OFFICE OF INSPECTOR GENERAL

Catalyst for Improving the Environment

Evaluation Report

States Making Progress on Source Water Assessments, But Effectiveness Still to Be Determined

Report No. 2004-P-00019

May 27, 2004

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Abbreviations

EPA	U.S. Environmental Protection Agency
OGWDW	Office of Ground Water and Drinking Water
OIG	Office of Inspector General
SDWA	Safe Drinking Water Act
SWAP	Source Water Assessment Program

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

OFFICE OF
INSPECTOR GENERAL

May 27, 2004

MEMORANDUM

SUBJECT: States Making Progress on Source Water Assessments, But Effectiveness Still to Be Determined
Report No. 2004-P-00019

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

TO: Benjamin Grumbles
Acting Assistant Administrator for Water

This is our final report on the preliminary research on source water assessments 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 March 31, 2004, the OIG issued a draft report to EPA for review and comment. A response was submitted on May 5, 2004, and an exit conference was held on May 11, 2004. EPA agrees with the OIG recommendation to clarify to States how they can provide source water information to the public while acknowledging homeland security concerns. EPA notes that the Office of Water is currently working to develop guidance, which it hopes to issue shortly. EPA also states that it is still in the process of working with State representatives to establish measures by which to evaluate the success of the Source Water Assessment Program over time. EPA has provided additional details pertaining to the limitations and priorities EPA must consider when making decisions regarding how States will report and measure progress. The OIG has incorporated these comments, as well as the 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, please contact me at (202) 566-0830 or Ira Brass at (212) 637-3057.

Executive Summary

Purpose

The Source Water Assessment Program (SWAP) was established under the Safe Drinking Water Act Amendments of 1996 since it is often easier and more cost effective to prevent contaminants from getting into a drinking water system than to try to remove them through treatment after the fact. SWAP was intended to encourage States to form voluntary, mutually beneficial partnerships to develop source water protection strategies. For our preliminary research we addressed the following questions:

- What is the status of source water assessment submissions?
- Are source water assessments fulfilling the needs of the program?
- How is success of the program measured?

Results in Brief

States were at various levels of source water assessment completion even though the May 2003 deadline had passed. Only 40 percent of the States had fully completed their community water system assessments and made them publicly available by September 2003. Still, this was significant progress over prior year statistics, and the States we visited were working hard toward completing the task. States provided a variety of reasons for the untimeliness of the assessment completions, including: (1) limited human resources; (2) competing interests; (3) data issues; (4) public participation; (5) establishing partnerships; and (6) desire for a quality product.

SWAP appears to have been beneficial. While States approached it differently, there is consensus that the information obtained through the assessment process and the quality of the assessments themselves can lead to protection efforts and be incorporated into other water quality management programs. We found that most States used a wide variety of available information sources to develop the assessments. Where data gaps existed, the States we visited were resourceful in obtaining and using the information. However, some stakeholders raised concerns about the usefulness of some assessments. We plan to look further in our field work phase at the effectiveness of the source water assessments as tools to motivate communities and assist assessment users to develop and implement drinking water protection strategies.

Concerns were raised about EPA's expected SWAP reporting and measurements both with regard to information aggregation and the individual measurements themselves. We found that the EPA measures evaluate the process rather than the

result, and those interviewed believed that the current measures are not a good way of capturing the true value of the SWAP program. This is due to the wide variety of approaches, criteria, and level of detail used by States to assess susceptibility, difficulty in quantifying concepts such as susceptibility and protection, lack of baseline data from which to evaluate trends, and challenges and limitations (technical, financial, time) in trying to conform the data collected to fit the EPA format.

We noted several additional issues during our preliminary research that were not specifically encompassed by the preliminary research questions but we nonetheless briefly discuss in this report. These include the competing interests of security versus assessment information availability; SWAP regulations not covering private well water; resources not allocated to update assessments; and perceived limits on local input into the process.

Recommendations

We recommended that in the EPA/State workgroup discussions to finalize the SWAP measures and reporting requirements, EPA 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 indicated it will take appropriate corrective actions.

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Chapter 1
Introduction

Purpose

Our overall preliminary research question was to determine what progress is being made by the Source Water Assessment Program (SWAP) in protecting public drinking water quality. More specifically, we addressed the following questions:

- What is the status of source water assessment submissions?
- Are source water assessments fulfilling the needs of the program?
- How is success of the program measured?

Background

The Safe Drinking Water Act (SDWA) Amendments of 1996 recognize the value of protecting the nation's drinking water at its source as a complement to treatment. SWAP was established under the SDWA Amendments in recognition that it is often easier and more cost effective to prevent contaminants from getting into a drinking water system than to try to remove them through treatment after the fact. SWAP is one of several provisions of the SDWA Amendments (including water system operator certification, capacity development, funding for infrastructure improvement, and public education) aimed at protecting source water. SWAP was intended to encourage States to form voluntary, mutually beneficial partnerships to develop source water protection strategies.

SDWA was amended in June 2002 to include provisions for water system infrastructure security and counter-terrorism. In addition to source water assessments, SDWA now requires community water systems serving populations greater than 3,300 to conduct a vulnerability assessment and prepare or revise an emergency response plan to mitigate vulnerabilities identified.

SWAP is administered by the Environmental Protection Agency's (EPA's) Drinking Water Protection Division of the Office of Ground Water and Drinking Water (OGWDW), along with EPA's 10 regional drinking water programs. Each State was required to develop and implement a SWAP, which will analyze existing and potential threats to public drinking water quality throughout the State. EPA is responsible for the review and approval of the State SWAP plan documents. EPA does not review the individual assessments for required content or quality. SWAPs may vary from State to State, according to each State's priorities. However, each assessment must include the following four components:

- Delineation of the source water area.
- Contaminant source inventory.
- Susceptibility determination of the public water supply to contamination from the inventoried sources.
- Release of the results of the assessments to the public.

According to OGWDW, source water assessments are intended to provide public water systems and the communities they serve with a range of information on risks to source water areas that can be used to prioritize actions needed to protect their sources of drinking water. OGWDW noted three issues to consider when determining whether the source water assessments are meeting program needs:

(1) Robustness of information sources a State could have used to develop the assessments given the statutory mandate to use all "available" sources;
(2) Whether the information in the source water assessments have sufficiently comprehensive information to help communities make decisions; and
(3) Whether completed source water assessments are actually helping to motivate communities to develop and implement protection measures.

As States complete source water assessments, the results of the assessments must be made available to the public, either directly or through a delegated entity. The expectation is that, once completed, assessments can be used to develop and implement drinking water protection activities, although such use is not actually required by the SDWA.

Scope and Methodology

We conducted preliminary research work from September 2003 through February 2004 in accordance with *Government Auditing Standards*, issued by the Comptroller General of the United States. We looked at SWAP from its inception in 1996. We conducted an extensive review of literature, policies, and guidance documents. Further, to gain a broad perspective of the program, we interviewed staff at EPA's OGWDW and Regions 2, 3, and 10. We also interviewed officials in State environmental and/or health offices in New Jersey, New York, Pennsylvania, Idaho, and Washington; officials of local governmental and nongovernmental organizations in New York, Pennsylvania, and Idaho; and representatives of two environmental organizations. We reviewed and analyzed SWAP plans for the five States visited and reviewed source water assessments from nine States within the regions visited.

These locations were selected based on several factors, including: (1) differing SWAP approaches; (2) geographic diversity and similarity; (3) differing State organizational responsibilities; (4) interaction between contiguous Regions and States; and (5) variation in assessment completion progress. To aid in our

decision making, we sought the advice of OGWDW officials because of their greater familiarity and broader view of the overall program.

We originally had four objective questions, but are only addressing three in this report (see "Purpose"). The fourth question, "What is the status of water protection activity implementation and what barriers need to be overcome?" will be addressed during our continuing field work and discussed in a separate report.

While the OIG has not performed any previous work on the subject, the General Accounting Office issued the report, *Safe Drinking Water Act: Progress and Future Challenges in Implementing the 1996 Amendments (January 1999)*, in which it noted challenges in completing individual source water assessments.

Chapter 2

Source Water Assessment Progress Varies

States were at various levels of source water assessment completion even though the May 2003 deadline had passed. Only 40 percent of the States had fully completed their community water system assessments and made them publicly available by September 2003 (EPA indicated this represented 69 percent of community water systems). Still, this was significant progress over the statistics for the prior year, and States we visited were working hard toward completing the task. States provided a variety of reasons for the untimeliness of the assessment completions, including:

- limited human resources
- competing interests
- data issues
- public participation
- establishing partnerships
- desire for a quality product

Though assessment efforts continue, SWAP appears to have been beneficial at all levels. While States approached it differently, there is consensus that information obtained through the process and the quality of the assessments themselves can lead to protection efforts and be incorporated into other programs for the betterment of public health and the environment. However, concerns were raised that EPA measures evaluate the process rather than the actual result. This is due to the wide variety of approaches, criteria, and level of detail used by States; difficulty in quantifying concepts; lack of baseline data from which to evaluate trends; and challenges in having the data fit the EPA format.

Assessment Submissions Making Progress, But Not Complete

States were at various levels of source water assessment completion even though the deadline of May 2003 had passed. OGWDW data for community water systems showed the following as of September 30, 2003:

Percent Completion	No. of States*
100	20
90 to 99	8
50 to 89	12
10 to 49	2
1 to 9	3
none	5

* In addition Washington, DC, was at 100 percent and Puerto Rico was at 17 percent.

The mere completion of assessments does not assure that program needs are met. We plan to evaluate the utility of source water assessments in State and local protection efforts during the field work phase of our assignment.

In no region were all States fully complete, although in Region 7 all States were at least 98 percent complete. While not all assessments have been completed by the goal set by EPA, there has been significant progress since the last reported statistics for September 30, 2002. At that time, the percentage completion by EPA region for community water systems was between 1 and 41 percent.

These statistics did not always reflect the actual picture within a State. Both New Jersey and Washington reported zero assessments complete when this was really not the case; both had completed nearly all their assessments and planned to issue them all at the same time. However, since SDWA Section 1453 (a)(7) defines the last step of an assessment as making results "available to the public," their statistics gave the impression of a lack of progress.

State officials provided a variety of reasons for the failure to meet the May 2003 deadline. These included:

- **Limited human resources to perform the assessments and competing interests that pulled staff away from the assessment progress.** New York, despite experiencing a 40 percent reduction in its SWAP staff due to retirements and personnel moves, completed 96 percent of its assessments as of September 30, 2003. Replacement hires could not be made because of a hiring freeze. In Alaska, which reported 71 percent completion, the SWAP did not become fully staffed until June 2001, when two hydrologists and a program coordinator were hired. Both New Jersey (no assessments officially completed) and Maryland (85 percent completed) had to shift assessment staff to respond to State drought conditions.

- **The enormous task of data gathering, database management, and dealing with data gaps.** Pennsylvania reported 90 percent of its assessments completed as of September 30, 2003. According to State officials, given that existing State databases were not designed for this project and data gaps occurred because they had no monitoring data of raw water quality, assessment progress was delayed.

- **Extensive public participation.** Pennsylvania officials said their public involvement process lengthened the assessment preparation timeframes. Several public meetings were held for the planning and development of each assessment, which made timely completion difficult.

- **Forming partnerships with outside agencies.** Washington, which reported no assessments complete, partnered with a variety of local agencies to collect

data rather than use a single consultant or collect the data, and collecting all this data Statewide caused delays.

The desire for a quality product also extended the time frame required to complete the assessments.

There were, however, two States in the regions we visited that had completed all their assessments – Virginia and Idaho. Virginia had a good sanitary survey program in place and experience with water utilities, which facilitated the assessment process. In addition, Virginia used a faster, more generic groundwater delineation approach instead of more detailed modeling. Given the limited scope of our preliminary research work, we did not interview Virginia officials; therefore, the ultimate success could not be determined.

While Virginia simplified its delineation approach in the interest of time, Idaho wished to balance a degree of technical sophistication with the desire to produce the assessments in a timely manner and with enough information to move on to protection. Idaho was able to complete its assessments on time by using a combination of delineation methods; Idaho prioritized community and non-transient noncommunity systems to receive a more technically accurate delineation because this method is more scientifically defensible and promotes cost-effective source water protection initiatives.

Assessments Found to Be Beneficial

It appears that SWAP has been a beneficial process. While States approached the program differently, there is consensus that the information obtained through SWAP and the quality of the assessments themselves have the potential to lead to protection efforts, and be incorporated into other water quality management programs for the betterment of public health and the environment. Officials interviewed at all levels said that, overall, the SWAP process was a worthwhile endeavor.

We found that most States used a wide variety of available information sources to develop the assessments. Where data gaps existed, States were resourceful in obtaining the information, took advantage of Geographic Information Systems technology and hydrologic models, and generated databases to manage and evaluate the information gathered. For example:

- In the Long Island section of New York, the assessments were performed by a consultant focused on improving upon existing hydrologic data. The SWAP process led to the improvement of groundwater models, increased the level of detail of the hydrologic data, increased confidence in the recharge area, and put water quality data in a new format so that counties and water suppliers could identify the potential for protection benefit.

- New Jersey had historical public well data and used that information to prioritize time and level of detail on their assessments based on a well's vulnerability to contamination (i.e., depth, confined, unconfined).

In cases where the information was unavailable, States adjusted their delineations or assumed a conservative position with regard to the uncertainties. As opposed to what was done in Long Island, in upstate New York, no public well data was available and, without well depths, an accurate delineation was not possible. Obtaining well depths for each public water source would have been expensive and impractical. New York therefore had to use a fixed radius delineation method for its upstate sources.

We also found that there was inherent value in the source water assessment process demonstrated by the assessments' use in drinking water protection efforts in several States:

- In Idaho, the State environmental agency and non-governmental agencies have been working with communities to prioritize risks to drinking water quality and develop source water protection plans based on the assessments completed.

- In Washington, the assessments were being used to develop county source water protection/land use ordinances.

- Alaska has developed an interactive CD-based program that can assist users in developing a source water protection plan based on information in their source water assessment.

State agencies also believed that the assessments would be useful in drinking water quality protection efforts, and have the potential to be incorporated into existing water protection programs:

- In Pennsylvania, identifying potential sources of contamination upstream of drinking water intakes created an awareness throughout the State of potential impacts to water quality among those other than the water supplier community. This was found to be true within the Schuylkill Watershed, the source of Philadelphia's drinking water supply. Philadelphia Water, the utility that supplies drinking water to the City of Philadelphia, conducted its own assessment, with extensive involvement from stakeholders within the watershed. A Philadelphia Water representative stated that the Schuylkill Watershed would not be moving toward protection of the Philadelphia drinking water supply were it not for the SWAP.

- Idaho's Integrated Watershed Management program was developed to help communities transition from source water assessment to protection while

acknowledging there is little funding available specifically designated for such projects. Therefore, this program focuses on coordinating efforts to protect drinking water both internally and externally by identifying funding sources for projects that address multiple benefits to water quality.

While officials at the Federal and State levels agreed that, overall, the assessments meet or have the potential to meet program needs, responses from some local level and other stakeholders indicated that the effectiveness of the assessments as a tool for source water protection may be limited in certain cases. Concerns raised during interviews included whether the assessments:

(1) contain enough information to raise public awareness and motivate action;
(2) are sufficiently detailed to back up decisions that may face political resistance; and
(3) adequately communicate relative risk to the public.

Due to the limited scope of the preliminary research phase, we did not perform a comprehensive survey of stakeholders to evaluate the assessments' effectiveness in getting communities to develop and implement protection measures from the perspective of their users. We plan to look further during the field work phase of our assignment at the effectiveness of the assessments as tools to motivate communities and assist assessment users to develop and implement drinking water protection strategies.

Measuring Program Success Still Work in Progress

Though an EPA/State committee has been working for the past three years to develop program measures to aggregate State and national data and evaluate the impact of the SWAP over time, we found that the Regions and States still had concerns regarding EPA's expected SWAP reporting and measurements, both with regard to how the information is to be aggregated and the individual measurements themselves. We found that the EPA measures seemed to evaluate the process rather than the result, and those interviewed believed that the current measures are not a good way of capturing the true value of the SWAP program. This is due to the wide variety of approaches, criteria, and level of detail used by States to assess susceptibility; difficulty in quantifying such concepts as susceptibility and protection; lack of baseline data from which to evaluate trends; and challenges and limitations (technical, financial, time) in trying to conform the data collected to fit the EPA format.

OGWDW issued draft guidance on source water assessment program measures in April 2003. In this document, four key questions were identified by EPA and stakeholders to guide the evaluation process:

(1) Are the State and tribal source water assessments and Underground Injection Control inventories being completed?

(2) What threats to sources of drinking water are being found in assessment results?
(3) How are current and future drinking water supplies being protected?
(4) Are source water contamination prevention actions making a difference to public health protection?

To answer these questions, OGWDW, in August 2003, issued a guidance document (developed with the assistance of the Association of State Drinking Water Administrators) that identified data to be reported to evaluate and assess these questions. The document was to be used as a pilot for a comprehensive program report at the State and national levels. The information was due to OGWDW by October 31, 2003.

Most of the officials we interviewed said they believed the reporting format would not be able to accurately measure the true outcomes of the SWAP (i.e., reduced risks to water quality resulting in reduced risks to public health), though few could offer any substantive solutions. The main reasons they gave were:

- **Assessments were prepared using different levels of detail and criteria:** Because each State is collecting data at different levels of detail, aggregate information compiled by EPA may be expressed only at the most basic level submitted, which may not be detailed enough for a full and valuable analysis. Also, important detail may be lost when data are aggregated at the national level. Further, each State determined a water source's susceptibility to contamination differently and using diverse criteria.

- **Difficulty in defining/quantifying protection strategies:** The EPA reporting guidance document, *State and Federal Source Water Assessment and Protection Program Measures – Initial Reporting Guidance* (2003), states that, "for a strategy to be counted, it must address all of the sources of contamination in the source water area." However, States expressed that protection reporting as "strategy implemented" is not valuable and not getting to the essence of whether there was an impact. According to EPA's guidance, States must define both "initial and substantial implementation of a source water protection strategy" for themselves. EPA intends to use the measure, substantial implementation of source water prevention strategies, as a proxy for minimizing risk to public health. However, officials in several States found this unclear and subjective. Further, reporting a source has a "strategy implemented" does not account for other programs outside of SWAP, such as wellhead protection, setback requirements, etc. Given these uncertainties in definition, there is no measurable baseline of protection.

- **Difficulty in trend analysis:** Both measures and standards can change from year to year. There are generally limited baseline data on raw water quality, and not enough available information on pathogens. Measuring the change in susceptibility rating over time (i.e., from "highly susceptible" to "low

susceptibility") is an inadequate measure of success at the national level because every State's determinations are different and criteria are subject to interpretation. Further, because of location and geologic conditions, many systems will always be considered highly susceptible regardless of protection measures in place. However, at the State level, the susceptibility determination can allow for identifying relative urgency.

- **Burdensome to translate data collected into EPA-required format:** There is a discrepancy between how information was collected for the assessments and how EPA would like the information reported. The statute did not provide at the outset how to measure various outputs or outcomes, or how to monitor local source water protection efforts. In hindsight, if uniform or comparable measures had been established at the outset, regions and States could have better planned the information gathering process. Now, States have to re-categorize and re-analyze their databases to conform to the EPA's format, a time and resource-consuming process. In addition, there is no financial provision or incentive to reporting for States.

In addition, there are a number of benefits from SWAP that are not measured, such as improved technical capabilities (Geographical Information Systems and modeling work) of State and local governments, improved relationships among partnering agencies, and program integration within the lead agency and across State and Federal agency programs.

The OIG acknowledges, as EPA notes in its response to the OIG draft report, that lack of current ambient water quality data as well as the cost and time involved in collecting new data and monitoring over the long run limit the ability to measure the effects of source water protection efforts directly in terms of water quality improvement. Though EPA uses a strategic target that measures "minimized risk achieved by substantial implementation of source water protection actions," during our preliminary research we found that States had difficulty defining and applying this term, which resulted in the frustration noted both with reporting and in the measure's utility in a national assessment. EPA states that the State/EPA workgroup is still working on a definition of "substantial implementation of a source water protection strategy."

EPA states that the measures currently under consideration [(1) most prevalent and threatening sources of contamination, (2) status of community system susceptibility, and (3) percentage of community water system source water areas that can be displayed using Geographical Information Systems] do adequately demonstrate the value of the SWAP. EPA also states that the measures were agreed upon by EPA and the State source water managers given the goal of aggregating assessment results in order to assist States and EPA in moving to prevention actions. The measures were not intended to capture every benefit of the SWAP, but rather to focus on those results that will most immediately

increase State and national effectiveness in moving to source water protection strategies and actions.

EPA contends that it believes the measures will provide a useful national picture without impinging on State and local flexibility, as intended by Congress; acknowledges challenges States face in complying with the reporting process; and notes that the Agency is committed to assisting States in overcoming their barriers. However, it appears that confusion with regard to defining "substantial implementation" and how States perceive their program is represented within the national picture may continue to hinder effective participation in the reporting process.

Other Issues

During our preliminary research, several issues emerged from our discussions that, while not specifically addressed by the three preliminary research questions, nonetheless should be noted.

Clarification Needed Regarding Security and Information Availability

Pursuant to the SDWA and the 1997 EPA guidance document, States must make the results of the source water assessments available to the public. In its guidance document, EPA lists several methods of public distribution, including:

- Creating a report.
- Making the report widely available via the internet and other means.
- Providing notification of availability.
- Permitting the public to request a copy through postage-free return mail cards or internet posting.

However, according to those interviewed, because of the events of September 11, 2001, and the subsequent focus on security vulnerability and risk, States are receiving resistance from the Office of Water to making assessment information (specifically maps with locations or coordinates of drinking water wells and intakes and major contaminant sources) available to the public through the internet. States generally are providing, or are planning to provide, assessment information to the public. Still, States are making decisions to restrict assessment information availability because of increased concern over security risk, uncertainty over what type of information is appropriate for widespread internet access and more controlled access, and lack of guidance from the Office of Water. States are not in agreement on the extent of information to be released. For example:

- Washington indicated that it prefers to provide all information on its future web site, including maps with intakes and contaminant location points, and was planning to do so as of September 2003. However, a Washington official

indicated getting mixed messages from the Office of Water, and said the Agency will now wait to provide all the information to the public.

- Pennsylvania's original plan was to put the full reports on the web, but no longer. Though each water supplier and regulatory office has a copy of the full report, in order for the public to gain access to the assessment information, one needs to identify who he/she is and why the information is requested, and then must pick it up in person.

- Idaho representatives expressed that they would like to provide internet access to the assessments or, at a minimum, the executive summaries. It was noted that some of Idaho's water system operators are resistant to the idea of public access to the assessments via the internet out of fear of vandalism.

- New Jersey had all of its information (including maps) on the web but has removed it temporarily. New Jersey plans on releasing the assessment documents to the public in their complete form (i.e., including all maps and source water locations), and would like to do so through the internet.

The non-governmental environmental organizations interviewed did not perceive the risk to public drinking water systems from acts of terrorism as outweighing the need for wide public access to all of the assessment information. A Natural Resources Defense Council representative stated that it might not be necessary to disclose the exact location of a drinking water intake, but to withhold the names and locations of polluting or potentially polluting facilities in the name of security is failing to achieve what the law intended and undermines the program.

Some State officials indicated a need for clearer direction from EPA as to what information is appropriate to release and by what method. We noted that in December 2001, the Director, OGWDW, issued a memorandum to Regional Water Management Directors, entitled *Sensitive Data in Consumer Confidence Reports and Source Water Assessments.* The memorandum was meant to clarify "how to strike the appropriate balance between providing near-term safeguards in the current emergency and long-term public understanding for participation in source water protection." It noted that it was prudent to provide assessment information to the public in a format that ensured availability but was secure. However, we found that the drinking water officials in the States we visited generally seemed to be unaware of this memorandum.

In EPA's response to the OIG's draft report, the Agency agreed that there is a need to address these uncertainties and indicates that the Office of Water is currently working with EPA Regions and States to develop an approach that integrates the need for public access to the assessment information to support protection initiatives with homeland security concerns. EPA notes that the Office of Water is currently working to develop guidance, which it hopes to issue shortly.

Citizens on Private Well Water May Not Be Protected

In an effort to prioritize efforts to impact the greatest number of people, and given that pursuant to SDWA EPA regulates only public drinking water systems, the SWAP addresses public water systems only (i.e., those with at least 15 service connections or that serve greater than 25 people for at least 60 days per year). Therefore, those who receive drinking water from smaller systems or from private wells (15 percent of Americans, or approximately 42 million people) are not directly protected through this program. In some cases citizens on private well water may face an increased risk. If the source water area delineations are used to protect source water within the assessment zones and site potential contaminant sources outside the zones, the wells drawing from aquifers outside the zones may face a greater risk. Washington is addressing this issue through the establishment of a State-designated protection area covering parts of three counties (Grant, Franklin, and Adams Counties) and EPA assists private well owners through other means.

However, risk to private well owners may be minimized in cases where surface water protection efforts result in decreased loadings. For example, if implementation of agricultural best management practices reduces loadings of nutrients and pesticides to nearby streams and reservoirs, the risk of contaminating groundwater that serves wells on that farm or nearby properties may be reduced also.

Federal Resources Allocated to Update Assessments are Limited

SWAP was funded as a one-time exercise. However given that the assessment process occurred over the course of 3 to 4 years, States face changes in numbers of systems (i.e., systems coming on or going off line). This condition will continue, and needs to be addressed. In the longer term, new wells drilled can impact groundwater flow patterns, population growth and development will result in land use changes, and new sources of contamination may locate within the source water areas. In its program guidance, EPA recommends that States periodically update assessment information to make adequately informed decisions in the future, as well as to account for new changes in land use that could, if not identified, hinder drinking water quality. While many State officials expressed intentions to use the assessment information to site new drinking water sources, preparing an assessment report for each new source and/or updating existing assessments can be resource-intensive and, in some cases, prohibitive.

Two Drinking Water State Revolving Fund set asides may be used to update the assessments (SDWA Section 1452(k)(1)(D) for groundwater systems and Section 1452(g)(2)(B) for surface water systems), however the surface water set aside requires a match by the State to obtain the funds, and additional State and Federal barriers often limit the ability of States to obtain and use these funds.

Local Input on Assessments Sometimes Perceived as Limited

EPA guidance required public input into the SWAP planning process and each State set up citizen and technical advisory committees to assist in the SWAP plan development. Though the Agency encouraged local involvement in the SWAP planning process, there was no requirement for participation in conducting the assessments themselves. Therefore, the extent to which stakeholders participated in conducting the assessments varied among States. A Natural Resources Defense Council representative said there was a high degree of frustration among local stakeholders (e.g., Clean Water Action affiliates, Campaign for Clean and Safe Drinking Water members, and utilities) who wanted to have a greater role in providing input and conducting assessments but believed they were shut out of the assessment process by States. According to the Council's representative, these groups believed the final assessments were watered down and not as useful as they could have been. The Council's representative did mention that in the case of New York's Susquehanna River Basin assessments, local groups were well represented in the process.

While EPA acknowledges that the impact of limited public participation in the assessment preparation remains to be seen, the agency is funding public outreach organizations to increase awareness of the completed assessments. EPA also notes in its response to the OIG's draft report that many States have continued to use the services of the advisory committees to assist the State agency in protection planning.

Recommendations

We recommend that the Acting Assistant Administrator for Water:

2-1. Continue development and establishment of source water assessment program measures that better capture the program's results. In the EPA/State workgroup discussions to finalize the SWAP measures and reporting requirements, we recommend that EPA revisit the State agency concerns raised in this report, solicit and evaluate alternatives, and resolve the concerns to the satisfaction of the group.

2-2. Given the uncertainty as to what assessment information can and should be released to the public, and with the limitations in light of recent security concerns, continue to develop and issue guidance to the States on what assessment information is appropriate to release to the public and by what means different types of information should be distributed.

Agency Comment and OIG Evaluation

In a May 5, 2004, response to our draft report (see Appendix A), the Acting Assistant Administrator for Water agreed that EPA needs to address uncertainties about security concerns on the release of source water assessment information to the public. The Office of Water is currently developing guidance, which it hopes to issue shortly. The Acting Assistant Administrator also stated that EPA has been working with States for the past 3 years to establish a suite of program measures for SWAP. We have revised our draft recommendation on this issue to be more consistent with this effort. We consider actions being taken by EPA to be appropriate.

Appendix A

Agency Response

MEMORANDUM

SUBJECT: States Making Progress on Source Water Assessments,
But Effectiveness Still to be Determined
Assignment Number 2003-001435, Draft Evaluation Report

FROM: Benjamin Grumbles /s/
Assistant Administrator

TO: Nikki Tinsley,
Inspector General

Thank you for the opportunity to comment on your Office's draft report, *States Making Progress on Source Water Assessments, But Effectiveness Still to be Determined*. I would like to respond briefly to your two draft recommendations, with more detailed comments attached.

I agree that the Environmental Protection Agency (EPA) needs to address uncertainties vis-a-vis security concerns on the release of source water assessment information to the public. The Safe Drinking Water Act as amended in 1996 envisions that localities and states will use the information in source water assessments to gain support for and carry out source water protection activities. My Office is currently working in consultation with EPA's Regions and the states to develop a balanced approach that integrates this vision with homeland security concerns. We hope to issue guidance and implementing procedures soon.

We have also been working over the past three years, consistent with your draft recommendation, to establish a suite of program measures through our efforts under the auspices of an EPA/State workgroup to finalize definitions of the source water assessment and protection measures in the EPA Strategic Plan. The workgroup is expected to complete its work this summer and will insure that we have aggregated information that can be used at the state, regional and national levels to both manage the program and measure progress. We believe that the measures will provide a useful national picture without impinging on state and local flexibility, as intended by Congress.

Finally, in connection with your proposal for an IG follow-up study, I would note that the source water program is now in the early stages of transition from the mandatory assessment to the voluntary protection phase. The questions that you have proposed for the next round on the status and effectiveness of protection efforts appear to be premature – although these could indeed be the kinds of questions to ask at some future time. A more relevant approach for this year may be to focus on barriers that states and localities face in implementing source water

protection based on the source water assessments and consider how those might be addressed.

Thank you again for the opportunity to comment on the draft report. If you have questions regarding our comments, please have your staff contact Joan Harrigan-Farrelly, Chief of the Prevention Branch in the Office of Ground Water and Drinking Water at (202) 564-3867.

Attachment

Office of Water's Comments on the Office of Inspector General's Draft Evaluation Report: *"States Making Progress on Source Water Assessments, But Effectiveness Still To Be Determined"*

Major Comments

Progress in Completing Assessments

While the IG's draft report states that only 40% of states had fully completed their assessments by September, 2003, it should be also noted that the same data shows that assessments were complete for 69% of community water systems and 53% of all water systems. Moreover, since that time states have made additional progress on assessments which will be included in end-of-year documentation for FY04.

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Measuring Program Success Still Work in Progress

The report stated two criticisms of EPA's source water measures:

1. The Measures seemed to evaluate the process rather than the result; and

2. The measures are not a good way of capturing the true value of the SWAP program.

Regarding the first criticism, we found, after working over the course of the last three years with every state ground water and drinking water manager in the nation, that there are limitations on the availability of data would enable us to implement measures based on more direct outcomes, such as source water quality. Moreover, the burden and costs to collect such data are extremely high and data collection would be difficult to execute in the near run. For example, the vast majority of states do not collect data on ambient ground water and surface water quality for regulated drinking water contaminants. These and other current data limitations as well as the cost, burden and timeliness of attempting to overcome them influenced our decisions jointly with the states as to what measures to include in the 2004-2008 Strategic Plan.

EPA's Strategic Plan does include a measure that represents the results of source water protection. That measure is a Strategic Target and reads:

> **" By 2008, 50% of source water areas (both surface and ground water) for community water systems will achieve minimized risk to public health. ("Minimized Risk" achieved by substantial implementation, as determined by the state, of source water protection actions in a source water protection strategy)"**

The current State/EPA workgroup is working on a definition of "substantial implementation of a source water protection strategy" based on the understanding that this measure presumes that substantial implementation of a source water protection strategy will result in protective activity to minimize risks to source waters.

Regarding the second criticism concerning measuring assessments, we do recognize that states used various methods for accomplishing the aspects of assessments. For example, states used varying, although still valid, methods for conducting susceptibility determinations. Although they are not uniform, we believe that the range of approaches used by states in carrying out their initial source water assessments is acceptable for the purposes of supporting a transition to voluntary protection as envisioned in the Safe Drinking Water Act. The source water assessment related program activity measures in the National Water Program Guidance, released April 21, 2004, will provide, when information is aggregated statewide and nationally, a reasonably good picture of the value of the National Source Water Assessment Program. The three measures are:

1. What are the most prevalent and threatening sources of contamination in source water areas, by state, region and nationally ?
2. What is the status of community water system susceptibility (high/moderate/low) ?
3. What percentage of community water systems (CWSs) will have delineated source water areas available in Geographic Information System digitized format ?

When states collect and provide information on these measures, EPA and the states will know which sources of contamination are of highest priority to address, which source waters are of highest priority to address, and which States are fully using the most useful technology now in existence for displaying assessment information to the public, Geographic Information Systems. While this information will not provide an absolutely complete description of the value of the source water assessments statewide and nationally, it is the critical minimum data that should be produced in each state for moving from assessments to source water protection and it will be a significant step forward.

These current measures are based upon an agreement between EPA and the States (through the Association of State Drinking Water Administrators and the Ground Water Protection Council, both representing state source water managers), to be piloted in 2003 through the Strategic Planning process. The agreement was to support would aggregate the results of assessments to assist states and EPA in moving to prevention actions. In addition, in light of state reporting burdens and limited resources, the agreement included the principle that the least number of measures to accomplish this goal was optimal. Consequently, EPA's Strategic Plan program activity measures were never intended to capture all the benefits of source water assessments, but rather to focus on those results which will most immediately increase state and national effectiveness in moving to source water protection strategies and actions.

The report also notes that states have challenges and limitations (technical, financial, time) in trying to conform the data collected to fit the EPA format. States, as noted, agreed to pilot the measures, and to report on them to EPA in 2003. While not all reported on all

measures, partly because they did not have the data aggregated for some, states did report on many of them. In fact, four states provided information on all the measures for assessment and protection through a pilot computer transfer protocol jointly developed between EPA, the states and the Ground Water Protection Council (GWPC). We do understand that states have challenges regarding the management of data systems for source water assessment and protection information, and are mutually committed along with our state partners as represented by ASDWA, and GWPC to assist the States overcome the challenges and limitations.

Finally, the IG's draft report points out that EPA does not have a baseline to evaluate trends, but fails to note that 2003 was the first pilot year for reporting information from the states on the measures in the new strategic plan, and that 2004 would be the baseline year for this information.

SWAP Program does not covering private well water

While source water assessments only addressed public water systems, private well owners are located in many of the delineated source water areas, and thereby can benefit from the assessment information. Thus it appears to potentially be an overstatement in the IG's draft report that 42 million people on private wells will not be served by this program. Source water assessments have the potential to provide private well owners with valuable information about potential sources of contamination of their wells. In addition, any prevention actions which protect public water supplies in those areas could be similarly impact private water supplies, particularly if loadings of contaminants to ground waters from those sources of contamination are reduced. It is also possible for private well owners outside source water areas to benefit, if, in fact, the source water protection actions are expanded as a state implements the program. Finally, we would note that the Safe Drinking Water Act authority for the source water program is directed toward public water systems and does not include private wells.

We would like to also mention that EPA funds certain initiative and has publications and information available to assist private well owners on our website at http://www.epa.gov/safewater/privatewells

Resources not allocated to update assessments

While the Safe Drinking Water Act permitted a one time set-aside from the Drinking Water State Revolving Fund for assessments under Section 1453, there are several other set-asides that can be used for updating assessments. These include set-aside funds for an EPA-approved state Wellhead Protection Program under Section 1452(k)(1)(D) for ground water based PWSs, and under Section 1452(g)(2)(B) for surface water and ground water based PWSs.

Perceived limits on local input into the process

States, under Section 1453 of the SDWA, were provided the statutory responsibility to conduct the assessments. However, each state, per federal guidance released by the Administrator on August 6, 1997, set up a "Citizens and Technical Committee(s)" to develop the approach and plan to implement the source water assessments. Many states have continued to use the services of the established committee to oversee the assessment process and assist the state agency to move to protection.

More Detailed Comments

Chapter 1

- EPA approved State Assessment Program submissions, not individual source water assessments. States were responsible under Section 1453 for each assessment and EPA had no specific role in determining whether any specific assessment was complete. EPA's important role after a state program was approved has been to work with states to ensure that the program is implemented. Also, EPA, in some cases, worked closely with some states to adapt implementation actions under the approved program in response to changing or unanticipated situations.

- Delineated source water areas were named many different names by States. While the 1997 national guidance referred to areas as "source water protection areas," some states only called them "source water areas," or "source water assessment areas," or "delineated drinking water areas," among other names. For clarity of nomenclature, we recommend you refer to them in your final report as "source water areas."

Chapter 2

- The statistics on assessments completed on pages i and 5 of the report should specify that these data cover community water systems only.

- It should be made clear that the SDWA statute at Section 1453 (a)(7) defines the last step of an assessment as making the results "available to the public." Therefore it is incorrect to state that "EPA does not consider an assessment complete until publicly available." The statute requires EPA to include this as a step in the assessment process for each source water area.

Appendix B

Distribution

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