## 2. LINKAGE TO OTHER FEDERAL AGENCY PROGRAMS

This section provides an agency-by-agency discussion of the linkages between the CSGWPP approach and the ground water-related programs of six federal agencies. For each agency, a brief description of the agency's program is followed by a discussion of ways in which that agency could support or make use of the CSGWPP approach.

This section discusses the programs of selected agencies that work either to protect or to restore ground water quality, but does not include all agencies with ground water-related activities. There are no descriptions yet for the other federal agencies involved in ground water. These agencies include:

- United States Department of Agriculture;
- United States Department of Defense;
- United States Department of Energy;
- United States Department of the Interior;
- United States Department of Transportation; and
- United States Nuclear Regulatory Commission.

The descriptions are arranged alphabetically.

## U.S. DEPARTMENT OF AGRICULTURE

### Programs Related to Ground Water Protection

The United States Department of Agriculture (USDA) is actively involved in a coordinated, government-wide initiative addressing water quality. This initiative focuses on nonpoint source pollution concerns identified by States under requirements of Section 319 of the Water Quality Act (See Discussion on EPA's Nonpoint Source Program). One of the main objectives of the Water Quality Initiative is to provide farmers, ranchers, and other land managers with information necessary to voluntarily adopt improved, environmentally-sound management practices which do not sacrifice profitability. This initiative is under the leadership of the USDA and includes EPA, USGS, and the National Oceanographic and Atmospheric Administration (NOAA). The central objectives of the Initiative include the following:

- Protecting the Nation's ground water resources from contamination by fertilizers and pesticides without jeopardizing the economic vitality of U.S. agriculture;

- Developing technically and economically effective agrichemical and agricultural production strategies that enhance or protect the quality of our water resources; and

- Inducing the adoption of enhancement or protection strategies at significant levels in problem areas.

Of the 36 operating entities within the USDA, ten share responsibilities for implementing the President's Water Quality Initiative. Of these entities, eight USDA agencies are particularly relevant for CSGWPPs and are discussed below.

The Agricultural Stabilization and Conservation Service (ASCS) plays a central role in transfer of payments for USDA commodity support programs. Starting with the 1985 Food Security Act, cross-compliance provisions require recipients of certain USDA assistance programs to prepare and implement conservation plans, whose water quality protection features have become steadily more important. The ASCS also administers the Water Quality Incentive Projects (WQIP) authorized by the 1990 Farm Bill. The WQIP provides both technical and financial assistance for producers to implement management systems to reduce nonpoint source agricultural problems.

The Agricultural Research Service (ARS) administers fundamental and applied research that addresses a wide range of agriculture-related issues, including the conservation of soil, water, and air. For example, ARS has developed a number of fate and transport models that focus on pesticides in ground water.

## U.S. DEPARTMENT OF AGRICULTURE (continued)

The Cooperative State Research Service (CSRS) funds research through the State Agricultural Experiment Stations for the advancement of science and technology in support of agriculture. CSRS funds a number of special research programs, including a ground water research program, a low-input agricultural program, and a competitive grant program in natural resources, water quality, ecosystems, and wetlands. CSRS also is responsible for developing a forum for coordination between the State Agricultural Experiment Stations, the USDA, and other federal agency scientists.

The Extension Service (ES) is the education bureau of the USDA and serves as the federal partner in the Cooperative Extension System. More specifically, the ES coordinates its activities with State land grant universities and local county extension offices to conduct educational and outreach programs.

The National Agricultural Library (NAL), through its Water Quality Information Center, identifies, acquires, and organizes information related to agriculture and ground water quality. The center facilitates access to this information through various outreach mechanisms, such as the Water Information Network (WIN), an electronic bulletin board system.

The Soil Conservation Service (SCS) provides leadership and administers programs to help people conserve natural resources and the environment. SCS is expanding and improving technical assistance for water quality utilizing local soil and water conservation districts. As part of USDA's Water Quality Initiative, SCS is providing increased technical assistance for selected agricultural water sheds or aquifer-recharge areas called "Nonpoint Source Hydrologic Units Areas" (HUA's). These address agricultural nonpoint pollution concerns identified by states under Section 319 of the Water Quality Act of 1987. SCS is also increasing technical assistance to ongoing interagency regional Water Quality programs and designated estuaries of national significance. SCS provides assistance to State agencies in developing both surface and ground water practices, programs, and policies.

The Economic Research Service (ERS) and the National Agricultural Statistics Service (NASS) work with State departments of agriculture to gather estimates on production characteristics for major farm commodities. Currently, the ERS and NASS are carrying out a new program to gather data on the use of pesticides and other agricultural chemicals. As this program expands, it should provide a more direct means of estimating agricultural pesticides use patterns in a State.

The United States Forest Service (FS) is the national leader in forestry through its management of the National Forest System. A key objective of the FS is to promote natural resource conservation through cooperative efforts with other federal, State, and local agencies. The FS also provides technical assistance to State forestry programs in order to protect and improve the quality of air, water, and soil resources.

## U.S. DEPARTMENT OF AGRICULTURE (continued)

### Potential for Coordination of USDA Programs with Comprehensive State Ground Water Protection Programs

The ASCS's ongoing Agricultural Conservation Program (ACP) provides cost-share assistance for implementing a variety of water-quality oriented best management practices (BMPs). These cost-share funds can be used by States or local agencies to address priorities established in CSGWPPs. In addition, coordination of projects funded by USDA through a State's CSGWPP can result in the most effective and efficient use of these funds. Other relevant ASCS programs include the Wetland Reserve, Water Bank, Conservation Reserve, and Forestry Incentives programs.

ASCS's cost sharing programs also seek to provide financial assistance to producers in the hydrologic unit and demonstration project areas. This financial assistance is tied to education and technical assistance to encourage adoption of environmentally sound practices and the improvement and protection of water quality within a targeted area. For example, the Water Quality Incentives Projects provides technical and financial assistance for farm level planning to reduce the use of fertilizer, other crop nutrients, and pesticides in order to achieve water quality objectives, such as ground water protection. In addition, testing of rural domestic wells and record-keeping on tillage, pesticide use, and nutrient use are eligible for WQIP funding. CSGWPPs could help USDA by providing ground water priority areas for targeting and by helping to facilitate transfer of data on agricultural practices from ASCS to State agencies that implement SMPs, NPS, WHP, and PWS programs. Farmers participating in this effort receive incentive payments from USDA to compensate them for additional production costs and/or the value of foregone production.

The 1990 Farm Bill authorizes USDA to provide financial incentives to farmers for enrolling land that includes vulnerable ground and surface waters into the Conservation Reserve Program. To the extent that funds are available, the program will be used to enroll areas such as wellhead protection areas, and other areas that would contribute to water quality in permanent cover (grass or trees). States may be able to work with USDA to include geographic priorities identified in their CSGWPPs under the Conservation Reserve Program's water quality related criteria. Farmers then could address ground water contamination through the removal of lands from production in exchange for financial incentives.

ARS and CSRS could support research that focuses on the reduction of pesticides and nitrates in ground water and other agricultural-related ground water protection projects. All States' CSGWPPs could benefit from such fundamental ground water protection research. Efforts in this areas could also be coordinated with the Pesticide State Management Plan approach. In addition, CSRS's efforts to coordinate related research could be used to ensure that unnecessarily duplicative research projects are not being funded and that research is disseminated to other interested groups and State ground water managers.

## U.S. DEPARTMENT OF AGRICULTURE (continued)

Through the ES and the State cooperative extension offices, USDA could work to disseminate the new methods, techniques, and practices designed to reduce the potential for agriculture-related contamination of water resources (i.e., biological controls, integrated pest management, and improved methods of pesticides application). A State's CSGWPP could assist ES and State offices in setting priorities for the education of farmers, ranchers, and other land managers based on the use, value, or vulnerability of the resource.

Like the ES, the SCS could work to disseminate information and best management practices to ensure adequate protection of ground water resources from agricultural contamination based on priorities established under a State's CSGWPP. The SCS also develops standards and specifications for proper pesticide use practices. This information could be of considerable benefit in developing CSGWPPs and in educating farmers and other land use managers. SCS could geographically target technical assistance efforts in certain areas in coordination with a States CSGWPP.

NAL-produced bibliographies, covering various aspects of ground water and agriculture, could be used by state CSGWPPs to locate information from throughout the country (and world) that may be useful in guiding the direction of state programs. State CSGWPPs could help strengthen NAL's ground water quality collection and bibliographic database by providing copies of state documents that address agriculture and ground water quality issues.

ERS's and NASS's data collection and analysis efforts focus on identifying the economic consequences of changes in the use of pesticides and fertilizers and the implementation of alternative farming practices. Such research efforts could assist a State in identifying, developing and implementing the most cost effective protection and preventive measures associated with pesticides and agricultural chemicals possible in its CSGWPP.

Through its outreach efforts, the FS could contribute to forestry education and technical assistance aimed at protecting ground water resources from pesticides and silvicultural practices. These efforts could be coordinated and targeted using the priorities established under a State's CSGWPP. FS also conducts a number of activities that must be managed carefully to avoid adversely impacting the ground water resources in a State. For example, clear cutting in National Forests by the FS could result in increased runoff and siltation of nearby surface water bodies that can be linked to ground water. Proper and timely reforestation of these lands can significantly reduce run off and the potential for contamination of water resources. When such activities are planned, FS could coordinate activities through a State's CSGWPP to address priorities for protection of water resources within the State. The FS could also use the priorities established in a State's CSGWPP to make land use decisions in National Forests.

## U.S. DEPARTMENT OF AGRICULTURE (continued)

Currently, successful coordination between USDA and EPA and several States is beginning to occur with the development and implementation of Pesticides State Management Plans to limit pesticide contamination of ground water (See Discussion on EPA's Pesticides State Management Plan Program). Coordination efforts to protect ground water under the SMP program include conducting basic research, coordinating of data collection and analysis, transferring appropriate technologies, and providing financial assistance.

## U.S. DEPARTMENT OF DEFENSE

### Programs Related to Ground Water Protection

The Department of Defense (DoD) has its environmental goal to plan, initiate, and execute all actions and programs to minimize adverse effects on the quality of the environment without impairing the defense mission. Several components of the DoD are currently responsible for guiding and promoting these activities.

The Deputy Assistant Secretary of Defense (Environment) (DASD(E)), Office of the Secretary of Defense (OSD), sets the overall direction for environmental activities by developing policy guidance on environmental protection and regulatory compliance. The May 1992 Report on Environmental Requirements and Priorities prepared by DASD(E) summarizes DoD's principal policy thrusts, which include the following: compliance with existing laws and regulations; remediation of formerly and presently used DoD sites; increased efforts devoted to pollution prevention; development of an inventory of, and conservation and protection plans for, natural and cultural resources; development of outreach efforts; augmentation of the frequency and scope of self-policing activities to ensure timely and effective compliance and protection of human health and the environment; development of an enhanced environmental ethic across all DoD activities; development of ways to increase DoD's role as a model for environmental compliance and protection; and development of productive cooperative partnerships both domestically and internationally.

Implementation of environmental activities is largely carried out by the four military services -- the Army, Navy, Air Force, and Marines -- as well as by the defense agencies, particularly the Defense Logistics Agency. Two centrally funded environmental programs are the Defense Environmental Restoration Program (DERP), involving the assessment and cleanup of contamination at DoD installations and formerly used defense sites, and the Legacy Program, involving improved management of natural resources on DoD lands.

The Defense Environmental Restoration Program (DERP) has two principle components -- the Installation Restoration Program (IRP) and the Other Hazardous Waste Program (OHWP). The IRP investigates and, as necessary, performs site cleanup at DoD installations and at properties formerly owned or used by DoD. The IRP conforms to the requirements of the CERCLA National Oil and Hazardous Substances Pollution Contingency Plan. Under IRP, activity is occurring at 94 DoD installations with sites on the National Priorities List (NPL). Water-related activity at these sites includes ground water treatment (63 activities), long-term monitoring (52 activities), and provision of alternate water supplies/treatment (33 activities). The OHWP addresses waste-related issues that do not involve CERCLA cleanups.

Current DoD programs that address threats to ground water include the development of unique water treatment processes for uniquely military materials; and developing new methods of treating explosives-contaminated soils, improving

## U.S. DEPARTMENT OF DEFENSE (continued)

wastewater treatment plants, upgrading storage areas for materials that could leach to ground water, updating plans to deal with spills, replacing or retrofitting underground storage tanks, and closing and removing abandoned tanks. A current focus of DoD is on pollution prevention.

Each of the services has implemented programs to address environmental issues. The Army, for example, through its Environmental Compliance Achievement Program (ECAP), seeks to identify and eliminate obstacles to environmental compliance, institute programs to determine compliance problems, and ensure that corrective actions are implemented. The Army ECAP will address compliance through environmental assessments at Army facilities, a profile and mechanism to measure progress toward compliance, and integrated management of all environmental programs.

Each service, in its environmental activities, carries out programs involving, among others, water quality management, drinking water, and underground storage tanks, but none of the services has singled out ground water protection as a separate program area. The Army's current program for water quality management, however, does call for control or elimination of all sources of surface and ground water pollution. Approximately 85 Army installations within the U.S. obtain some or all of their water supply from ground water wells, and 51% of the Army's drinking water comes from ground water sources. The Army therefore maintains a Water Resources Management Program to sample and analyze water supplies and ground water monitoring programs and to evaluate aquifer quality and identify potential drinking water quality problems. The Army also participates in the Wellhead Protection Program. The Navy's Drinking Water Management Program likewise seeks to protect ground water resources, especially those with the potential to be used as a potable water supply, at on shore Naval installations. Similarly, the Air Force and Marines address ground water in the context of drinking water sources.

### Potential for Coordination of DoD Programs with Comprehensive State Ground Water Protection Programs

DoD's May 1992 Report to Congress on Environmental Planning and Priorities notes that an important future goal will be development of a common understanding across DoD about how to measure requirements and determine overall priorities. DoD plans to work with EPA and other agencies "to define risk-based priority setting methods to supplement the current judgmental approaches and provide a more analytic foundation to assist in environmental decision making." (p. 1-19) As States develop priorities for ground water protection and remediation in CSGWPPs, DoD could begin to take these priorities and priority-setting mechanisms into account.

Development of CSGWPPs could enable DoD components such as the Defense Logistics Agency, which is responsible for environmental compliance and restoration

## U.S. DEPARTMENT OF DEFENSE (continued)

at a number of major and tertiary level logistics installations, to control its costs by working with State and local jurisdictions. Because DLA is also responsible for disposal of hazardous materials through its Defense Reutilization and Marketing Service, siting of certain facilities, and similar duties, DLA has been particularly concerned by what it has seen as a "trend toward more regulation by State or local jurisdictions." (p. 6-4) Coordination and integration of State and local programs through locally-based priority setting in CSGWPPs may provide a more focused and consistent set of environmental requirements pertinent to DoD components.

In an effort to identify ways of improving federal-State coordination of environmental response actions and streamlining cleanup at bases to be closed or realigned, the Defense Environmental Task Force recommended eliminating overlapping regulatory requirements and adoption of measures for improving coordination among federal and State decision makers. These recommendations parallel the CSGWPP approach. In addition, as each service addresses issues of environmental compliance at its facilities, the existence of a CSGWPP in the host State could enable the service and the facility to address a more consistent and coherent set of State requirements for ground water protection.

CSGWPPs also could provide a source of coordinated input on the part of the States into the Interagency Agreements (IAGs) with other federal and State agencies that DoD must negotiate under SARA §120. These IAGs establish comprehensive installation-specific arrangements for proceeding with DoD's waste cleanup activities under the Installation Restoration Program. IAGs, which are subject to public review and comment, provide a strong management tool for resolving issues arising from overlapping or conflicting jurisdictions. The IAG negotiation process involves personnel from the applicable DoD Component, the EPA Regional Office, and State environmental authorities. IAG negotiation could be an appropriate forum for negotiating the implementation of CSGWPP as it relates to cleanup of DoD installations. DoD emphasizes the involvement of State agencies in the IRP process. As of June 1992, DoD had entered into Defense and State Memoranda of Agreement (DSMOA) with 40 States. Through the DSMOA, almost $18 million was provided to State agencies in FY92 to allow States to participate in the evaluation and oversight of IRP activities, including those related to water resource management. In the future, CSGWPPs could help provide a focus and set priorities for State input into the IRP process.

Finally, DoD is in the process of creating regional environmental coordination offices that could serve as points of contact for the State CSGWPP primary points of contact. These offices are intended to serve a number of coordinating functions among the military services and DoD installations. The areas served by these offices will correspond to the EPA Regional Offices. Such offices could provide a focus for DoD involvement in State CSGWPPs.

## U.S. DEPARTMENT OF ENERGY

### Programs Related to Ground Water Protection

Department of Energy (DOE) Orders, DOE's internal system of regulation, require compliance with all applicable environmental requirements at all DOE sites and facilities, and set forth overall DOE policy for ensuring and enhancing such compliance. Regarding ground water protection, Order DOE 5400.1, entitled "General Environmental Protection Program," requires that each DOE site have a Ground Water Protection Management Program (GWPMP) in place. The GWPMP is a management tool for ensuring effective compliance with Federal and State ground water protection requirements, sitewide coordination of all ground water protection and remediation activities, and long-term ground water protection planning to prevent future contamination. Order DOE 5400.1 also requires that a sitewide Ground Water Monitoring Plan be developed to ensure that monitoring programs are designed to meet regulatory requirements and to provide a system of environmental surveillance to prevent future contamination threats.

Order DOE 5400.5, "Radiation Protection of the Public and the Environment," addresses DOE operations involving radioactive materials that may not be addressed by RCRA, CERCLA, TSCA, or other EPA-administered regulatory programs. DOE 5400.5 requires use of a Best Available Technology treatment evaluation process to ensure that liquid wastes containing radionuclides are treated to "As Low As Reasonably Achievable" (ALARA) levels to prevent ground water contamination. The Order also contains numerical concentration guides for a wide range of radionuclides. These guides may be used to assess potential doses from exposure through various routes including ingestion of drinking water.

In addition to the Order requirements, DOE is currently developing a Ground Water Protection Policy to provide a framework within which technical and regulatory compliance issues can be addressed throughout the Department in a coordinated and consistent manner to enhance ground water protection. The Policy, when finalized, will apply to all DOE and DOE contractor activities, and will provide direction for implementing the ground water protection requirements of existing DOE Orders.

### Programs Related to Environmental Restoration

DOE's Office of Environmental Restoration and Waste Management (EM) was created to address environmental problems through corrective activities, waste management, pollution prevention, environmental restoration, and technology development. The overall EM strategy focuses on three approaches:

- First, where risk assessment shows an actual or potential threat to human health and safety -- do immediately whatever is possible to reduce, mitigate, stabilize, and confine the threat;

## U.S. DEPARTMENT OF ENERGY (continued)

- Second, where no one knows how to solve a problem -- act decisively to develop technology and methods to correct the problem; and

- Third, where compliance and cleanup must proceed with or without next-generation technologies -- plan, with affected parties and within the provisions of Interagency Agreements, the work to be accomplished and its schedule.

EM's corrective activities are aimed at bringing all DOE facilities and sites into compliance and operating them in accordance with applicable laws and regulations designed to protect public health and the environment. Corrective activities range from instituting programs to reduce or eliminate polychlorinated biphenyls (PCBs) to the removal of leaking underground storage tanks. The efforts to bring all facilities into compliance are driven by a number of federal and State statutes, regulations, and DOE orders. In order to comply with the multiple environmental statutes and regulations governing DOE environmental activities, DOE often enters into negotiation with federal and State regulators with the intent of reaching agreement on activities for achieving and maintaining compliance with applicable regulations.

EM's waste management objective is to "treat, store, and dispose of hazardous, radioactive, and mixed waste in an environmentally sound and effective manner." The Waste Operations Program is now focusing on ensuring adequate, permitted storage capacity for existing waste and on developing new storage, treatment, and disposal facilities. In addition, EM is constructing and testing new facilities for treatment and disposal of wastes.

DOE is also moving forward with its pollution prevention program. A variety of programmatic and technical activities are occurring throughout DOE facilities and sites. In addition, DOE is working to minimize the generation of new waste. Currently, DOE is working to establish reasonable quantitative waste minimization goals, improve field office reporting, and issue guidance to promote waste minimization throughout its operations.

The objective of DOE's Environmental Restoration Program is to "contain known contamination at inactive sites and vigorously assess the uncertain nature and extent of contamination at other sites to enable realistic planning, scheduling, and budgeting for cleanup." The goal of each environmental restoration activity is to ensure that the risks to the environment and to human health and safety posed by inactive and surplus facilities are either eliminated or reduce to prescribed, safe levels. Currently, EM is emphasizing the assessment of the extent and nature of contamination. Closures and interim remedial actions will also be undertaken in the short term. Following these assessment activities, full remediation will occur with site monitoring continuing after cleanup.

## U.S. DEPARTMENT OF ENERGY (continued)

DOE recognizes that a significant impediment to achieving its environmental management goal is created by the constraints and limitations associated with available technology. As a result, EM is focusing on the development and implementation of "innovative, cost-effective technologies to facilitate compliance with applicable laws, regulations, and agreements and to minimize the generation of waste." The Technology Development Program (TDP) is designed to ensure that new technologies are available to the Environmental Restoration and Waste Operation Programs. In the restoration area, the TDP focuses in the near term on providing technologies for site investigation and the study of remediation alternatives.

### Potential for Coordination of DOE Programs with Comprehensive State Ground Water Protection Programs

DOE's environmental management strategy recognizes the importance of managing environmental resources based on unique regional considerations and emphasizing activities that prevent future contamination. For each facility, DOE develops a ground water plan that assesses and characterizes the ground water resource in and around the facility. These ground water plans, in addition to risk assessments, assist DOE facilities in developing and setting priorities to reduce, mitigate, stabilize, and confine the threat associated with the treatment, storage, and disposal of hazardous or radioactive materials and the clean-up of contaminated sites. Such an approach to setting priorities is consistent with the overall CSGWPP approach, although DOE's priorities address only those sites within a DOE installation.

DOE is currently in the process of bringing all operating facilities into compliance with applicable laws and regulations and completing the cleanup of the 1989 inventory of contaminated inactive sites and facilities by the year 2019. This process involves coordination with EPA, other federal agencies, and several States, and includes addressing the requirements of several federal and State laws, regulations, and programs (including RCRA Subtitles C and D, CERCLA, SDWA UIC, SDWA WHP, CWA, UMTRCA, FIFRA, TSCA, NEPA, and others). For DOE sites on the CERCLA National Priorities List, DOE coordinates CERCLA and RCRA cleanup activities through site-specific Interagency Agreements (IAGs) with EPA and the affected State. A State's CSGWPP could outline and document coordination across State and EPA programs. Such an understanding of the relationship between these authorities could allow DOE, a State, and EPA to more efficiently and effectively negotiate IAGs and meet all applicable environmental regulations.

DOE collects and manages a significant amount of ground water data that could be useful to a State in developing and implementing its CSGWPP. For example, DOE undertakes an assessment and characterization of ground water resources for each facility. Following remedial or corrective actions, DOE monitors the ground water to determine contaminant levels. Each DOE site prepares an Annual Site Environmental Report containing ground water monitoring data and descriptions of the

## U.S. DEPARTMENT OF ENERGY (continued)

monitoring network design, which DOE provides to State and federal agencies. DOE could coordinate its ground water data with other State and federal agencies. Even though DOE's information will relate to a limited geographic area of a State, the State could use the maps to infer hydrogeologic settings for nearby areas that may have few or no data points.

DOE is actively investigating new technologies for waste management, waste minimization, and environmental restoration. DOE will develop these improved technologies at facilities around the country. These new technologies will benefit ground water protection and CSGWPPs as they become available for other protection and remediation activities. DOE could work with a State to demonstrate the application of these new technologies to ground water management. For example, DOE's Savannah River Facility has successfully installed and is operating an integrated demonstration for remediation of volatile organic compounds (VOCs) in the vadose zone. This technology works through a combination of airstripping and directional drilling technologies and makes VOC removal faster and cheaper. DOE expects savings in the millions of dollars from this particular technology. All States and the CSGWPP approach will eventually benefit from the development of such improved technologies.

While DOE supports the general ground water protection principles outlined in EPA's Ground Water Strategy for the 1990s, the Department believes that States should base ground-water protection priorities on the characteristics of the ground water, rather than on facility ownership. Such an approach would ensure consistent ground water quality management policies from site to site. DOE expects that the CSGWPP approach will provide a coherent and consistent approach to ground water protection, based on the resource value, and can provide a mechanism by which DOE can incorporate State ground water priorities into sitewide ground water protection activities.

## U.S. DEPARTMENT OF THE INTERIOR

### Programs Related to Ground Water Protection

The Department of the Interior (DOI) is charged with conserving and managing nationally owned public lands and natural and cultural resources, including water resources. DOI directly sets policy and management priorities for these resources. As the manager of water resources on public lands, as well as through its responsibilities for conservation and development of water and mineral resources, DOI implements reclamation of arid lands in the West through irrigation, and trust responsibilities for Indian and other lands. Also, DOI influences how States and other federal agencies set resource-based priorities through direct example and cooperative decision making.

Several organizational units within DOI directly or indirectly influence the management and use of ground and surface water resources. The organizational units within DOI are involved with a wide array of activities that influence how other federal agencies and States manage water resources. These activities range from investigative research to program planning and data management.

The U.S. Geological Survey (USGS) collects, evaluates, and disseminates information on the availability, quantity, quality, and use of the Nation's surface and ground water resources and conducts water-resources investigations and research. Much of the work of the USGS is conducted in cooperation with over 1,000 State and local cooperating agencies through more than 200 field offices. The USGS routinely gathers information on ground water levels from more than 35,000 wells, and ground water quality information from more than 9,000 wells each year through its Hydrologic Data Collection program. This information is used to meet the needs of federal, State, and local governments, the private sector, academia, and the general public. Studies include characterizing aquifers, modeling their behavior under different patterns of stress, mapping recharge areas, studying the interactions between surface water and ground water, and estimating ground water use.

In addition to its intensive State-oriented hydrologic investigations, the USGS also has several nationwide investigative programs that seek to provide a national perspective on water-resource conditions. The National Water Quality Assessment (NAWQA) program, which began in 1986, seeks to describe the status and trends in the quality of the Nation's ground water and surface water, and to provide a sound understanding of the natural and human factors affecting the quality of these resources. Investigations of regional stream-aquifer systems covering thousands to several tens of thousands of square miles are being conducted on a rotational basis for 60 key areas located throughout the United States. A wide array of water-quality information that will benefit ground water protection efforts will be provided by the NAWQA program. This includes the regional and national extent and severity of contamination of the Nation's ground water quality, and a determination of the relative

## U.S. DEPARTMENT OF THE INTERIOR (continued)

contribution of point and nonpoint sources to regional ground water contamination in different land use and hydrogeologic settings.

The Regional Aquifer Systems Analysis (RASA) program is a systematic study of the Nation's major aquifers. The program has assembled large amounts of information about 25 regional aquifers and developed models to stimulate their behavior under historic conditions and forecast future pumping patterns. Much of the information collected by the RASA program is being summarized in a new ground water atlas of the United States. The atlas is extensively illustrated with maps showing the location and extent of major aquifers, their thickness, water levels, water quality, and water use. The Toxic Substances Hydrology program develops methods for study and basic understanding of the movement and fate of hazardous substances from point and nonpoint sources of contamination.

The USGS has compiled information on ground water in its National Water Summary reports -- ground water quantity (1984), ground water quality (1986), and water use (1987). These reports, which provide State-by-State and national water information, assist policy makers to better understand the condition of water resources as they formulate water policies, legislation and management strategies.

The U.S. Bureau of Mines overall mission is to help ensure that the United States has an adequate and dependable supply of minerals to meet its defense and economic needs at acceptable social, environmental and economic costs. By developing new mineral technologies and providing reliable information as a basis for sound minerals policies, the Bureau works to solve the country's mineral problems. The Bureau conducts hydrological research on constructed or engineered wetlands and on acid mine drainage, it evaluates the impacts of mining on both ground and surface water, conducts studies on the impact of coal mining on municipal water well production, and studies the hydrologic impacts associated with in-situ leaching.

The Office of Surface Mining (OSM) implements the Surface Mining Control and Reclamation Act of 1977 (SMCRA), particularly with respect to surface coal mining. As a regulatory program implemented through the States, OSM activities involve ensuring that society and the environment are protected from the adverse effects of surface coal mining while ensuring that surface coal mining can be done without permanent damage to land and water resources. OSM oversees mining and reclamation in States with primary responsibility and regulates mining and reclamation in States that have chosen not to assume primary responsibility.

The Bureau of Reclamation (Reclamation) is responsible for providing the arid and semiarid lands of the 17 contiguous Western States with a secure, year-round water supply for irrigation. Reclamation has a planning program that examines the potential for water resource development in the western United States. Planning studies address both surface and ground water quality and quantity issues, including

## U.S. DEPARTMENT OF THE INTERIOR (continued)

conservation, system management, and institutional changes. Reclamation emphasizes coordination of planning activities with State and other federal agencies, local entities, and the public to avoid duplicating efforts and to ensure that the most needed and beneficial projects will be developed. Reclamation has implemented programs for cooperative research and development for water conservation technologies. Reclamation also provides technical assistance and data to other government and private entities on ground water hydrology and water quality.

The Bureau of Land Management (BLM) is responsible for the management of more than 270 million acres of public lands. BLM also is responsible for subsurface resource management of an additional 300 million acres where mineral rights are owned by the federal government. BLM manages such resources as timber, oil and gas, minerals, rangeland, land use, watersheds, and recreation.

The National Park Service (NPS) seeks to perpetuate surface and ground waters as integral components of park aquatic and terrestrial ecosystems by managing the consumptive use of water, and by protecting or restoring the quality and availability of surface and ground waters in accordance with all applicable Federal, State, and local laws and regulations. In addition, NPS manages its own programs and park uses to avoid impairment of aquatic, wetland, and floodplain resources and values.

The U.S. Fish and Wildlife Service is responsible for the conservation and management of biologically productive wetland areas. Wetlands form the backbone of the Service's 90-million-acre National Wildlife Refuge System, which was established primarily for the enhancement of migratory waterfowl. Wetlands also help control flooding and improve water quality. Of the 215 million acres of wetlands that once existed in the U.S., more than half have been drained or filled and converted to agricultural or other forms of development. The Service attempts to stem this loss by acquiring wetlands for the national Wildlife Refuge System. Under federal law, the Service also advises other federal agencies involved in water development projects as to how impacts on wildlife might be lessened. In addition, the Service is responsible for restoring inland and anadromous fisheries.

The mission of the Bureau of Indian Affairs (BIA) is to encourage and assist Indian and Alaska Native people in managing their own affairs and in utilizing the skill and capabilities of Indian and Alaska Native people in the management of programs for their benefit. BIA can work to coordinate educational and planning opportunities to Native Americans on ground water protection activities. DOI also maintains liaison and coordination between the Department and other federal agencies that provide funding or services to Indians.

## U.S. DEPARTMENT OF THE INTERIOR (continued)

**Potential for Coordination of DOI Programs with Comprehensive State Ground Water Protection Plans**

Data and information from USGS programs could be useful to federal, State, and local agencies in the development of comprehensive ground water protection programs. Collectively, these data represent a substantial pool of information that need not be "reinvented" by other federal and State agencies. The data will assist States in the characterization of their ground water resources and provide support for resource-based priority setting. In addition, programs that support research into water-related issues also could assist the resource characterization effort under CSGWPPs. The Federal-State Cooperative program is a partnership involving the 50-50 cost sharing of water resources investigations between USGS and over 1,000 State and local agencies. The program is unique in that cooperating agencies must contribute at least half of the cost of investigations but the USGS does most of the work. Areas of technical assistance include comprehensive aquifer system assessment, aquifer mapping, monitoring, data collection and data analysis to determine the extent of contamination, and water use inventories. The State Water Resources Research Institutes program supports 54 Water Research Institutes at land-grant educational institutions. Data obtained from all of these programs could be utilized by States in CSGWPP activities.

OSM has recently been involved in a series of rulemakings designed to allow States and operators greater flexibility in the means by which they comply with the SMCRA. These regulations are related to a number of water resource issues, including wetlands management and ground water research. SMCRA is a State-implemented act. Recognizing that there are many factors that a State must consider when considering the possibility of assuming a regulatory program, OSM endeavors to provide all States with the assistance and flexibility they require to implement the provisions of the act. OSM could consider extending flexibility to States, based on priorities established under CSGWPPs, in development of ground water monitoring requirements, and might vary reclamation and restoration requirements in particular situations based on State prioritization.

OSM provides research funding to universities in support of many initiatives. Recently included among these initiatives was an investigation and assessment of aquifer response to mining activity, methods for improving the quality of constructed wetlands, and leachate generation from overburden. Coordination of these grant activities with those of other federal and State agencies will facilitate the efficient development of ground water protection programs.

The Small Reclamation Projects Act (SRPA), administered by Reclamation, gives direct responsibility to local organizations for developing water and land resource projects. Examples of cooperative use of SRPA funds related to the CSGWPP include

## U.S. DEPARTMENT OF THE INTERIOR (continued)

ground water recharge projects (e.g., High Plains States Groundwater Demonstration Program) and wastewater reclamation (e.g., Monterey County).

Many individual units of the National Park System have surface and ground water data that will be useful to those responsible for developing or managing comprehensive ground water protection programs in a region containing such units. GIS systems are operating in many of these units that will facilitate the interpretation and availability or transfer of such data. Also, the Water Resources Division (WRD), located in Fort Collins, Colorado, assists parks and Regions in water resource data collection, interpretation, and management, and in resource management decisions, such as locating and testing surface and ground water sources, designing inventory and monitoring studies, quantifying and acquiring park water rights, conducting floodplain and flood hazards delineation, and preparing park-specific surface and ground water resource management plans.

BLM has emphasized coordinating its activity with States in the preparation of water quality management plans prepared pursuant to Section 319 of the Clean Water Act. This coordination allows BLM to utilize a part of Section 319 resources to promote implementation of State CSGWPPs.

Finally, activities of the BIA in support of actions by Native American organizations could assist in the development of Tribal comprehensive ground water protection plans.

## U.S. DEPARTMENT OF TRANSPORTATION

### Programs Related to Ground Water Protection

The Department of Transportation (DOT) is responsible for critical programs to ensure safe, efficient, and accessible transportation. The duties of several DOT programs directly or indirectly involve protecting ground water.

The Federal Aviation Administration (FAA) provides for a national airspace and air traffic control system, promotes a national airport system, conducts research and regulates aviation safety, while complying with federal environmental regulations. FAA administers a program of federal grants to airports for airport development and reviews airport layout plans for public airports to ensure that airport development meets safety standards. Airports, through runway and aircraft maintenance and deicing operations, fuel storage and other airport operations, have the potential to cause ground water contamination.

The Federal Highway Administration (FHWA) manages the Federal-Aid Highway Program to assist States in development of transportation infrastructure, in compliance with federal environmental requirements. Federal surface transportation legislation establishes federal assistance for a national highway system of roads that are most important to interstate travel, national defense, and intermodal connections. It also establishes a surface transportation program for other federal-aid roads and transit capital projects. The FHWA research program develops and provides technical guidance to States on highway construction and maintenance, and funds State research. The National Highway Institute provides training to federal, State, and local transportation personnel. Highway construction, maintenance, and operation activities can contribute to ground water contamination. Deicing compounds, pesticides, and spilled hazardous materials are potential contaminants.

The Research and Special Programs Administration (RSPA) coordinates cross-modal research throughout DOT. RSPA's Office of Pipeline Safety (OPS) is responsible for the safe transportation of hazardous liquids (petroleum) by pipeline. Spills of hazardous materials from pipelines may contaminate ground water.

RSPA's Office of Hazardous Materials Transportation (OHMT) directs programs to ensure that hazardous materials are transported safely to protect human health and environment. OHMT promulgates regulations implementing the federal legislation relating to hazardous materials transportation, including the packaging, documentation, and State routing of hazardous materials. OHMT also provides technical guidance and assistance programs to States on response planning, training of response personnel, and enforcement activities. FAA regulates the transportation of hazardous materials by aircraft. The Federal Railroad Administration is responsible for regulating the safe operation of railroads. It promulgates regulations for safe rail transportation of hazardous materials. RSPA, FAA, FRA, and the FHWA Office of Motor Carrier Safety are responsible for enforcement of various hazardous materials regulations

## U.S. DEPARTMENT OF TRANSPORTATION (continued)

The Coast Guard's responsibilities include preparing for and responding to marine pollution incidents and coordinating public and private response efforts. Included in this responsibility is regulation of onshore marine transportation facilities.

### Potential for Coordination of DOT Programs with CSGWPPs

The FAA has the potential to assist in coordination of CSGWPPs for ground water contamination prevention, evaluation, and remediation efforts with airport operators. Such coordination could aid FAA in considering ground water protection when developing standards and technical guidance for airport master planning, development, and operation. Through the NEPA process, ground water issues can be considered in connection with proposed airport development. FAA directives make recommendations for controlling pollutants associated with aircraft and airfield maintenance. Airports are treated as sources of industrial stormwater, and airport operators are developing plans for compliance with industrial stormwater permit requirements.

The FHWA/FTA could assist in coordination of ground water protection efforts with State departments of transportation and other transportation agencies. Through the NEPA process, ground water issues are considered in connection with proposed highway and transit projects. When warranted, mitigation of adverse impacts to aquifers can be funded. The Intermodal Surface Transportation Assistance Act provides that ten percent of allocated Surface Transportation Program funds for each State must only be used for transportation enhancement activities. Eligible activities include mitigation of water pollution due to highway stormwater runoff. Another provision of ISTEA allows States to use federal-aid funding for participation in State-wide and regional wetland conservation and mitigation planning efforts. The FHWA research and training programs could benefit from interagency coordination to further consideration of ground water protection in those programs.

The RSPA OPS could work with States and other federal agencies to improve ground water protection through improved procedures for responding to spills. Regulations are being developed to require facility response plans, under the Oil Pollution Act. The OPS could promote knowledge of information linked to ground water protection through its pipeline accident and operator data program, and through its training program for industry personnel, federal and State inspectors.

OHMT's activities seek to ensure that hazardous materials are transported to avoid spill incidents and subsequent ground water contamination. OHMT could cooperate with implementing a State's CSGWPP. For instance, the ground water protection priorities established in a State's CSGWPP could be considered in

## U.S. DEPARTMENT OF TRANSPORTATION (continued)

programming technical assistance efforts within that State. In addition, OHMT and States could work to coordinate information and efforts on emergency response activities through CSGWPPs. The Coast Guard could provide information on response plans of onshore marine transportation facilities.

## U.S. NUCLEAR REGULATORY COMMISSION

### Programs Related to Ground Water Protection

The Nuclear Regulatory Commission (NRC) ensures adequate protection of public health and safety, the national security, and the environment in the civilian use of nuclear materials. NRC's scope of responsibility includes regulation of nuclear power plants, fuel cycle plants, and the medical, industrial, and research uses of radioactive materials. Ground water protection activities in the NRC occur within four primary program areas: the Office of Nuclear Material Safety and Standards (NMSS), which is responsible for the licensing, inspection, and regulation of facilities and materials associated with the use, processing, transport, and handling of nuclear materials, the disposal of nuclear waste, and uranium recovery facilities; the Office of Nuclear Reactor Regulation (NRR), which carries out the licensing and inspection of nuclear power reactors, test reactors, and research reactors; and the Office of Nuclear Regulatory Research (RES), which plans and conducts the Commission's research and technical and regulations development program; and the Office of State Programs, which administers the State Agreements Program and maintains liaison with States, local governments, other Federal agencies, and Indian Tribal organizations. Regional Offices implement regulatory programs originating in the Headquarters Office.

Ground water issues may arise in many different NRC program areas, including NRC licensing and regulatory oversight of nuclear materials and waste management, licensing and regulatory oversight of nuclear reactor operations, research and standards development, and inspection and enforcement, under the jurisdiction of the Offices described above. Certain of these responsibilities may be assumed by States through the NRC Agreement State programs; other programs and responsibilities are assigned to the Federal government by statute (e.g., NRC licensing of commercial nuclear power reactors and repositories for the disposal of high-level radioactive waste) and may not be assumed by States. Twenty-nine States (Agreement States) have formal agreements with the NRC by which the State assumes regulatory authority over byproduct and source materials and small quantities of special nuclear material. Under the Atomic Energy Act, as amended, the programs of Agreement States must be "compatible" with those of the Commission. NRC designates particular regulatory requirements as matters of strict compatibility. The Commission is currently evaluating generic implications of compatibility issues.

NRC generally provides for ground water protection through regulations and licensing actions that require detection, correction, and prevention of ground water contamination. NRC programs emphasize prevention through requirements of design, siting, operation, and inspection of nuclear facilities, encouragement of processes that reduce or eliminate potential sources of contamination, and through recovery and recycling. Monitoring and corrective action are also sometimes required. Although NRC emphasizes protection of ground water from radiological contaminants, the

## U.S. NUCLEAR REGULATORY COMMISSION (continued)

effects of NRC's protective measures address nonradiological impacts on ground water to the extent that the radiological impacts are controlled.

NRC's protection of ground water is frequently implemented through site-specific license conditions, such as upper control limits for concentrations of contaminants in ground water, monitoring requirements, and, if necessary, corrective action and restoration requirements. In some cases, EPA standards have been applied on a site-specific basis to the remediation of contaminated sites to ensure adequate protection of ground and surface water resources.

### Potential for Coordination of NRC Programs with Comprehensive State Ground Water Protection Programs

NRC program offices, particularly NMSS and Research, and the Office of State Programs may be able to make use of enhanced State capabilities for resource-based decision making and coordination of State programs under CSGWPPs in a number of ways. In the development and implementation of requirements for handling and disposal of mixed waste, for example, additional flexibility in the siting and licensing of mixed waste facilities might be considered in States that have evaluated the status of their ground water resources and established priorities affecting facility siting, resource protection, and remediation. In decommissioning facilities that have been licensed to possess nuclear materials, State priority-setting under a CSGWPP could be considered in the assessment of whether a site has been decommissioned to levels of radioactivity that allow release for unrestricted use. Pending codification of radiological criteria for decommissioning, NRC applies a variety of guidance and criteria to determine whether sites have been sufficiently remediated so that they may be released for unrestricted use. These criteria are applied on a site-specific basis, with emphasis, as appropriate, to ensure that residual contamination levels are "as low as is reasonably achievable" (ALARA). State groundwater priorities under CSGWPPs could be considered by NRC in its ALARA determinations. NRC also could assess how CSGWPPs might enhance the ability of Low Level Radioactive Waste Compacts to site low level radioactive waste disposal facilities by creating consistent systems of prioritization of ground water resources in States. CSGWPPs also could affect ground water monitoring requirements and procedures for uranium milling facilities and requirements for reclamation activities at such facilities.

NRC, and particularly NMSS, also could provide for flexibility and resource-based decision making in the development of license conditions, particularly where NRC references EPA standards or methodologies for ground water protection and where EPA is building such flexibility into its regulatory requirements. For example, NRC could adopt differential ground water management approaches tied to a State's adoption of a CSGWPP for ground water monitoring requirements and schedules at licensed facilities. Increased levels of monitoring could be required at facilities located in areas that the State's CSGWPP had identified as high priority ground water areas;

## U.S. NUCLEAR REGULATORY COMMISSION (continued)

lower levels of monitoring could be required at areas of lower priority according to the State's own priority setting.

For Agreement States, NRC could consider the extent to which Agreement State compatibility can allow for flexible approaches to ground water-related issues under a CSGWPP. In the future, as States develop CSGWPPs, NRC and the States could seek to reflect the State's capacity for resource-based decision making in the agreement between NRC and the State. In addition, the Commission has begun a process to ensure early and substantial involvement of the Agreement States in rulemakings and other regulatory efforts. A CSGWPP could provide a focus for State/NRC interaction on ground water issues.

As States develop priorities for resource-based management through Core or Fully Integrating CSGWPPs, NRC could utilize such priorities directly in developing site-specific license conditions. Finally, the NRC Five Year Plan calls for NRC to take a more active role in fostering better cooperation and communication between NRC and State and local governments and Indian Tribes. The existing communication links between State Liaison Officers and NRC Regional State Liaison Officers could serve as a means of information transfer concerning the implementation of CSGWPPs in those programs in which States may assume regulatory priority.