

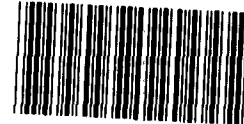
GAO

Report to the Honorable
Henry B. Gonzalez, House of
Representatives

October 1992

DRINKING WATER

Projects That May Damage Sole Source Aquifers Are Not Always Identified



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RELEASE

B-248574

October 13, 1992

The Honorable Henry B. Gonzalez
House of Representatives

Dear Mr. Gonzalez:

At least 22 million Americans rely on groundwater as their sole or principal source of drinking water. In 1974, the Congress enacted the Safe Drinking Water Act to, among other things, help protect these sources of drinking water by giving the Environmental Protection Agency (EPA) authority to (1) designate certain groundwater supplies as the sole source of drinking water for a community (referred to as "sole source aquifers") and (2) determine if federal financially assisted projects may contaminate these aquifers. ¹ If EPA determines that contamination that would create a significant hazard to public health could occur, no commitment of federal financial assistance—through a grant, contract, loan guarantee, or other means—can be made for that project. ² As of June 1992, EPA had designated 56 sole source aquifers nationwide that serve over 22 million people.

To help determine whether the Safe Drinking Water Act is adequately protecting sole source aquifers from contamination, you requested that we review EPA's implementation of the act's sole source provisions. In particular, you asked that we gather information about whether the Federal Highway Administration (FHWA) followed established procedures for referring two highway projects located over the Edwards Aquifer in Texas—Interstate Highway 10 and the Austin Outer Loop—to EPA for review. You also asked that we examine whether there are potential nationwide weaknesses in the mechanisms that trigger reviews of federal financially assisted projects that may contaminate sole source aquifers. As agreed, we did not assess the adequacy of EPA's project reviews under the Sole Source Aquifer (SSA) Protection Program or the agency's process for designating sole source aquifers.

¹The sole source aquifer provisions of the Safe Drinking Water Act do not precisely define what constitutes federal financial assistance. However, in promulgating regulations issued in 1977 for the San Antonio Area Edwards Aquifer, EPA determined that this statute does not give EPA the authority to review the impact of actions taken directly by a federal agency that could affect sole source aquifers, such as an Army Corps of Engineers dredging project.

²This statute provides an exception for commitments of federal financial assistance, if authorized under another provision of law, that are used to plan or design the project to assure that it will not contaminate an aquifer.

Results in Brief

FHWA should have referred one of the two highway projects in Texas that we examined to EPA for possible review but did not. According to the provisions of a Memorandum of Understanding (MOU) between FHWA and EPA Region 6, the Interstate Highway 10 project should have been forwarded to EPA. Due to an administrative oversight, FHWA officials did not follow these procedures, and EPA did not evaluate the potential adverse effects of this project on the Edwards Aquifer until construction of the highway had begun and federal funds for the project had been disbursed. Subsequently, FHWA agreed to work with EPA and officials from various state agencies to retrofit features for containing and recovering hazardous materials to the highway's design. With respect to the Austin Outer Loop project, EPA has determined that the sole source aquifer provisions of the Safe Drinking Water Act do not apply, since no federal funds are involved. Although environmental groups did allege that this highway was improperly segmented to avoid federal environmental reviews, the courts have decided that the segmentation is proper.

Groundwater officials from most of EPA's regional offices indicated that there are weaknesses in the principal mechanisms used to identify projects for possible EPA review. The sole source provisions of the Safe Drinking Water Act do not require federal agencies to refer projects to EPA for possible review, and EPA officials said that the agency does not have adequate resources to identify projects on its own. In an effort to help identify projects, EPA has negotiated MOUs with some federal agencies specifying the types of projects that should be referred to EPA. These MOUs are the principal mechanisms used by EPA to help identify such projects. However, according to some EPA regional officials, some projects that could potentially affect aquifers are not currently being identified for possible review because the MOUs have not been negotiated with all agencies that provide financial assistance for projects. In addition, most regional officials are concerned that the existing MOUs are not effectively identifying all projects that should be referred to EPA.

Requiring federal agencies to notify EPA of projects that could cause potential adverse effects would enable EPA to ensure that these projects are being identified, with little additional pressure on the agency's limited resources. Although EPA regional officials expressed concern that they would be unable to review in detail the large influx of projects that could ensue, the agency would be in a better position to screen projects for review and prioritize for possible detailed review those projects with the greatest potential for adversely affecting sole source aquifers.

Background

The SSA Protection Program was established under the provisions of section 1424(e) of the Safe Drinking Water Act of 1974. Under this program, EPA regional administrators—either on their own initiative or acting on a petition from individuals or organizations—may designate aquifers as the “sole or principal source” of drinking water for an area. EPA uses the following three criteria in determining whether an aquifer should be designated as a sole source aquifer: (1) at least 50 percent of the population in a given area is dependent upon the aquifer for drinking water, (2) a significant public health hazard would result if the aquifer were contaminated, and (3) no reasonable alternative drinking water supplies exist. (App. I shows the locations of all sole source aquifers designated as of June 1992.)

Designation of a sole source aquifer authorizes EPA to review—at its discretion—federal financially assisted projects proposed in the area in order to determine each project’s potential for contaminating a sole source aquifer. According to EPA’s guidance to the agency’s regional offices on conducting project reviews, federal agencies that provide financial assistance should be the primary source of information on projects occurring in sole source aquifer areas.

The principal mechanism EPA uses to identify projects for possible review are MOUs with federal agencies that stipulate procedures for screening and referring projects to EPA. In addition, regional groundwater officials obtain some information about federal financially assisted projects from other offices within EPA—such as the Office of Federal Activities and the Environmental Impact Statement Review Section³—and obtain a limited amount of information from state government agencies and clearinghouses.⁴ EPA also has the authority to review a project on its own initiative. In fiscal year 1991, nine EPA regional offices reviewed or had under review 158 projects, involving 11 federal departments and agencies. (See app. II for the number and types of projects submitted to EPA for review during fiscal year 1991.)

³The Office of Federal Activities functions mainly as EPA’s liaison with other federal agencies by coordinating EPA programs involving or affecting these agencies. The Environmental Impact Statement Review Section is responsible for coordinating the review of environmental impact statements or environmental assessments that are required under the National Environmental Policy Act.

⁴State clearinghouses collect information about planned projects occurring within a given state. Such information as lists of applications for federal financial assistance can be helpful to EPA in identifying projects for review under the SSA Protection Program. However, not all states have these clearinghouses.

The Edwards Aquifer is an underground, water-bearing layer of cavernous, fractured limestone in south-central Texas. The limestone formations can hold vast quantities of water that can be accessed through wells drilled into the aquifer. Much of the water being pumped from the Edwards Aquifer is used for municipal and industrial purposes. This water is also used for irrigation, recreation, and maintenance of ecosystems. (See app. III for a diagram showing the movement of water through the Edwards Aquifer.)

Since 1974, two portions of the Edwards Aquifer have been designated as sole source aquifers. In December 1975, the portion of the Edwards Aquifer located in the San Antonio, Texas, area was designated as the nation's first sole source aquifer. This aquifer is about 180 miles long and about 5 to 30 miles wide, and it provides over 1 million people with drinking water. The portion of the Edwards Aquifer located in the Austin, Texas, area was designated as a sole source aquifer in June 1988. This designated area includes about 115 square miles and serves a population of about 16,500 people.

FHWA Should Have Referred One of Two Highway Projects to EPA

According to FHWA officials, one of the two highway projects over the Edwards Aquifer that we examined was not referred to EPA for review because of an error made by FHWA staff. Steps have since been taken to prevent this problem from recurring. EPA has determined that the other highway project did not involve federal financial assistance and therefore is not subject to review under the SSA Protection Program.

FHWA Staff Did Not Follow Established Procedures for Referring Highway Project to EPA

FHWA officials acknowledge that the Interstate Highway 10 project should have been forwarded to EPA for possible review under the SSA Protection Program. One of the stipulations of FHWA's MOU with EPA Region 6 is that all federal-aid highway projects located in the project review zone⁵ of a sole source aquifer for which an environmental impact statement—or an environmental assessment and finding of no significant impact—has been prepared will be referred to the EPA Region 6 Office of Groundwater for

⁵The project review zone for a sole source aquifer includes an aquifer's recharge zone, or the area in which water flows from rainfall and surface rivers and streams into the aquifer. In some cases, the project review zone also includes the stream flow source zone, which is the area where streams that flow into the recharge zone originate.

possible review.⁶ The Interstate Highway 10 project satisfies these criteria for referral.

According to the FHWA officials, highway projects are typically forwarded to an FHWA environmental coordinator who is responsible for ensuring that all appropriate environmental reviews are completed. To help manage this process, FHWA uses a project review checklist to help staff determine what technical and environmental reviews have been completed for a particular project. Typically, the environmental coordinator, after noting that the Interstate Highway 10 project was located in a sole source aquifer area and that an environmental assessment and finding of no significant impact had been prepared for the project, would have referred the project to the EPA Region 6 Office of Ground Water.

However, the environmental coordinator was on vacation when the Interstate Highway 10 project was forwarded. In the coordinator's absence, an FHWA engineer who was working on the project was to have ensured that all environmental reviews were completed. However, the engineer involved was not familiar with the procedures for coordinating projects with EPA. When the engineer noted that an environmental assessment and finding of no significant impact had been prepared for the project, he thought that all required environmental reviews had been completed. As a result, EPA was not aware of this project until an official from a local water utility district inquired about whether the project had been reviewed. By the time that EPA had reviewed the potential effects of this highway project on the aquifer, the project was already under construction and federal funds had been disbursed.

To help ensure that such an oversight does not happen again, FHWA officials told us that the following steps have been taken. First, an item has been added to the project review checklist that will remind FHWA staff to coordinate projects that are located in the area of a sole source aquifer with Office of Ground Water staff in EPA Region 6. When the Interstate Highway 10 project was reviewed, this item was not included on the checklist. Second, FHWA staff have been briefed about the SSA Protection Program. Third, an area engineer⁷ must sign off on the project review

⁶Under the National Environmental Policy Act, federal agencies are required to document the effects that "major federal actions," such as federally financed or permitted activities, could have on the environment. In general, if the agency determines that the project does not significantly affect the environment, then a concise environmental assessment and finding of no significant impact is prepared. When such effects are determined to be significant, a detailed environmental impact statement must be prepared.

⁷An area engineer is responsible for FHWA projects occurring in a given geographic area.

checklist, indicating that the project has been coordinated with EPA under the SSA Protection Program.

First Section of Austin Outer Loop Project Not Subject to Review

When completed, the Austin Outer Loop project will result in a highway encircling the city of Austin, Texas. The Texas Department of Transportation (TXDOT) has divided this project into five "mini-projects" or segments. Although TXDOT had originally considered building this highway with federal funds, it subsequently decided that the first section of this highway, located over the Austin Area Edwards Aquifer, would be built with state funds only. Accordingly, EPA determined that this section of the loop is not subject to the sole source project review provisions in section 1424(e) of the Safe Drinking Water Act because no federal funds are involved. EPA's determination is consistent with a federal appeals court decision concerning this project's compliance with the National Environmental Policy Act (NEPA).

Three environmental groups filed a complaint in a U.S. district court alleging that TXDOT's segmentation of the Austin Outer Loop was improper and was designed to avoid federal environmental review requirements under NEPA. The environmental groups further claimed that this section of the highway should be considered an integral part of the entire Austin Outer Loop project and, as such, should be subject to environmental review requirements under NEPA. The court agreed, ruling that the first section of this highway cannot be segmented and is a major federal action under NEPA.⁸

FHWA and TXDOT appealed the district court's decision to the U.S. Court of Appeals for the Fifth Circuit. In January 1992, the higher court reversed the district court's decision, finding that the first section of the Austin Outer Loop project was not improperly segmented and that this project was not subject to NEPA.⁹ The court concluded that the project did not constitute a major federal action under NEPA because, among other things, no federal funds had been requested or spent. The court also concluded that the project serves a significant and independent purpose and therefore was not improperly segmented. In July 1992, the U.S. Supreme Court decided not to hear an appeal of the case.

⁸Save Barton Creek Ass'n v. Federal Highway Admin., No. A-89-CA-719 (W.D. Tex. Mar. 6, 1990).

⁹Save Barton Creek Ass'n v. Federal Highway Admin., 950 F.2d 1129 (5th Cir.), cert. denied, 112 S. Ct. 3029 (1992).

EPA Officials Acknowledge Weaknesses in Identifying Projects for Referral

Groundwater officials from most of the nine EPA regions we contacted¹⁰ told us that an undetermined number of projects with potentially adverse effects on sole source aquifers are not being identified and referred to EPA for possible review. Regional officials noted that EPA relies heavily on sponsoring agencies to identify relevant projects because EPA does not have the resources to identify such projects on its own. However, these officials explained that (1) some federal agencies have been reluctant to enter into an MOU with EPA that establishes procedures for forwarding projects and (2) those MOUs that do exist are not effectively identifying some projects that should be referred to EPA.

Federal Agencies Are Not Generally Required to Notify EPA About Projects

EPA's guidance to the regional offices on conducting project reviews states that federal agencies have the responsibility to notify EPA when a project is proposed in the area of a designated sole source aquifer. However, with the exception of federal regulations that apply only to the San Antonio Area Edwards Aquifer, there is no requirement that federal agencies notify EPA about projects that may adversely affect sole source aquifers.¹¹

Mechanisms Not in Place to Identify Some Activities

In an effort to identify projects for possible review under the SSA Protection Program, most EPA regional offices have entered into MOUs with some federal agencies that are known to provide financial assistance for projects that could potentially affect sole source aquifers. However, some of the regional EPA officials we interviewed expressed concern that some agencies or instrumentalities providing such financial assistance have not established formal procedures (either through an MOU or some other arrangement) for forwarding projects to EPA.

For example, environmental group officials told us of a development project controlled by the Resolution Trust Corporation (RTC) called the Circle C Ranch, which is located over the Austin Area Edwards Aquifer and was not identified by EPA or RTC for review under the SSA Protection

¹⁰EPA Region 7—which includes the states of Iowa, Kansas, Missouri, and Nebraska—has not designated any sole source aquifers and therefore has not conducted any project reviews under the Sole Source Aquifer Protection Program.

¹¹The San Antonio Area Edwards Aquifer regulations require federal agencies to provide EPA with lists of projects occurring near this aquifer for which an environmental impact statement is required. However, most regional officials pointed out that these regulations are too limited because an environmental impact statement may not be required for a number of projects that can have adverse impacts on an aquifer.

Program.¹² RTC had offered loan guarantees to the former developer of this property, allowing him to keep the property and develop it as planned. EPA only became aware of this project when an environmental group notified EPA Region 6 of it. As a result, EPA Region 6 officials evaluated the use of RTC loan guarantees for the project and determined that the review provisions of the SSA Protection Program applied.¹³ Region 6 subsequently evaluated construction activities associated with the project and requested that certain precautions be taken to avoid damage to the aquifer.

None of the EPA regional offices interviewed had an MOU with RTC. Although RTC has coordinated some projects with EPA in the past, there are no procedures in place to identify RTC activities that may be subject to section 1424(e) and to help ensure that all such RTC activities that could have potential adverse impacts on sole source aquifers are forwarded to EPA for possible review.

EPA regional officials said that the Small Business Administration (SBA) is another agency that provides financial assistance for projects that could affect sole source aquifers and that, with the exception of one regional office, does not have MOUs for forwarding projects to EPA. Officials from four EPA regions said that they had tried unsuccessfully to negotiate an MOU with SBA; however, officials from the remaining four regions said that they had not tried to do so. According to one EPA regional official, SBA is concerned that submitting its projects to EPA for review under the SSA Protection Program will increase SBA's short time frame for approving small business loans. EPA officials from three regions said that SBA funds a large number of small business projects each year, some of which could affect sole source aquifers.

An official from SBA's central Office of Program Analysis and Quality Assurance confirmed that some SBA field offices have been contacted in the past by EPA regional offices about negotiating an MOU. This official said that SBA has a policy that any MOUs that affect SBA's national policy or agencywide procedures—such as time frames for loan approvals—must be negotiated through SBA's central office. As a result, SBA field offices were instructed to tell EPA regional offices to have EPA headquarters officials

¹²The Resolution Trust Corporation was established by the Financial Institutions Reform, Recovery, and Enforcement Act of 1989 to resolve the problems of troubled savings and loan institutions. Among its responsibilities, the RTC can manage and administer the assets of these institutions.

¹³According to a representative of EPA's Office of General Counsel, the applicability of the sole source aquifer provisions of the Safe Drinking Water Act to RTC activities depends on the role or capacity in which RTC holds a particular property. This official told us that EPA and RTC officials have informally agreed that, in cases where RTC is involved in offering loan guarantees, the sole source aquifer provisions may apply. However, such decisions are made on a case-by-case basis.

contact SBA's central office about negotiating such an agreement. The sole source aquifer coordinator at EPA headquarters was not aware of this and said that EPA would be willing to discuss negotiating a national MOU with SBA officials. However, neither EPA nor SBA officials indicated that they have plans to initiate such discussions.

Regional Officials Question the Effectiveness of MOUs in Identifying Projects for Referral

With one exception, all EPA regions told us that MOUs are the principal means of identifying projects for possible review under the SSA Protection Program. However, groundwater officials from five of the nine EPA regions believe that even when MOUs with agencies are in place, they are not effectively identifying all projects that should be reviewed. As pointed out by staff members of the Office of General Counsel at EPA headquarters, timely identification of projects for review is important, since it is unclear whether EPA has the legal authority to review a project after a commitment of financial assistance has been made.

According to several regional officials, after an MOU is negotiated, EPA does not have the resources to maintain close contact with federal agencies regarding their responsibilities under the MOUs. EPA regional officials suggest, however, that without such contact on their part, the MOUs are less likely to remain effective. Some regional officials noted, for example, that frequent staff turnover at federal agencies increases the likelihood that these MOUs could be overlooked. One of these officials added that "there is no way of knowing how many projects are being missed because EPA does not currently try to determine how many of such projects exist."

A groundwater official from another region said that despite MOUs with three federal agencies, only one of the six sole source aquifers in his region consistently generates project reviews, and no projects have been reviewed for four of the aquifers. This official said that he thought it very unlikely that only one of the six aquifers would consistently have projects identified for possible EPA review. Officials from two other regions indicated that several projects in their regions have been brought to their attention by state and local agencies and environmental groups. These officials indicated that some of the projects identified by these groups might not otherwise have come to EPA's attention.

EPA Officials Recognize That Improvements Are Needed in Identifying Projects for Possible Review

EPA regional officials told us that improvements are needed in identifying projects for possible review under the SSA Protection Program. These improvements include increased efforts to (1) educate other federal agencies about the program and (2) negotiate and revisit MOUs that specify how projects should be screened and forwarded to EPA. However, both EPA regional and headquarters officials acknowledge that resource constraints inhibit the agency's ability to better identify projects for review.

EPA regional officials told us that the process of identifying federal financially assisted projects for possible review could be improved if EPA increased its efforts to educate federal agencies about the SSA Protection Program. Some of these officials noted in particular that EPA could do a better job in "marketing" the program to other agencies by conducting outreach activities to help ensure that all projects that should be referred to EPA are identified.

The regional officials also said that EPA should increase its efforts to negotiate and update MOUs with other federal agencies. These officials said that they would like to work more closely with federal agencies that do not currently have MOUs with EPA to ensure that tools are in place for determining if projects should be forwarded to EPA. These officials noted that some of the existing MOUs are several years old and need to be revisited to ensure that significant projects are being referred to EPA.

Resource Constraints Inhibit EPA's Ability to Identify Projects

All of the regional officials that we interviewed said that it would not be possible to improve project identification without substantially increasing resources for the program. These officials said that negotiating and updating MOUs and conducting effective outreach activities with federal agencies would require significant resources.

The sole source aquifer coordinator at EPA headquarters also acknowledged that resource constraints currently inhibit the agency's ability to identify projects for possible review under the SSA Protection Program. This official also said that, in part because of resource constraints, EPA does not initiate sole source aquifer designations or project reviews.

In view of the concern that some projects are not being identified, most of the regional officials interviewed said that it would be helpful to put more of the onus on the sponsoring agencies by requiring them to forward financially assisted projects to EPA for possible review under the SSA

Protection Program. They also said that such a requirement could help ensure that all relevant projects are identified—especially in the case of federal agencies that have chosen not to enter into MOUs with EPA and do not have procedures in place for referring projects for possible review.

While most EPA regional officials said that such a requirement would be helpful in identifying projects for possible sole source review, many expressed concern that the agency may not be able to cope with the large influx of projects that could result. Accordingly, many regional officials said that the resources needed by EPA to actually conduct additional reviews should be allotted to the program before any requirement to forward projects to the agency is put into place.

Resource Constraints Will Continue to Limit EPA's Ability to Identify Projects

While EPA is currently circulating a proposal aimed at strengthening the SSA Protection Program, this proposal does not include provisions for additional funding for the program. The Director of EPA's Ground Water Protection Division¹⁴ said that the agency does not currently support issuing regulations applicable to all sole source aquifers that would require federal agencies to refer projects to EPA. Rather, in an effort to strengthen the SSA Protection Program, EPA is circulating a draft proposal among the agency's offices at headquarters and in the regions to integrate this program with comprehensive state groundwater protection programs that are currently being developed.¹⁵ This draft proposal states that the benefits of such an integration would include opportunities for EPA to build relationships with other federal agencies through MOUs and project reviews and to use state and local agency input in the review of projects. The draft proposal, however, does not describe how the additional activities to be performed by EPA regions and the states will be funded. As we reported recently, states have found it increasingly difficult to undertake new groundwater responsibilities without funds to support them, and EPA regional officials are concerned about the agency's ability to provide the resources needed to help states implement comprehensive state programs.¹⁶ In light of such circumstances, it is doubtful that, without

¹⁴The term "groundwater" is spelled three ways in government documents: groundwater, ground water, and ground-water.

¹⁵The EPA 1991 Ground-Water Strategy calls for EPA to assist states in establishing comprehensive state groundwater protection programs, which are built around current state groundwater protection activities and programs. These programs are intended to provide the groundwork for ensuring that all federal, state, and local groundwater protection activities are based on a common understanding of local priorities and groundwater conditions.

¹⁶Water Pollution: More Emphasis Needed on Prevention in EPA's Efforts to Protect Groundwater (GAO/RCED-92-47).

additional funding, the draft proposal to integrate the SSA Protection Program with the comprehensive state groundwater protection programs will address the weaknesses that we found in identifying projects for possible EPA review.

Conclusions

The principal mechanisms currently used to identify projects for possible review under the SSA Protection Program are not effective in identifying all projects that should be referred to EPA. As a result, there is no assurance that the drinking water supply of more than 22 million people who are dependent on sole source aquifers is being protected from possible contamination by federal financially assisted projects. As EPA headquarters and regional officials pointed out, EPA does not currently have the resources to undertake, on its own, the time-consuming and resource-intensive task of ensuring that all projects that could affect a sole source aquifer are identified. Rather, the sponsoring agencies, which should be familiar with their own projects, are in a better position to bring this information to EPA's attention. While some federal agencies have MOUs with EPA that stipulate how to forward projects to EPA for possible review, officials from most regional offices are concerned that these MOUs are not always effective in identifying all relevant projects. In addition, not all federal agencies that provide financial assistance for projects that could affect sole source aquifers have negotiated MOUs with EPA.

In order to help ensure that all projects that could affect sole source aquifers are brought to EPA's attention, we believe the Congress could help shift the onus for identifying projects from EPA to other federal agencies by requiring the sponsoring agency to provide EPA with a description of its project, an assessment of whether or not the project poses a risk to sole source aquifers, and documentation supporting the agency's assessment. In many cases, this information should be readily available from environmental documents prepared by the sponsoring agency under NEPA, or from reviews required under other statutes.

We acknowledge the concern that requiring other federal agencies to forward projects to EPA could lead to an increased number of project referrals for the agency, and we understand why some regional officials might view increasing the number of projects for review as counterproductive when that increase may not be accommodated. Nevertheless, we do not believe the requirement to identify projects should be predicated on the availability of funds to conduct detailed reviews of each of them. Even if additional funding is not available,

obtaining a more complete inventory of projects that could potentially affect sole source aquifers could surface serious problems that might otherwise go unnoticed. Submittal of project information by the sponsoring agencies would allow EPA to screen a more complete inventory of projects and then prioritize the riskiest ones for detailed review. Finally, if a more complete inventory supported the case for added staff or budget resources to address it, EPA and the Congress could take that information into account during the consideration of the agency's annual budget.

Matter for Congressional Consideration

Because some projects that should be reviewed by EPA under the SSA Protection Program are not currently being identified, the Congress may wish to amend section 1424(e) of the Safe Drinking Water Act to require federal agencies sponsoring projects in sole source aquifer areas to submit to EPA a description of the project, an assessment of whether or not the project poses a risk to the sole source aquifer, and documentation supporting the assessment. EPA could then examine the inventory of submissions to identify higher-risk projects that warrant more detailed review.

Scope and Methodology

To accomplish our objectives, we interviewed EPA headquarters officials from the Office of Ground Water and Drinking Water; EPA groundwater officials from 9 of 10 EPA regional offices; and Department of Transportation officials.¹⁷ In addition, we interviewed selected representatives from public interest groups and officials from state and municipal offices.

In EPA Region 6, we interviewed officials from EPA's Office of Groundwater, the Federal Highway Administration, the Texas Department of Transportation, the Texas Water Commission, the Edwards Underground Water District, the Texas Center for Policy Studies, and various environmental groups. After gathering information about projects of concern in Region 6, we interviewed groundwater officials in all other EPA regions with sole source aquifer designations to determine if issues raised in Region 6 were of concern elsewhere. Our work was performed between December 1991 and June 1992 in accordance with generally accepted government auditing standards.

¹⁷We did not interview officials from EPA Region 7 because this region does not currently have any sole source aquifer designations.

Agency Comments

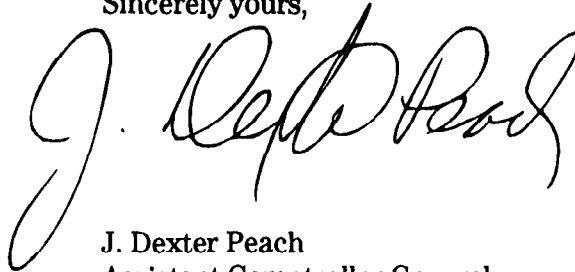
We discussed the facts in this report with several EPA officials, including the Director of EPA's Ground Water Protection Division. While they generally agreed with the factual information in this report, these officials believed that our report did not reflect that section 1424(e) of the Safe Drinking Water Act gives EPA discretion in whether or not to review a project's effects on sole source aquifers. While such discretion is provided in this legislation, one regional official pointed out that to effectively implement this statutory program, EPA needs to be informed of relevant projects before federal funds are committed. In addition, most of the regional officials said that requiring federal agencies to submit projects to EPA for possible review would be helpful in identifying projects. However, these regional officials also expressed concern that EPA might not have adequate resources to review the large influx of projects that could result from such a requirement. We acknowledge this concern, but we do not believe that the requirement that agencies identify projects should depend on the availability of funds for conducting detailed reviews of each project. Rather, given EPA's current resource constraints and the need to protect sole source aquifers from contamination, emphasis should be placed on obtaining a more complete inventory of projects and screening this inventory to identify and prioritize the riskiest projects for further review.

As a result of the comments from EPA officials, we modified language in the report as appropriate. As requested, however, we did not obtain written agency comments on a draft of this report.

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days from the date of this letter. At that time, we will send copies to the appropriate congressional committees, the Administrator of EPA, and other interested parties.

This report was prepared under the direction of Richard L. Hembra, Director, Environmental Protection Issues, who can be reached on (202) 275-6111 if you or your staff have any questions. Major contributors to this report are listed in appendix IV.

Sincerely yours,

A handwritten signature in black ink, appearing to read "J. Dexter Peach". The signature is written in a cursive style with a large initial "J" and a long, sweeping underline.

J. Dexter Peach
Assistant Comptroller General

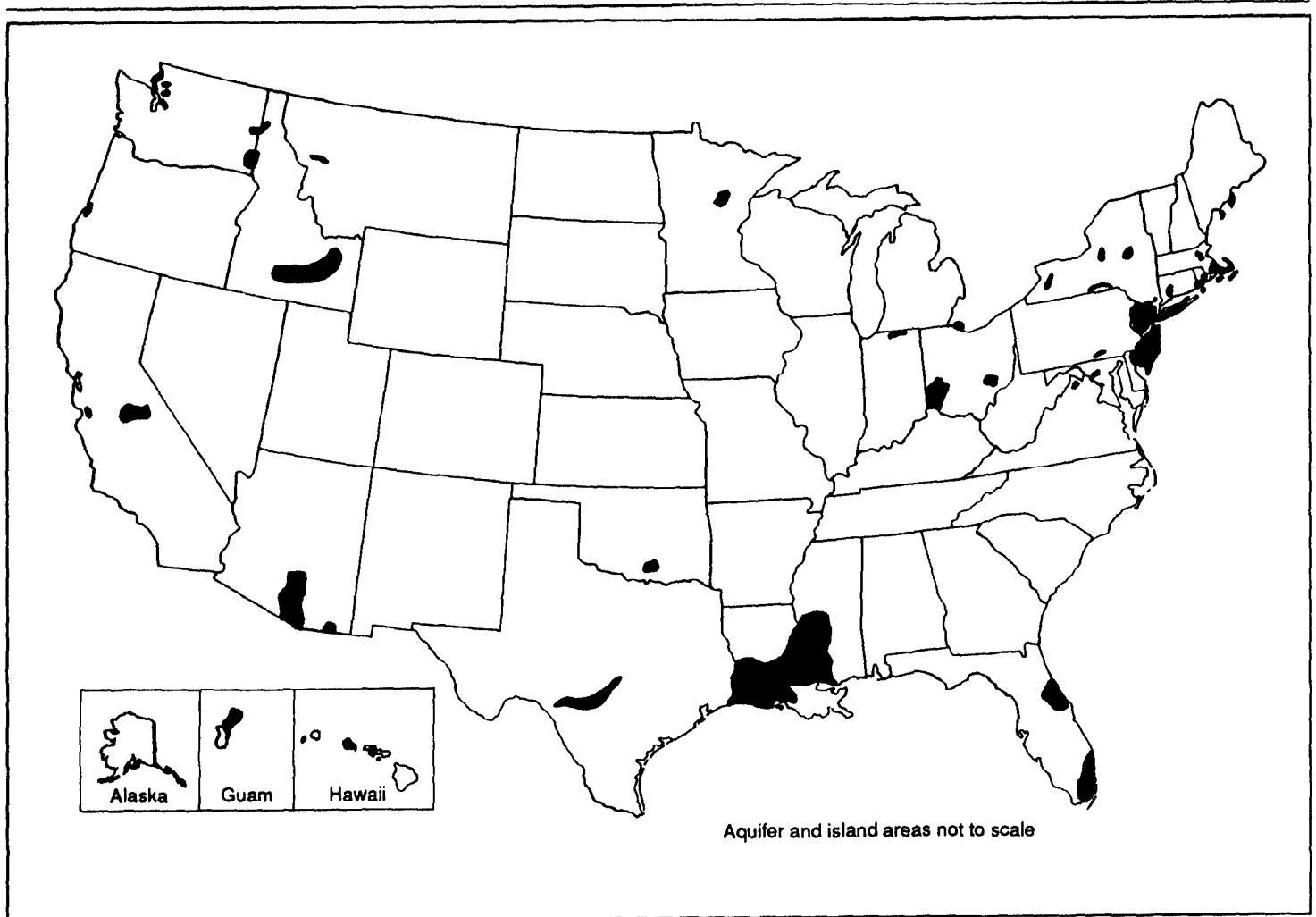
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Abbreviations

EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
GAO	General Accounting Office
MOU	memorandum of understanding
NEPA	National Environmental Policy Act
RTC	Resolution Trust Corporation
SBA	Small Business Administration
SDWA	Safe Drinking Water Act
SSA	sole source aquifer
TxDOT	Texas Department of Transportation

Location of Sole Source Aquifers Nationwide (June 1992)



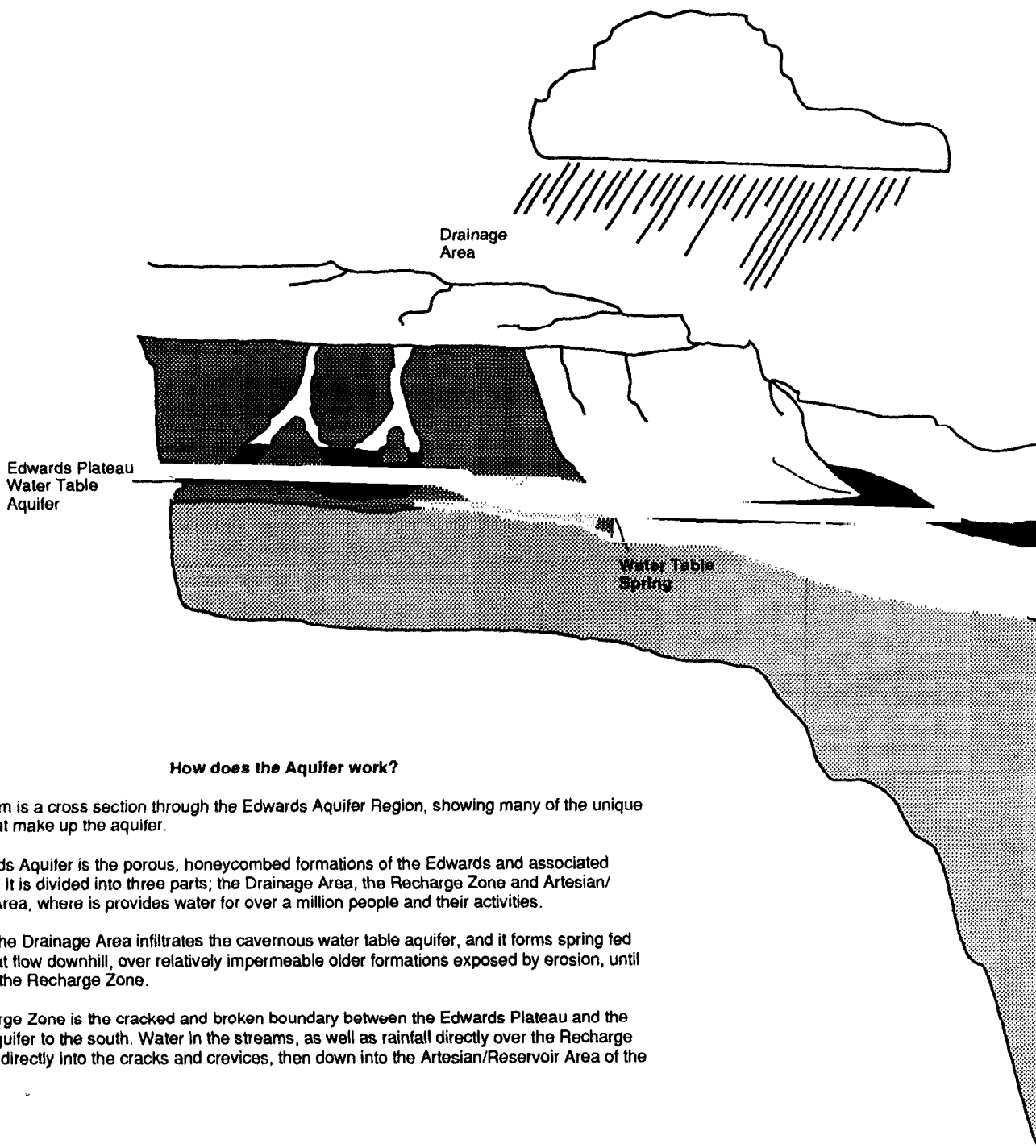
Source: EPA.

Federal Financially Assisted Projects Reviewed by EPA Under the Sole Source Aquifer Protection Program (Fiscal Year 1991)

Federal agency funding project	Type of project	Total number of projects reviewed or under review
Department of Commerce Economic Development Administration	Local assistance in providing sewer service to developed commercial areas	1
Department of Energy	Construction of education facilities for nuclear plant cleanups; construction of facilities that measure or control emissions from nuclear plants	3
Department of Defense Air National Guard	Activities associated with cleaning up hazardous waste and Superfund sites	1
Environmental Protection Agency	Extension of sewer lines; wetlands stream management; activities associated with the development and implementation of waste treatment management plans and practices under section 201 of the Clean Water Act	5
Department of Transportation Federal Aviation Administration	Airport expansion; runway extension	2
Federal Highway Administration	Highway construction, expansion, and improvements	28
Urban Metropolitan Transit Authority	Railroad rehabilitation right-of-way maintenance and cleanup	1
Department of Agriculture Farmers Home Administration	Water system improvements; well replacement; construction of a water treatment plant	43
Nuclear Regulatory Commission	Review of sites for low-level nuclear waste disposal	1
Housing and Urban Development	Housing construction; review whether Community Block Grants should be awarded	72
Resolution Trust Corporation	Real estate project	1
Total projects reviewed or under review		158

Source: EPA.

Diagram of the Edwards Aquifer



How does the Aquifer work?

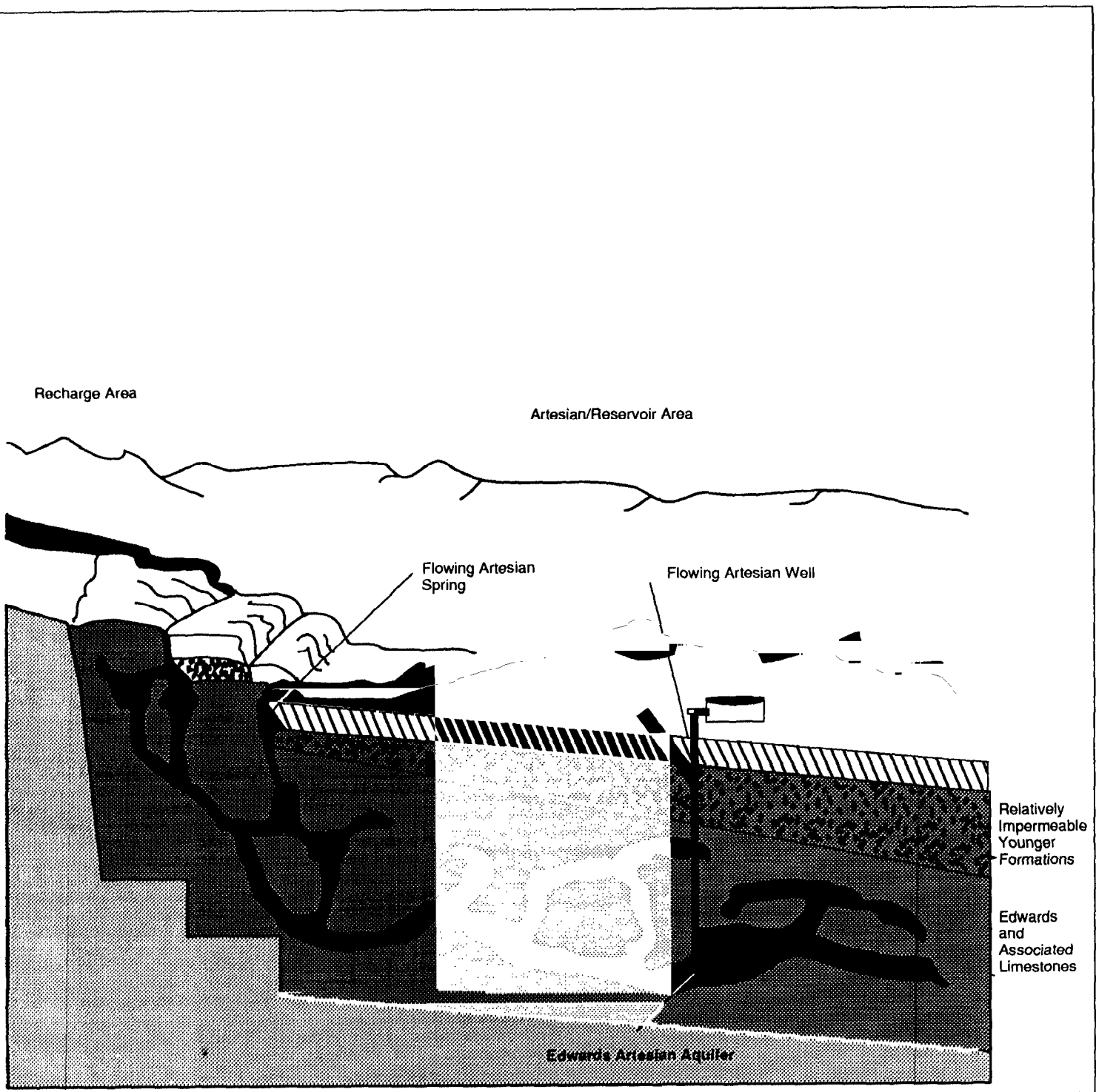
This diagram is a cross section through the Edwards Aquifer Region, showing many of the unique features that make up the aquifer.

The Edwards Aquifer is the porous, honeycombed formations of the Edwards and associated limestones. It is divided into three parts; the Drainage Area, the Recharge Zone and Artesian/Reservoir Area, where it provides water for over a million people and their activities.

Rainfall in the Drainage Area infiltrates the cavernous water table aquifer, and it forms spring fed streams that flow downhill, over relatively impermeable older formations exposed by erosion, until they reach the Recharge Zone.

The Recharge Zone is the cracked and broken boundary between the Edwards Plateau and the Artesian Aquifer to the south. Water in the streams, as well as rainfall directly over the Recharge Zone, runs directly into the cracks and crevices, then down into the Artesian/Reservoir Area of the Aquifer.

Appendix III
Diagram of the Edwards Aquifer



Source: Adapted from a diagram developed by the Edwards Underground Water District.

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