with all stakeholders, and bring the opposition to your side

Those who would like to implement drinking water protections often do not have the authority to regulate land use, activities, or contaminants. They also may face political or legal opposition in doing so. Therefore, effective communication and inclusion of affected parties of an initiative is crucial to a plan's desired outcome.

Obstacles Addressed:
- Drinking water utilities have no zoning enforcement capabilities
- Difficult to regulate practices on private land
- Resistance by those opposed to reduction of their pollution
- Lack of public buy-in

Toward its objective of protecting water quantity and quality, New Castle County, Delaware is trying to limit impervious land cover. The county has communicated with the development industry and individual builders, as well as professional associations to encourage site and building designs that maximize water quantity and quality protection. Developers now buy into the concepts in order to get their projects approved. New Castle County representatives noted that one of their "lessons learned" is to involve developers in the process of water protection so that they see the benefit of landscape practices that increase recharge and the possible increase in the value or resale value of the property.

Similarly, in Manchester, New Hampshire, Manchester Water Works operated a closed watershed until 20 years ago, when it began to allow snowmobilers to use the area for recreation. Manchester Water Works decided it was in the best interest to work with recreational groups to encourage concern as to the well-being and security of the watershed area they were using. Manchester Water Works conducted outreach to the snowmobile community, a mountain bike association, and local conservation commissioners. Manchester Water Works reports that these groups have been cooperative and participate in watershed protection measures, such as building bridges to cross streams and litter control.

Maximize public interest and participation

The primary motivating factors for States and local entities that have taken action to protect drinking water sources are protection from future threats, followed by the desire to address a significant existing threat or contamination (a list of motivating factors used in the interviews is included in Appendix C). However, the challenge remains as to how to motivate additional communities to protect source waters from existing or future contamination. Although EPA Regional offices cited public interest as a significant motivator, neither States nor locales identified this as a primary factor; rather, they expressed a lack of public interest and participation, particularly when no contamination exists.

Obstacles Addressed:
- Limited inter-jurisdictional control among neighboring municipalities
- Difficult to regulate practices on private land
- Resistance by those opposed to reduction of their pollution
- Lack of public buy-in

Officials at all levels agree that education is a key tool, but it must be used effectively to achieve desired results.

We found that the following activities can help to improve public interest and increase participation:

Promote multiple benefits of source water protection

To address resistance as well as general apathy, several local entities cited success in promoting the multiple benefits of source water protection, such as increased property values, as well as using disincentives, such as withholding services from proposed development projects if certain practices are not incorporated. For example, in Lancaster Township, Pennsylvania, an environmental group worked with developers and the township to streamline the development process for low impact construction. According to Pennsylvania Department of Environmental Protection officials, the developer is seeing the economic benefit to this type of construction in increased land and building value.

Source water protection measures such as land conservation can also have an economic benefit to utilities in the form of lower drinking water treatment costs. For example, a 2002 study conducted by the Trust for Public Land and the American Water Works Association found that for every 10 percent increase in forest cover in a source water area, treatment and chemical costs decreased by 20 percent (cost is expected to level off after approximately 70 percent forest cover).

Develop and promote incentives

Incentives can take many forms. IDEQ requires that a community have a source water protection plan in place to receive loans for any project initiated by various partners such as local governments, State agencies, and Idaho RWA. (These agencies participate in an MOU regarding conditions of loan approvals.) Therefore, it is an incentive for a community to develop a source water protection plan in order to be eligible for other State funding.

Nebraska also has a source water protection plan approval process. The process is voluntary, but there is a legal framework for utilities to follow if they choose to implement a protection plan. Often the RWA representatives or other assistance organizations will assist the lead SWAP agency in both the development of criteria as well as in the plan approval. State approval acts as an incentive by (1) giving credibility to protection activities, (2) acknowledging and providing recognition to pro-active efforts, (3) letting locals know they are on the right track, (4) allowing others to learn about activities and follow suit, (5) providing a means for States to track and measure progress, and (6) identifying obstacles to help communities overcome them.

Target and personalize outreach
Non-governmental organizations and States provided some insights as to how to increase participation in source water protection activities. These include:

- Piggy-back onto existing interest group meetings
- Personalize the invitation process and conduct followup with potential participants

EFC recommended that one way to get participation and the message out is to piggy-back on existing meetings and conferences to get the message out. TDEC also found this to be true; the best participation numbers were obtained when they presented at a garden club or other existing meeting.

NDEQ also expressed concern over the lack of public buy-in and that the assessments are not really generating interest among the general public through availability alone. When the NDEQ first tried to hold public meetings regarding assessments and protection, mass mailings did not work. The NDEQ found that other tools were more successful, such as personal invitations and followup phone calls, particularly when initiated by someone known personally to the individual, saying it is important that they attend. NDEQ officials noted that when using a newspaper announcement alone, meetings got minimal turnout, while the invitation/phone method was very successful in generating public participation.

Tailor your pitch and use site-specific examples
The TDEC partners with the Tennessee Association of Utility Districts to conduct source water assessment and protection workshops for water system operators throughout Tennessee. A Tennessee Association of Utility Districts representative stated that in order to get the message across to utilities, communities, and municipal officials, one needs to (1) identify the issue that each group can relate to and focus on this hotspot; (2) use local examples when promoting source water protection; and (3) use a creative approach that can capture an audience's attention, such as photographs and stories with "shock value." For example, in an industrial area along a river, one could focus on concerns with chemical contamination on one side of the river and emergency response or contingency planning on the other side.

Third-party facilitation can improve success of inter-jurisdictional protection efforts

During our fieldwork, we visited with representatives from Tilton, Belmont, and Northfield, New Hampshire, three communities that have entered into a joint source water protection agreement to manage a shared aquifer. These towns had

Obstacles Addressed:
Limited inter-jurisdictional control among neighboring municipalities
Difficult to regulate practices on private land
Lack of public buy-in

little prior history of coordination. The New Hampshire Lakes Region Planning Commission facilitated the initiative. Though plan implementation is in its early stages, participants noted that their experience suggests that a voluntary approach, including education and public involvement, can lead to a positive outcome. In addition, there is a need to work with local governments, form partnerships, and share knowledge because this allows one to leverage resources and improve public buy-in.

An EFC representative stated that a neutral facilitator was the most important component in the success of inter-jurisdictional source water protection. Though the facilitator has an integral role, the group must make its own decisions throughout the planning and implementation process if the source water protection goals and objectives are to be reached.

According to the EFC representative, the facilitator must get the group to the point where it can function on its own in order for the protection effort to be sustainable. The amount of time this takes will vary depending on the size of the system and/or the number of groups involved in the program. In EFC's experience with inter-jurisdictional source water protection plans, the facilitator maintained involvement between one and two years (approximately 18 months in most cases.) While not all groups EFC has worked with were able to reach this point, those that have appear to have succeeded in carrying out their goals and objectives.

Improved program coordination within the SWAP lead agency and among State and Federal agencies could benefit source water protection

EPA supports program integration to further source water protection goals. In EPA's SWAPP guidance document, it emphasizes program coordination and integration as a key component and goal of SWAPP. Many of the agencies interviewed have recognized SWAPP potential in program improvement and integration, are planning integration, or have begun to implement a strategy to incorporate the assessment information into other programs. When agencies integrate and coordinate programs and activities, resources from each of the programs are used to initiate source water protection activities, which can ultimately benefit water quality.

Obstacles Addressed:

- Lack of financial resources
- Drinking water utilities have no zoning enforcement capabilities
- Limited inter-jurisdictional control among neighboring municipalities
- Difficult to regulate practices on private land
- Resistance by those opposed to reduction of their pollution
- Lack of public buy-in

The OGWDW recently released a memorandum to all Regional Water Division Directors and Regional Underground and Leaking Underground Storage Tank program directors identifying the opportunity to coordinate source water assessment results with the Underground Storage Tank program to reduce the risk of petroleum underground storage tanks to drinking water sources. In addition,

according to the EPA Assistant Administrator for Water, EPA began to reinvigorate the 1999 Federal Multi-Agency Source Water Agreement in July 2003 with an inter-agency roundtable to discuss coordination of floodplain management with source water protection. EPA Regional officials and State representatives understand the importance of program coordination, but as Region 3 officials acknowledge, in investing this time, one is taking it away from something else and there is a need to show results from these efforts.
In both State and Federal agencies there is typically a structural split between drinking water programs and programs aimed at other water uses (e.g., fishing and swimming), and EPA Office of Water cites this division as an institutional barrier. However, it is possible to integrate these programs despite the split. It was noted by EPA Region 1 officials that Connecticut successfully integrates its water
quality management programs for multiple uses despite the split of duties between the Connecticut Department of Health and the Connecticut Department of Environmental Protection.

SWAPP encourages the use of information in other programs, by watershed groups, and in Total Maximum Daily Load development. For example, prior to SWAPP, the Total Maximum Daily Load process was not really focused on drinking water. Now, particularly with regard to nutrients and sediment, States such as Delaware are beginning to tie Total Maximum Daily Load work to the source water assessments so that programs designed to protect water for fishing and swimming also promote the needs of drinking water quality management.

Conclusion

SWAPP can serve as a valuable tool in drinking water protection, but it is not effective as the only tool. While States are making good progress on completing the assessments and are actively developing and implementing source water protection strategies, source water protection is just one component in a drinking water quality management framework. Providing safe drinking water requires attention to infrastructure, treatment, and monitoring, as well as compliance with environmental and other regulations. Given that SWAPP cannot control all of these factors and that contamination at times is inevitable, the program, even if effectively implemented, does not guarantee prevention of surface water quality degradation or that wells will not continue to be shut down due to contamination.

Nonetheless, source water protection does have the potential to reduce the risk of contamination and associated health impacts, reduce the cost of water treatment where necessary, and provide other economic and environmental benefits, such as increased property values and allowing multiple uses of the water resource. Therefore, source water protection should be pursued as the first step in the multiple-barrier approach to drinking water protection.

For SWAPP efforts to reach their potential, the assessments must be accompanied by adequate EPA support to States and adequate support of States to communities and utilities. A multi-faceted approach advocating multiple benefits such as security and SDWA compliance, enacting local regulations or non-regulatory

programs, and education and outreach must be implemented for successful drinking water protection. A more secure and consistent funding source will be necessary to support drinking water protection over the long term. States and local entities will also have to rely strongly on intra- and inter-agency coordination, program integration, partnerships, and collaborative efforts to leverage human and financial resources, technical assistance, and outreach to utilities and communities.

Recommendations

We recommend that the Assistant Administrator for Water:

4-1 In order to improve the prospect for SWAPP success in the future and its sustainability:

a. Issue a public statement to re-affirm and make it clear to States that this program is a priority, that the source water assessments are beneficial, and that EPA is dedicated to continuing to support the source water protection phase of the program.

b. Delineate the State role in this next stage of the program, see to it that States prioritize source water protection (possibly within the State DWSRF plans), and provide feedback on the State's protection strategies as they develop. In addition, delineate future plans for program enhancement, such as updating assessment information and addressing data gaps.

c. Provide guidance to States on how to leverage financial and technical resources from other EPA programs, partners, and stakeholders.

4-2 Continue to work with Congress to allow future DWSRF set-asides to be designated for "source water protection," which would include both groundwater and surface water sources.

4-3 Continue to work with NRWA to remove barriers to NRWA-State coordination and collaboration on source water protection. Clearly delineate and communicate NRWA's role in source water protection to NRWA and the States and follow up with States on their satisfaction with State chapter cooperation.

4-4 Work with Regions and States to determine how best to disseminate locally-applicable best practices at the State and local levels for (a) contaminant source management strategies and (b) how to motivate and sustain local level action. In addition, continue to monitor protection programs and identify common elements of success for promotion in future protection efforts.

4-5 In coordination with Regions and States, identify points of integration among environmental programs and delineate steps to implement program integration plans.

4-6 Assist Regions and States in identifying appropriate State and Federal agencies with activities that impact drinking water quality, providing appropriate agency officials with information on locations of source water areas and potential negative impacts to water quality, and facilitating cooperation among these agencies to mitigate these impacts and further drinking water protection.

4-7 Continue to engage the 1999 Federal Multi-Agency Source Water Agreement participants and determine how agencies are contributing. Based on State and Regional needs, identify additional partnership opportunities and determine how participation can be further enhanced in the protection phase of the SWAPP.

Agency Comment and OIG Evaluation

EPA generally concurred with our recommendations and in some cases has taken actions to address them. EPA provided details as to the actions the Agency is taking to support State and local protection efforts (see Appendix D for additional examples and information on EPA activities). We find these activities to be appropriate and encourage EPA to continue its efforts. The OIG has incorporated these comments into the recommendations and to the body of the report where applicable. The OIG has also incorporated technical corrections and clarifications provided by EPA into the final report. Selected examples of Agency actions to address many of the recommendations are as follows:

- In 2003, the former Assistant Administrator for Water publically announced EPA's support of the SWAPP and declared it a priority.

- EPA states it will continue to highlight to States guidance on funding options for source water protection in addition to documents currently available.

- EPA pledges to continue discussions with Congress about possible revisions to DWSRF authorizing language on the use of set-asides.

- EPA has worked for the past 5 years to integrate the Clean Water Act and SDWA and is coordinating across environmental programs within EPA and with other Federal Agencies.

Participants

Fieldwork Interview Participants

EPA	Offices Visited and/or Interviewed
Headquarters	Office of Ground Water and Drinking Water (OGWDW)
Regions	All 10 EPA Regions (drinking water/SWAP managers) Region 1 Clean Water Act program staff
State	**Agencies, Organizations, and Local Entities Visited**
Colorado	Colorado Department of Public Health and Environment, Water Quality Control Division
	Big Thompson Watershed Forum
	City of Grand Junction
	United States Forest Service, Grand Junction
	United States Bureau of Land Management, Grand Junction
	American Water Works Association
	Environmental Finance Center (via telephone)
Delaware	Delaware Natural Resources and Environmental Control
	Delaware Health and Social Services, Division of Public Health
	New Castle County Land Use Department
	University of Delaware
	Town of Townsend engineer
Nebraska	Nebraska Department of Environmental Quality [(drinking water and Clean Water Act staff (i.e., watershed management/non-point source control programs)]
	Nebraska Department of Health and Human Services
	Local officials, citizen, and utilities representing three communities
	Natural Resource District staff from two districts
New Hampshire	New Hampshire Department of Environmental Services
	Lakes Region Planning Commission
	Town and private utility representing three towns in joint aquifer protection plan
	Manchester Water Works
Tennessee	Tennessee Department of Environment and Conservation
	Three utility districts
	One municipal utility
	Tennessee Association of Utility Districts (Rural Water Association member)

In addition, during preliminary research we visited and/or interviewed EPA OGWDW; EPA Regions 2, 3, and 10; State agencies in New York, New Jersey, Pennsylvania, Washington, and Idaho; local level representatives in New York, Pennsylvania, and Idaho; and several non-governmental agencies.

Local Entity Specifics

Local Entity Visited	Population Served (approximate)	Drinking Water Source
Colorado		
Big Thompson Watershed Forum	750,000	Surface water
Grand Junction	41,986	Surface water
Delaware		
New Castle County	500,000	Surface water
Townsend	351	Groundwater
Nebraska		
Beaver Lake	2,500	Surface water
David City	2,700	Groundwater
Fairfield	Less than 500	Groundwater
New Hampshire		
Belmont, Northfield, and Tilton	Total: 14,741	Groundwater
Manchester	107,000	Surface water
Tennessee		
Cleveland[1]	28,000	Surface water and Groundwater
Eastside	18,000	Surface water
Gladeville	4,700	Groundwater
Walden Ridge	1,000	Groundwater

[1]In Tennessee, the utilities visited were "utility districts" consisting of several towns, whole or in part. Exact population served was unknown; therefore, utility managers provided OIG with the number of connections per district. According to representatives, each connection may serve several individuals or facilities.

Appendix B

Challenges Survey

Please rate each challenge on a scale of 1-5 of relative significance where:

1= not an issue of concern;
2= presents a challenge but the State is actively working to deal with it;
3= presents a challenge and the State has begun to developed a strategy to deal with it;
4= presents a significant challenge, the State has not yet begun to address it, but this limitation would not prohibit implementation outright; or
5=significant barrier whose presence by itself prevents the proper implementation of the identified protection goals and objectives.

Challenge to Source Water Protection Implementation	**Level of Significance**
Resources	
Lack of financial resources	
Competing interests (e.g., infrastructure, security)	
Data quality, data gaps	
Lack of technical capacity	
Lack of human resources to handle requests for assistance	
Cost/effort required for public access to assessment information	
Regulatory Challenges	
No direct EPA legal authority for source water protection	
Lack of authority of States to require protection	
Lack of authority of States to regulate development patterns	
Drinking water utilities have no zoning enforcement capabilities	
Limited inter-jurisdictional control among neighboring municipalities	
Difficult to regulate practices on private land	
No State/local control/authority over land use practices on federal lands	
Protection efforts may be blocked by various interests that oppose the reduction of their pollution	
Where regulations exist, county, State and federal authorities are reluctant enforce them (e.g., on agriculture-concentrated animal feeding operations)	
Regulating based on the susceptibility determination where determinations were political	
Assessments are too general to base land use or other regulatory decisions and/or do not identify contaminant sources by name	
Lack of public buy-in	
Water operators face conflicts of interest	
Overarching Issues	
Lacking quality data on major drinking water issues such as *Cryptosporidium* and disinfection by-products	
Lack of ambient water quality criteria	
There is existing contamination	
Institutional barriers associated with working with different agencies or departments that may not have a history of cooperation	

Challenges Survey (Continued)

Please rate each challenge on a scale of 1-5 of relative significance where:

1= not an issue of concern;
2= presents a challenge but the State is actively working to deal with it;
3= presents a challenge and the State has begun to developed a strategy to deal with it;
4= presents a significant challenge, the State has not yet begun to address it, but this limitation would not prohibit implementation outright; or
5=significant barrier whose presence by itself prevents the proper implementation of the identified protection goals and objectives.

Challenge to Source Water Protection Implementation	**Level of Significance**
Program Integration	
There has been little communication and a disconnect among related State and federal programs	
Some regulations counter drinking water protection efforts	
When trying to manage for water quantity, water quality may be jeopardized	
Other Challenge (specify)	

Motivating Factors

Motivating Factors for State Source Water Protection Initiatives

From the list below, please check the top three factors motivating the State to take action toward source water protection	
Motivating Factor	
State already has a framework or statutory structure	
Monitoring waiver provision of SWAP	
Economic factors	
Public interest	
Political interest	
Multi-agency cooperation and integration of water resource management efforts and resources	
Water scarcity	
Significant existing threat or contamination	
Protection from future threats	
Other (please indicate)	

Motivating Factors for Local Source Water Protection Initiatives

From the list below, please check the top three factors motivating your utility or community to take action toward source water protection	
Motivating Factor	
State has a framework or statutory structure and encouraged participation	
State provided financial or technical assistance	
Third party facilitation or assistance (Rural Water Association or other)	
Monitoring waiver provision of SWAP	
Economic factors	
Public interest	
Political interest	
Water scarcity	
Significant existing threat or contamination	
Protection from future threats	
Other (please indicate)	

Agency Response

March 4, 2005

MEMORANDUM

SUBJECT: Source Water Assessment and Protection Program
Assignment No. 2003-001435, Draft Report

FROM: Benjamin H. Grumbles /s/ original signed by Benjamin H. Grumbles
Assistant Administrator

TO: Nikki Tinsley
Inspector General

Thank you for the opportunity to comment on your Office's draft report, *Source Water Assessment Program Shows Initial Promise*. I will respond briefly to your overall points, with more detailed comments attached (Attachment I).

The Office of Water agrees with your principal finding, as reflected in the title of the draft report, that source water assessments promise to be useful for moving to source water protection. We agree that some states, perhaps most, are developing source water protection approaches that will improve overall drinking water protection. However, we also recognize and acknowledge your observations that the assessments can be improved and that there is wide variation in their availability, use and direct usefulness.

Your draft report reflects many of the opportunities and challenges to implementing a national source water protection program. With the source water assessments essentially complete (see Attachment II showing 93 percent of Community Water Systems complete), I agree that moving to voluntary protection does require renewed vigorous efforts.

My Office is working to build state and local capacity for prevention actions based on source water assessments, integrate source water protection under the Safe Drinking Water Act and Clean Water Act, and collaborate with other EPA and Federal programs and many stakeholders. I strongly support these efforts and look forward to continued progress at the federal, state and local levels.

With the 30th anniversary of the Safe Drinking Water Act this year, we are increasingly aware that source water protection is a critical component of an integrated multiple barrier approach requiring many programs and stakeholders. The Office of Water is implementing source water protection as part of an overall watershed approach. Because of the wide diversity of potential contaminants and risks and optional approaches to address the risks, Congress intended that states and communities have the flexibility to tailor their source water protection actions to state and local circumstances. States, therefore, have a leadership role in developing long-term strategies and EPA and other federal programs will need to support them. EPA recognizes and encourages state efforts to use innovative approaches such as: facilitating

collaboration actions at the state and substate levels; targeting current program actions in delineated source water areas; and encouraging water supply system management approaches that address multiple public water systems.

Thank you again for the opportunity to comment on the draft report. If you have questions regarding our comments, please contact Cynthia C. Dougherty, Director, Office of Ground Water and Drinking Water, at (202) 564-3750.

Attachments

Attachment I

Office of Ground Water and Drinking Water's Comments on the Inspector General's Draft Evaluation Report: *"Source Water Assessment Program Shows Initial Promise"*

Our comments below are intended to assist you in improving the draft report when finalized. While we agree with some recommendations, we believe that some modifications are needed to better reflect what it will take for states, localities and the private sector to succeed. In addition, we have other comments to correct errors in the draft report.

General Comments on the Description of the Basis for the Results of the Draft Report

First, we believe the report should clearly state at the beginning that the findings and recommendations are based on a very limited review of states and localities. Although there were extensive interviews with the EPA Regional offices, there has been limited information provided by states to the Regions on state and local programs. In addition, there is limited information that states maintain on local source water protection actions.

Second, the report should clearly distinguish between the Source Water Assessment Program (SWAP), i.e., the program Congress authorized under Section 1453 of the Safe Drinking Water Act (SDWA), and source water protection strategies and activities, voluntary at the national, state and local levels. The draft report should use the term SWAP only to refer to assessment program activities. All other activities should be referred to as source water protection. This difference comports better with the SDWA's statutory approach and the general use of these terms in the field.

Third, one factual error in the text is of particular concern. In the Section titled "Financial resource limitations leave state programs vulnerable" of Chapter 4 the report incorrectly states that EPA has tried to lobby Congress regarding the Drinking Water State Revolving Fund (DWSRF). This statement needs to be eliminated. EPA has not lobbied Congress relative to the DWSRF, but has responded to requests for technical assistance while Congress is considering re-authorization of the fund.

Fourth, there were various references in the report to the lack of a consistent and secure source of funding for source water protection actions. While there is no one source of federal funding for all source water protection actions, states have many federal and state funding options. Released at the 2003 national source water protection conference is a funding options document on the OW Source Water Website: http://www.epa.gov/safewater/protect/pdfs/guide_swp_swp_funding_matrix.pdf.

Fifth, there were numerous references to the limitations to using source water assessments to move to protection, such as the lack of analysis of future growth and development in source water areas. OW is aware that there are variations among states in the amount of local information presented in assessments based on the time and resources available

to them. The final assessments under Section 1453 of the SDWA can be considered initial assessments. Therefore, OW expects that local utilities and stakeholders would increase the

completeness and accuracy of the assessments with locally available information. While assessments can be improved, many states and localities are using them already to move to protection. We also agree with the report in that there is a lack of analysis of future growth and development in the source water assessments. There was no mandate in Section 1453 to include such analysis in source water assessments. We agree that states and localities could and should consider when updating assessments to include forecasts of future land use changes so source water protection actions would keep ahead of such changes.

EPA Response to Recommendations

Recommendation 3-1: Encourage states to target assessments not only to utilities, but also to local governments, councils, planners, building and zoning officials, and other stakeholders. [Related findings: "Some local officials are unaware of assessment availability": (page 13) "Water system operators have difficulty interpreting the results" (page 14)]

Through EPA's cooperative agreements, outreach efforts and conferences from 2000-2005, EPA has encouraged wide distribution of the source water assessment results at the local level to ensure wide understanding of assessments and participation in protection activities. While we agree that key governmental stakeholders and others in each community need to see the final state-approved source water assessments, water utilities need to be the primary target audience initially. Accurate information that a utility may own regarding the quality of the source water used, and possibly source water monitoring information, should become part of any analysis used for updating assessments, and therefore available to other local stakeholders. Once the utility has added its local information to the assessment, then we would encourage states to work with them to ensure that any other stakeholders with information be shared across the community. In fact, we agree with a recommendation in the report that states and stakeholders hold dialogues at the local level on what was found by the states in the assessments

We recognize the difficulties in distribution of the source water assessments to localities and individuals since the September 11, 2001 terrorist attack, but we still encourage as wide a distribution of the results as possible under state laws. Many community water suppliers are required to make the assessment information available by describing the results of assessments in Consumer Confidence Reports.

Recommendation 4-1(a): Issue a public statement to make it clear that this program is a priority for EPA.

EPA has publicly stated this. In February of 2003, then Assistant Administrator for Water, G. Tracy Mehan, III, distributed letters supporting source water protection as a high priority to four state organizations and to all their members-- the Environmental Council of the States, the Association of State and Interstate Water Pollution Control Administrators, the Association of State Drinking Water Administrators, and the Ground Water Protection Council. In addition, at the national source water conference in June, 2003 noted above, Mr. Mehan delivered a keynote speech before 600 participants supporting source water protection. The speech was widely reported in the trade press and distributed to all press, and placed on EPA's website along with all the papers and results of that conference.

Recommendation 4-1(b): **Delineate the state role in the next stage of the program, see to it that States prioritize source water protection (possibly within state DWSRF plans), and provide feedback on the states' protection strategies as they develop. In addition, delineate future plans for program enhancement, such as updating assessment information and addressing program gaps.**

In the EPA Strategic Plan, 2003 – 2008, and in the National Water Program Guidance for 2005, and in the forthcoming 2006 guidance, States are expected to report to EPA on whether community water systems and their communities are or are not substantially implementing source water protection strategies. There is an expectation that States will take a lead role in developing source water protection strategic approaches. In Chapter 3 of the 1997 National Guidance on Source Water Assessment and Protection Programs, EPA described numerous ways States could structure and finance source water protection programs, such as a comprehensive approach statewide, or an approach based mainly on assisting communities. In this same Chapter, and in various fact sheets publicly available, there is extensive description of the DWSRF options available to states for funding source water protection actions. EPA is continually working with states and their national organizations to provide direct assistance, provide training, and transfer ideas across states.

Recommendation 4-1(c): **Provide guidance to states on how to leverage financial and technical resources from other EPA programs, partners, and stakeholders.**

EPA will continue to highlight to states guidance on funding options for source water protection. As noted above, we released at the 2003 national source water protection conference a funding options document which is now on the OW Source Water Website: http://www.epa.gov/safewater/protect/pdfs/guide_swp_swp_funding_matrix.pdf. This guidance describes ways to leverage financial and technical resources from other EPA programs, partners, and stakeholders, as well as from other Federal agencies and private sources. The Agency's Office of Wetlands, Oceans and Watersheds website also has many documents on this topic.

Recommendation 4-2: **Work with Congress to allow future Drinking Water State Revolving Fund set-asides to be designated for "source water protection," to include both ground water and surface water sources.**

EPA will continue discussions with Congress about possible revisions to DWSRF authorizing language on use of set asides.

Recommendation 4-3: **Review the National Rural Water Association (NRWA) Partnership agreement, remove barriers to NRWA-state coordination and collaboration on source water protection, clearly delineate and communicate NRWAs' role in SWAP to NRWA and the states, and follow-up with states on their satisfaction with state chapter cooperation**.

EPA is working with regions, states and the National Rural Water Association to increase coordination and communication efforts in implementation of national cooperative agreements for the separate wellhead protection and source water protection efforts. Both cooperative agreements clearly define actions NRWA must take to work with states. Communication protocols are being clarified to balance the need for flexible relationships between state rural water technicians and state government officials. EPA Project Officers address any situations that could potentially create barriers to good communication and collaboration on a case-by-case basis.

Recommendation 4-4: **Work with the regions and states to determine how best to disseminate locally-applicable best practices at the state and local levels for (a) contaminant source management practices and (b) how to motivate and sustain local level action. In addition, continue to monitor protection programs and identify common elements of success for promotion in future protection efforts.**

EPA has done much in this area and will continue to do so. For example, we implemented for four years a training program to train all states on such BMPs relative to fifteen prevalent potential sources of contamination found in source waters. In addition, we are working very closely with numerous organizations that implemented demonstrations of local source water protection since 2000 to develop lessons learned from them. A document will likely be published and widely distributed that will both describe these lessons and some recommendations based on them for state and local source water protection programs. (Such organizations include the Trust for Public Land, National Rural Water Association, Environmental Finance Center Network, and the Ground Water Foundation).

Recommendation 4-5: **In coordination with regions and states, identify points of integration among environmental programs and delineate steps to implement program integration plans.**

Recommendation 4-6: **Assist regions and states in identifying appropriate state and federal agencies with activities that impact drinking water quality, providing appropriate agency officials with information on locations of source water areas and potential negative impacts to water quality, and facilitating cooperation among these agencies to mitigate these impacts and further drinking water protection.**

Recommendation: 4-7: Revisit the 1999 Federal Multi-Agency Source Water Agreement and determine how agencies are participating and, based on state and regional needs, how that participation can be enhanced in the protection phase of the SWAP.

Recommendations 4-5 through 4-7 address integration of programs at the federal and state levels to facilitate local source water protection actions. The following response applies to all three recommendations collectively.

OW has always and continues to work within the Office, with other EPA program offices and with other federal agencies to integrate environmental programs. In addition, we have encouraged states to do the same.

We have worked vigorously for the past five years to integrate the Clean Water Act with the Safe Drinking Water Act relative to standards, assessments and monitoring, setting priorities for waters to be addressed, local plans and strategies and protection program implementation. In addition, we are coordinating across environmental programs within EPA and with other federal agencies. Some examples include our work with:

- EPA's Office of Solid Waste and Emergency Response Underground Storage Tank program to integrate source water areas into their priority setting processes;
- EPA's Office of Pesticide Programs on registration and re-registration requirements for several pesticides with source water impacts;
- U.S. Geological Survey on monitoring and source water assessments;
- U.S. Forest Service on several documents for source water and ground water protection;
- Department of Transportation's Office of Pipeline Safety on designating critical areas;
- Department of Energy on Underground Injection Control program issues.

The 1999 Federal Multi-Agency Source Water Agreement forged useful relationships to assist states with implementing SWAPs. In fact, the Agreement also increased federal efforts in some agencies to do more protective actions for lands, facilities, or regulated entities in or near source waters (e.g., working with EPA, the Forest Service in USDA published two documents on source water protection distributed to foresters, will soon publish and distribute a document on ground water protection, and has been working on maps of source waters to assist foresters protect water supplies during forest fires.)

EPA began reinvigorating this agreement in July 2003, when we co-sponsored, with the Association of State Flood plain Managers, a federal agency roundtable meeting to discuss new efforts to coordinate flood plain management with source water protection (agencies included EPA, Army Corps of Engineers, Federal Emergency Management Agency, Bureau of land Management and U.S. Geological Survey of the U.S. Department of Interior, and the U.S. Department of Agriculture,)

EPA has also engaged the Association of State Drinking Water Administrators and the Ground Water Protection Council to invigorate state source water program offices to engage other state agencies in source water protection. These organizations are working with their state members to renew or begin new relationships with other state agencies with facilities or lands impacting drinking water quality, or that regulate or can influence facilities that are potential sources of contamination of source waters.

Chapter-Specific Comments on Inaccuracies In the Draft Report

Chapter 1

Background: 2nd paragraph, 2nd sentence

Remove private wells from the list in that sentence. Private wells are not covered under SDWA source water assessment program which applies to public water systems.

Background, 3rd paragraph

Neither the State of Florida nor the EPA Region 4 office was contacted to discuss this claim that was based on "press reports." It is requested that the IG coordinate with the Region 4 Water Management Division and Florida DEP on the accuracy of this statement before finalizing this draft report.

Background, 5th paragraph, 3rd sentence

The paragraph suggests that the success of source water protection depends on enlisting federal, state, and local government and individual citizens. We agree. However, one key stakeholder - the private sector - should be added to the discussion. Businesses which are potential sources of contamination can change practices to reduce loadings of contaminants to source waters on a voluntary basis and therefore could have a huge impact on the quality of sources of drinking water and thereby on drinking water quality.

Background, 9th paragraph

This paragraph should be corrected with accurate information about the possible source water protection set-aside provisions. The following information is from OGWDW's website as well as some information on expenditures through June 2004.

Up to 10 percent of a State's allotment can be used for State program management [Section 1452(g)(2)]. Funds can be used to support source water protection programs, which may include:

- Hiring staff to administer and provide technical assistance through source water protection programs
- Completing contamination source inventories and susceptibility analyses.

($31.5 Million expended under these two sets of activities)

Up to 15 percent of a State's capitalization grant can be used for local assistance and other State programs [Section 1452(k)]. Up to 10 percent of these funds may be used to:

- Make loans to public water systems for purchasing land or conservation easements for the purposes of source water protection ($3.0 Million)
- Make loans to community water systems for implementing source water quality protection partnership petition programs, or voluntary, incentive-based source water protection programs ($8.1 Million)
- Establish and implement wellhead protection programs ($55.6 Million)

- Conduct delineations and assessments of source water areas for public water systems in accordance with Section 1453 (using fiscal year 1997 grant funds only). ($95.9 Million)

Chapter 2

"States Making Progress" section, 1st paragraph

Change the language to reflect that the Safe Drinking Water Act at Section 1453 permitted a state 3 ½ years after EPA approval of its Source Water Assessment Program to complete it. Thus, the May 2003 deadline is incorrect for many states.

"States Making Progress" section, 3rd paragraph –

Change this paragraph to include the fact that many states have watershed approaches in place that could include source water protection actions in delineated surface water-based source water areas. It is incorrect to categorically state that states don't have surface water protection strategies that affect surface-water source water protection.

"States are Using a Variety section"

Describe up front in this section, and in more detail, that the state source water protection approaches delineated in this section are not mutually exclusive. In fact, many states employ more than one of the approaches described. While the attempt to categorize states may be useful, a more detailed understanding the differences among the approaches would elucidate the discussion and allow the reader a more full understanding why the categories were created.

Chapter 3

No Comments on Chapter 3.

Chapter 4

Section titled "Environmental program coordination needs improvement," 2nd paragraph

This paragraph incorrectly states that there is an *EPA mandate to incorporate the UST program with SWAP."* EPA issued a joint memorandum from the Office of Ground Water and Drinking Water and Office of Underground Storage Tanks (OUST) on how the two programs will coordinate at the regional and state levels. The draft report describes the memorandum correctly in the last section of this chapter before the conclusions.

The information concerning Tennessee staff activity/inactivity that are described have not been substantiated by the Tennessee UST program. We recommend that the current paragraph in the draft report be substituted with the following paragraph:

> "Lack of coordination can put water quality at risk. Tennessee Department of Environment Conservation (TDEC) officials have identified several sites within wellhead protection areas that have either been contaminated through the release of a contaminant or may not have been fully protected due to lack of information. According to the TDEC officials, coordination to resolve the discrepancies has several challenges including

incompatibility of data (lack of GIS) and lack of an integrated database. Environmental programs within TDEC are currently working on these and other issues to strengthen the protection of both surface and ground water."

Section titled, "Tailor your pitch and use site-specific examples"

The first paragraph does not include the fact that Tennessee DEC, in cooperation with the Tennessee Association of Utility Districts, has been conducting source water related workshops across the state for the water system operators. The operators are provided with a copy of their assessment results for their systems and are trained on the assessment program and protection activities. This information should be included in the final report to provide a full and accurate statement concerning this issue.

Attachment II

Status of Source Water Assessments - February 2005

	State	Pct CWS	Pct all NC	Pct all PWS
01	Connecticut	100%	100%	100%
01	Maine	100%	100%	100%
01	Massachusetts	100%	100%	100%
01	New Hampshire	99%	100%	100%
01	Rhode Island	100%	100%	100%
01	Vermont	91%	85%	86%
02	New Jersey	5%	0%	1%
02	New York	100%	100%	100%
03	Delaware	95%	74%	83%
03	Maryland	92%	48%	54%
03	Pennsylvania	92%	95%	94%
03	Virginia	100%	100%	100%
03	West Virginia	100%	100%	100%
04	Alabama	99.6%	100%	99.7%
04	Florida	34%	48%	44%
04	Georgia	89%	16%	64%
04	Kentucky	98%	68%	91%
04	Mississippi	100%	100%	100%
04	North Carolina	100%	100%	100%
04	South Carolina	100%	100%	100%
04	Tennessee	100%	100%	100%
05	Illinois	100%	100%	100%
05	Indiana	51%	0%	10%
05	Michigan	100%	100%	100%
05	Minnesota	100%	100%	100%
05	Ohio	99%	35%	50%
05	Wisconsin	100%	100%	100%
06	Arkansas	100%	100%	100%
06	Louisiana	100%	100%	100%
06	New Mexico	100%	100%	100%
06	Oklahoma	100%	100%	100%
06	Texas	100%	100%	100%
07	Iowa	100%	100%	100%
07	Kansas	100%	100%	100%
07	Missouri	100%	100%	100%
07	Nebraska	100%	100%	100%
08	Colorado	100%	0%	41%
08	Montana	71%	71%	71%
08	North Dakota	100%	100%	100%
08	South Dakota	100%	100%	100%
08	Utah	86%	94%	90%
08	Wyoming	58%	46%	51%
09	Arizona	100%	100%	100%
09	California	100%	100%	100%
09	Hawaii	100%	100%	100%
09	Nevada	100%	100%	100%
10	Alaska	100%	100%	100%
10	Idaho	100%	100%	100%
10	Oregon	72%	63%	66%
10	Washington	100%	100%	100%
	Total	**93%**	**83%**	**86%**

Appendix E

Distribution

Office of the Administrator (1101A)
Assistant Administrator, Office of Water (4101M)
Director, Office of Ground Water and Drinking Water (4607)
Agency Followup Official (the CFO) (2710A)
Agency Audit Followup Coordinator (2724A)
Associate Administrator for Congressional and Intergovernmental Relations (1301A)
Associate Administrator, Office of Public Affairs (1701A)
General Counsel (4010A)
Inspector General (2410)