



EPA REGION IV

GROUND WATER REVIEW



JANUARY 1994



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

JUN 27 1994

MEMORANDUM

SUBJECT: Region IV Ground Water Review

FROM: Elizabeth Rolle, Chief
Ground Water Management Unit *ER*

TO: Ground Water Advisory Board Members and Facilitators

Attached is the first completed version of the Region IV Ground Water Review. As you know, completion of the report is largely the result of your own efforts. The Ground Water Management Unit is sincerely appreciative of the support you provided.

We are transmitting the Review to Headquarters for their use in compiling a national summary of identified barriers to achieving a "comprehensive" ground water protection program within EPA, as well as barriers to extending this approach across all federal agencies involved in ground water issues. The national summary will help direct Headquarters in strategic planning and in developing Congressional testimony on a broad range of ground water related issues. We are also providing the Review to our State Ground Water Protection Program counterparts as evidence of Region IV's commitment to "lead by example" in guiding States toward the development of CSGWPPs.

We do anticipate that the Review will need to be updated frequently to reflect newly identified barriers, changing priorities, and other operational changes within Region IV. Although your input will continue to be formally solicited through the Ground Water Advisory Boards, please do not hesitate to let us know at any time of corrections, changes, or updates that you feel are warranted.

Again, thank you for your help!

Attachment

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	SETTING GOALS AND DOCUMENTING PROGRESS	8
	Ground Water Protection Goal	8
	Regional CSGWPP Action Plan	10
	Evaluation Mechanism	15
III.	CHARACTERIZING THE RESOURCE AND PRIORITIZING ACTIONS	17
	Resource Assessment	17
	Aquifer Mapping	17
	Ground Water Classification	17
	Geographic or Geological Targeting Initiatives and Systems	20
	Wellhead Protection	21
	Sole Source Aquifer Designation	23
	Ground Water Quality Assessments	23
	Ground Water/Surface Water Interaction	25
	Relationship of EPA Programs to Programs of USGS	25
	Contaminant Source Identification	26
	Setting Priorities	28
	Data Sources and Coordination	32
	Use of Data in Program Decisions	36
IV.	DEVELOPING AND IMPLEMENTING CONTROL AND REMEDIATION PROGRAMS	40
	Source Reduction	40
	Siting Criteria	42
	Municipal Solid Waste Landfills	42
	Hazardous Waste TSD Facilities	43
	Public Drinking Water Systems Utilizing Ground Water	43
	Sole Source Aquifers	44
	Control and Remediation Programs	44
	NEPA	44
	CWA	44
	SDWA	46
	CERCLA and SARA	47
	SARA Title III	48
	RCRA	49
	FIFRA	53
	Quality Standards	53

V.	DEFINING ROLES WITHIN REGION IV AND THE REGION'S RELATIONSHIP WITH OTHER FEDERAL PROGRAMS, AND STATES	59
	Internal Region IV Coordination	59
	Targeted Accomplishments and Activities	61
	Coordination with Other Federal Agencies	63
	Coordination with the States	67
VI.	PUBLIC EDUCATION	74
VII.	BARRIERS TO AND RECOMMENDATIONS FOR DEVELOPMENT OF A COMPREHENSIVE GROUND WATER PROTECTION PROGRAM . . .	75

Executive Summary

Since the release of EPA's New Ground Water Strategy in mid-1991, states have been working with EPA to develop Comprehensive State Ground Water Protection Programs (CSGWPPs). The overall aim is to achieve a more efficient, coherent, and comprehensive approach to protecting ground water resources. In developing their CSGWPPs, states have called upon EPA to "lead by example" by facilitating changes that will bring about greater efficiency and consistency in the operation of federal programs related to ground water.

As a first step toward achieving the goals of greater efficiency and consistency, each EPA Regional Office is preparing a "Regional Review" of its programs involved in ground water issues. The EPA Region IV Ground Water Review presents an assessment of Region IV's ground water programs with respect to their potential benefit from and contribution to a "comprehensive" program. It also describes an institutional framework that the Region has developed to pursue operational changes within the Regional Office itself, as well as among other federal agencies involved in ground issues in the Southeastern United States. The organization of the document is loosely patterned after the six Strategic Activities presented in EPA's National CSGWPP Guidance.

Key to the Region's framework for affecting change are Ground Water Advisory Boards (GWABs) created for each of the six major Offices/Divisions within the Regional Office. Comprised of senior staff knowledgeable about ground water programs within their respective Divisions, the GWABs are largely responsible for development of this document. Working under guidance provided by the Ground Water Protection Branch, GWABs offered their expertise in the compilation of pertinent information, as well as in the review and editing of all draft versions of the report.

It is anticipated that updated versions of the Review will be prepared in the future. These updated versions will further explore opportunities for filling identified gaps in the Region's overall ground water protection program and identify specific opportunities for Region IV to provide its states and other grant recipients with greater flexibility in directing their own ground water protection activities. The Regional Office will continue to use its established framework as a means of linking states' CSGWPP needs with federal support capabilities as we move toward the goal of ensuring a coherent approach to protecting the nation's ground water.

CHAPTER I

INTRODUCTION

EPA uses authority provided by a number of federal statutes to prevent and control sources of ground water contamination, as well as to clean up existing contamination. In the early 1980s, the Agency recognized that these ground water protection authorities were largely undefined and were fragmented among many different statutes. As a result, in 1984 EPA adopted a Ground Water Protection Strategy to articulate both the problem and the Agency's role in a national ground water protection program. Under the 1984 Strategy, EPA focused its efforts on four major objectives: (1) building state capacity, (2) addressing sources of contamination, (3) establishing ground water policy direction and program consistency, and (4) coordinating EPA programs.

While the 1984 Strategy was effective in creating momentum for states to develop and implement ground water programs, the passage of time and experience revealed gaps in protection efforts across the country. It became clear that there was a need to assess progress and adjust our approach to take into account recent changes in statutory authorities and our increased knowledge of the issue by promoting comprehensive protection on the state and local level.

In July 1989, former EPA Administrator William Reilly established a Ground Water Task Force, chaired by Deputy Administrator F. Henry Habicht II, to review the Agency's ground water protection program and to develop concrete principles and objectives to ensure effective and consistent decision-making in all Agency decisions affecting the resource. The Task Force included membership from all Headquarters offices with ground water protection responsibilities and selected Regional representation. Several work groups were created to develop recommendations on issues of special interest. In addition, a substantial outreach effort succeeding in obtaining input on two key issues -- Agency principles and the character of the federal/state relationship -- from major federal, state, local, public interest, industry and agricultural leadership groups and the Governors and agency officials of all states.

The outcomes of this effort are presented in the Final Report of the EPA Ground Water Task Force. Released in July 1991, the Task Force Report is entitled Protecting the Nation's Ground Water: EPA's Strategy for the 1990s, but is commonly referred to as the "New Ground Water Strategy" or the "New Strategy". The document presents policy and implementation principles that set forth an aggressive approach to protecting the nation's ground water resources and direct the course of the Agency's efforts over the coming years. These principles follow closely with new EPA Administrator Carol Browner's identified priorities of

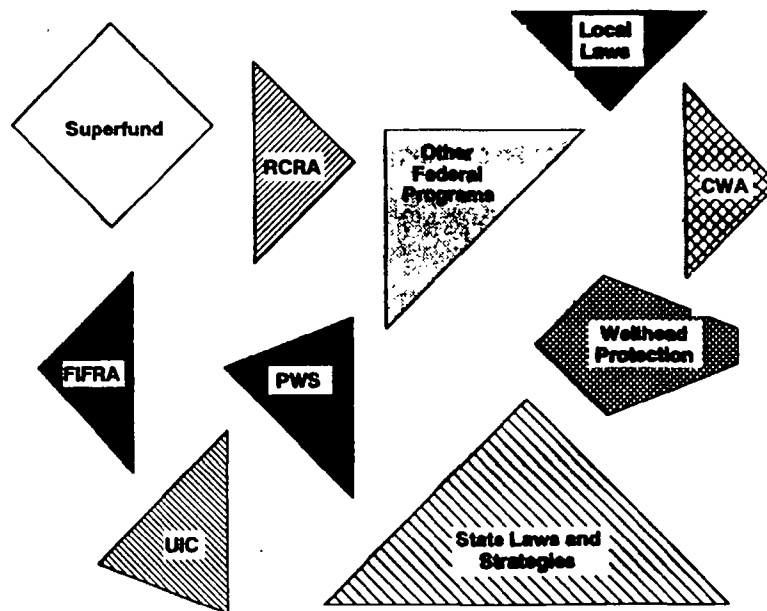
pollution prevention, building partnerships, ecosystem protection, and environmental equity. The New Strategy will be reflected in EPA policies and programs, which will guide EPA, states, local governments, and other parties with whom we work in carrying out the Agency's ground water responsibilities.

Perhaps the most significant feature of the New Strategy is a call for state-developed and implemented Comprehensive State Ground Water Protection Programs (CSGWPPs). The CSGWPP approach emphasizes the importance of coordination and cooperation among ground water related programs and agencies; it is not intended that any individual program be dissolved by a CSGWPP. In essence, it is a call for the "fitting-together" of the components of each state's overall ground water protection program (Figure I-1). Improved levels of coordination and cooperation between the various programs will foster a more cohesive, or "holistic" approach to protecting ground water resources. It is EPA's hope that through the CSGWPP development process, effective and consistent decision-making in all activities affecting the resource will be achieved.

In order to define a CSGWPP, EPA invited representatives of each state's environmental, health, and agricultural agencies to participate in Regional Ground Water Roundtables. The Region IV State Ground Water Roundtable was held in Atlanta in January 1992. During the meeting, EPA's new ground water policy was outlined by several Headquarters officials and a senior management team from the Regional Office. State representatives were presented an opportunity to discuss the New Strategy and provide input for EPA's effort to develop national guidance that the states will use over the next several years in developing CSGWPPs. During the Roundtable discussions, states provided input on four key issues:

1. the appropriate elements of a CSGWPP;
2. the necessary criteria for determining the adequacy of a CSGWPP;
3. the process for EPA's review and endorsement of such programs; and
4. opportunities for increased and more consistent deference by EPA to state decision-making.

Discussions from the Region IV Roundtable were recorded and, in combination with other Regions' Roundtable discussions, were used by EPA Headquarters in preparing the Final CSGWPP Guidance, which was released in Spring 1993. As presented in the Guidance, a Comprehensive Ground Water Protection Program addresses a set of six "Strategic Activities". The six Strategic Activities of a CSGWPP are dynamic and interrelated (Figure I-2). Improvements in one activity lead to improvements in the other five. In



. . . . PIECING THE PUZZLE TOGETHER

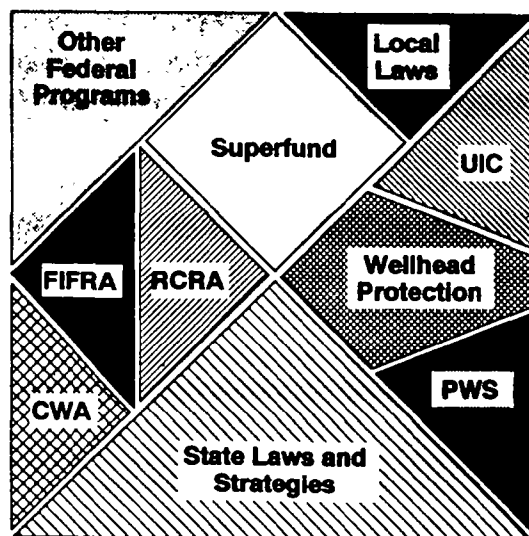


Figure I-1. CSGWPPs Coordinate Existing Ground Water Programs.

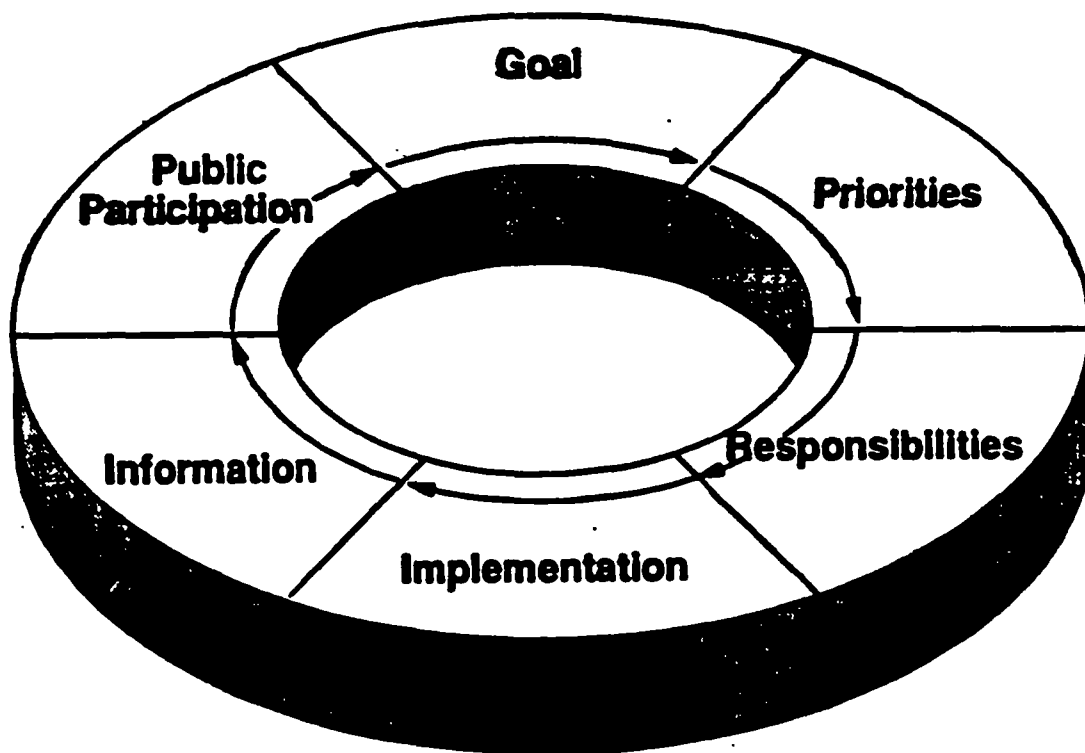


Figure I-2. The Six Strategic Activities of a CSGWPP.

brief, the Strategic Activities are as follows:

1. Establishing a ground water protection goal.
2. Establishing priorities.
3. Defining authorities, roles, and responsibilities.
4. Implementing efforts to accomplish the goal consistent with established priorities.
5. Coordinating data collection and management.
6. Improving public education.

A key aspect of the CSGWPP-development process relies on a state's continuous improvement from a "Core" CSGWPP to a "Fully-Integrating" CSGWPP (Figure I-3). Attainment of a Core CSGWPP marks the point at which all six Strategic Activities first emerge as a cohesive program which is clearly identifiable. A Fully-Integrating CSGWPP is achieved when the Strategic Activities fundamentally influence and are supported by the day-to-day operations of all ground water related programs within the State.

The Final CSGWPP Guidance presents "adequacy criteria" for both the Core and Fully Integrating levels of a CSGWPP. Each of the adequacy criteria for the Fully-Integrating CSGWPP is reflected in the Core CSGWPP. The primary differences in the adequacy criteria at these two levels relate to the scope of the activity, the degree of sophistication, and the timing and degree of influence on all relevant operating programs and activities within the State. Generally, development of an approach, initiation of efforts, or implementation within at least one program are all that is required to meet the adequacy criteria for a Core CSGWPP, whereas at the Fully-Integrating CSGWPP level approaches and activities are expected to be fully developed and influencing all ground water protection programs and efforts operating in the State. In some instances, the adequacy criteria at both levels are the same.

The Core CSGWPP will serve as a distinct benchmark to assist EPA and states in communicating the aggregate achievements of ground water protection programs to Congress. As Congress proceeds with re-authorizations of various ground water related statutes over the next several years, the existence of Core CSGWPPs will provide a basis for meaningful dialogue regarding states' capabilities and needs for both flexibility and resources. Similarly, an individual state's Core CSGWPP could serve to enhance the State legislature's understanding of current ground water protection accomplishments, ongoing efforts, and remaining challenges.

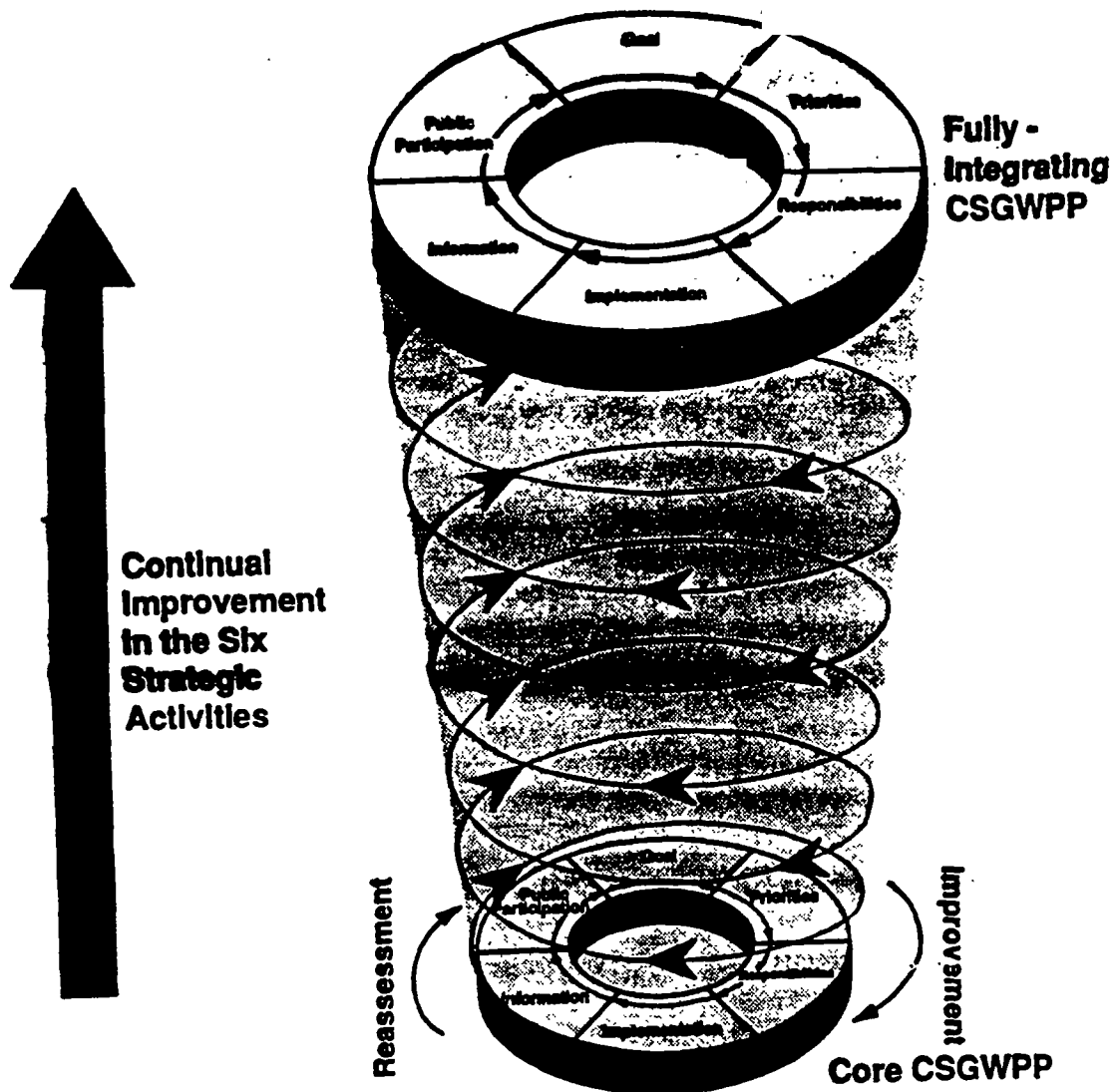


Figure I-3. Movement from a Core to a Fully-Integrating CSGWPP.

It is EPA's hope that through the CSGWPP development process, more effective and consistent decision-making in all activities affecting the resource will be achieved.

CHAPTER II

SETTING GOALS AND DOCUMENTING PROGRESS

II. A. Ground Water Protection Goal

The New Ground Water Strategy establishes that the "overall goal of EPA's Ground Water Policy is to prevent adverse effects to human health and the environment, and to protect the environmental integrity of the nation's ground water resources." This marks EPA's first formally established agency-wide ground water protection goal. The New Strategy also states that "...in determining appropriate prevention and protection strategies, EPA will consider the use, value, and vulnerability of the resource, as well as social and economic values."

EPA's reason for aspiring to the above goal is that its attainment is necessary to achieve the sustainability of the ground water resource and closely hydrologically connected surface water systems for both current and future potential use. In addition, because ground water cleanup is extremely costly, and usually difficult and in some cases impossible to achieve and demonstrate, EPA's goal of pollution prevention is, in the long term, more cost effective than trying to clean up contaminated ground water at each point of occurrence.

Most major aspects of ground water protection within EPA Region IV are housed in one of the four Divisions. Branches within each Division have their own Sections (some of which are further divided into Units) to provide review and oversight of ground water issues pertaining to the responsibilities of that Division. These are:

- Water Management Division
 - Ground Water Protection Branch
 - Ground Water Technology and Management Section
 - Underground Injection Control Section
 - Underground Storage Tank Section
 - Municipal Facilities Branch
 - Drinking Water Section
 - Wetlands, Oceans, and Watersheds Branch
 - Watersheds Section
 - Wetlands Section
 - Water Permits and Enforcement Branch
 - Permits Section
 - Enforcement Section
- Waste Management Division
 - RCRA Branch
 - RCRA Permits Section
 - RCRA Compliance Section

- Waste Management Division (cont.)
 - Federal Facilities Branch
 - DOD Remedial Section
 - DOE Remedial Section
 - Superfund Emergency Response and Removal Branch
 - Emergency Response Section
 - Removal Operations Section
 - Removal Management Section
 - North Superfund Remedial Branch
 - Kentucky/Tennessee Remedial Section
 - North Carolina Remedial Section
 - South Carolina Remedial Section
 - South Superfund Remedial Branch
 - North Florida Remedial Section
 - South Florida Remedial Section
 - Alabama/Georgia/Mississippi Remedial Section
 - Waste Programs Branch
 - Site Assessment Section
 - Office of Municipal Solid Waste
- Air, Pesticides, and Toxics Management Division
 - Pesticides and Toxic Substances Branch
 - Pesticides Section
 - Title III and Toxics Section
- Environmental Services Division
 - Environmental Compliance Branch
 - Hazardous Waste Section
 - Air and Water Compliance Section

Additionally, several Branches and Sections within the Office of Policy and Management have responsibilities related to ground water protection.

- Office of Policy and Management
 - Policy, Planning and Evaluation Branch
 - Planning and Pollution Prevention Section
 - Federal Activities Branch
 - Environmental Policy Section
 - Office of Integrated Environmental Analysis

Three other Offices within Region IV are involved in ground water related activities:

- Office of Regional Counsel
 - RCRA/Air Branch
 - CERCLA Branch
 - Water Branch
- Office of Public Affairs
 - Education and Outreach Staff
- Office of Congressional Affairs

An organizational chart identifying each of the major Divisions and Offices within EPA Region IV is presented in Figure II-1.

In support of the Agency's established ground water protection goal, specific statutes and regulations established to protect and remediate ground water are implemented and enforced by the organizational groups identified above. These statutes and regulations apply primarily to the management of waste streams, hazardous materials, and other potential ground water pollutants, as well as to the remediation of contamination caused by improperly managed wastes, hazardous materials, and other pollutants. Additional protection measures are afforded through the establishment of ground water classifications and standards, internal planning activities, and through programs designed to do the following: (1) reduce the amount of wastes, hazardous materials, and other potential pollutants generated; (2) prepare the public for chemical emergencies; (3) reduce the threat of contaminants already released from impacting public water supplies; and (4) educate and otherwise involve the public in ground water issues. The statutes, regulations, and programs are discussed in greater detail in following chapters.

II. B. Regional CSGWPP Action Plan

In addition to establishing EPA's goal with respect to ground water protection, the New Ground Water Strategy provides a framework for fostering improved coordination and integration between programs within each state and within the Region IV Office. A key ingredient in the Strategy is the identification of principles considered to be essential to achieving the overall ground water protection goal. It is EPA's aim to execute the principles in accordance with federal law. The six Ground Water Protection Principles are as follows:

1. Ground water should be protected to ensure that the nation's currently used and reasonably expected drinking water supplies, both public and private, do not present adverse health risks and are preserved for present and future generations.
2. Ground water should be protected to ensure that ground water that is closely hydrologically connected to surface waters does not interfere with the attainment of surface water quality standards, which is necessary to protect the integrity of associated ecosystems.
3. Ground water protection can be achieved through a variety of means, including pollution prevention programs, source controls, siting controls, the designation of wellhead protection areas and future public water supply areas, and the protection of aquifer recharge areas.

U.S. Environmental Protection Agency Region IV Organization



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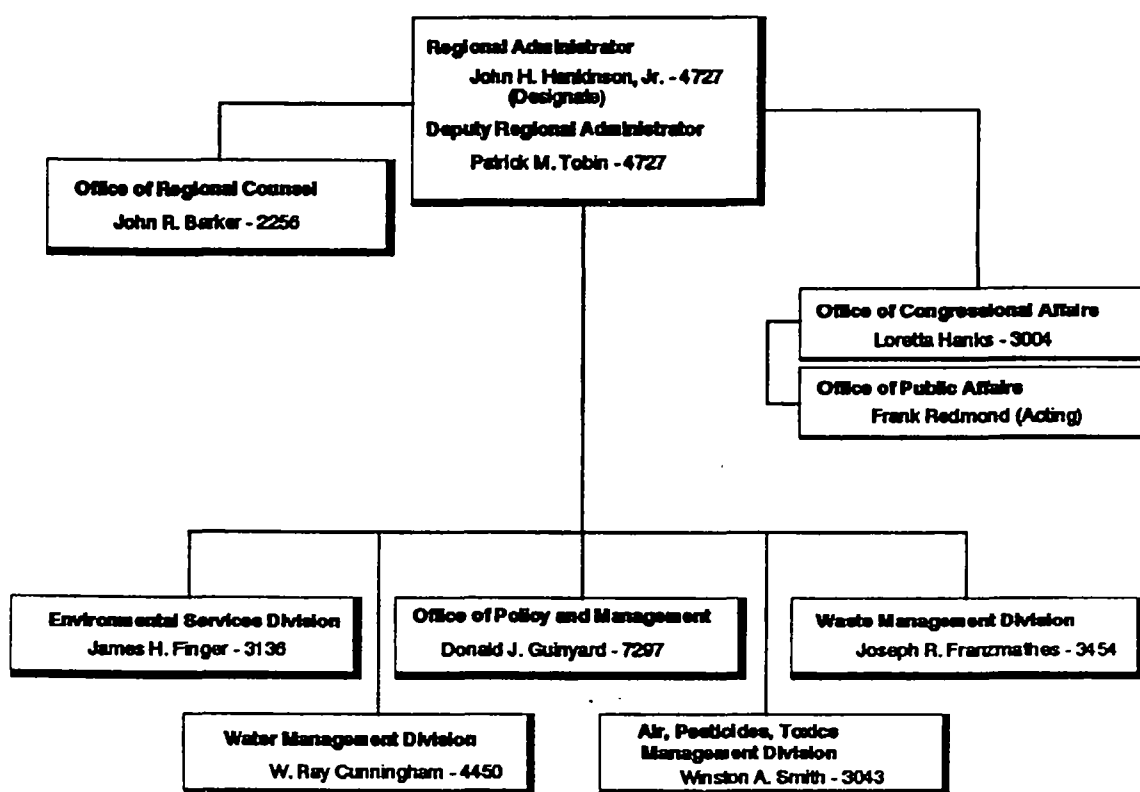


Figure II-1. Region IV Organizational Structure.

4. Ground water remediation activities must be prioritized to limit the risk of adverse effects to human health first and then to restore currently used and reasonably expected sources of drinking water and ground water that are closely hydrologically connected to surface waters, whenever such restorations are practicable and attainable.
5. The primary responsibility for coordinating and implementing ground water protection programs always has been and should continue to be vested in the states. An effective ground water protection program should link federal, state, and local activities into a coherent and coordinated plan of action.
6. EPA should continue to improve coordination of ground water protection efforts within the Agency and with other federal agencies that have ground water responsibilities.

In EPA's January 15, 1992, "Next Steps" Memo, former Deputy Administrator Hank Habicht sets forth a plan for ensuring that these principles are adhered to by the Agency. In following the plan, Region IV organized and facilitated the Region IV State Ground Water Roundtable, which led to development of the Final CSGWPP Guidance (discussed in detail in Chapter I). During the Region IV Roundtable and other Regions' roundtables, state representatives repeatedly related their view that in order for the CSGWPP approach to be successful, EPA must "set and example" for the states to follow by identifying and filling gaps in EPA and other federal ground water programs, by developing mechanisms for integrating separate programs, and by improving priority setting mechanisms.

To address the need identified by the states, and in continuing efforts to follow the plan outlined in Mr. Habicht's "Next Steps" Memo, Region IV has established a **Ground Water Coordinating Committee** made up of Division Directors from the Regional Office and Chaired by the Deputy Regional Administrator. The Coordinating Committee is responsible for reviewing all EPA programs at the Regional level with respect to their impact on or contribution to the development of a comprehensive program. The Committee also assesses common needs across all Region IV ground water related programs which could, through coordinated grants management and the CSGWPP vehicle, be mutually supported to achieve not only greater efficiency, but also better inter-program consistency.

Lending support to the Coordinating Committee are **Ground Water Advisory Boards (GWABs)** for each Division, and the **Ground Water Council**. Comprised of senior-level staff, each GWAB provides product-oriented support to the Region IV CSGWPP effort (including preparation of this Regional Review). The GWABs are also charged with developing "Ground Water Compacts", or

agreements between each Division and the Deputy Regional Administrator that spell out the roles and expectations of that Division in support of the Region's CSGWPP effort. In effect, the GWABs serve as Total Quality Management (TQM) teams (although not formally designated as such) to facilitate continuous improvement in the Region's overall ground water protection program. The Ground Water Council serves as an intermediary between the GWABs and the Coordinating Committee, providing oversight and direction to the GWABs in the implementation of the compacts. This group is comprised primarily of Branch Chiefs of Region IV programs involved in ground water issues, and is chaired by the Chief of the Ground Water Protection Branch.

Recognizing that ground water responsibilities are shared by many agencies at the federal level, in October 1992 the Region IV Office hosted a Federal Interagency Roundtable (FIR). The FIR brought together some 60 regional-level representatives from more than a dozen federal agencies to discuss ground water related programs in relationship to EPA's New Strategy. Major barriers to implementing the New Strategy across federal agencies in the Southeast were identified, as were priority action items for improving our overall ground water protection effort. During the meeting, participants agreed to the need for establishing a Ground Water Steering Committee to continue the dialogue, planning, and cooperation between and among federal representatives in the Southeast. It was recognized that this committee should also have representatives of state government to improve the state-federal interface. Nine (9) federal agencies and five (5) Region IV states are represented on the Steering Committee, which met twice during 1993. The Steering Committee is focusing its work on the identification of gaps between federal ground water programs and on ways to fill those gaps using the collective resources of all involved agencies.

The responsibility for coordinating the various elements that contribute to the Region's overall action plan falls with the Ground Water Protection Branch (GWPB). In this capacity, the GWPB monitors the process to see if it is working, why it is or isn't, and corrects problems as they develop. A conceptual diagram of Region IV's CSGWPP action structure is presented in Figure II-2.

Through the support offered by the GWABs and the Ground Water Council, the Ground Water Coordinating Committee will establish specific priorities, milestones, and commitments for all Region IV program groups involved in the CSGWPP Initiative. This will require a change in the process through which priorities are set by EPA, as well as create a need for new flexibility regarding each program's requirements and performance measures. The shift from a predominantly source control emphasis to consideration of ground water as a resource, as called for in the New Strategy, will first require identification of the institutional barriers to change. It is expected that this shift will be fully

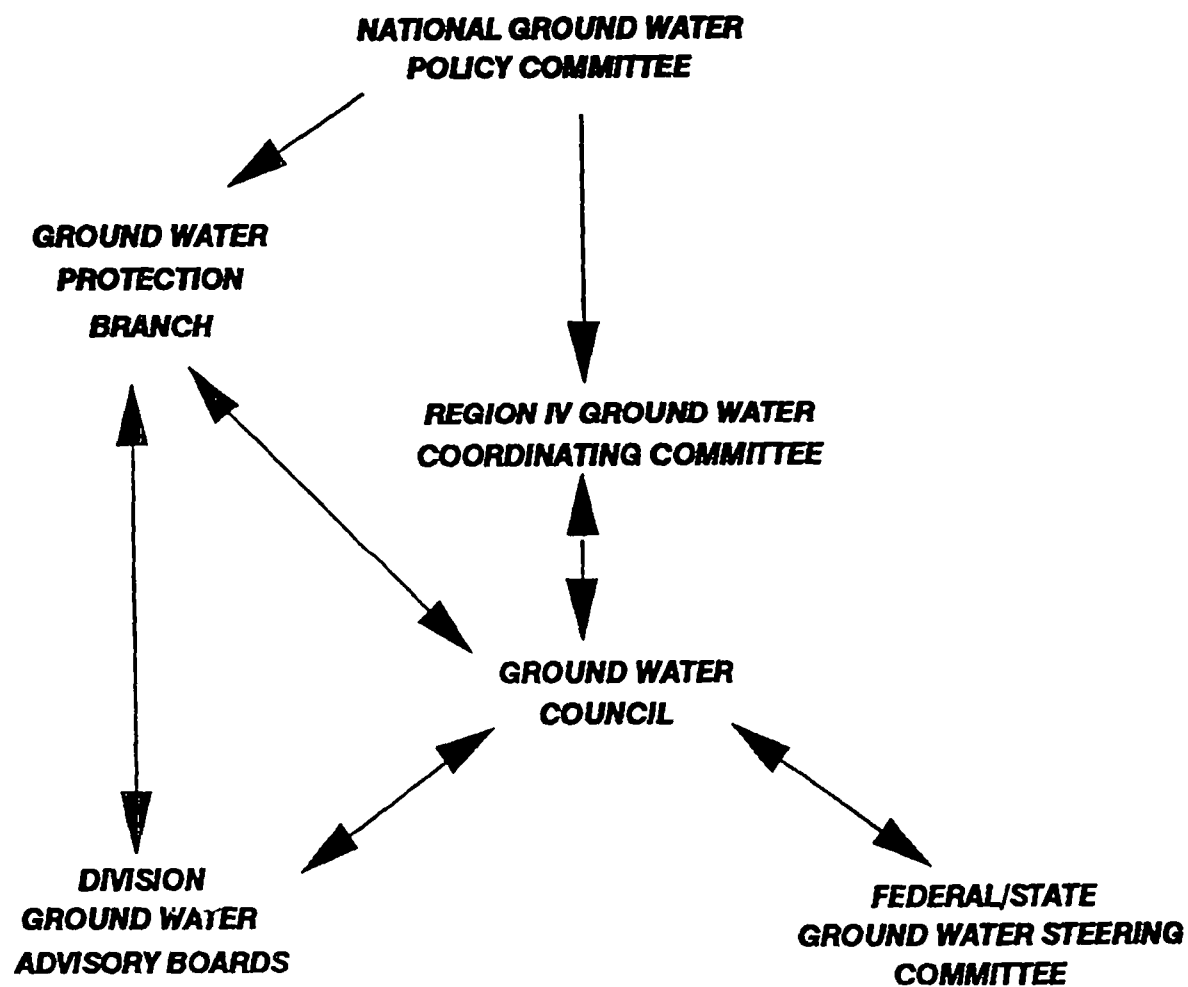


Figure II-2. Region IV CSGWPP Action Structure.

reflected in strategic plans, operating guidance, and some program-specific STARS targets by 1995, which it is hoped will resolve as much as possible any conflicts and redundancies that exist in EPA's current ground water protection efforts.

II. C. Evaluation Mechanism

A cross-program STARS measure in support of the development of CSGWPPs established for each EPA Regional Office for FY 93 has been continued for FY 94. Region IV is implementing the previously described action plan in order to meet the primary STARS goal of "initiating the necessary operational improvements across programs".

To coordinate growth of the Region's environmental protection effort, the Region IV Strategic Plan: FY 1992-1996 was released in January 1992. The Strategic Plan establishes priorities among environmental protection activities so that Region IV can be more effective in accomplishing its mission of "ensuring the maximum protection and enhancement of the environment under the directives of the President and the laws enacted by the U.S. Congress, consistent with sustainable growth now, and for future generations".

Included in the Strategic Plan is a five-year plan for protecting ground water in Region IV. A key ingredient in this portion of the plan is the identification of four goals considered necessary to achieve in order to adequately protect ground water in Region IV. Specific objectives, strategies, and action steps associated with each of the goals, including general timeframes, are also provided. The goals are as follows:

1. Establish prevention practices and techniques as the preferred means of protecting ground water resources from degradation in order to avoid risk from contaminants.
2. Focus waste reduction efforts on existing high-risk activities, especially in identified vulnerable ground water resource areas in order to minimize risk from such activities.
3. Identify all existing contaminated ground water areas, establish realistic and flexible clean-up objectives and initiate/complete clean-up actions to reduce risks to acceptable levels for those areas.
4. Educate the public and regulated community regarding the uses and importance of ground water, the risks associated with contamination and how prevention, reduction, and restoration are all needed, as well as how these objectives can be accomplished.

The responsibility for achieving these goals rests principally with appropriate program groups in the Region IV Office. Specific timetables and strategies are incorporated in the individual programs' planning and review processes. Project costs and results are generally discussed in specific program work plans and in EPA/State grant agreements.

The Region IV Strategic Plan is not used to guide budget and program decisions on a day-to-day basis. Rather, it serves as a standard against which long-term program direction and progress can be gauged during the review and planning process. Annual program planning is generally conducted by review of the previous year's accomplishments and identification of specific program needs through comparison with guidance provided by the Strategic Plan document itself.

CHAPTER III

CHARACTERIZING THE RESOURCE AND PRIORITIZING ACTIONS

III. A. Resource Assessment

Ground water is used as a source of water by more than 31,000 public water supply facilities in EPA Region IV, and over 60% of the combined population of Region IV states relies on ground water for some or all of their drinking water (Figures III-1, III-2). This points to the importance of resource assessment as an element of the Region's "comprehensive" ground water protection program. Region IV relies primarily on states and the U.S. Geological Survey (USGS) to conduct large-scale aquifer and ground water assessments. Many of the state projects are funded by EPA. Impact assessments made by hydrologists and project managers in the Regional Office are typically based on the reports and accompanying hydrologic maps prepared as part of the state- and USGS-conducted assessments.

Aquifer Mapping

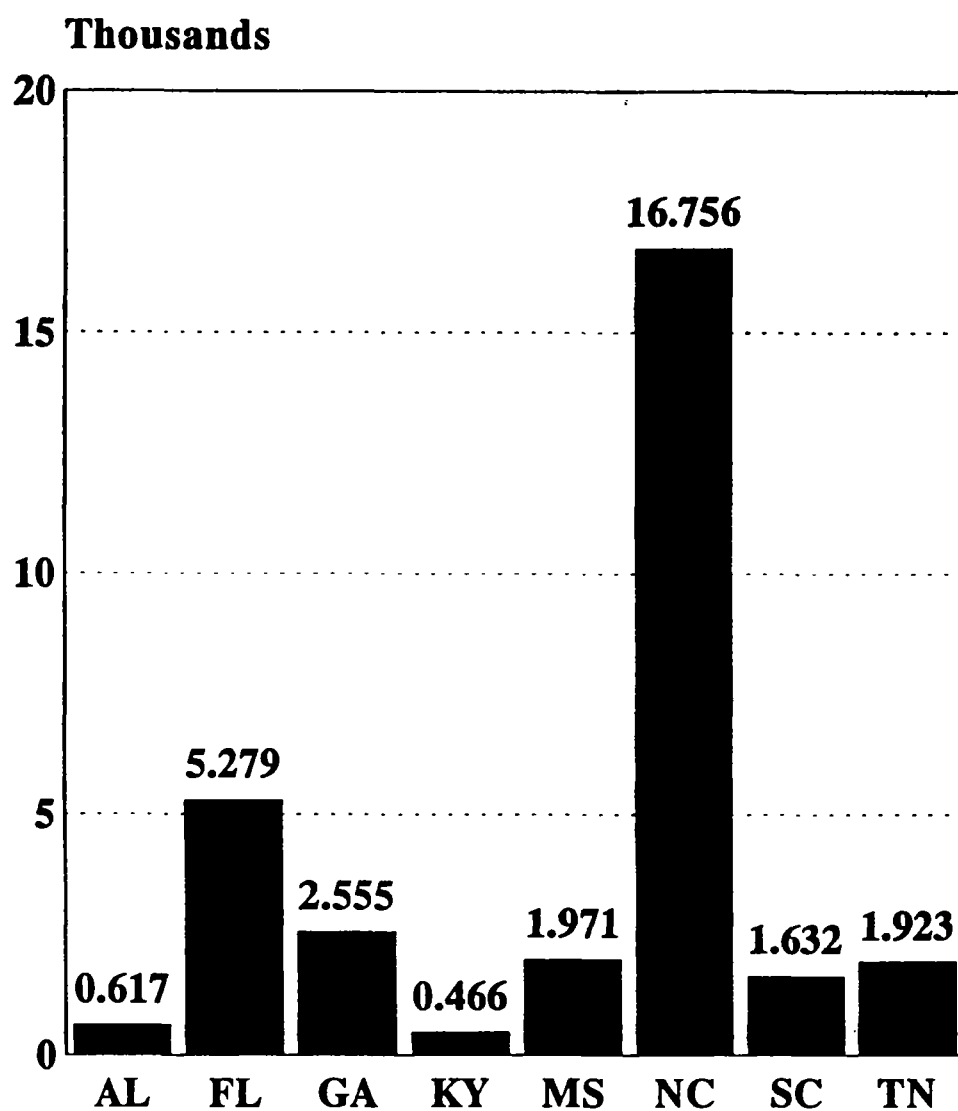
The 1984 National Water Summary, published by USGS, provides a summary description of the hydrogeologic framework for each of the 50 states. Included with each state synopsis is a hydrogeologic map delineating the principal aquifer systems within that state. In 1990, USGS published the Ground Water Atlas of the United States. Like the National Water Summary, the Atlas provides information relating to the hydrogeologic conditions for the major aquifers within a particular regional area in the United States.

On a more localized scale, information submitted by responsible parties under the requirements of the various regulatory programs provides information relating to aquifer stratigraphy and proximity of a particular site to public and private wells. This information is routinely used by Region IV in guiding Agency decisions that affect specific sites under the various regulatory programs.

Region IV's Ground Water Technology and Management Section has participated in the EPA Headquarters-led development of the Ground Water Resource Assessment Technical Assistance Document that will be used by state ground water programs in assessing their ground water resources in support of the development of CSGWPPs. A draft of this document is currently under review.

Ground Water Classification

With the release of EPA's first Ground Water Protection Strategy in 1984, a set of "ground water protection guidelines" was developed to establish consistency in decision-making across



from FRDS 1990

Figure III-1. Public Ground Water Supplied Facilities in Region IV States.

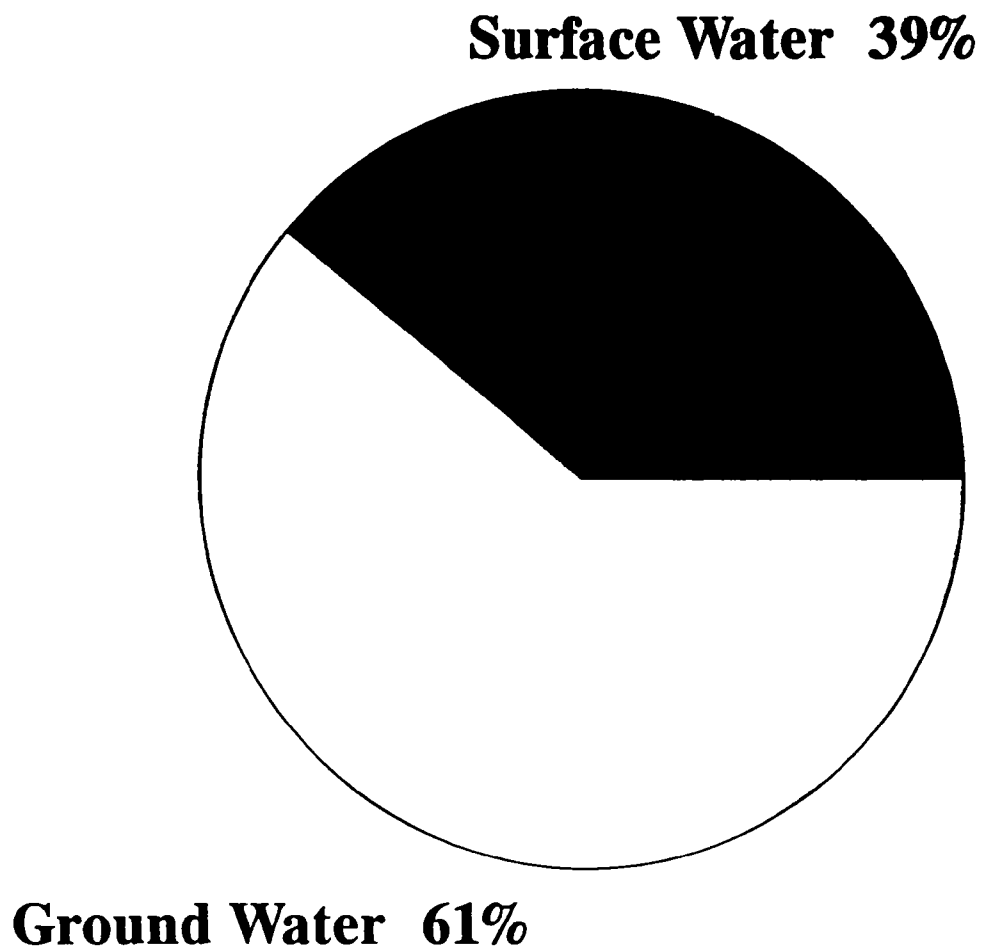


Figure III-2. Drinking Water Sources in Region IV, by Population.

program lines. The guidelines are based on recognition of the highest beneficial use or potential use for ground water resources. Protection policies were defined for three categories reflective of the value of the ground water and its vulnerability to contamination. The three classes are:

Class I - Special Ground Water (i.e., irreplaceable sources of drinking water)

Class II - Current and Potential Sources of Drinking Water and Waters Having Other Beneficial Uses

Class III - Ground Waters Not Considered Potential Sources of Drinking Water and of Limited Beneficial Use

In December 1986 the Agency expanded upon the classification approach first presented in the 1984 Strategy by publishing a draft document titled Guidelines for Ground Water Classification under the EPA Ground Water Protection Strategy. The document presents criteria used in classifying ground water according to the scheme described in the Strategy. The classification scheme is used in the establishment of appropriate levels of protection and remediation goals by Region IV technical support staff and project managers.

Geographic or Geological Targeting Initiatives and Systems

As a result of EPA's agency-wide strategic planning effort, former Administrator William Reilly designated South Florida as the subject of a geographic targeting initiative. The decision was prompted by recognition that South Florida's communities are faced with a unique set of complex environmental issues that affect the well-being of the public and the area's natural resources. Most of the issues relate to agriculture, an expanding population and associated land use, land conservation, and the long-term protection of the sub-tropical landscape and environment of the region. In 1992, Region IV completed a study identifying the major environmental issues in South Florida. From the study came EPA's recognition of the technical feasibility of using the Upper Floridan Aquifer to store excess wet-season streamflows for use during the dry season. Region IV established the Aquifer Storage and Recovery (ASR) Workgroup, which also includes representatives from the U.S. Army Corps of Engineers and state agencies that are involved in ground water protection issues. The ASR Workgroup is focusing its efforts on evaluating the potential uses of recovered water and identifying regulatory obstacles to implementing such a program.

The Watershed Protection Approach (WPA) is another EPA strategy designed to focus cooperative actions to solve specific water quality problems, including those related to ground water. It looks at all sources of pollution in a specific watershed, and addresses identified sources through cross-program cooperative

efforts of federal and state agencies, local governments, and the private sector. Region IV's Watersheds Section is spearheading efforts to carry out this approach for two (2) areas in the southeastern United States:

- Flint Creek Watershed (Alabama)
- Savannah River Watershed (Georgia and South Carolina)

In addition to coordinating the WPA projects, the Watersheds Section also encourages states to target geographic areas through State Nonpoint Source (NPS) Assessment Reports. The targeted areas are then given priority by Region IV in awarding NPS grants. Through this process, the Region has been able to target a portion of funds awarded under Section 319 of the Clean Water Act toward activities addressing the karst aquifers around Mammoth Cave, Kentucky, as well as areas encompassing the most vulnerable karst aquifers of Florida. The Ground Water Technology and Management Section and the Pesticides Section support grant activities for state ground water and agricultural programs to develop GIS capabilities. Information is generally used to identify ground water that is highly vulnerable to contamination, including contamination caused by the application of pesticides.

The Water Management Division has established a divisional Watershed Protection Policy Committee to consider how the Division will involve all water programs in watershed planning and protection.

Wellhead Protection

The 1986 Amendments to the Safe Drinking Water Act (SDWA) established the Wellhead Protection (WHP) Program to protect ground water sources that serve public water supply systems. Each state is required to develop and submit to EPA for approval a program which describes the roles and responsibilities of involved state and local agencies, methods for the delineation of wellhead protection areas, approaches to inventorying and managing sources of contamination, contingency plans, strategies for managing new wells, and plans for public participation. Administration of the Wellhead Protection Program in Region IV is the responsibility of the Ground Water Technology and Management Section.

In March 1992, Alabama's WHP Program became the first in Region IV to be granted EPA approval. Approval of Programs for South Carolina and Georgia followed in September 1992, and for Kentucky and Mississippi in September 1993. Other Region IV states have had draft WHP Programs reviewed by EPA. Revised Program submittals from these states are expected during FY 94.

Each of the three Region IV states not yet granted EPA approval for their WHP Programs (Florida, North Carolina,

Tennessee) has initiated activities in support of Program development. The Ground Water Technology and Management Section awarded WHP demonstration project grants to 11 local governments in seven (7) Region IV states during FY 91 and FY 92. These projects were selected for funding, in part, on the basis of their potential applicability across the Region, with emphasis on problems of special concern to the states in developing and implementing WHP Programs. Several of these projects have been completed, and several are still underway.

During FY 93 and FY 94, Region IV has continued with direct assistance to local governments in support of WHP through the Regional Minority Community WHP Initiative. Many rural communities, including minority communities, are without knowledge as to the vulnerability of ground water resources or the threat posed to ground water supplies by incompatible land uses in areas around public supply wells. Consequently, citizens in these towns are at the greatest risk for contaminating their own wells. Through the award of a grant to the City of Keysville, Georgia, Region IV has initiated an effort to empower rural minority communities with the ability to protect their wells from contamination. When educated about the vulnerability of their drinking water supplies and provided knowledge on how threats to ground water can be minimized, the communities can serve as models for other rural minority communities to follow in establishing programs to protect their own wells from contamination.

The Keysville Project showcases EPA Administrator Carol Browner's priorities of pollution prevention and environmental equity. It also demonstrates the application of a "comprehensive" approach to ground water protection by linking federal, state, and local government together in an effort to protect a high priority resource area -- the area around the City of Keysville's only source of drinking water, a single municipal water supply well. Major objectives of the EPA grant project are: (1) installation of a high-grade fence around the town's well house and water storage tank; (2) delineation of wellhead protection areas around the well; and (3) development of a WHP educational program for the citizens of Keysville and nearby rural communities.

Under an EPA Headquarters grant agreement with the National Rural Water Association (NRWA), in FY 93 Region IV participated in a series of workshops hosted by the Georgia Rural Water Association for the purpose of providing training to small water systems in establishing local ground water protection programs. This support is continuing in FY 94 through similar involvement with the Florida Rural Water Association and Kentucky Rural Water Association.

Sole Source Aquifer Designation

Major components of the Sole Source Aquifer (SSA) Program were established under Section 1424(e) of the Safe Drinking Water Act. This section authorizes EPA, on the Agency's initiative or upon petition, to determine that an aquifer is the "sole or principal source" of drinking water for an area. The program also authorizes EPA to review federally funded projects planned for a SSA area to determine the potential for contaminating the aquifer and adversely affecting public health. Based on the findings of EPA's review, no commitment of federal assistance may be made for projects which EPA determines may contaminate a sole source aquifer so as to create a significant hazard to public health, although federal funds may be used to modify projects to ensure that they will not so contaminate such aquifers. The Ground Water Technology and Management Section administers the Sole Source Aquifer Program for Region IV.

As of December 1993, three (3) SSA areas have been designated in Region IV. As shown in Figure II-3, they are as follows:

- Biscayne Aquifer - Florida
- Volusia-Floridan Aquifer - Florida
- Southern Hills Aquifer System - Mississippi/Louisiana
(Region IV/Region VI)

No SSA designation petitions are currently under review in Region IV. During FY 93, the Ground Water Technology and Management Section reviewed 23 proposals for federally funded projects in SSA areas. Total cost of the projects approximated \$37,000,000. Of the 23 proposals, 13 were approved without modification. Approval of the remaining 10 proposals is pending the submittal of additional information regarding potential ground water impacts associated with the projects.

Ground Water Quality Assessments

Although a great deal of ground water quality monitoring is presently being carried out within Region IV, most often this is at industrial or commercial sites regulated under the CERCLA, RCRA, UIC, and/or UST Programs. The Ground Water Technology Unit of the Ground Water Technology and Management Section employs a staff of eight "hydros" (hydrologists, environmental scientists, and environmental engineers), two toxicologists, and one ecologist who provide technical expertise to the various regulatory programs in evaluating ground water quality impacts and health hazards resulting from releases of chemicals to ground water, as well as threats to ecosystems and human health posed by the discharge of contaminated ground water into surface water bodies. Monitoring of regulated sites often only provides information relating to ground water quality in the uppermost aquifer, and although background monitoring is generally required under the ground water related regulatory programs, such

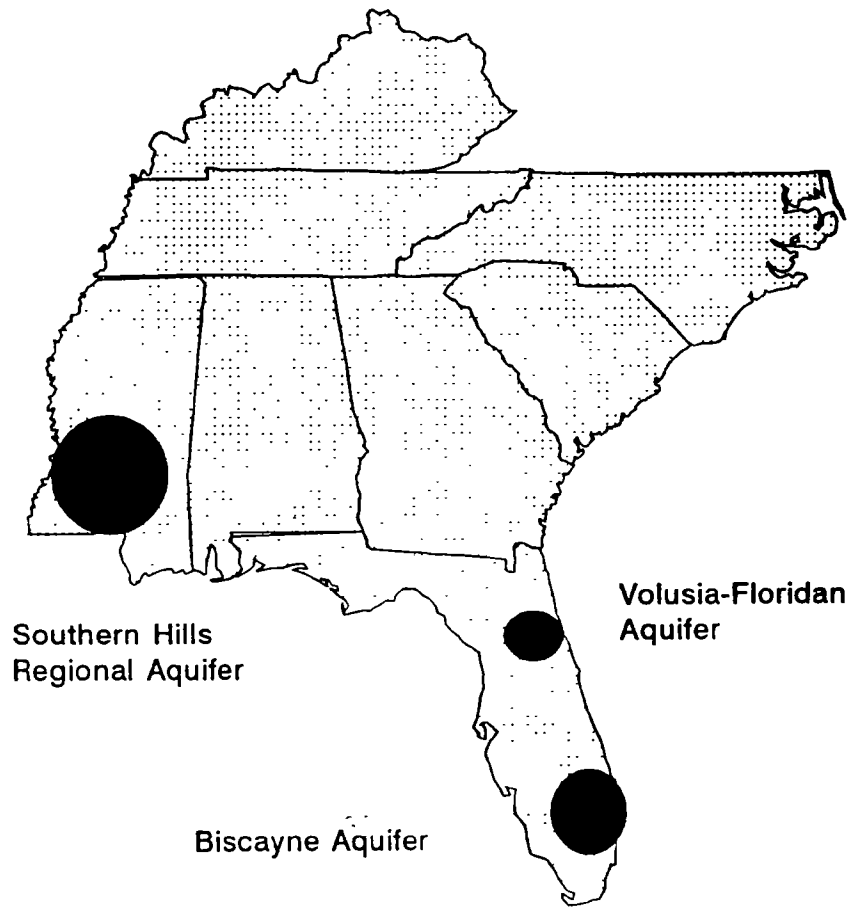


Figure III-3. Region IV Sole Source Aquifers.

background data is not necessarily representative of ambient ground water quality.

● Drinking Water ●

EPA's Office of Ground Water and Drinking Water is developing a ground water disinfection rule that will require public water supply systems utilizing ground water to disinfect for certain bacterial and viral contaminants. In developing this rule, Region IV's Drinking Water Section is participating in a nationwide hydrogeologic assessment that focuses on identifying the occurrence of bacteria and viruses in water supply systems (including those using ground water). Sites determined to be potentially affected by the rule will be categorized according to the findings of the "Virus Occurrence Study".

● Pesticides ●

In January 1992, EPA completed a five-year, \$12,000,000 study to characterize the presence of pesticides and nitrate in drinking water wells on a nationwide scale. The National Pesticide Survey attempted to determine the relationship of pesticide use and ground water vulnerability to the presence of pesticides and nitrate in drinking water. To achieve this objective, water samples from more than 1300 community water systems and domestic wells were tested for the presence of 127 analytes. The Ground Water Protection Branch served as the lead Region IV program office for the National Pesticide Survey. Responsibilities of the Branch included participation in field work and meetings, dissemination of Survey information and reports, and coordination of the review of working documents by appropriate program groups within the Regional Office.

Ground Water/Surface Water Interaction

Ground Water/Surface Water interaction is evaluated on a project-specific level by individual regulatory program groups in Region IV. Program groups generally coordinate with the Ground Water Technology Unit of the Ground Water Technology and Management Section on ground water/surface water quality issues.

Other activities focusing on ground water/surface water interaction issues include state-conducted Nonpoint Source Program projects that are funded by Region IV's Watersheds Section. Also, the NPDES Permits Section regulates the discharge of contaminated ground water into surface water and coordinates with other programs on issues relating to the resulting impacts on surface water quality.

Relationship of EPA Programs to Programs of USGS

In recent years EPA has become increasingly involved in ground water resource evaluations. However, the Agency's primary

responsibility with respect to ground water continues to be that of protecting aquifers from man-made sources of contamination through the implementation of regulations. U.S. Geological Survey (USGS) offices in the various states are responsible for describing the geologic and hydrologic framework and evaluating water quality in Region IV. Although EPA coordinates with USGS on a variety of projects and often enters into agreements with USGS that call for USGS to provide assistance to EPA or the states in project-specific ground water related efforts, a broader level of cooperation between the two agencies is needed.

III. B. Contaminant Source Identification

In October 1984, the Office of Technology Assessment (OTA) released a report for the Senate Committee on Environment and Public Works entitled Protecting the Nation's Groundwater from Contamination. OTA's report contained a generic list of 33 sources of actual or potential ground water contamination (Table III-1). This list served as a focal point for hearings held by the Senate Subcommittee on Toxic Substances and Environmental Oversight in 1985. EPA's Office of Ground Water Protection (OGWP) subsequently decided to compile an inventory of Agency-wide involvement in activities that address the sources on the OTA list, in order to respond to future Congressional inquiries and to facilitate intra-Agency coordination on ground water activities. Compilation of this inventory resulted in OGWP's preparation of the document EPA Activities Related to Sources of Ground Water Contamination, which was released in February 1987.

The 1987 publication reports that most of the Agency's ground water related activity is source-specific. At the time of publication, EPA program offices had some level of activity for 25 of the 33 sources identified by OTA, as well as for nuclear facilities and abandoned waste sites, which were not included on the OTA list. The Agency's emphasis clearly was and continues to be on waste management. Twenty three of the 35 OTA listed sources are related to waste management, and as of 1987, EPA was addressing 19 of them. Nine sources had no reported ground water protection related activity as of 1987. These were:

1. material stock piles
2. graveyards
3. animal burial
4. animal feeding
5. percolation of atmospheric pollutants
6. other wells
7. ground water/surface water interaction
8. construction excavation
9. residential disposal

<p>Category I—Sources designed to discharge substances Subsurface percolation (e.g., septic tanks and cesspools) Injection wells Hazardous waste Non-hazardous waste (e.g., brine disposal and drainage) Non-waste (e.g., enhanced recovery, artificial recharge, solution mining, and in-situ mining) Land application Wastewater (e.g., spray irrigation) Wastewater byproducts (e.g., sludge) Hazardous waste Non-hazardous waste</p> <p>Category II—Sources designed to store, treat, and/or dispose of substances; discharge through unplanned release Landfills Industrial hazardous waste Industrial non-hazardous waste Municipal sanitary Open dumps, including (illegal dumping (waste) Residential (or local) disposal (waste) Surface impoundments Hazardous waste Non-hazardous waste Waste tailings Waste piles Hazardous waste Non-hazardous waste Materials stockpiles (non-waste) Graveyards Animal burial Aboveground storage tanks Hazardous waste Non-hazardous waste Non-waste Underground storage tanks Hazardous waste Non-hazardous waste Non-waste Containers Hazardous waste Non-hazardous waste Non-waste</p>	<p>Open burning and detonation sites Radioactive disposal sites</p> <p>Category III—Sources designed to retain substances during transport or transmission Pipelines Hazardous waste Non-hazardous waste Non-waste Materials transport and transfer operations Hazardous waste Non-hazardous waste Non-waste</p> <p>Category IV—Sources discharging substances as consequence of other planned activities Irrigation practices (e.g., return flow) Pesticide applications Fertilizer applications Animal feeding operations De-icing salts applications Urban runoff Percolation of atmospheric pollutants Mining and mine drainage Surface mine-related Underground mine-related</p> <p>Category V—Sources providing conduit or inducing discharge through altered flow patterns Production wells Oil (and gas) wells Geothermal and heat recovery wells Water supply wells Other wells (non-waste) Monitoring wells Exploration wells Construction excavation</p> <p>Category VI—Naturally occurring sources whose discharge is created and/or exacerbated by human activity Groundwater—surface water interactions Natural leaching Salt-water intrusion/brackish water upconing (or intrusion of other poor-quality natural water)</p>
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Source: Office of Technology Assessment, Protecting The Nation's Groundwater From Contamination, October 1984.

Table III-1. Sources of Ground Water Contamination.

Specific sources of potential ground water pollutants around Region IV are defined and categorized through regulations promulgated under the statutory authority granted to each program. Inventorying of these sources is also on a program-specific basis, and is commonly achieved through compilation of information obtained from the regulated community through reporting requirements, permit and compliance information, etc. Informational files are updated continually as required submittals are received by EPA from the regulated community. Because the amount of information received from regulated facilities is voluminous, and because the waste management activities documented in report submittals to EPA are often of a "time sensitive" nature, individual program groups seldom attempt to quantify the total amount of a given type of waste at all of the facilities that they regulate.

In order to continue assessing the quality of ground water in Region IV states, and to estimate the effects of man's activities, most EPA program groups maintain an inventory of cases of ground water contamination in the Region that are known to be caused, or could have been caused, by activities regulated under that program.

III. C. Setting Priorities

Per the recommendations of EPA's New Ground Water Strategy, the Agency will set priorities for preventive and remedial actions according to risk. Beyond the strategic planning initiatives discussed previously, Region IV currently prioritizes ground water related activities on a program-specific level. Program groups that are primarily involved in the direct implementation of ground water regulations may have quantitative schemes for prioritizing specific sites. Groups that are primarily involved in state oversight, planning, administration, or technical support have only broad priority areas and focus on the most critical elements of the program. In all program groups, highest priority is assigned to situations that present an imminent threat to human health.

● Superfund ●

As authorized by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), the Superfund Program utilizes the National Priorities List (NPL) as its primary tool in setting priorities for remedial action. The NPL currently includes 154 sites in Region IV. The Site Assessment Section, Waste Programs Branch, is responsible for assessing sites to determine if they meet criteria necessary to be placed on the NPL. A score is computed for each site assessed using the Hazard Ranking System (HRS). The HRS score must be above 28.5 in order to propose a site to the NPL. The HRS is a mathematical model that evaluates four pathways of exposure: ground water,

surface water, air, and soil. The model considers all available data about ground water usage within a four mile radius of a site.

Clearly, ground water quality is but one piece of the Superfund assessment and remediation process, and not all sites with ground water contamination are proposed for the NPL. Those sites scoring below 28.5 are designated Site Evaluation Accomplished and referred to the appropriate state for further action. NPL sites in Region IV are further prioritized by either the North Superfund Remedial Branch, South Superfund Remedial Branch, or the Federal Facilities Branch, with the "worst" sites being addressed first. For federal facilities (e.g., DOD and DOE installations), the entire facility is typically placed on the NPL. Since most of these federal facilities have numerous known or potential releases of hazardous substances, a second round of prioritization occurs internal to a single facility (i.e., sites within the facility are prioritized for investigation and cleanup). This internal NPL site prioritization is typically based on a semi-quantitative determination of the level of threat to human health and the environment.

An NPL site's ground water prioritization depends on the classification of the aquifer underlying the site per EPA's 1984 "Ground Water Protection Strategy," which considers the use and value of the resource in categorizing ground water. The Superfund Program relies on the Ground Water Technology Unit for assigning an appropriate classification on a case-by-case, site specific basis in conjunction with site reviews. The assigned classification determines the clean-up goal and remediation alternatives that are considered for the site.

● RCRA ●

Priorities are established in the RCRA Program through the RCRA statute, regulations promulgated under the law, and through policy statements. Subtitle C of the RCRA statute establishes a program to manage hazardous waste from "cradle-to-grave". The objective of the Subtitle C Program is to ensure that hazardous waste is handled in a manner that protects human health and the environment. The Hazardous and Solid Waste Amendments of 1984 (HSWA) significantly expanded the scope of RCRA in the area of ground water protection by addressing three program priorities. First, HSWA requires waste generators to certify that they have taken steps to reduce the volume of hazardous waste they generate. Second, HSWA established the land disposal restrictions, banning certain wastes from land disposal. HSWA also requires facilities to take corrective action for any release of hazardous waste or hazardous constituents into the environment. The 1984 HSWA Amendments set strict deadlines, or "hammer dates" for the implementation of many of these new requirements.

The RCRA regulations are the legal mechanism that defines how the statute's broad policy directives are to be implemented. In essence, these regulations codify the goals and priorities (e.g., waste minimization, land disposal restrictions, and corrective action) established in the statute.

Beyond those priorities identified in the statute and specified in the regulations, policy statements identify RCRA priorities on an annual basis. Policy is generally established by EPA Headquarters, but Regions are given latitude in selecting actual sites at which to implement the policies. An example of a recent Headquarters policy effort is the Stabilization Initiative. Under this initiative, RCRA C facilities were first ranked using the National Corrective Action Prioritization Systems (NCAPS). Using the NCAPS, facilities were evaluated as to their impact on ground water, surface water, air, and soil. For the ground water evaluation, factors such as depth to aquifer, net precipitation, waste characteristics (including toxicity), and distance to nearest drinking water well were considered. Facilities were placed into high, medium, and low priority groups. High priority facilities were considered for stabilization. Stabilization can be defined as "source control and prevention of further spreading of contamination". The idea is to address exposure quickly, before a final corrective measure is developed and implemented. EPA Headquarters tracks the Region's progress on this and other RCRA policy initiatives using STARS.

● Underground Storage Tanks (USTs) ●

Because of a lack of federal resources, the magnitude of the UST problem, and the fact that program success depends on the states' commitment, Region IV's UST program group has identified three broad priority areas: (1) state program development, (2) leak detection, and (3) corrective action. These priority areas emphasize the importance of ensuring proper tank installation and maintenance, proper tank closures, finding and correcting leaks, and the cleanup of existing leaks. Hence, they reflect both preventive and remedial approaches to ground water protection. Some state programs supported through grants administered by Region IV's UST Section target leak detection inspections toward facilities that could directly impact drinking water supplies. Other states have focused UST inspection activities on identified aquifer recharge areas. Each state has its own priority system for state-lead cleanups of UST sites. Highest priority is given to cleaning up sites which impact drinking water. Removal of free product is also a high priority since prompt removal can drastically reduce ultimate cleanup costs.

● Underground Injection Control (UIC) ●

The UIC Section in Region IV emphasizes a preventive approach to ground water protection by focusing permitting, compliance and

enforcement efforts on mechanical integrity and other operating requirements which ensure that injection wells are being constructed, operated, and plugged in a manner that protects underground sources of drinking water (USDWs) from contamination. Violations are prioritized according to a qualitative evaluation of risk posed to human health and the environment, and these violations are addressed through enforcement actions. Water supply wells in areas suspected to be contaminated through UIC activities are inventoried and sampled.

● Pesticides ●

Priorities for prevention of ground water pollution caused by pesticides are set under two principles presented in the Pesticides and Ground Water Strategy, which was released by EPA in October 1991. The principles are as follows:

1. Ground water should be protected to ensure that the nation's currently used and reasonably expected drinking water supplies, both public and private, do not present adverse health risks and are preserved for present and future generations.
2. Ground water should be protected to ensure that ground water that is closely hydrologically connected to surface waters does not interfere with the attainment of surface water quality standards, which are designed to protect the integrity of associated ecosystems.

An integral part of the Pesticides Strategy is a call for states to develop State Pesticide Management Plans. These Management Plans are to set priorities that are at least as protective as those in EPA's Strategy. Identified state priorities are examined by Region IV staff as part of EPA's State Management Plan review process. Priorities for remediation of ground water contamination caused by pesticide use are to be set by those agencies responsible for remediation. Region IV's Pesticides Section encourages states to share information found during monitoring projects. If a site is found to be contaminated, the State's pesticide office works with the state agency responsible for remediation to ensure that appropriate clean-up action is taken.

Region IV states vary regarding the hydrological and agricultural data available for assessing the vulnerability of ground water to contamination by pesticides. Geographic Information System (GIS) technology is being used by some states to analyze available data for vulnerability assessment and program planning. All Region IV states have developed draft generic State Management Plans for pesticides using the data available to them. The Pesticides Section in Region IV reviews these plans upon their submittal to evaluate their completeness and adequacy for ground water protection. The

Pesticides Section also works with the states to encourage and ensure the further development of vulnerability assessment data and analytical capabilities.

● Nonpoint Source (NPS) ●

Water resources (including ground water resources) are prioritized for activities supported by the Region IV's NPS Program through state-developed NPS Assessment Reports and NPS Management Programs. Each EPA-approved management program outlines a methodology that is used by the State in prioritizing watersheds for study and cleanup. These prioritization schemes are based on the documentation of cases of NPS pollution within given watersheds. The prioritization process may include both the need to protect unimpaired waters, as well as restore impaired waters (prevention and remediation). Under the guidance of Region IV's NPS Program, each state has developed an activities priority list that is included in its NPS Management Program. Ground water resources are included on several of these lists. Other NPS Program priorities, such as the targeting of 10 percent of each state's grant toward ground water related projects, are set by EPA Headquarters and the Regional Office.

● Watersheds ●

The Water Management Division has established a multi-program Watersheds Protection Policy Committee to explore the issue of better integrating the Watershed Protection Approach (WPA) in the Division's programs. Although just initiated, this effort is evidence of the importance and role the WPA approach will have in priority setting.

III. D. Data Sources and Coordination

Region IV does not utilize a ground water data collection network coordinated across program lines. The Region's data collection efforts focus primarily on obtaining site-specific hydrogeologic information (i.e., monitoring well specifications, sampling data, hydraulic parameters, ground water flow paths) in association with specific contamination investigations. Specific monitoring requirements are different for each program group within the Regional Office, and most groups maintain their own, independently operated data base. The Region, for the most part, relies on self-monitoring from owners/operators of industrial facilities and potentially responsible parties, but under the authority granted to the various programs, reserves the right to collect samples at any time.

Although the Office of Integrated Environmental Analysis does employ GIS to integrate data and information, the Region's GIS has not been developed to a point where cross-program ground

water data sharing can regularly take place though use of this technology. The power of GIS is its ability to take a great amount of information, condense it into an easily-accessible computer data set, which facilitates simplified retrieval of the data (or subsets of the data) for focused evaluations based on the data sets of interest. When high-quality information is provided through spatial analyses and displays, it helps foster independent assessments of complex environmental issues. The Region hopes to eventually use this powerful tool at every appropriate opportunity to analyze information and data in order to make better environmental decisions related to ground water protection across program lines. Presently, data sharing is generally limited to situations when one program specifically requests information from another program. Most often, data is provided to the requestor in hardcopy form.

● Superfund ●

The Site Assessment Section, Waste Programs Branch, uses a systematic approach to evaluating a hazardous waste site. Under the "umbrella" of the program, either the states (via their cooperative agreement with EPA), or an EPA contractor may evaluate a site. The process consists of a Preliminary Assessment (PA), Site Inspection (SI), and if necessary, an HRS Package to be used for proposing a site to the NPL. The PA generally consists of gathering existing site data, and is of limited scope. An SI is a more comprehensive evaluation that usually involves the collection of field samples. In general, the purpose of the SI is to document site contamination, while site characterization is reserved for the Superfund Remedial Branch if and when a site is placed on the NPL. Accordingly, the SI usually involves the collection of an adequate number of samples (10-15) to determine background conditions and the presence or absence of on-site contamination. An attempt is almost always made to sample ground water, unless the preliminary HRS score warrants its exclusion.

The minimum data collected for PAs and SIs is detailed in each Statement of Work. In addition, the PAs and SIs performed by Region IV's Site Assessment Section are tracked on the Superfund data base CERCLIS. Currently, CERCLIS tracks such management criteria as event qualifiers, dates of completion, etc., and is available upon request by all EPA programs. There is no automated system for tracking ground water sampling data collected by the Site Assessment Section.

The North and South Remedial Branches may obtain data on an NPL site through an Alternative Remedial Contracting Strategy contractor, or it may use EPA's "in-house" Environmental Services Division. Often, the Branch requires a Potentially Responsible Party to collect and analyze samples from a site. Very few NPL sites are "state-lead".

The Federal Facilities Branch requires the lead agency (i.e., the regulated federal facility or regulated federal agency) for CERCLA response actions to collect data regarding ground water contamination. Typical enforcement vehicles used by Region IV's Federal Facilities Branch to ensure collection of ground water data include Federal Facility Agreements (FFAs) under §120 of CERCLA, and administrative orders on consent pursuant to §106 of CERCLA. Typically, the FFAs require the lead agency to develop data management plans that establish consistent reporting formats. The Federal Facilities Branch is coordinating with the Office of Integrated Environmental Analysis to evaluate some pilot sites utilizing a standardized data reporting format and GIS. Although ground water data is not retained in the Superfund CERCLIS database tracking system, CERCLIS is used to monitor progress in characterizing and remediating sites which may include ground water remediation activities.

● RCRA ●

The RCRA Program only addresses the ground water quality directly beneath the site of a Treatment/Storage/Disposal Facility (TSDF) and any ground water adjacent to the site that has been impacted by releases from the TSDF. Ground water data is collected at RCRA Subtitle C facilities in accordance with Subpart F of 40 CFR §264. Two programs have been established under the Subpart F requirements, one for "regulated units" and one for "solid waste management units" (SWMUs). Regulated units that are still operating or that have closed with hazardous waste in place are required to have permanent ground water monitoring wells installed and used for sampling to assure that the unit is not contaminating ground water. Analysis may be required for only "indicator parameters" or for some or all hazardous constituents (40 CFR Part 261, Appendix VIII). Prior to being permitted, a RCRA Facility Assessment (RFA) is conducted at all TSDFs. The purpose of the RFA is to identify SWMUs which may have a potential to release hazardous constituents to surrounding environmental media, including ground water. This information is used to rank the facilities under the National Corrective Action Prioritization System (NCAPS). These rankings are based on several factors, including the toxicity/mobility of the contaminants, the vulnerability of the aquifer and the proximity of potentially exposed populations. Information regarding RCRA sites, including their NCAPS ranking and other project tracking information is available to all EPA program groups on RCRA's RCRIS database. Although ground water data is not retained in RCRIS, RCRIS is used as a tracking mechanism to monitor progress made in characterizing and remediating sites, including those where ground water contamination exists.

The Federal Facilities Branch requires federal facilities subject to SWMU corrective action requirements under permits issued pursuant to Section 3004(u) of RCRA to collect ground water data and remediate ground water contamination.

● Underground Storage Tanks (USTs) ●

The UST Program in the Region IV office does not maintain a site-specific ground water database. Ground water quality data is used and the present and future use of an aquifer is considered by the state UST program group (in accordance with the state classification system and state ground water policies) when determining appropriate corrective action technologies and ground water cleanup level goals. Once cleanup levels are met at a site, ground water is monitored to ensure that no further action is necessary. All information pertaining to corrective actions at contaminated sites is kept on file in the state offices. This information includes analytical data, as well as non-parametric data such as identification of the contaminant source and tracking data for each phase of abatement and cleanup. In addition, each state maintains a database of all underground storage tank systems governed by the UST regulations. This database identifies the locations of the tanks, the ages and materials used to construct the tanks, compliance status, and type of leak detection being used. Florida and Alabama are including latitude and longitude data in locating their tanks, which provides important and useful information for other EPA program groups.

● Underground Injection Control (UIC) ●

The UIC Program in Region IV usually requires ground water monitoring for operators of injection wells in areas of known contamination and in areas where contamination is suspected. Unique sources of drinking water such as springs are often monitored as a requirement of injection well permits. Operator files and permit files contain all relevant data concerning well construction, operating procedures, monitoring data, geologic and hydrologic data, etc. Data is available to other EPA programs.

● Drinking Water ●

Region IV's Drinking Water Section requires all public water systems to monitor for the following categories of contaminants:

1. Microbiological (Bacteria)
2. Volatile Organic Compounds
3. Synthetic Organic Compounds
4. Inorganic
5. Radiological
6. Turbidity
7. Lead and Copper

Each state maintains copies of these analytical results, and the Drinking Water Section in Region IV maintains an automated database that identifies instances of violations for any of the contaminants. The sampling data records are available for use by any EPA program.

● Pesticides ●

While actual data generating activities related to ground water are not undertaken by the Pesticides Program, this group does support monitoring activities by the states. Most states in Region IV have established programs to analyze drinking water well samples for pesticides and nitrates. This is of extreme importance since many regulatory programs involved in ground water monitoring activities do not require analysis for pesticides.

Under the State Management Plan approach, states are required to keep monitoring data records for four years. Any significant findings are reported to the regional EPA Pesticides Office as soon as an investigation shows such findings are found to be "significant". "Significant" findings include, but are not limited to, those that prompt a state to increase its degree of oversight of use of a particular pesticide or modify the State Management Plan. Under an approach outlined in the Pesticides and Ground Water Strategy, states report annually to EPA the number of samples analyzed, detections noted, and enforcement actions taken. This data is available to other EPA programs. In addition to data collected from monitoring activities, states can obtain monitoring data that EPA or other states have required as a condition of pesticide registration, or from other regulatory programs and private efforts. Under FY 93 EPA grants, state Pesticide Programs were encouraged to use EPA's "Minimum Set of Data Elements" in their ground water data collection efforts.

● NPDES ●

While the NPDES permit program regulates only discharges to surface water, the Permits/Compliance System database does contain information relevant to ground water. Any Florida NPDES permittee using deep well injection is coded into PCS so the injection can be inventoried.

● Nonpoint Source (NPS) ●

Region IV's NPS Program does not actively maintain a ground water database. However, water quality data, including ground water quality data, is collected in conjunction with projects funded by this EPA program. An EPA-approved QA/QC plan is required for all monitoring data collected under a NPS project funded by Region IV. Upon submittal, final NPS project reports are distributed to appropriate EPA program groups.

III. E. Use of Data in Program Decisions

Ground water data collected by the various Region IV program groups often serve as the basis for making decisions regarding

inspections, permits, enforcement actions, and contaminant control strategies.

• Superfund •

Data collected through a Preliminary Assessment (PA) and Site Inspection (SI) is used by the Region IV Site Assessment Section to calculate each HRS score under the Superfund Program. The HRS score is the sole criteria for determining a site's eligibility for the NPL. The North and South Remedial Branches use collected data to prepare a site's Remedial Investigation/Feasibility Study (RI/FS). The RI essentially compiles data collected on a site through the PA and SI processes, and involves the collection of additional data to allow for a thorough site characterization. The FS presents the cleanup options available, and the feasibility of each option. The RI/FS is eventually used to prepare the Record of Decision (ROD), wherein the cleanup method chosen is documented.

The Federal Facilities Branch conducts oversight of federal facilities collecting data for the RI/FS and for selection of remedies. In the event that an agreement on selection of the remedy can not be made between EPA and the regulated federal facility, remedy selection is made by EPA.

• RCRA •

The RCRA regulated unit ground water evaluation methodology is established under 40 CFR §264 Subpart F. Initial ground water monitoring conducted under the authority of RCRA is termed "detection monitoring". In detection monitoring ground water samples are analyzed for indicator parameters. Although these parameters are not specific contaminants, they are sensitive indicators that can signal when ground water contaminants may be present. Statistically significant changes in any indicator parameter requires that the detection monitoring program be expanded to analyze for specific contaminants that may be present. If individual contaminants are detected then an expanded sampling program is required to define the full scope and extent of any ground water contamination that exists. This expanded sampling program generally must determine all the hazardous constituents (40 CFR Part 261, Appendix VIII) that are present, the range of concentration of each contaminant and the vertical and horizontal extent of contamination within the aquifer (i.e., delineate the plume). If the contamination exceeds EPA Drinking Water Standards such as Maximum Contaminant Levels (MCLs), then the owner/operator is required to implement a ground water remediation program to reduce the contamination to levels that meet the drinking water standards. For those hazardous constituents that do not have a specified drinking water standard, the cleanup goal will be a background level.

\$264.101 of 40 CFR Subpart F establishes the corrective action program for releases of hazardous constituents from SWMUs. Currently, this program is based on guidance and policy, although draft regulations have been developed to provide a specific methodology for characterizing the nature and extent of contamination resulting from SWMU releases, as well as for the selection of appropriate corrective actions. Region IV's Federal Facilities Branch conducts oversight of this portion of the RCRA corrective action program for regulated federal facilities.

• Underground Storage Tanks (USTs) •

Ground water monitoring data is used by state UST Programs to determine the effectiveness of corrective action and to determine when cleanup is complete. Soil permeability data along with aquifer characteristics dictate corrective action technologies selected at individual sites. Ground water resource data is also used to target leak detection initiatives. Soil characteristics and depth to ground water are used to determine the applicability of certain leak detection methods. Most ground water data are collected for individual site remediations and are not currently being used by other EPA program groups.

• Underground Injection Control (UIC) •

The UIC staff attempts to make an inspection of all injection wells at least once every two years. Violations of UIC rules and regulations are revealed through data gathered during the inspections, from file reviews, and through reports of ground water contamination received from concerned citizens. In consideration of available relevant data (well construction details, operating procedures, monitoring data, geologic and hydrologic data, etc.), violations are categorized as "significant" or "non-significant" and addressed by an appropriate EPA enforcement action.

• Drinking Water •

The Drinking Water Section uses monitoring data as evidence in enforcement actions, to evaluate monitoring waiver requests, and to provide a characterization of each public water supply source. As mentioned previously, microbiological data is presently being collected under the Virus Occurrence Study, which is designed to predict possible water sources contaminated by viruses. Results of the study will aid in the development of a proposed drinking water disinfection rule. The rule will require certain public water systems utilizing ground water to disinfect for viruses.

• Pesticides •

Within the Pesticides Program, ground water data submitted under each State Management Plan is reviewed by Region IV. The

Management Plans are evaluated to see that inspection targeting schemes, permitting systems, and use restrictions are appropriate for a state's identified problem areas.

● Nonpoint Source (NPS) ●

Targeting of watersheds under Region IV's NPS Program is accomplished through analysis of existing water quality data. Additional water quality data are collected to further establish the severity of an identified problem and to track improvements in water quality. Data is also collected and used by the NPS Program to evaluate the effectiveness of Best Management Practices that are recommended for program implementation in states. Since the NPS Program is non-regulatory at the federal level, Region IV relies on states to take regulatory action when necessary. Grant money awarded by Region IV is often used as leverage in directing states and other federal agencies to target NPS activities toward EPA-priority watersheds.

CHAPTER IV

DEVELOPING AND IMPLEMENTING CONTROL AND REMEDIATION PROGRAMS

IV. A. Source Reduction

Region IV's Planning and Pollution Prevention Section is charged with administering pollution prevention programs that are consistent with national pollution prevention policies, strategies, and goals that are established by EPA Headquarters' Office of Pollution Prevention. EPA's Administrator Carol Browner issued a Pollution Prevention Policy Statement in June 1993, calling it the "new environmental ethic". The Administrator's policy gives new direction for environmental protection. The summary of the objectives states that pollution prevention is influenced by a number of factors, including EPA regulations and state programs, collaborative efforts that offer recognition and technical assistance, public data, the availability of clean technologies, and the practices and policies of large public agencies. To be more effective, our pollution prevention program must establish objectives in the following six areas:

Regulations and Compliance. The mainstream activities at EPA, such as regulatory development, permitting, inspections, and enforcement, must reflect our commitment to reduce pollution at the source, and minimize the cross-media transfer of waste.

State and Local Partnerships. Increasingly, state and local agencies are the "face of government" for the general public. We will strengthen the national network of state and local prevention programs, and seek to integrate prevention into state and local regulatory, permitting, and inspection programs supported with federal funds.

Private Partnerships. We will identify and pioneer new cooperative efforts that emphasize multi-media prevention strategies, reinforce the mutual goals of economic and environmental well-being, and represent new models for government/private sector interaction.

Public Information/The Right-to-Know. We will collect and share useful information that helps identify pollution prevention opportunities, measure progress, and recognize success.

Technological Innovation. We will try to meet high priority needs for new pollution prevention technologies that increase competitiveness and enhance environmental stewardship through partnerships with other federal agencies, universities, states, and the private sector.

New Legislation. Where justified, we must not hesitate to seek changes in federal environmental law that will encourage investment in source reduction.

The Southeast Waste Reduction Resource Center is one of the prime showpieces of the aggressive pollution prevention activities going on in the southeastern states and is supported by EPA Region IV's Planning and Pollution Prevention Section, the State of North Carolina, and the Tennessee Valley Authority (TVA). Located in Raleigh, North Carolina, the Resource Center functions as an information clearinghouse, with a library of over 5,000 pollution prevention publications and a staff of engineers and scientists trained in waste reduction who are ready and willing to "brainstorm" with company officials looking for solutions to their waste problems. The Center has provided "jump starts" for a number of state pollution prevention programs by means of its "Core Reference Library," which consists of the basic documents needed to undertake a waste reduction technical assistance program, as well as copies of bibliographies outlining available resource documents. In response to popular demand, the Center is hoping to enlarge its activities to conduct more on-site work with state programs, supply training to regulators, and expand its holdings of publications.

The Planning and Pollution Prevention Section, together with TVA and the Region IV states, has also put in place a program which uses part-time retirees to offer technical assistance to industries. Each of the Region IV states utilizes retired engineers in varying numbers to provide pollution prevention technical assistance for businesses in their state. Region IV has established a database that includes each retiree's area of expertise. By accessing the Region's database, states can utilize each other's resources when their own staff is missing a particular specialty. Retirees selected for the program have industrial work experience in the type of industries that the State and Regional Office have selected as priorities. They have been trained to conduct pollution prevention opportunity assessments, and are familiar with various source reduction and recycling techniques and technologies. In a number of locations, retired engineers are now working on-site at industrial plants and businesses conducting waste reduction audits and helping to identify pollution prevention opportunities.

Regulatory mechanisms are also in place to aid Region IV's waste minimization/pollution prevention efforts. Under the authority of RCRA, large quantity generators of hazardous waste and hazardous waste Treatment/Storage/Disposal Facilities (TSDFs) are required to have a program to minimize the volume and/or toxicity of waste they generate. Permits issued for such facilities generally include provisions which require the permittee to certify, no less often than annually, that such a program is in place and that the chosen method of treatment, storage, or disposal is the most practicable method available

which minimizes the present and future threat to human health and the environment.

IV. B. Siting Criteria

EPA's land use restrictions are implemented in Region IV through administration of separate programs, both regulatory and non-regulatory.

Municipal Solid Waste Landfills

Under the authority of Subtitle D of RCRA, on October 9, 1991, EPA promulgated regulations that established siting, design, and operational standards for municipal solid waste landfills (40 CFR Part 258). The Solid Waste Disposal Facility Criteria rule, which went into effect October 9, 1993, applies to new, existing, and lateral expansions of municipal solid waste landfills (MSWLFs) that receive household waste on or after October 9, 1993. The location provisions presented in the rule are intended to prevent or restrict the siting of MSWLFs in areas that are especially vulnerable to ground water contamination. The location criteria restrict the siting of MSWLFs near airports, in 100-year floodplains, in wetlands, in seismic impact zones and "unstable areas", and around active fault zones. Although none of the location restrictions included in the rule specifically addresses ground water, the schedule for owners and operators to have ground water monitoring systems in place for existing MSWLF units and lateral expansions is dependent upon the location of the landfill with respect to the nearest drinking water intake. The schedule is as follows:

<u>Distance from Unit to Nearest Drinking Water Intake (Surface or Subsurface)</u>	<u>Date MSWLF Unit Must be in Compliance with Applicable Ground Water Monitoring Requirements</u>
Less than 1 Mile	October 9, 1994
1 -2 Miles	October 9, 1995
Greater than 2 Miles	October 9, 1996

The new solid waste rule is self-implementing. The Office of Municipal Solid Waste in Region IV is responsible for reviewing and approving/disapproving municipal solid waste landfill permit programs developed by the states. The siting criteria established in 40 CFR Part 258 serve as minimum requirements for the state MSWLF permit programs. States must demonstrate that their regulations are technically comparable to the federal criteria. Region IV also considers it important for state MSWLF permit programs to recognize that the requirements of a state's

Wellhead Protection Program should be followed during the landfill siting process. If a state's MSWLF permit program has not received EPA approval by the effective date of the federal criteria, owners and operators of MSWLFs in that state will be responsible for meeting the federal standards, and enforcement of the regulations will be accomplished via citizen actions (suits, etc.). EPA has the authority to enforce the federal criteria in states which are determined to have inadequate MSWLF permit programs.

Hazardous Waste Treatment/Storage/Disposal Facilities

Currently, federal RCRA regulations prohibit the siting of a new Treatment/Storage/Disposal Facility (TSDF) in a location where flood or seismic events could affect a waste management unit. Bulk liquid wastes are also prohibited from placement in salt domes, salt beds, or underground mines or caves. Provisions in the 1984 Hazardous and Solid Waste Amendments to RCRA (HSWA) required EPA to further strengthen these location criteria. The Agency is currently working on revising the regulations to reflect the statutory directive. The federal location standards have not yet been formally proposed.

Project managers in Region IV's RCRA program are not routinely involved in enforcing the TSDF location restrictions. All states within the Region have been delegated authority to implement a base RCRA program that includes siting criteria provisions. Since delegation of program authority is contingent upon a state having regulations that are as stringent, or more stringent than the federal regulations, it follows that siting criteria established under each Region IV state RCRA program with EPA-delegated authority are at least as stringent as the federal standards. At least one Region IV state has developed more stringent location standards under their state law. These regulations address sole source aquifers and recharge areas as well as wetlands and surface water bodies.

Public Drinking Water Systems Utilizing Ground Water

Region IV does not usually play an active management role in any of the project-specific tasks associated with the various local Wellhead Protection (WHP) Programs that are in place around the Region. However, the state WHP Programs approved by Region IV and the demonstration projects administered by Region IV's Ground Water Technology and Management Section do provide states and local governments an opportunity to further restrict certain activities within delineated wellhead protection areas around public water supply wells. Activity restrictions within wellhead protection areas are often established through local ordinances and other mechanisms that are outlined in guidance provided in the state WHP Programs.

Sole Source Aquifers

Any federally-funded project proposed for within one of the three designated Sole Source Aquifers in Region IV is subject to the Ground Water Technology and Management Section's review for a determination of whether the project poses a threat of contaminating the aquifer and adversely affecting public health. If the project is judged to pose a significant threat, the Ground Water Technology and Management Section will call for project modification or the withholding of federal funds.

IV. C. Control and Remediation Programs

EPA Region IV uses several statutory authorities to control sources of ground water contamination and remediate contaminated ground water. These statutes contain both regulatory and non-regulatory source control provisions, and most programs have both a source control and remediation component.

National Environmental Policy Act (NEPA)

NEPA requires the development of Environmental Impact Statements (EISs) or Environmental Assessments (EAs) for many federal actions. In these documents, the lead agency must examine potential environmental impacts (including ground water impacts) of the proposed action as well as impacts associated with reasonable alternatives to the proposed action. The NEPA process can be used by the various federal agencies to develop and promote guidelines for ground water protection on both a programmatic and specific project basis. Since EPA has responsibility to review and comment on other agencies' environmental documents, the process offers EPA an opportunity to work cooperatively with other agencies and assist them in the development of these guidelines and provide input on ground water protection issues related to specific projects. Hence, NEPA offers EPA the ability to provide early input on ground water protection strategies and reduce potential impacts related to projects during the important planning and development stages of each federal project.

Clean Water Act (CWA)

States have long been awarded grant funds by EPA under Section 106 of the Clean Water Act to support their water quality programs. In 1984 the 106 Program was expanded to include grant funds to support the development of state ground water protection programs that are primarily preventive in nature. The ground water portion of the 106 grant is awarded annually to each state.

In the past, EPA has emphasized the need for states to use the 106 ground water grant to conduct pollution control studies, for surveillance and enforcement, public outreach (such as

training and providing assistance to citizens), and long-term planning. Program emphasis has now shifted to the development of Comprehensive State Ground Water Protection Programs (CSGWPPs) that build upon existing ground water related programs. The Region IV effort involves staff within the Ground Water Technology and Management Section working with state 106 ground water program staff in the development, review, approval, and management of annual work plans.

Some states in Region IV continue to use a significant portion of the 106 ground water grant to address sources of contamination at sites and facilities that do not fall under the jurisdiction of any specific regulatory authority. Generally, a broad provision of some state water quality statute prohibiting any type of pollution of the State's waters provides the necessary authority for states to do this. Also, industrial facilities will sometimes conduct voluntary self-assessments and monitoring programs. Review of ground water assessment reports, corrective action proposals, and monitoring data submitted by facilities that have had a release of chemicals from an unregulated source represents the majority of work that state 106 ground water programs perform in this regard.

The Clean Water Act's Section 319 Nonpoint Source (NPS) Program is a non-regulatory program with the overall goal of controlling and abating nonpoint source pollution. In accordance with Section 319, each Region IV state has developed a NPS Assessment Report and Management Program to assess the impairment of state waters due to NPS pollution, identify sources of nonpoint pollution, and develop a state program to control and abate NPS pollution. Region IV's NPS Program is administered by the Watersheds Section. This group awards grants to support each state's NPS Management Program.

Each Region IV state submits an annual NPS work plan to the Watersheds Section for review and approval prior to receiving a grant award. EPA uses the NPS Program as a tool to focus state's efforts on established EPA priorities, to leverage other agencies' monies in controlling NPS, and to implement demonstration projects using NPS technologies. In recognition of the importance of NPS pollution impacts on ground water, Region IV has an established policy that least 10 percent of each state's proposed NPS work activities should to be targeted toward addressing the state's identified priority ground water/NPS activities. Following submission, the Watersheds Section distributes the work plans to other pertinent Region IV program groups, including the Ground Water Technology and Management Section, for their input in the review and approval process. The Watersheds Section uses comments from the other program groups to evaluate and rate each state work plan. This rating procedure determines which work plan project elements will be funded by Region IV with Section 319 grants. The NPS Program monitors progress through semi-annual reviews of each state's program and

through evaluation of final reports for specific projects funded by the Regional Office.

Also under the CWA, when a remediation project results in the discharge of contaminated ground water into surface water or a municipal storm sewer system, an NPDES permit is required. To expedite the process, Region IV's NPDES Permit Section issues a general permit that allows for the discharge to be covered through a permittee's submittal of a Notice of Intent (NOI) to discharge.

Safe Drinking Water Act (SDWA)

The Safe Drinking Water Act (SDWA) of 1974 was enacted to safeguard public drinking water supplies for human consumption. The Act calls for EPA to meet this goal through the establishment of drinking water standards, through the promulgation and enforcement of regulations designed to control the underground injection of waste, and through implementation of a program designed to protect especially valuable aquifers (Sole Source Aquifers) from contamination. The 1986 Amendments to the SDWA added provisions requiring EPA to support states in the development of Wellhead Protection Programs to protect ground waters that supply wells and wellfields that contribute drinking water to public water supply systems.

The Drinking Water Section administers Region IV's Public Water Supply Supervision (PWSS) Program. The goal of the PWSS Program is to ensure that a satisfactory quality and sufficient quantity of water are available to all persons served by a public water supply system within the Region. This is achieved by ensuring that all community, non-community, and non-transient/non-community water systems are in compliance with both state and federal drinking water regulations. These regulations require periodic inspection of treatment facilities and monitoring of the quality of water provided to customers. Region IV's role in implementing the program is primarily one of state oversight. The Drinking Water Section works with states to ensure that new regulations are adopted and implemented in a timely manner. Funds provided to the states through EPA grants and state matching funds are used to address EPA priorities, as established in the PWSS Fiscal Year Work Plan, and to comply with the requirements of each EPA/State enforcement agreement.

In recognition of the need for a strong, effective enforcement program at both the state and federal levels, the Drinking Water Section continues to aggressively implement new drinking water regulations, concentrating on the Surface Water Treatment Rule, the Lead and Copper Rule, and the Phase II (organic and inorganic contaminants) Rule. Enforcement of new regulations as they become effective will continue to be a high priority. The Section provides rule interpretation and technical assistance for the Surface Water Treatment Rule, Total Coliform

Rule, Radionuclides Rule, Phase II and the Lead and Copper Rule, while continuing to provide health advisories and promote water treatment to reduce risks to human health from drinking water.

The Underground Injection Control (UIC) Program was also created by EPA under authority provided in the SDWA of 1974. It is intended to protect underground sources of drinking water (USDWs) from contamination caused by injection activities. All injection wells under the jurisdiction of the program are required to be in compliance with the UIC rules and regulations. The federal UIC regulations are contained in 40 CFR Parts 144 through 147. All aspects of injection activity (i.e., well construction, operation, plugging, etc.) are regulated.

An underlying premise in UIC Program implementation is the assumption that injectors in compliance with the regulations are most likely not contaminating USDWs. Region IV's UIC Section inspects all injectors at least once every two years and reviews each injection well permit every 2 to 5 years. This assures continued protection of the USDWs. The Section awards grant funds to support state UIC Programs that show a need and desire to develop and implement EPA-identified priorities. Grant funds have typically been used by states to develop Best Management Practices (BMPs), update regulations, and put into place pollution prevention measures.

The UIC Section in Region IV measures progress toward protection of USDWs from contamination as a result of injection activities by tracking Agency enforcement actions, as well as by tracking reported cases of ground water contamination resulting from UIC-related activities.

Region IV's Sole Source Aquifer Program and Wellhead Protection Program are both administered by the Ground Water Technology and Management Section of the Ground Water Protection Branch. Authority for creation of the programs is provided in Sections 1424 and 1428 of the SDWA, respectively. Both programs are described in Chapter II.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Superfund Amendments and Reauthorization Act (SARA)

The Superfund Program, authorized by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, was established to address the nation's abandoned hazardous substance sites. The Program, with regulations promulgated under Subpart E of the National Contingency Plan, is charged with performing three primary tasks:

1. Identify sites where releases of hazardous substances have occurred or may occur in the future, and that pose a serious threat to human health or the environment.

2. Take actions to remediate the identified sites.
3. See that parties responsible for the releases pay for the cleanup actions.

The overall aim of the Program is to get Potentially Responsible Parties (including federal facilities) to clean up sites under EPA oversight. However, CERCLA also provided EPA with direct authority for cleanup and created a \$1.6 billion trust fund ("Superfund") to pay for government cleanups in situations where PRPs are unwilling to perform the work. During the five-year period of the original Superfund program, it became clear that the problem of hazardous waste sites was more extensive and complex than originally believed. The Superfund Amendments and Reauthorization Act (SARA) of 1986 increased the Superfund from \$1.6 billion to \$8.5 billion. SARA also established new standards and schedules for site cleanups.

For situations where PRPs refuse to pay for a site cleanup in Region IV, the Cost Recovery Section will sue the PRP in an attempt to recover costs. The National Priorities List (NPL) is the primary administrative mechanism used by EPA to facilitate remediation of abandoned hazardous waste sites. Currently, there are about 150 NPL sites in Region IV. The Region's North Superfund Remedial Branch and South Superfund Remedial Branch are responsible for remediating those sites placed on the NPL.

The Emergency Response and Removal Branch (ERRB) is responsible for addressing sites and/or situations that pose an imminent threat to human health or the environment within Region IV. ERRB does not address long-term remediation of ground water contamination. However, in responding to emergency situations, this group does identify sites for the Site Assessment Section (SAS) to evaluate for potential listing on the NPL. Many sites are referred to ERRB by SAS for removal actions that are undertaken to prevent further ground water contamination from occurring.

SARA Title III

SARA Title III, the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), was enacted to help communities and industrial facilities prepare to respond in the event of a chemical release emergency and to increase the public's knowledge regarding the presence and threat of hazardous chemicals. The SARA Title III (EPCRA) Program is administered by EPA Headquarters under two different Assistant Administrators (AAs): the Office of Solid Waste and Emergency Response directs aspects of the program dealing with chemical emergency preparedness and prevention; the Office of Prevention, Pesticides, and Toxic Substances directs the part of the program dealing with the toxic release inventory and pollution prevention. Both of these offices are involved in the community

right-to-know part of the program. In Region IV, the SARA Title III (EPCRA) Program is administered by the Title III and Toxics Section of the Pesticides and Toxic Substances Branch.

The SARA Title III (EPCRA) Program administers certain aspects of the Oil Pollution Act of 1990, the Clean Air Act Amendments of 1990 (particularly Section 112[r] regarding the prevention of accidental releases), and the Hazardous Materials Uniform Transportation Safety Act of 1990. The focus of SARA Title III (EPCRA) is not limited to wastes. It also addresses the presence or emission of hazardous substances that facilities may manufacture, import, process, store, otherwise use, or emit. Communities and industrial facilities prepare emergency response plans that identify the sources of potential emergencies, establish procedures for responding to emergencies, and designate individuals to coordinate the emergency response.

SARA Title III (EPCRA) also requires facilities managing hazardous chemicals to notify the appropriate state and local authorities if releases of certain chemicals occur. Facilities must compile certain information about hazardous substances they have on site and the threat posed by those substances. Some of the information must be provided to state and local authorities. More specific data must be made available by the facilities upon request from the state and local authorities, or upon request by the general public.

Resource Conservation and Recovery Act (RCRA)

Three distinct yet interrelated programs exist under the Resource Conservation and Recovery Act (RCRA). The first program, under Subtitle C of the Act, establishes a system for controlling hazardous wastes from "cradle-to-grave." The second program, under Subtitle D, calls for states to develop comprehensive plans for managing primarily non-hazardous solid wastes. Certain underground storage tanks (USTs) are regulated under Subtitle I of RCRA. The UST Program of Subtitle I is the only RCRA program not administered by Region IV's Waste Management Division. Working on the premise that the effects of leaking USTs generally only impact soil and ground water, senior management within Region IV elected to house the UST Program within the Ground Water Protection Branch of the Water Management Division. In June 1989, the Ground Water Protection Branch and the RCRA Branch developed a position paper to clarify responsibilities of each program and to avoid potential overlap of Subtitle C and Subtitle I requirements for USTs that contain hazardous waste. Since the development of the position paper, there has been very little confusion between the two Branches in this regard.

● Subtitle C ●

The initial regulations that allowed implementation of the Subtitle C Hazardous Waste Program went into effect in November 1980. These regulations, administered by Region IV's RCRA Permitting and Compliance Branch, established an environmental regulatory program that applies to generators and transporters of hazardous wastes as well as to those facilities that treat, store, or dispose of hazardous waste.

With respect to ground water, there are two main aspects of the RCRA Hazardous Waste Program. They are: (1) clean up and remediation required as a result of past waste disposal practices, and (2) protection of ground water from the effects of current and future hazardous waste disposal activities. Generators and transporters of hazardous waste are required to clean up any spills or releases of hazardous wastes as they occur, and they are required to remediate any contaminated soils or ground water that result from such spills or releases. The bulk of the ground water aspects of the Program, however, focus on Treatment/Storage/Disposal Facilities (TSDFs) whose past waste disposal practices have caused ground water contamination or whose current management practices could potentially lead to ground water contamination.

There are two categories of waste storage/disposal units at TSDFs that have potential to contaminate ground water and are subject to the requirements of the RCRA Hazardous Waste Program:

1. Regulated Units. These are units that were in existence and were receiving and actively managing hazardous wastes after July 26, 1982, or which did not begin managing hazardous wastes until after July 26, 1982, when the hazardous waste regulations regarding the operation of regulated units went into effect. These units include surface impoundments, waste piles, land treatment units, and landfills.
2. Solid Waste Management Units (SWMUs). These are units that have been used for the treatment, storage, or disposal of waste at any time, irrespective of whether the unit is or ever was intended for the management of waste. RCRA regulated units are also SWMUs. SWMUs include areas that have been contaminated by routine and systematic releases of hazardous waste or hazardous constituents, excluding one-time accidental spills that are immediately remediated and cannot be linked to waste management activities.

The original RCRA regulations only addressed regulated units. However, the 1984 Hazardous and Solid Waste Amendments (HSWA) to RCRA required TSDFs to clean up releases of hazardous waste or hazardous constituents that have come from any SWMUs.

For regulated units, routine ground water monitoring is required to assure that there has not been any ground water contamination caused by releases from the unit. In designing a ground water monitoring system, a TSDF is required to characterize the hydrogeology beneath the site to assure that the uppermost aquifer and direction of ground water flow are clearly defined. New regulated units are also required to meet certain design and construction standards that are intended to minimize the potential for ground water contamination. These standards include requirements for double liners and leak detection systems for surface impoundments, waste piles, and landfills. In addition, wastes that are placed in a land disposal unit must be treated to the extent possible prior to land disposal for the purposes of minimizing the potential impacts of ground water contamination resulting from the release of such wastes.

Owners/operators of TSDFs must conduct investigations for SWMUs suspected of releasing hazardous constituents to determine if such releases have caused ground water contamination. EPA regulations for corrective action at SWMUs have not been finalized; however, the clean up standards that will be applied to ground water contaminated by release from SWMUs will be similar to those standards established for releases from regulated units (MCLs or background levels, unless a less stringent standard can be justified).

• Subtitle D •

Subtitle D of RCRA establishes a framework for federal, state, and local government cooperation in managing nonhazardous solid waste. Region IV's Office of Municipal Solid Waste guides overall program direction for the states and local governments in the Region primarily by providing technical assistance to the states in their efforts to develop solid waste management plans.

A major component of the Subtitle D program is the "Criteria for Classification of Solid Waste Disposal Facilities and Practices" that are provided in 40 CFR Part 257. These criteria are used to determine which solid waste disposal facilities and practices (other than municipal solid waste landfills) pose a reasonable probability of causing adverse effects on human health and the environment. Facilities failing to satisfy the criteria are considered open dumps for purposes of state solid waste management planning. The criteria include general environmental performance standards addressing eight major topics: floodplains, endangered species, surface water, ground water, land application, disease, air, and safety. The ground water protection standards require that facility practices not result in MCLs being exceeded in underground sources of drinking water (USDW) beyond a solid waste unit boundary or beyond an alternative boundary established by the State.

The other main component of Subtitle D is the Solid Waste Disposal Facility Criteria for Municipal Solid Waste Landfills (MSWLFs), which were promulgated under 40 CFR Part 258. These criteria are designed to improve the safety of existing and future MSWLFs which are used for the disposal of household waste. The purpose is to protect the nation's ground water resource from the effects of household waste disposal. The criteria contain both design and performance standards and a wide range of management practices aimed at preventing releases from MSWLFs.

In addition to new design standards, operational requirements, and location standards, MSWLFs must also comply with specific ground water monitoring and corrective action provisions that are very similar to provisions that apply to regulated units under Subtitle C.

• Subtitle I •

There are over 2 million Underground Storage Tanks (USTs) containing hazardous substances or petroleum products in the United States. It is estimated that some 320,000 of these tanks are located in the area encompassed by EPA Region IV. Over 100,000 confirmed leaks from USTs have been discovered nationwide. To address the problem, in 1984 Congress added Subtitle I to RCRA, requiring EPA to develop regulations to remediate ground water contamination caused by these leaks and prevent future leaks from occurring.

In 1988, technical and financial responsibility requirements were promulgated in 40 CFR Part 280. Subpart B of 40 CFR Part 280 covers design, construction, installation, and notification requirements. In order to reduce the number and severity of future leaks, Subpart D includes leak detection requirements. A schedule for owners/operators to comply with tank tightness testing, line testing, and monthly monitoring requirements calls for the oldest tanks to be in compliance first. Existing tanks were required to have corrosion protection and spill prevention/overflow measures in place by December 1988. Release reporting and response, corrective action, and closure are covered by Subparts E, F, and G, respectively. 40 CFR Part 280 also lists performance standards for new UST systems. State program approval requirements are presented in 40 CFR Part 281.

Region IV's UST Section targets a significant level of effort toward direct enforcement initiatives, but the Section is primarily involved in state-oversight activities. The Superfund Amendments and Reauthorization Act (SARA) of 1986 provided \$500 million for a Leaking Underground Storage Tank (LUST) Trust Fund. Region IV uses EPA's LUST Trust Fund to support state efforts to clean up old leaks in certain situations where a responsible party cannot be identified or is unable to proceed with the cleanup.

Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

Under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), EPA's pre-eminent role with respect to ground water protection is that of establishing a regulatory approach for individual chemicals that may threaten ground water. This will be accomplished through the use of: (1) data call-in measures specifically pertaining to ground water; (2) registration data review to determine leachability; (3) label restrictions based on data review; (4) classification of certain pesticides as "restricted use only"; (5) State Pesticide Management Plans, as required for certain pesticides; and (6) cancellation and suspension actions.

The Regional Offices' role in these actions is primarily related to supporting the development of State Pesticide Management Plans and enforcement programs that will be implemented by the states. Region IV's Pesticides Section operates its Pesticides and Ground Water Program under guidelines provided in EPA's Pesticides and Ground Water Strategy, which was published in October 1991. The Pesticides Strategy describes a framework that EPA intends to use to address risks of ground water contamination caused by pesticide use. It is designed in accordance with the overall goals and principles presented in the New Ground Water Strategy, which guide all of the Agency's programs relating to ground water.

The goal of the Pesticide Strategy is to prevent contamination of ground water resources resulting from the normal, registered use of pesticides that present a risk of adverse effects to human health and the environment, by taking appropriate actions in areas that are vulnerable to contamination. In order to accomplish this, the Strategy calls for a significant new role for the states. It offers them the opportunity to exercise primary responsibility for reducing the risks of pesticide contamination by means of developing State Pesticide Management Plans for pesticides of concern. Since the goal of the Pesticide Strategy is prevention oriented, the Regional Office will attempt to see that Management Plans focus on strategies for preventing contamination from occurring rather than on strategies for simply responding to contamination incidents. This will be accomplished by regularly reviewing data collected by state, federal, and local agencies. Since there is little historical information available regarding the occurrence of pesticides in ground water, it will take time to build enough data to recognize significant ground water quality trends.

IV. D. Quality Standards

EPA has not formally adopted a set of ground water quality standards that are applicable to all of the Agency's regulatory programs. Most program groups within Region IV utilize Maximum

Contaminant Level Goals (MCLGs) and Maximum Contaminant Levels (MCLs) set in the National Primary Drinking Water Regulations (NPDWRs) as clean up goals for incidents of ground water contamination.

The 1986 Amendments to the Safe Drinking Water Act (SDWA) require EPA to publish MCLGs for contaminants which may have any adverse effect on human health and which are known or anticipated to occur in public water systems. MCLGs are set at levels which present no anticipated adverse effects on human health and which allow for an adequate margin of safety. At the same time EPA publishes an MCLG, which is a non-enforceable health goal, it must also promulgate a NPDWR (that is enforceable) which includes either: (1) an MCL; or (2) a specific, required treatment technique. A treatment technique may be set only if it is not economically or technologically feasible to ascertain the level of a contaminant in water. Due to analytical detection limitations, sometimes it may be possible to ascertain the level of a contaminant in water only when that contaminant is present in concentrations at some level above an established MCLG. In such cases, the MCL is set at a level higher than the MCLG (i.e., usually the analytical detection limit). The SDWA directs EPA to set the MCL as close to the MCLG as "feasible".

Compounds for which MCLGs or MCLs do not exist are evaluated on a case-by-case basis (site-by-site) basis within the constraints of the applicable regulations, and in consideration of the classification of the ground water beneath the site where the contamination has occurred. The case-by-case evaluation procedure may result in calculation of a health-based clean up standard that is based on a 10^{-4} to 10^{-6} risk during a lifetime of ingestion of the contaminated ground water as drinking water. For ground water that is hydrologically connected to surface water, ambient water quality criteria, which are based upon the protection of aquatic life, are used as the clean-up goals. In most situations where the contaminated ground water is categorized as Class III Ground Water and is not considered hydrologically connected to surface water, Region IV's Ground Water Technology and Management Section recommends that no federal clean up levels be set.

Some regulatory program groups in Region IV rely on some variation of the above-outlined protocol in setting contamination clean-up goals. Determinations as to whether contamination exists at a site depend on procedures that differ widely from program to program in Region IV.

● Superfund ●

Region IV's Site Assessment Section does not set its own criteria for contamination standards. Generally, an observed release to a given media, such as ground water, is said to occur when a sample measurement of a contaminant is three times greater

than the background level or, if a background concentration is not detected, when the sample measurement equals or exceeds the sample quantification limit. However, the Hazard Ranking System (HRS) does consider health-based standards from other EPA programs as a measure of risk in the computation of a site score. These may include drinking water standards and ambient water quality criteria. Generally, Level I Contamination is said to occur with exposure above a given benchmark; Level II Contamination is said to occur with exposure levels below the benchmark; and Potential Contamination is said to occur when no evidence of exposure exists.

In conducting remedial actions at National Priorities List (NPL) sites, the North Superfund Remedial Branch, South Superfund Remedial Branch, and Federal Facilities Branch are directed to follow Applicable or Relevant and Appropriate Requirements (ARARs), standards, criteria, and limitations under federal or more stringent state environmental laws. If chemicals of concern at an NPL site do not have established ARARs (which may include MCLs), then Region IV attempts to set specific quantitative clean-up levels that are based on acceptable levels of risk.

● RCRA ●

The objective of the RCRA compliance monitoring program is to evaluate the concentration of certain hazardous constituents in ground water to determine whether ground water contamination is occurring at a level requiring corrective action. Appendix IX of 40 CFR Part 264 lists those constituents that could originate from a regulated unit at a Treatment/Storage/Disposal Facility (TSDF). Owners/operators of TSDFs with land-based regulated units must monitor for appropriate constituents. The relevant ground water protection standards may be: (1) background levels; (2) MCLs; or (3) site-specific, health- or ecologically-based Alternate Concentration Limits (ACLs) approved by the Regional Administrator. If compliance monitoring indicates a statistically significant increase over applicable standards, then corrective action is required to bring the facility back into compliance with the standards.

Compliance monitoring is not generally required for Solid Waste Management Units (SWMUs) at RCRA TSDFs. However, the clean-up standards that are applied to ground water that is contaminated by SWMUs are similar to those standards for releases from regulated units (i.e., MCLs or background, unless a less stringent standard can be justified).

● Underground Storage Tanks (USTs) ●

Under the UST regulations, incidents of contamination are most commonly first documented through monitoring of release detection equipment rather than through chemical analysis of ground water samples. Acceptable release detection methods for

regulated tanks and piping include tightness testing, interstitial monitoring, soil gas monitoring, and water table monitoring. Release detection checks are required monthly.

When a leak or spill is confirmed from a UST system, an investigation to determine the extent to which the release has damaged the environment must be conducted. This generally entails a determination as to whether free product is present on the ground water, and if so, beginning free product removal. Based on the results of the initial assessment, the appropriate Region IV state UST program decides if long-term corrective action is required.

Per 40 CFR Part 280.66, clean-up standards for releases from USTs are determined by the states. Region IV has an opportunity to influence the standards during the program review/approval process. State health-based drinking water standards apply where UST releases impact a drinking water source. In Region IV, typical state clean-up standards for total petroleum hydrocarbons are 100 ppm. Benzene clean-up standards are typically 5 ppb. Some states set less stringent clean-up levels for situations where the release is at considerable distance from a well or if the release has impacted ground water of limited potential use as a drinking water source. Once free product has been removed, petroleum spills tend to naturally bioremediate with time. There are approximately 55,000 confirmed releases in Region IV. Long-term monitoring is being conducted by several states for low priority sites, which are being allowed to naturally bioremediate because they have been judged to not be impacting surface and drinking water sources.

• Underground Injection Control (UIC) •

The UIC Section sets ground water monitoring requirements in some injection well permits, in consideration of the nature of the material to be injected. In general, Class I wells (injection below the lowermost USDW) require installation of a ground water monitoring system that allows for measurement of levels of hazardous constituents of concern in wells both upgradient and downgradient of the injection well. Artificial increases of the chemicals of concern above background levels are construed to signify the contamination of ground water. In areas of Class II wells, Total Dissolved Solids (TDS), chlorides, oil and grease, and VOC measurements are required as "indicators" of ground water contamination. More chemical-specific monitoring may be required of the permittee if the indicator parameter measurements show cause for concern. Fluids injected into Class V wells must not contain chemicals in concentrations above established MCLs. In overseeing remedial activities associated with documented cases of ground water contamination, Region IV's UIC Section enforces the National Primary Drinking Water Regulations.

● Drinking Water ●

There are two types of standards used by Region IV's Drinking Water Section in administering the Public Water Supply Supervision Program. As mentioned above, the National Primary Drinking Water Regulations (NPDWRs) contain standards (MCLs or treatment techniques) that are health-based and enforceable. The National Secondary Drinking Water Regulations (NSDWRs) are based on aesthetic quality and are not enforceable. MCLs are the numbers against which water samples from public water supply systems are judged for compliance with the regulations; hence, MCLs serve as reference points for indicating when contamination has occurred and when clean up has been achieved.

The treatment technique requirements of the NPDWRs specify a treatment technique or techniques for each specific contaminant which leads to a reduction in the level of such contaminant sufficient to comply with 40 CFR Part 141. These treatment technique requirements are set as an alternative to MCLs for contaminants that are difficult or costly to measure in water. Typical treatments required by EPA to prevent health problems from exposure to such contaminants include filtration or corrosion control.

The NSDWRs include Secondary Maximum Contaminant Levels (SMCLs). A SMCL is "the maximum permissible level of a contaminant in water which is delivered to the free-flowing outlet of the ultimate user of a public water system." Contaminants added to the water under circumstances controlled by the user, except those resulting from corrosion of piping and plumbing caused by detrimental water quality, are excluded from the definition. Further, SMCLs are associated with the aesthetic quality of the water (i.e., taste, odor, or color). Water with contaminant levels above SMCLs may not be palatable, but if it is free of other contaminants, it is potable and safe to drink. Again, SMCLs represent guidelines and reasonable goals for drinking water quality and are not enforceable. States may establish higher or lower levels which may be appropriate depending upon local conditions, such as the availability of alternate sources of drinking water.

● Pesticides ●

States are required to use either EPA-established reference points or to set their own at levels at least as protective as those established by EPA. MCLs set under the Safe Drinking Water Act are used when current sources of drinking water or sources of drinking water reasonably expected for use are being addressed. Ambient Water Quality Standards set under the Clean Water Act are used as reference points when ground water is closely hydrologically connected to surface water ecosystems. Where MCLs do not exist for ground water not hydrologically connected to surface water, EPA Health Advisory Levels (HALs) or other

approved health-based levels are recommended for use as reference points.

With respect to prevention, states will use reference points to define the point of failure of a particular management strategy. Detections below a reference point should trigger an evaluation of the existing prevention measure. A determination may be made that more restrictive measures need to be implemented to protect ground water from contamination as a result of the use of a particular pesticide. Detections at or above a reference point will indicate that the existing prevention measures have not succeeded; hence, more stringent measures (i.e., permitting or prohibition of the pesticide) may be necessary.

For purposes of remediation, state pesticide programs will indicate to EPA the agency responsible for remediation in their state and abide by the standards of that agency. Pesticides program groups within each lead state agency will work with other state agencies and federal agencies in coordinating enforcement activities pertaining to the misuse of a pesticide, including cases of illegal disposal, and leaks or spills.

● Nonpoint Source (NPS) ●

EPA's Nonpoint Source (NPS) Program does not have numerical, health-based standards established to govern program implementation. The Watersheds Section in Region IV relies on state-developed surface water quality standards to determine the degree of watershed impairment or need for protection. The state standards are developed and reviewed/approved by Region IV's Water Quality Standards Section.

CHAPTER V

DEFINING ROLES WITHIN REGION IV AND THE REGION'S RELATIONSHIP WITH OTHER FEDERAL PROGRAMS, AND STATES

V. A. Internal Region IV Coordination

Region IV's three-tiered approach to implementing the New Ground Water Strategy within the Regional Office offers an institutional mechanism for cross-program communication on ground water issues. Serving as the top tier and offering "buy-in" to this approach is the Ground Water Coordinating Committee, made up of Region IV Division/Office Directors. At the program level, Ground Water Advisory Boards (GWABs) composed of senior staff from each division have the responsibility for overall CSGWPP coordination. The Ground Water Council, composed of ground water-related Branch Chiefs, serves as an intermediary between the GWABs and the Coordinating Committee. This Regional CSGWPP action structure is discussed in full in Chapter I.

Beyond the institutionalized CSGWPP action structure, most Region IV programs involved in ground water-related activities coordinate regularly with other programs. Much of this coordination is carried out via informal mechanisms. Informational requests are often made by one program of another, and these requests are routinely satisfied in a timely manner. Cross-program coordination and participation in EPA/State planning meetings is common among ground water-related programs in Region IV, although resource constraints keep such coordination at less than an optimal level. The EPA/State planning meetings are generally held to discuss special initiatives, implementation of new rules, rule updates, and grants issues. Also, multi-program planning groups are occasionally created to develop policy directives such as the Region IV Strategic Plan. Multi-media geographic initiatives in Region IV usually involve most or all programs with ground water related responsibilities.

Programs also collaborate on specific activities designed to characterize the ground water resource. For example, the Pesticides Section provides the Ground Water Technology and Management Section with an opportunity to review State Pesticide Management Plans submitted by Region IV states. Similarly, state Wellhead Protection (WHP) Programs submitted to the Ground Water Technology and Management Section are distributed to appropriate Region IV programs for comment during the review process. For industrial facilities that fall under the jurisdiction of both RCRA and CERCLA, the Region IV groups administering these two programs work closely together in overseeing site characterization and remediation activities. In general, the RCRA Branch takes the lead for these sites, although this is not the case for every site. Region IV's Environmental Services

Division routinely provides both field and laboratory services in support of both the RCRA and Superfund Programs. Each year, the Watersheds Section develops a formal work plan with the Environmental Services Division to support the completion of specific NPS Program projects. Some of these projects have ground water components.

Region IV's South Superfund Remedial Branch, North Superfund Remedial Branch, and Federal Facilities Branch have been directed by senior-level management to have all site-specific, technical decisions relating to ground water approved by the Ground Water Technology and Management Section of the Ground Water Protection Branch. Ground Water Technology and Management Section staff review pertinent documents submitted to EPA Region IV by the regulated community, participate in public meetings as well as meetings between EPA and Potentially Responsible Parties (PRPs), and make recommendations regarding ground water aspects of the projects to the Superfund Program. In addition, a signed Memorandum of Understanding between the Ground Water Protection Branch and the Site Assessment Section of the Waste Programs Branch has facilitated the Site Assessment Section's sharing of ground water sampling results with the Ground Water Protection Branch in cases where contamination of a public or private well is documented during a Site Investigation. Within Region IV, the RCRA Permitting and Compliance Branch and the Federal Facilities Branch also work closely with the Ground Water Technology and Management Section on issues related to appropriate site clean-up levels.

The Federal Activities Branch is involved in coordinating Region IV responses to ground water protection issues involving federal agency actions that require preparation of NEPA documents. When these documents are received by the Federal Activities Branch, they are distributed to the Ground Water Protection Branch for review and comment. Ground Water Protection Branch comments are included with the response letter that is sent to the agency responsible for the action. If a NEPA document is required for any EPA action, these two programs also work cooperatively to identify, assess, and eliminate or minimize the potential ground water impacts associated with the project.

Coordination within Region IV program groups involved in ground water protection is also achieved through joint-program review of state work plans and other documents submitted by states to the Region. For example, Nonpoint Source (NPS) Program work plans submitted by states under Section 319 of the Clean Water Act are reviewed by the Ground Water Technology and Management Section, and comments are provided to Region IV's NPS Program for consideration in the final review. State work plans submitted to EPA Region IV for award of funds allocated under FIFRA are reviewed by both the Pesticides Section and the Ground Water Technology and Management Section. Other documents submitted by states to the Ground Water Technology and Management

Section are distributed to appropriate program groups within Region IV for comment as part of the review process.

Region IV's Water Management Division has established a divisional Watershed Protection Policy Committee. The Committee has been charged with developing a plan for involving all Region IV water programs in watershed planning and protection.

V. B. Targeted Accomplishments and Activities

The Ground Water Protection Branch has been charged with spearheading Region IV's efforts to implement the recommendations of the New Ground Water Strategy, and this effort will continue to be a priority activity for the Branch during FY 94. The elements of a Comprehensive State Ground Water Protection Program (CSGWPP) that were outlined in the New Strategy are presented in detail as "Strategic Activities" in the National CSGWPP Guidance. Ground Water Protection Program Profiles for each of Region IV's eight (8) states were finalized during FY 92. As part of the CSGWPP development process, each state, with EPA's assistance, is comparing the current state ground water program as outlined in the State's Profile with the Strategic Activities provided in the National CSGWPP Guidance. In FY 93, each Region IV state committed to initiating an assessment of their ground water programs to identify gaps and specific areas where improvements are needed. These assessments will be finalized during FY 94.

Beyond the CSGWPP Initiative, individual programs within the Regional Office continue to have their own targeted objectives relating to ground water protection.

● Ground Water Technology and Management ●

Bearing the responsibility for CSGWPP development and implementation in Region IV is only one of several priorities for the Ground Water Technology and Management Section of the Ground Water Protection Branch in FY 94. The Section's Ground Water Management Unit will continue to provide assistance to states in developing and implementing their Wellhead Protection (WHP) Programs, placing special emphasis on elevating those programs not already approved (Florida's, Tennessee's, and North Carolina's) to an EPA-approvable level. The Unit will also continue involvement in the minority-community WHP initiative and will provide support to other state grant programs in the Region on ground water management issues. The Section's Ground Water Technology Unit will provide in-house, technical support to Region IV programs on ground water and related environmental issues; CERCLA and RCRA projects managers will be the primary clientele.

● Superfund ●

For the Site Assessment Section, the Superfund Comprehensive Accomplishment Plan (SCAP) completion targets for FY 93 were as follows:

Preliminary Assessments (PAs)	--- 150
Site Investigations (SIs)	--- 125
Expanded SIs	---- 40
SI Prioritizations (SIPs)	--- 400
HRS Packages	---- 20

At the time of final preparation of this document, it was not known as to which of these targets were met, exceeded, or not met.

The FY 93 SCAP target for completed Remedial Actions by the South Superfund Remedial Branch, North Superfund Remedial Branch, and Federal Facilities Branch in Region IV was 7. These SCAP targets address contamination of all media, including ground water.

● RCRA ●

For the RCRA Subtitle C Permitting Section, STARS accomplishments for FY 93 related to ground water protection were as follows:

Post Closure Permits Issued	---- 10
Closure Plans Approved	---- 16
RFA's Completed	---- 25
NCAP's Rankings	--- 120
Stabilization Questionnaires	---- 98
RFI Work Plan/Report Approval	---- 25
CMS Work Plan Approval	----- 2

● Underground Storage Tanks (USTs) ●

The significant UST Section priorities in FY 94 are enforcement of leak detection requirements, streamlining of states' corrective action programs, and delegation of program authority to eligible states. The Section has also assigned high priority to implementation of a field citation program in an effort to eliminate some of the administrative burdens associated with enforcement activities.

● Underground Injection Control (UIC) ●

For FY 94, Region IV's UIC Section continues to place high priority on enforcement actions and state oversight activities. Enforcement agreements have been signed with all Region IV states that have primacy for the UIC Program. Region IV state coordinators visit the state program offices to review files and

interview staff during annual mid-year reviews. Periodically, Region IV staff conduct field inspections along with state personnel.

● Pesticides ●

The Pesticides Section is focusing ground water related priorities during FY 94 on the review of generic State Management Plans and on providing technical and financial assistance to states as they continue working on two key elements of these Management Plans, ground water protection and vulnerability assessment.

V. C. Coordination with Other Federal Agencies

One recommendation voiced by participants in the Region IV State Ground Water Roundtable held in Atlanta in January 1992 was that representatives of federal agencies involved with ground water protection in the southeastern United States should have a similar meeting. The Regional Office responded by convening the Region IV Federal Interagency Ground Water Roundtable in October 1992, also in Atlanta. More than 60 representatives from over a dozen federal agencies participated in the roundtable, which was designed to open lines of communication and explore avenues for ground water related information sharing among the different agencies.

In preparing for the meeting, EPA Region IV recognized the need for a "Ground Water Steering Committee" to continue the dialogue, planning, and cooperation between and among federal representatives. In keeping with the New Strategy, it was recognized that this committee should also have representatives of state government to improve the state-federal interface. Formation of the Steering Committee was supported by most roundtable participants.

Twelve federal agencies/departments and five states nominated representatives to serve on the Committee. Member agencies are as follows:

- Agency for Toxic Substances and Disease Registry
- Agricultural Stabilization and Conservation Service
- Department of the Air Force
- Department of the Army
- Department of the Navy
- Department of Energy
- National Park Service
- Nuclear Regulatory Commission
- Soil Conservation Service
- Tennessee Valley Authority
- US Geological Survey
- Environmental Protection Agency

Alabama Department of Environmental Management
Florida Department of Environmental Protection
Georgia Geologic Survey
Kentucky Department for Environmental Protection
Mississippi Department of Environmental Quality

At the first meeting of the Committee in June 1993, members agreed on the need for federal representatives on the Committee to develop a "Regional Road Map" for implementation of the New Strategy across federal agency lines. The Road Map is intended to establish a framework for federal agencies and departments in the southeastern United States to describe which elements of a "comprehensive" program are underway, which are missing, and what can be done to improve our overall effort. At their second meeting in December 1993, the Committee established seven (7) specific objectives to guide their activities:

1. identify opportunities for linking state and federal educational resources, objectives and initiatives;
2. assess existing mechanisms and develop new mechanisms for creating incentives to protect ground water resources, and identify and address disincentives;
3. identify technology transfer mechanisms among agencies at all levels of government;
4. identify inconsistencies and provide input on policies, guidelines, and regulatory interpretations to promote consistency within and across agencies;
5. identify remaining barriers to accomplishing ground water protection objectives and make recommendations for overcoming these barriers;
6. link state and federal ground water protection programs and initiatives; and
7. promote consistency among state standards and guidelines.

As an "action item" from the second meeting, each federal representative is describing where their agency has inconsistencies under any of these specific objectives. The Committee will then collectively decide how these issues can be addressed through cross-agency coordination.

Since there is no unified approach or single group in EPA Region IV that encompasses all ground water protection activities, formal agreements and informal coordination are usually negotiated or conducted through one or another of the individual program groups. Often, other programs could benefit from the agreements, but are not even aware that they are in existence. No one program group can effectively negotiate

agreements with other federal agencies that will benefit all Region IV programs involved in ground water related activities. The following summaries describe existing ground water related coordination between Region IV and other federal agencies.

● Ground Water Management ●

Region IV's Ground Water Technology and Management Section (GWTMS) is currently entered into an Interagency Agreement (IAG) with Tennessee Valley Authority (TVA). Under the agreement, EPA provides funding to support TVA's aerial photo reconnaissance study of the Rio Springs Area in Kentucky.

During the past several years, several projects have been conducted under IAGs established between Region IV's GWTMS and the US Geological Survey (USGS). In 1991, the South Carolina District of USGS completed work on three (3) projects designed to evaluate Wellhead Protection Area (WHPA) delineation criteria and methods in the coastal plain hydrogeologic setting. Completion of the projects was crucial to development of South Carolina's Wellhead Protection Program. In a cooperative attempt to meet the need for an analytical "tool" to assist in ground water management and protection activities in karst areas, the GWTMS and the Kentucky District of USGS prepared a 1988 manual entitled Application of Dye-Tracing Techniques for Determining Solute-Transport Characteristics of Ground Water in Karst Terranes. A water supply data inventory conducted by the Florida District of USGS in support of the Florida Department of Environmental Regulation was also funded by EPA Region IV through an IAG with USGS.

The GWTMS is actively involved in other projects with USGS and with the US Department of Agriculture (USDA), which are not backed by formal coordination mechanisms such as IAGs. In 1991, USGS began a four-year National Water-Quality Assessment (NAWQA) to describe the status and trends of the Nation's representative surface and ground water resources to provide a sound scientific understanding of natural and human impacts on these resources. The GWTMS has the lead for representing EPA Region IV on the Liaison Committee formed by USGS for the Georgia-Florida Coastal Plain Study Unit because this study will focus on the Floridan Aquifer System. The Committee, composed of water management and technical personnel, will provide USGS with information, guidance, and comments throughout the study. In another effort, the GWTMS is working with USGS in determining appropriate methodologies for delineating Wellhead Protection Areas around municipal supply wells in Hamilton County, Tennessee. This work is being performed in support of Hamilton County's EPA-funded project in which the County is attempting to implement a comprehensive management plan to protect their wells from contamination. Finally, along with several organizational groups within USDA, Region IV's GWTMS is involved in the Mammoth Caves Special Water Quality Project, a multi-agency exercise designed

to study water quality within a five (5) county area covering parts of Kentucky and Tennessee.

● Superfund ●

Region IV's Superfund Program uses Memorandums of Understanding (MOUs) as a primary means for formal coordination of activities with other federal agencies. There are several federal agencies designated in CERCLA as "trustees" for natural resources. Through procedures outlined in MOUs, the Superfund Program interacts with these agencies. Specifically, when negotiations are begun with Potentially Responsible Parties to take action at a site, the trustees are formally notified. This allows these federal agencies to participate in the process if they so desire.

The Superfund Program has also established Interagency Agreements (IAGs) with several agencies, most notably the US Army Corps of Engineers and the Bureau of Reclamation. The IAGs facilitate the transfer of funds to have site work performed.

The Federal Facilities Branch is responsible for oversight of remediation activities at federal facilities under the authority in CERCLA and RCRA. Towards this end, IAGs termed "Federal Facility Agreements" (FFAs) are negotiated for each federal facility placed on the NPL. The FFAs are typically three-party agreements between the federal facility, EPA, and the State. The FFAs establish the procedural framework for remediation of the site.

Region IV's Site Assessment Section is coordinating the Formerly Used Defense Sites (FUDS) project in conjunction with the US Army Corps of Engineers in order to identify those sites which need to be assessed. This project was mandated by the Defense Environmental Restoration Project (DERP), which is part of the Superfund legislation.

Under SARA Title III, Region IV's Chemical Emergency Preparedness and Prevention Program works with the Regional Response Team (with membership from 14 federal agencies and all eight states) on emergency-related issues, many of which involve potential ground water contamination. The Regional Response Team is chaired by Doug Lair, Chief of EPA Region IV's Emergency Response and Removal Branch.

● Underground Storage Tanks (USTs) ●

At the present time no formal agreements exist between Region IV's UST Program and other federal agencies. However, coordination with federal agencies through formal agreements is an option available to state UST programs. Presently, the Commonwealth of Kentucky utilizes USGS to conduct contamination assessments at leaking UST sites.

Like many other EPA regulatory programs, in the UST Program, federal agencies comprise a significant portion of the regulated community. Therefore, state UST programs maintain regular contact with federal agencies who own or operate USTs through the routine compliance and administrative mechanisms (i.e., tank registration, correspondence, submittal of monitoring data).

• Nonpoint Source (NPS) •

Currently, the Watersheds Section has on-staff liaisons for coordinating Region IV's Nonpoint Source (NPS) Program activities with the Soil Conservation Service and the US Forest Service. In the recent past, this program group also employed a liaison with the Tennessee Valley Authority. Region IV has established an Ag-Policy Committee that is being expanded to include five (5) members representing federal and state agricultural interests. The NPS Program maintains active involvement in associations and programs sponsored by other federal agencies, including the Rural Abandoned Mines Program (RAMP), Land and Water 201, and the National Association of Conservation Districts (NACD). Through the NPS Program, Region IV sponsors programs and conferences to which various state and federal agencies are invited.

V. D. Coordination with the States

Administrative support is being provided to the states for developing Comprehensive State Ground Water Protection Programs (CSGWPPs) by Region IV's Ground Water Technology and Management Section (GWTMS). This involves GWTMS staff working very closely with states in the development, review, approval, and management of annual work plans that are used to guide each state's CSGWPP development effort under annual grants awarded by EPA through Section 106 of the Clean Water Act. Through the work plan negotiation process, state ground water management program groups commit to completing specific CSGWPP-related tasks. In FY 93, \$1.96 million was awarded to Region IV states to support establishment of CSGWPPs. The grant amounts for each state are shown in Table V-1. Since the federal ground water management program was created primarily for the purpose of establishing a mechanism whereby EPA can provide states with institutional and technical support in developing ground water programs and strategies, delegation of program authority to states is not appropriate (Table V-2). In the future, for states that have "EPA-endorsed" CSGWPPs, EPA intends to defer to state policies, priorities, and standards to the extent authorized by federal law and consistent with federal objectives.

• Superfund •

The South Superfund Remedial Branch, North Superfund Remedial Branch, and Federal Facilities Branch do not provide general funding to the states for program support (Table V-1). DOD and

Program	ALABAMA	FLORIDA	GEORGIA	KENTUCKY	MISSISSIPPI	NORTH CAROLINA	SOUTH CAROLINA	TENNESSEE
CSGWPP	\$268K	\$260K	\$304K	\$180K	\$180K	\$344K	\$218K	\$205K
Superfund	x	x	x	x	x	x	x	x
RCRA (Subtitle C)	\$1.8M	\$2.4M	\$2.2M	\$1.5M	\$1.1M	\$2.1M	\$1.8M	\$1.8M
UST	\$163K	\$157K	\$163K	\$163K	\$163K	\$163K	\$163K	\$163K
UIC	\$146K	\$243K	\$78K	\$0	\$194K	\$78K	\$75K	\$0
Drinking Water	\$612K	\$2.3M	\$1.3M	\$592K	\$817K	\$2.3M	\$757K	\$629K
Pesticides	\$143K	\$203K	\$212K	\$111K	\$100K	\$123K	\$210K	\$97K
Nonpoint Source	\$464K	\$926K	\$552K	\$405K	\$454K	\$550K	\$369K	\$376K

K = thousand M = million x = funding not offered by EPA

Amount shown for UST Program does not include funds awarded under the LUST Trust Fund or special project grant awards.

Amount shown for Nonpoint Source Program includes only "base" program awards.

Table V-1. Region IV Funding in Support of State Ground Water Related Programs -- FY 1994.

Program	ALABAMA	FLORIDA	GEORGIA	KENTUCKY	MISSISSIPPI	NORTH CAROLINA	SOUTH CAROLINA	TENNESSEE
CSGWPP	Not EPA-End	Not EPA-End	Not EPA-End	Not EPA-End	Not EPA-Endorsed	Not EPA-End	Not EPA-End	Not EPA-End
Wellhead Protection	EPA-App	Not EPA-App	EPA-App	EPA-App	EPA-Approved	Not EPA-App	EPA-Approved	Not EPA-App
Superfund	x	x	x	x	x	x	x	x
RCRA (Subtitle C)	Auth B. RCRA	Auth B. RCRA	Auth B. RCRA & HSWA	Auth B. RCRA	Authorized for Base RCRA	Auth B. RCRA & HSWA	Auth B. RCRA	Auth B. RCRA
UST	Not EPA-App	Not EPA-App	EPA-App	Not EPA-App	EPA-Approved	Not EPA-App	Not EPA-App	Not EPA-App
Solid Waste	Not EPA-App	Not EPA-App	EPA-App	EPA-App	EPA-App	EPA-App	EPA-App	EPA-App
UIC	Primacy	Primacy Ex C II	Primacy	No Primacy	Primacy	Primacy	Primacy	No Primacy
Drinking Water	Primacy	Primacy	Primacy	Primacy	Primacy	Primacy	Primacy	Primacy
Pesticides	Primacy	Primacy	Primacy	Primacy	Primacy	Primacy	Primacy	Primacy
Nonpoint Source	x	x	x	x	x	x	x	x

EPA-End = EPA-Endorsed EPA-App = EPA-Approved B. RCRA = Base RCRA
 Ex C II = Except Class II x = program delegation not applicable

Table V-2. Status of Ground Water-Related Program Delegation to Region IV States.

DOE have established MOUs with some Region IV states for the purpose of reimbursing the states for regulatory oversight at NPL facilities.

The Superfund Program is not delegated to states (Table V-2). Generally, EPA retains oversight responsibility for remediation of NPL sites, with the states taking an active role in the review of progress related to site clean-up. Region IV's Superfund Program has two mechanisms, both site-specific, whereby a state may take action at an NPL site under the auspices of CERCLA. A cooperative agreement provides funds from EPA to the State so that specific state-led work can be performed at a site; the Site Assessment Section has a cooperative agreement set up with each Region IV state that allows the State to perform site assessment work under CERCLA authority. An EPA/State enforcement agreement gives the State permission to take certain enforcement actions at a site. In either case, however, EPA retains ultimate authority to make clean-up decisions.

● RCRA ●

The RCRA Hazardous Waste Program provides financial assistance to state hazardous waste program groups in the form of grants awarded under Subtitle C of RCRA. For FY 93, the funding amounts for each state in Region IV are shown in Table V-1. These grants assist each state in administering the entire hazardous waste program, including those portions that relate directly to ground water protection. Hence, it is not possible to estimate what portion of each grant is targeted specifically toward ground water protection efforts.

In FY 94 the Region's RCRA Branch has asked that each state grant work plan contain a statement that commits the state RCRA program to support CSGWPP. The requested grant commitment is:

"The State's RCRA program agrees to actively support the State's ground water coordinating mechanism established by the State's ground water program to support and implement the State's Comprehensive State Ground Water Protection Program."

Within Region IV the RCRA Program that addresses regulated units (Base RCRA Program) has been delegated to each of the eight states (Table V-2). Hence, each Region IV state hazardous waste program group is responsible for imposing the RCRA regulatory requirements for protecting ground water and remediating ground water contamination associated with regulated units. For this part of the RCRA Program, Region IV's role is one of providing technical assistance to the states and overview of state activities... For many facilities where ground water contamination has been documented, the Regional Office works very closely with state staff to ensure that the hydrogeology beneath the site is fully characterized and that the extent of contamination is fully

defined. In a related effort, Region IV also assists the states in evaluating proposed remedial actions for contaminated ground water.

The portion of the RCRA Hazardous Waste regulatory program that requires evaluation and remediation for solid waste management units (SWMUs) other than regulated units has only been delegated to one Region IV state (Georgia) (Table V-2). North Carolina has been given interim authorization to implement this program at facilities that do not already have federal permits. For the remaining six (6) states, Region IV's RCRA Branch is responsible for direct implementation of the applicable regulations.

• Underground Storage Tanks (USTs) •

The immense number of UST sites subject to regulation prompted an innovative management technique, known as "franchising", to be adopted to coordinate the UST Program between the states and EPA. EPA's role as "franchiser" is to provide the states, or "franchisees", with support such as training, money, and technical assistance. In turn, the franchisees (states) design state UST programs to meet the unique needs of their own states. The franchise approach allows the states the ability to manage their respective UST programs with minimal EPA oversight, while also ensuring that national program objectives are met.

Funding for state UST programs is provided for by annual grants awarded by EPA, the Leaking Underground Storage Tank (LUST) Trust Fund, and special project grants. The annual grants awarded by EPA support the start-up and general development of each state's UST program (Table V-1). The LUST Trust Fund is a federal fund that provides money for clean-up of UST-contaminated sites whose owners cannot be immediately identified or if the owners are recalcitrant. Special project grants are awarded to state UST programs to improve and alleviate specific program development and implementation problems.

Most states fund a larger portion of their UST program than the portion funded with federal sources. The principal sources of state funds are general appropriations and state UST trust funds. The state trust funds have been established as a means of complying with federal and state financial responsibility requirements. An indirect benefit of these trust funds is that they provide a source of operating revenues for the state UST programs. Generally, state trust funds are supported by tank registration fees, state tax on gasoline, or some combination of these two mechanisms.

Only Georgia's and Mississippi's UST programs have been delegated formal federal approval by EPA (Table V-2). Other states are in various stages of developing their UST programs.

• Underground Injection Control (UIC) •

Region IV's UIC Section awards an annual grant to each state to support UIC Program development and implementation efforts at the state level. Funding amounts for each Region IV state are shown in Table V-1.

The UIC Section has responsibility for direct implementation of regulations applicable to all classes of wells in Kentucky and Tennessee, and Class II wells in Florida. Other states have primacy over all classes of injection wells (Table V-2). The Regional Office lends technical assistance to states with primacy in situations where the state staff lacks appropriate experience.

• Drinking Water •

Region IV's Drinking Water Section provides funding to states through an annual Public Water Supply Supervision (PWSS) grant. The grant provides financial assistance to the states in their efforts to meet and enforce the requirements of the Safe Drinking Water Act (SDWA). Each state's grant application includes a work plan that identifies specific tasks that will be completed with the federal grant funds.

Funds appropriated each year to the states are allotted on the basis of a formula that considers such factors as state population (20%), land area (10%), and the number of community (56%) and non-community water systems (14%) in the State. These formula factors are imposed by the SDWA; EPA assigns relative weightings to each factor. States are required to match federal grant funds by a minimum of 25%. During FY 92, Region IV received 14.6%, or \$7.22 million of the national PWSS Program grant monies allotted to the Regional Offices by EPA Headquarters. State grant awards for each Region IV state are shown in Table V-1.

All Region IV states have primacy for the PWSS Program (Table V-2). This delegation provides the states with responsibility for direct implementation of the Primary Drinking Water Regulations and related requirements applicable to Public Water Systems. Revisions to state requirements in concert with federal changes are necessary for states to retain primacy.

• Pesticides •

The primary federal statute for the regulation of pesticides is the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). Under Section 23 of FIFRA, EPA is given authority to enter into cooperative agreements with states and Indian tribes for the purpose of aiding the enforcement of FIFRA provisions, as well as for training pesticide applicators consistent with federal standards. Under Section 24 of FIFRA, a state may regulate the sale or use of any federally-registered pesticide or

application device within that state. Section 26 of FIFRA calls for EPA to delegate primary enforcement responsibility for pesticide use violations to states in situations where the State: (1) has adequate laws, (2) has adequate enforcement procedures, and (3) will keep records and report to EPA as required.

All eight (8) states in Region IV have accepted grants to initiate a pesticide and ground water protection program (Table V-1). With assistance from Region IV's Pesticide Section, each state is working toward the development of either a generic or pesticide specific management plan. All eight (8) states in Region IV have primacy for pesticide enforcement (Table V-2).

● Nonpoint Source (NPS) ●

Region IV's Watersheds Section involves the states through award of an annual Nonpoint Source (NPS) Program grant, through Region IV sponsored training and conferences, through technical assistance efforts performed cooperatively with the Environmental Services Division, technology transfer, and other general assistance (Table V-1). A minimum of 10% of each state's overall NPS grant funds are targeted to support ground water protection activities. State NPS Programs report to the Region IV Office on a weekly basis so that Region IV staff can keep abreast of State Program status. The Watersheds Section has also assisted each state in sponsoring a state environmental/agricultural agency coordination meeting.

The NPS Program is not delegated to the states (Table V-2). It is, however, a state-based program. Each Region IV state has a completed and EPA-approved NPS Assessment Report and Management Program in accordance with the provisions of Section 319 of the Clean Water Act.

CHAPTER VI

PUBLIC EDUCATION

Public outreach programs relating to ground water protection are conducted by individual regulatory program groups in Region IV and by the Education and Outreach staff of the Office of Public Affairs (usually associated with specific projects). Public notices of significant actions and subsequent public comment periods create a formal mechanism whereby the general public can affect the direction of projects conducted under the requirements of the different regulatory programs. Public notification and public hearing requirements for these programs conform with procedures described in 40 CFR Part 124.

Region IV's Education and Outreach Staff is extensively involved in coordinating the development of educational materials, training programs, seminars, and workshops related to all aspects of environmental protection, including ground water protection. The group also promotes environmental protection by presenting EPA exhibits and distributing environmental literature at industry and public service expositions held throughout the Southeastern United States. In addition, the Press and Information Unit of the Office of Public Affairs supports the Region's ground water protection efforts by publicizing meetings, hearings, and milestones reached.

CHAPTER VII

BARRIERS TO AND RECOMMENDATIONS FOR DEVELOPMENT OF A COMPREHENSIVE GROUND WATER PROTECTION PROGRAM

Barriers blocking the Region's development of a comprehensive program can be categorized by CSGWPP Strategic Activity. A sampling of barriers that Region IV has identified to date, and a recommendation for overcoming each barrier, is provided below.

Authorities, Roles, and Responsibilities

1. A major barrier to Region IV's overall effort to develop and implement a comprehensive ground water protection program lies with the inability to coordinate consistent objectives across program lines. Also, statutes and national policy directives do not generally reward cross-program coordination. EPA's regulatory programs are fragmented; each has its own mission. Although there may be gaps, redundancies, and inconsistencies that extend across program lines, most groups are understaffed and faced with an overwhelming list of commitments. Hence, it is difficult for these programs to justify allocating staff for anything beyond the minimal level of commitment needed to satisfy the Region's Cross-Program STARS measure for support of CSGWPP.

Recommendation: Greater support for CSGWPP is needed at the national level. EPA Headquarters CSGWPP-dedicated FTE positions need to be returned to pre-FY 94 levels. National policy directives need to provide greater incentive for cross-program coordination at the Regional level.

Establishing Priorities

1. The responsibility for ground water resource assessment at the federal level rests primarily with USGS. Currently, coordination between USGS and EPA generally only occurs on a project-specific basis. Broader levels of cooperation between the two agencies is needed to help ensure that resource characterizations used to guide EPA program priorities are scientifically sound.

Recommendation: Region IV should use the Federal/State Ground Water Steering Committee as a forum for exploring opportunities for a broader level of cooperation between the two agencies. Identified coordination opportunities should be pursued by both agencies. In support of the Regional discussions, EPA Headquarters needs to explore and pursue opportunities for coordination with USGS at the national level.

2. Each state in Region IV has different priorities with respect to ground water protection, and states do not currently have the flexibility to transfer EPA grant money among programs. As a result, some state priorities are not addressed through EPA grant programs.

Recommendation: EPA needs to seek ways for allowing states greater flexibility in the use of EPA grant funds so that identified state ground water protection priorities can be addressed.

3. Implementation of the Wellhead Protection (WHP) Program in Region IV states has been hampered because funding to support the states in their WHP activities, although called for in the 1986 Amendments to the Safe Drinking Water Act, has never been appropriated. State funding for WHP has come primarily from annual grants awarded by EPA under Section 106 of the Clean Water Act.

Recommendation: The level and extent of funding can be translated to the degree and timing of WHP implementation. The significant progress made in WHP to date reflects the ability of the states to respond to an important, yet underfunded, program. It is hoped that provisions for increasing funding for WHP, or an equivalent program, will be included in Safe Drinking Water Act re-authorization. Another key will be to see that authorized funds are appropriated. WHP implementation can be a valuable "priority setting" tool for many EPA programs, especially through the use of GIS.

4. The Safe Drinking Water Act is not adequately protective of designated Sole Source Aquifers. The Act only allows EPA to examine potential impacts of federally-funded projects on Sole Source Aquifers during the "post-designation" review process. Construction and operation of projects that are not federally-funded poses an equal threat of contaminating Sole Source Aquifers to the point of creating a significant hazard to public health. Additionally, the Sole Source Aquifer Program as currently implemented is understaffed and underfunded by the Agency.

Recommendation: In the process of re-authorizing the Safe Drinking Water Act, Congress should consider including provisions in the Act which allow EPA or states to review both federal and non-federal projects in designated Sole Source Aquifers. In doing so, staff and resources to adequately implement the program need to be provided. If this is not feasible, it may be appropriate to eliminate the Sole Source Aquifer Program altogether.

Implementing Efforts to Achieve the Established Goal

1. Like other EPA Offices, Region IV lacks consistency in the application of standards for ground water protection purposes. In many cases, the overall procedures for determining applicable standards and making decisions regarding compliance with such standards differs from program to program. Often the decision-making process is inconsistent within a particular regulatory program. Sometimes standards are applied for purposes other than for what they were intended (i.e., "trigger" standards applied as clean-up standards). These situations present far-reaching impacts. Regulated entities become reluctant to aggressively pursue implementation of control measures and remedial actions on their own initiative, for fear that EPA will change the Agency's interpretation of regulations regarding applicable standards. It also has the effect of eroding the public's confidence in EPA to carry out the mission for which the Agency is charged.

Recommendation: EPA must place high priority on improving staff's and management's awareness of the framework by which standards are established and applied and strive for the consistent application of such standards.

2. Although above-ground bulk petroleum storage tanks represent a threat to ground water and public water supply wells, to date there are no federal regulations to control threats posed by these tanks.

Recommendation: There is a clear need to enact prevention and mitigation measures for EPA to address this situation. Of special importance is the need to ensure that new tanks which are not protective of ground water are not situated within wellhead protection areas, areas near public water supply wells, or other vulnerable ground water resource areas.

3. Supplemental environmental projects (SEPs) are increasingly being used by EPA as tools in settlement of enforcement cases. Typically, they provide a regulated entity the opportunity to carry out a project which offers direct environmental benefit in lieu of paying a penalty fee (or portion of a fee) to EPA. There remain, however, many programmatic and regulatory barriers that inhibit EPA's use of SEPs across all ground water programs.

RECOMMENDATION: EPA should continue the trend of increasing use of SEPs in enforcement settlement. The agency also needs to make special effort to identify and eliminate barriers to their use.

4. RCRA Subtitle C regulations require facilities that operate land disposal units to monitor ground water to determine if a release of hazardous constituents has occurred prior to issuance of a RCRA permit. If a release is detected, the owner/operator must conduct a ground water quality assessment to determine concentration, and rate and extent of migration of hazardous constituents in ground water. The facility permit application must delineate the identified plume of contamination. Any corrective action deemed necessary is specified in the permit.

States and EPA have little ability to see to it that corrective action is initiated until a permit is issued, unless an owner/operator agrees to begin the process voluntarily. Quite often, there are delays in the contamination assessment and in other aspects of the permit application process. As a result, corrective action is further delayed.

Facilities subject to post-closure permitting tend to "drag out" the assessment and permit application process over many years; thus delaying corrective action. This in part reflects the difficulty in assessing large contaminant plumes and characterizing complex hydrogeologic terranes like karst, but also reflects the fact that regulated facilities have no incentive to pursue post-closure permits. In many cases enough information has been gathered to determine that a significant ground water contamination problem exists long before a permit can be issued. The contamination continues to spread while the assessment and permitting processes lag. Facilities with the most significant ground water contamination problems tend to be the farthest behind in the assessment/permitting process. Although addressing these facilities represents the RCRA Program's highest priority, the Program is without authority to begin remediating the sites quickly. While other EPA programs, and even some areas of the RCRA Program, allow interim measures (i.e., CERCLA emergency removals, RCRA 3008(h) corrective action orders) to be implemented prior to final corrective measures being selected, the RCRA regulations under 40 CFR §265.93 and §270.14 do not allow this flexibility.

Recommendation: Region IV is currently working with the State of Alabama to determine if there is any flexibility in EPA or the Region's policy with regard to this issue. However, the problem may only be alleviated through regulatory change.

Data Collection and Management

1. Ground water related data which is currently being collected by the various Region IV program groups is collected for widely differing reasons. Hence, different types of data are

collected by each program. Some programs do not maintain site-specific ground water databases. Even fewer programs have their databases automated. This situation has resulted in the development of a fragmented, non-standardized database in the Regional Office that does not lend itself to cross-program data sharing through utilization of GIS.

Recommendation: Development and maintenance of a fully-integrated, standardized, cross-program data management system should be among the Region's top priorities. Establishment of such a system will be contingent on funding and will be resource-intensive.

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The barriers identified above represent only a portion of those that will have to be overcome for Region IV to establish a comprehensive ground water protection program. Undoubtedly, barriers other than those listed here exist. It will be incumbent upon the Region to use its established CSGWPP framework to identify additional barriers, as well as to explore opportunities for overcoming them. The work of the Federal/State Ground Water Steering Committee will help broaden the scope of the effort by ensuring that other federal agencies in the Southeast are involved. Revised versions of this report will identify additional barriers to a comprehensive program in Region IV and update the Region's progress in following through with its planned approach for linking states' CSGWPP needs with federal support capabilities.