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Agency

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Environmental Protection Agency
1999 Annual Plan
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Introduction/Overview

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EPA's Mission and Purpose

The mission of the Environmental Protection Agency (EPA) is to protect human health and to safeguard the natural environment--air, water, and land--upon which life depends. EPA's purpose is to ensure that:

- All Americans are protected from significant risks to human health and the environment where they live, learn, and work.
- National efforts to reduce environmental risk are based on the best available scientific information.
- Federal laws protecting human health and the environment are enforced fairly and effectively.
- Environmental protection is an integral consideration in U.S. policies concerning natural resources, human health, economic growth, energy, transportation, agriculture, industry, and international trade, and these factors are similarly considered in establishing environmental policy.
- All parts of society--communities, individuals, business, state and local governments, and tribal governments--have access to accurate information sufficient to effectively participate in managing human health and environmental risks.
- Environmental protection contributes to making our communities and ecosystems diverse, sustainable, and economically productive.
- The United States plays a leadership role in working with other nations to protect the global environment.

EPA's Goals

EPA has developed a series of ten strategic, long-term Goals in its Strategic Plan. These goals, together with the underlying principles that will be used to achieve them, define the Agency's planning, budgeting, analysis, and accountability process.

- **Clean Air:** The air in every American community will be safe and healthy to breathe. In particular, children, the elderly, and people with respiratory ailments will be protected from health risks of breathing polluted air. Reducing air pollution will also protect the environment, resulting in many benefits, such as restoring life in damaged ecosystems and reducing health risks to those whose subsistence depends directly on those ecosystems.

- **Clean and Safe Water:** All Americans will have drinking water that is clean and safe to drink. Effective protection of America's rivers, lakes, wetlands, aquifers, and coastal and ocean waters will sustain fish, plants, and wildlife, as well as recreational, subsistence, and economic activities. Watersheds and their aquatic ecosystems will be restored and protected to improve public health, enhance water quality, reduce flooding, and provide habitat for wildlife.

- **Safe Food:** The foods Americans eat will be free from unsafe pesticide residues. Children especially will be protected from the health threats posed by pesticide residues, because they are among the most vulnerable groups in our society.

- **Preventing Pollution and Reducing Risk in Communities, Homes, Workplaces and Ecosystems:** Pollution prevention and risk management strategies aimed at cost-effectively eliminating, reducing, or minimizing emissions and contamination will result in cleaner and safer environments in which all Americans can reside, work, and enjoy life. EPA will safeguard ecosystems and promote the health of natural communities that are integral to the quality of life in this nation.

- **Better Waste Management, Restoration of Contaminated Waste Sites, and Emergency Response:** America's wastes will be stored, treated, and disposed of in ways that prevent harm to people and to the natural environment. EPA will work to clean up previously polluted sites, restoring them to uses appropriate for surrounding communities, and respond to and prevent waste-related or industrial accidents.

- **Reduction of Global and Cross-Border Environmental Risks:** The United States will lead other nations in successful, multilateral efforts to reduce significant risks to human health and ecosystems from climate change, stratospheric ozone depletion, and other hazards of international concern.

- **Expansion of Americans' Right to Know About Their Environment:** Easy access to a wealth of information about the state of their local environment will expand citizen involvement and give people tools to

protect their families and their communities as they see fit. Increased information exchange between scientists, public health officials, businesses, citizens, and all levels of government will foster greater knowledge about the environment and what can be done to protect it.

- **Sound Science, Improved Understanding of Environmental Risk, and Greater Innovation to Address Environmental Problems:** EPA will develop and apply the best available science for addressing current and future environmental hazards, as well as new approaches toward improving environmental protection.

- **A Credible Deterrent to Pollution and Greater Compliance with the Law:** EPA will ensure full compliance with laws intended to protect human health and the environment.

- **Effective Management:** EPA will establish a management infrastructure that will set and implement the highest quality standards for effective internal management and fiscal responsibility.

Guiding Principles

- **Reduce Health and Environmental Risks:** We will protect human health and the environment by employing cost-effective risk reduction strategies, based on sound, peer-reviewed science, in our implementation of programs. In making decisions about Agency priorities, we will balance our efforts to reduce ecological risks with our efforts to reduce risks to human health.

- **Emphasize Pollution Prevention:** We will structure our approaches to create incentives for preventing pollution and the transfer of pollution among air, water, and land. To accomplish this, the Agency will use a mix of tools--including performance standards and economic incentives in setting national pollution controls, as well as voluntary pollution reductions and other innovative alternatives--in furtherance of EPA's goals and objectives.

- **Emphasize Children's Health:** We will ensure that all standards EPA sets address children's unique vulnerability to health and environmental threats, and we will place emphasis on identifying and assessing environmental health risks that may affect children disproportionately.

- **Strengthen Partnerships:** We will enhance EPA's partnerships with federal, tribal, state, and local agencies, Congress, private industry, public interest groups, and citizens in order to identify environmental goals and work together to achieve them. Our internal partnership with EPA employee labor organizations will also be critical to our success.

- **Maximize Public Participation and Community Right to Know:** We will increase the flow of information to the public, enhancing every American's right to know about local environmental hazards and general conditions, and thereby enable people to make informed environmental decisions and participate in setting local and national priorities.

- **Emphasize Comprehensive Regional and Community-Based Solutions:** We will structure our approaches to address all forms of pollution simultaneously--in the air, land and water--and do so in a way that confronts environmental problems on a community-wide or regional basis.

- **Place Emphasis on Indian Country:** We will work with Indian tribes on a government-to-government basis to ensure the protection of the environment and human health in Indian Country, consistent with our trust relationship with tribes and our interest in conservation of cultural uses of natural resources.

- **Choose Common Sense, Cost-Effective Solutions:** Because a safer, healthier environment goes hand-in-hand with a robust economy, we will fulfill EPA's goals using common sense approaches that consider benefits and costs and seek the most cost-effective ways to integrate our efforts with those aimed at economic growth. We will work to increase environmental stewardship and accountability and get better environmental protection at reasonable cost by incorporating successful innovations into the daily operation of environmental programs.

New Approaches to Planning and Budgeting

In 1995, EPA embarked on a far-reaching effort to fundamentally change past approaches to planning, budgeting, performance measurement, and accountability. This entails core changes to budget structures and the implementation of processes to link budgeting and accountability. In March of 1996, Administrator Carol Browner announced the creation of a new Planning, Budgeting, Analysis and Accountability (PBAA) process that is intended to meet the requirements of the Government Performance and Results Act (GPRA) and dramatically improve EPA's ability to achieve results -- improvements in human health and the environment.

The new PBAA process has four specific purposes: (1) to develop goals and objectives for accomplishing the Agency's mission; (2) to make better use of scientific information related to human health and environmental risks in setting priorities; (3) to improve the link between long-term planning and annual resource allocation; and (4) to develop a new management system to assess our accomplishments and provide feedback for making future decisions. While this effort will take several years to fully implement, the Agency is making real progress in the short term while we build for the future. The new PBAA process comprises several steps, including:

- A Strategic Plan, which describes EPA's strategic mission, long-term goals, and specific shorter-term (i.e., 5 years or more) objectives that the Agency will meet in achieving the goals.

- Annual Performance Plans and Budget Requests, which will be derived from the Strategic Plan and a multi-year planning process, will serve as the basis for budget decisions. They will describe annual performance goals, measures of outputs and outcomes, and activities aimed at achieving the annual performance goals and making progress toward longer-term goals and objectives.

- Program Performance Reports, required by GPRA six months after the end of the fiscal year, which will assess the progress EPA has made toward achieving its goals and report on the Agency's success in accomplishing its annual performance goals.

Organization of the Annual Plan

The organization of EPA's 1999 Annual Plan reflects the Agency's new approach, which links planning and budgeting. The Annual Plan presents the Agency's Goals and Objectives, and identifies the 1999 actions and resources needed to achieve them, consistent with the Strategic Plan. This new approach promotes fiscal accountability through a direct connection with the strategic plan, and between resources and outcomes. This Annual Plan also constitutes the Agency's request to Congress for the 1999 budget. The Annual Plan is the linchpin to each of the Agency's objectives contained in the strategic plan, because the Annual Plan sets forth in measurable and quantifiable form the intermediate levels of performance for each objective in the budget year.

Resource Tables

The resource tables provide a broad overview of the resources that the Agency is requesting for 1999. Those resources are identified by Goal, Objective, and Appropriation. The dollar amounts in these and other tables may not add due to independent rounding.

Goal and Objective Sections

The Goal and Objective sections contain detailed narrative and resource information on the Agency's 10 Goals and 45 Objectives. Each Objective is linked to a specific Goal, and detailed information on the Objectives directly follows the Goals they support.

- *Goal Overview*: The Goal Overviews describe each of EPA's long-term strategic Goals, which support the Agency's overall mission. The narratives in the Goal Overviews describe the Goals and their most significant programmatic components. This section also contains a set of annual performance goals that represent the key commitments that the Agency will report on to Congress for the purpose of evaluating our performance under GPRA. In selecting these goals, the Agency has attempted to address the legislative concern expressed in GPRA that "annual plans not be voluminous presentations describing performance...for every activity. The annual plan and reports are to inform, not overwhelm the reader." The Goal Overview section also includes the total dollar and FTE resources devoted that Goal. Those totals equal the sum of the totals contained in each Objective section.

- *Objective Overview*: Like Goals, Objectives are a critical part of the new planning and budgeting process, and they respond to the GPRA requirement to plan achievable Objectives. Each Objective supports the attainment of a specific Goal. Objective narratives describe specific agency functions and the operational processes and human, capital and technological resources required to meet the performance goals. Narratives in the Objective overviews also contain a comprehensive set of annual performance goals and performance measures that address the entire spectrum of Agency activities for FY 1999 and FY 1998. The Agency is committed to incorporating results-based management at all levels, from line managers to policy makers. The set of performance

goals and measures contained in each objective section of our annual plan will be used to inform the Agency on its performance so that programs are delivered in the most efficient and effective manner.

- *Annual Performance Goals*: Annual Performance Goals are central to measuring progress toward achieving Objectives. They are quantifiable standards, values, or rates against which actual achievement can be compared. They establish the connection between longer-term objectives and the day-to-day activities in the Agency's programs and will be used by managers to determine how well a program or activity is doing in accomplishing its intended results. This Annual Plan lists Annual Performance Goals for both 1998 and 1999, as well as a description of how achieving the Annual Performance Goals advance accomplishment of the Objectives.

- *Key Performance Measures*: Key Performance Measures provide the means for determining the extent to which annual goals and multi-year objectives are being achieved. As such, they are essential to program evaluations that help to guide the Agency's strategic planning. This Annual Plan indicates Key Performance Measures for 1998 and 1999.

- *Key Performance Measure Verification*: The Key Performance Measures Verification section describes how the values used in Performance Measures are verified and validated. This section fulfills a GPRA requirement that Performance Measure Verification be included in the Annual Plan. This section includes a description of the source of the performance measure data and a general description of current procedures for quality assurance. This section may also include information such as plans to subject the methodology of the data collection or analysis to independent review.

- *Statutory Authority*: This section cites the public law that gives the Agency legal authority to carry out the Objective.

Special Analyses

The final section of the Annual Plan includes special analyses. These include:

- External Costs and Benefits: This section identifies regulatory actions that are likely to result in a rule that may have an annual effect on the economy of $100 million or more. This analysis is required by executive order and is reported in the Agency's annual "Regulatory Plan."

- Resource Tables: This section also contains tables that demonstrate the relationship between the budget and planning structures. The budget structure will continue to evolve as we work to fully integrate planning, budgeting, and accountability, and address concerns identified by our stakeholders.

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- Customer Service Standards: This section describes the Agency's plan to improve its mission of protecting public health and the environment by more efficiently and effectively serving the public, industry, state and local agencies, and other customers.

- Working Capital Fund: This section describes the Working Capital Fund, a revolving fund authorized by law to finance a cycle of operations, where the costs of goods and services provided are charged to the Agency users on a fee-for-service basis.

- User Fees: This section describes the Agency's user fee programs. User fees are the Congressionally-authorized collection of fees charged to Agency customers which cover the cost of selected permitting, testing, registration, and approval actions.

- Non-appropriated Funds: This section describes the Agency's non-appropriated funds. The Agency has two such non-appropriated funds, the Reregistration and Expedited Processing Revolving Fund, and the Revolving Fund for Certification and Other Services, which cover the cost of certain Agency activities and do not require an appropriation.

Use of Non-Federal Parties in Preparing this Annual Plan

The Annual Plan was prepared in conformance with section 220.7 of OMB Circular A-11, concerning the role of non-Federal parties in preparing the Annual Plan.

Relationship between the Annual Plan and the Strategic Plan

As described above, the Annual Plan is closely aligned with the Agency's Strategic Plan which was submitted to Congress in September 1997. Minor changes include:

- One objective included in the Annual Plan was not included in the Strategic Plan. This objective, within the Goal, "Sound Science, Improved Understanding of Environmental Risk, and Greater Innovation to Address Environmental Problems," addresses new Reinvention activities. The Objective statement is as follows: "Incorporate innovative approaches to environmental management into EPA programs, so that EPA and external partners achieve greater and more cost-effective public health and environmental protection."

- Also within the "Sound Science" Goal, the following Objective in the Annual Plan was not specifically addressed in the Strategic Plan: "Enable Research on Innovative Approaches to Current and Future Environmental Problems." This Objective was not addressed because no programmatic goals are associate with this objective. Its purpose is to describe resources related to operating expenses in the Agency's research programs. The Agency intends to remove the Objective from the Annual Plan once necessary cost-accounting mechanisms have been

established to properly attribute those costs across our research-related objectives.

- Within the "Effective Management" Goal, one objective in the Strategic Plan is addressed as two Objectives in the Annual Plan. In the Strategic Plan the Objective was as follows: "EPA will provide the management services, administrative support and facility operations necessary to achieve its environmental mission and to meet its fiduciary and workforce responsibilities." In the Annual Plan two Objectives delineate headquarters and regional resources. The two Objectives are as follows: "The Regions will continue to provide the management services, infrastructure support and facility operations necessary for the Agency to achieve its environmental mission, and meet its fiduciary and workforce responsibilities;" and "The Agency will provide the management services, administrative support and operations to enable the Agency to achieve its environmental mission and to meet its fiduciary and workforce responsibilities."

Relationship between Budgeted Resources and Annual Performance Goals and Measures

Annual Performance Goals are related to the resource levels contained in each objective. Annual Performance Goals in this Annual Performance Plan are based upon the resource levels requested in FY 1999. However, resources may contribute not only to the budget year's Annual Performance Goals but also to the accomplishment of goals in future years. For example, a performance goal to complete a number of Superfund site cleanups, or develop research methods and models, generally requires a period longer than one year. Thus, resources requested in FY 1999 will contribute to completion of work in FY 1999 and beyond. Likewise, some FY 1999 Annual Performance Goals are achievable only with appropriations provided in prior years.

Given this multi-year characteristic of some of the resources requested, it is not possible to establish direct linkages between the budget requested for a particular year and the achievement of all performance goals for that year.

Annual Plan Overview

For 25 years, the Environmental Protection Agency and its partners have made significant strides in controlling pollution and other environmental risks to human health and the environment. The air, land, and water are now safer for all Americans due to our Nation's investment in environmental protection.

The EPA's plan for 1999 builds on that success and invests in programs that deliver consistently better environmental protection at less cost. The EPA's 1999 Annual Plan provides $7.8 billion and 18,375 FTE for the Agency's programs.

This Annual Plan represents the EPA's new approach to planning and budgeting, which links goals and objectives to the human, capital, and technological resources required to achieve them. The EPA's 1999 Annual Plan represents the Agency's full participation in the Government Performance and Results Act (GPRA), which is designed to increase the effectiveness and accountability of Federal Agencies.

Key Initiatives in the Annual Plan

The EPA is committed to providing the greatest degree of environmental protection at the lowest possible cost and regulatory burden to citizens and businesses. The Agency has several key initiatives which are designed to address environmental risks effectively while maintaining the Administration's commitment to a strong economy and a streamlined Federal government.

Many of these initiatives are supported across the Agency and involve a number of strategic goals and objectives. They all work to support the Agency's mission to reduce risk to human health and safeguard the environment for future generations.

- ***Ensuring Clean and Safe Water:*** The President has made the protection of America's water supply and waterways a national priority. To meet this commitment, the 1999 budget includes a *Clean Water Initiative* as well as strong support for the Nation's water infrastructure through State Revolving Funds:

  - ***Restoring and Protecting America's Waterways through the President's "Clean Water and Watershed Restoration Initiative":*** This year the President is launching a *Clean Water and Watershed Restoration Initiative* to implement the Administration's *Clean Water Action Plan*, a far reaching new effort to clean America's rivers, lakes and coastal waters. The EPA will play a key role in this initiative, focusing on three challenges to restore and protect the Nation's waterways: preventing polluted runoff; protecting public health; and ensuring community-based watershed management. This initiative is funded in the Agency's Annual Plan at $649 million, as part of the President's *Environmental Resources Fund for America*. It builds on the Agency's on-going efforts in water quality, with increases to selected water

programs of $145 million over 1998. This initiative increases grants to States to implement water quality improvement projects as well as other Agency activities such as the restoration and protection of our Nation's wetlands.

- ***Upgrading the Nation's Water Quality Infrastructure:*** The budget proposes $775 million in capitalization grants for Drinking Water State Revolving Funds (SRFs), which make low-interest loans to help municipalities meet the requirements of the Safe Drinking Water Act Amendments. The funds will help ensure that Americans have a safe, clean drinking water supply -- our first line of defense in protecting public health. The budget also proposes $1.075 billion in capitalization grants to Clean Water SRFs to help municipalities comply with the Clean Water Act, thus helping to reduce beach closures and keep our waterways safe and clean. The combined SRF proposal, with continued outyear capitalization, will meet the Administration's long-term goal to provide about $2.5 billion a year in loans to needy communities. Both the Clean Water SRF and the Drinking Water SRF are part of the President's *Environmental Resources Fund for America*.

- ***Meeting the Global Warming Challenge:*** In his 1998 State of the Union Address, the President stated that "our overriding environmental challenge ... is a worldwide problem requiring worldwide action: the gathering crisis of global warming." At the recent conference on Global Climate Change in Kyoto, Japan, the United States led the world to reach an historic agreement committing nations to reduce greenhouse gas emissions through market forces, new technology and energy efficiency. The *Climate Change Technology Initiative (CCTI)*, funded in the EPA's budget at $205 million in 1999, will help America continue to meet its global responsibility to lead the world in emissions reductions. CCTI, which is part of the President's *Research Fund for America*, is an inter-agency initiative led by EPA and DOE to support research and technology advancements in energy efficiency, renewable energy, and carbon-reduction technologies. The President has stated that "Americans have always found a way to grow the economy and clean the environment at the same time. And when it comes to global warming, we'll do it again." CCTI will help America meet that challenge.

- ***Implementing Stronger Clean Air Standards:*** This budget request supports an investment of $65 million for a national network of Particulate Matter Monitors to help the Nation meet the health based air quality standard for fine particles. This investment level honors the President's commitment to States to fund the costs of deploying a new fine particulate monitoring network and to provide them the tools necessary to carry out their monitoring efforts. The EPA will also be conducting analyses to determine the chemical constituents of PM 2.5 and better identify and understand the sources and characteristics of the pollution. This effort will lead to cleaner, safer air for all Americans.

- ***Protecting Human Health:*** One of the President's foremost policy concerns is the protection of human health through the reduction of environmental threats. As the President said in his State of the Union Address: "Our communities are only as healthy as the air our children breathe, the water they drink, the Earth they will inherit." To reduce environmental threats and protect future generations, the Agency focuses on areas where it can provide the greatest amount of protection, such as the cleanup of toxic waste sites and the protection of children from toxins in the environment.

  - ***Cleaning up Toxic Waste Sites:*** The budget strengthens the President's commitment to clean up toxic waste sites with $2.1 billion for Superfund, a 40 percent increase over the 1998 level. These funds are part of the President's *Environmental Resources Fund for America*. Combined with continuing administrative reforms, these funds will help meet the President's pledge to double the pace of Superfund cleanups. The Administration proposes to clean up another 400 sites, resulting in the cleanup of two-thirds of the Nation's worst toxic waste dumps by the end of the year 2001.

  - ***Focusing on Health Risks to Children:*** The Agency has made the protection of children's health a fundamental goal of public health and environmental protection in the U.S. This annual plan builds on that commitment with a $33 million investment (an $8 million increase over 1998) for the Assessing Health Risks to Children Agenda. This is a high-priority for the Agency since children face significant and unique health threats because they are often more heavily exposed and more vulnerable than adults to toxins in the environment. When we protect the health of children, we protect the health of all Americans. Major activities include establishing, with HHS, six Children's Environmental Research Centers, ensuring that EPA's public health regulations consider children's health, and providing information to parents to better protect their children from environmental hazards.

  - ***Reducing Risks Posed by Persistent, Bioaccumulative, and Toxic Pollutants:*** The Agency is strengthening its efforts to address the health threat presented by persistent, bioaccumulative, and toxic (PBT) pollutants. This initiative is funded at $13 million in the 1999 Annual Plan (a $10 million increase over 1998). The Agency will conduct and coordinate research and work to reduce the risks posed by PBTs through a combination of strategies utilizing the full range of regulatory, voluntary, programmatic, enforcement, compliance and research tools. PBT risk mitigation activities will include analysis of economic impact, pollution prevention strategies, exploration of safe substitute chemical alternatives and dissemination of public information. This multi-year initiative will reduce PBTs in the environment and reduce the risks that these toxins pose to human health.

- ***Investing in Science for Sound Decision-making:*** Environmental research is critical for developing the scientific understanding and technological tools to allow the Nation to enhance environmental quality for current and future generations. Within the President's *Research Fund for America*, the EPA's 1999 budget includes $487 million for EPA's Office of Research and Development (ORD). This investment will provide a scientific basis for developing cost-effective environmental policies, create the knowledge base for citizens to make wise environmental decisions, and enable new and better approaches to environmental protection.

- ***Revitalizing Communities through the Brownfields Initiative:*** The budget proposes to extend the President's Brownfields initiative, which promotes local cleanup and redevelopment of industrial sites, bringing jobs to blighted areas. This budget proposes $91 million for technical assistance and grants to communities for site assessment and redevelopment planning as well as revolving loan funds to finance clean-up efforts at the local level.

- ***Strengthening Partnerships with Indian Tribes:*** This Annual Plan continues the Agency's commitment to carrying out its trust responsibilities to Federally-recognized tribes with a budget request of $159 million (a $20 million increase over 1998). The Indian Program includes cross-Agency activities designed to ensure the protection of public health and the tribal homeland environment in a manner consistent with a government-to-government relationship. The Indian Program is a priority for the Agency because the sub-standard environmental conditions of many tribal homelands pose threats to human health, Tribal economies, and ecosystems. The program will enhance environmental protection by increasing the number of partnerships with tribal governments, providing infrastructure assistance, and helping to resolve trans-boundary environmental issues.

- ***Improving Public Access to Information:*** The President has made a commitment to providing all Americans with access to sound environmental information and involving the public in environmental decision-making. This commitment is based on the premise that all U.S. citizens have a right to know about the pollutants in their environment -- including the condition of the air they breathe and the water they drink, as well as the health effects of the chemicals used in the food and products they buy. Access to environmental information also helps make American citizens involved and informed environmental decision makers, and promotes creative and lasting solutions to environmental problems. EPA's participation in the President's Environmental Monitoring for Public Access and Community Tracking (EMPACT) initiative, funded at $35 million in this Annual Plan, helps to carry out this commitment to provide the public with crucial information on environmental conditions.

Summary

The EPA's 1999 Annual Plan helps to fulfill the Administration's commitment to protect human health and safeguard the environment, while continuing on the nation's path of unprecedented economic growth. As the Agency strengthens its relationships with the public, the regulated community, and its governmental partners, it will provide a more effective and efficient system of environmental protection. These partnerships, along with a commitment to identify and solve the Nation's most pressing environmental problems, will lay the groundwork for a new era of environmental protection and serve the Agency's ultimate customer -- the American people.

Resource Tables

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ENVIRONMENTAL PROTECTION AGENCY

FY 1999 ANNUAL PLAN

Appropriation Summary

Budget Authority
Full-Time Equivalency
(dollars in thousands)

	FY 1998 President Budget	FY 1998 Enacted Oplan	FY 1999 President Budget
Environmental Program & Management			
Budget Authority	$1,887,590.9	$1,799,399.9	$1,993,780.0
Full-time equivalents (FTE)	11,361.9	11,391.9	11,471.9
Envir. Program & Mgmt - Reim			
Budget Authority	$0.0	$0.0	$0.0
Full-time equivalents (FTE)	12.5	12.5	11.5
Science and Technology			
Budget Authority	$614,269.4	$631,000.0	$633,460.0
Full-time equivalents (FTE)	2,360.5	2,360.5	2,428.1
Science and Tech. - Reim			
Budget Authority	$0.0	$0.0	$0.0
Full-time equivalents (FTE)	54.9	54.9	24.9
Building and Facilities			
Budget Authority	$141,420.0	$109,420.0	$52,948.0
Full-time equivalents (FTE)	0.0	0.0	0.0
State and Tribal Assistance Grants			
Budget Authority	$2,793,257.0	$3,212,625.0	$2,902,657.0
Full-time equivalents (FTE)	0.0	0.0	0.0
Leaking Underground Storage Tanks			
Budget Authority	$71,210.7	$65,000.0	$71,210.0
Full-time equivalents (FTE)	85.8	85.8	85.8
Oil Spill Response			
Budget Authority	$15,000.0	$15,000.0	$17,321.4
Full-time equivalents (FTE)	103.6	103.6	103.6
Inspector General			
Budget Authority	$28,500.0	$28,501.0	$31,154.0
Full-time equivalents (FTE)	293.8	268.8	284.4

ENVIRONMENTAL PROTECTION AGENCY

FY 1999 ANNUAL PLAN

Appropriation Summary

Budget Authority
Full-Time Equivalency
(dollars in thousands)

	FY 1998 President Budget	FY 1998 Enacted Oplan	FY 1999 President Budget
Rereg. & Exped. Proc. Rev Fund			
Budget Authority	$0.0	$0.0	$0.0
Full-time equivalents (FTE)	222.4	222.4	222.4
Hazardous Substance Superfund			
Budget Authority	$2,082,603.7	$1,488,359.0	$2,080,507.7
Full-time equivalents (FTE)	3,536.9	3,536.9	3,488.5
Hazardous Substance SF-IG			
Budget Authority	$11,641.3	$11,641.0	$12,237.3
Full-time equivalents (FTE)	102.8	102.8	111.0
Superfund Reimbursables			
Budget Authority	$0.0	$0.0	$0.0
Full-time equivalents (FTE)	148.0	143.0	143.0
Total, EPA APPROPRIATIONS			
Budget Authority	$7,645,493.0	$7,360,945.9	$7,795,275.4
Full-time equivalents (FTE)	18,283.1	18,283.1	18,375.1
Pesticide Registration/PMN Fees			
Budget Authority			$-24,000.0
Anticipated FTE Lapse		-308.0	
ENVIRONMENTAL PROTECTION AGENCY (NET)			
Budget Authority	$7,645,493.0	$7,360,945.9	$7,771,275.4
Full-time equivalents (FTE)	18,283.1	17,975.1	18,375.1

ENVIRONMENTAL PROTECTION AGENCY

FY 1999 ANNUAL PLAN

Goal, Appropriation Summary

Budget Authority
Full-Time Equivalency
(dollars in thousands)

	FY 1998 President Budget	FY 1998 Enacted Oplan	FY 1999 President Budget
Clean Air			
Budget Authority	$450,680.0	$490,448.2	$506,953.3
Full-time equivalents (FTE)	1,752.2	1,801.8	1,762.4
Environmental Program & Management			
Budget Authority	$163,746.7	$147,756.1	$168,540.3
Full-time equivalents (FTE)	1,141.3	1,122.3	1,133.3
Science and Technology			
Budget Authority	$119,574.5	$150,590.3	$137,154.2
Full-time equivalents (FTE)	610.9	679.5	629.1
State and Tribal Assistance Grants			
Budget Authority	$167,358.8	$192,101.8	$201,258.8
Full-time equivalents (FTE)	0.0	0.0	0.0

ENVIRONMENTAL PROTECTION AGENCY

FY 1999 ANNUAL PLAN

Goal, Appropriation Summary

Budget Authority
Full-Time Equivalency
(dollars in thousands)

	FY 1998 President Budget	FY 1998 Enacted Oplan	FY 1999 President Budget
Clean and Safe Water			
Budget Authority	$2,706,342.7	$3,170,864.6	$2,801,869.3
Full-time equivalents (FTE)	2,381.6	2,440.3	2,449.5
Environmental Program & Management			
Budget Authority	$341,602.7	$379,681.8	$364,723.8
Full-time equivalents (FTE)	2,114.4	2,116.3	2,109.8
Science and Technology			
Budget Authority	$51,930.2	$58,748.0	$55,335.7
Full-time equivalents (FTE)	267.2	324.0	339.7
State and Tribal Assistance Grants			
Budget Authority	$2,312,809.8	$2,732,434.8	$2,381,809.8
Full-time equivalents (FTE)	0.0	0.0	0.0

ENVIRONMENTAL PROTECTION AGENCY

FY 1999 ANNUAL PLAN

Goal, Appropriation Summary

Budget Authority
Full-Time Equivalency
(dollars in thousands)

	FY 1998 President Budget	FY 1998 Enacted Oplan	FY 1999 President Budget
Safe Food			
Budget Authority	$59,764.9	$56,459.3	$63,552.4
Full-time equivalents (FTE)	687.2	681.0	682.3
Environmental Program & Management			
Budget Authority	$56,961.6	$54,002.5	$59,102.4
Full-time equivalents (FTE)	436.8	430.6	430.9
Science and Technology			
Budget Authority	$2,803.3	$2,456.8	$4,450.0
Full-time equivalents (FTE)	28.0	28.0	29.0
Rereg. & Exped. Proc. Rev Fund			
Budget Authority	$0.0	$0.0	$0.0
Full-time equivalents (FTE)	222.4	222.4	222.4

ENVIRONMENTAL PROTECTION AGENCY

FY 1999 ANNUAL PLAN

Goal, Appropriation Summary

Budget Authority
Full-Time Equivalency
(dollars in thousands)

	FY 1998 President Budget	FY 1998 Enacted Oplan	FY 1999 President Budget
Preventing Pollution and Reducing Risk in Communities, Homes, Workplaces and Ecosystems			
Budget Authority	$239,993.1	$240,466.0	$258,845.0
Full-time equivalents (FTE)	1,045.8	1,143.6	1,125.5
Environmental Program & Management			
Budget Authority	$154,484.2	$144,818.7	$159,812.9
Full-time equivalents (FTE)	1,012.0	1,013.4	1,009.7
Science and Technology			
Budget Authority	$4,860.4	$14,998.8	$14,383.6
Full-time equivalents (FTE)	33.8	130.2	115.8
Building and Facilities			
Budget Authority	$0.0	$0.0	$0.0
Full-time equivalents (FTE)	0.0	0.0	0.0
State and Tribal Assistance Grants			
Budget Authority	$80,648.5	$80,648.5	$84,648.5
Full-time equivalents (FTE)	0.0	0.0	0.0

ENVIRONMENTAL PROTECTION AGENCY

FY 1999 ANNUAL PLAN

Goal, Appropriation Summary

Budget Authority
Full-Time Equivalency
(dollars in thousands)

	FY 1998 President Budget	FY 1998 Enacted Oplan	FY 1999 President Budget
Better Waste Management, Restoration of Contaminated Waste Sites, and Emergency Response			
Budget Authority	$2,254,977.3	$1,636,785.3	$2,251,327.7
Full-time equivalents (FTE)	4,348.1	4,373.6	4,304.1
Environmental Program & Management			
Budget Authority	$150,672.7	$133,582.5	$152,211.8
Full-time equivalents (FTE)	1,001.3	1,003.7	997.0
Envir. Program & Mgmt - Reim			
Budget Authority	$0.0	$0.0	$0.0
Full-time equivalents (FTE)	11.0	11.0	11.0
Science and Technology			
Budget Authority	$12,641.0	$13,085.7	$14,139.3
Full-time equivalents (FTE)	71.4	83.1	82.6
Science and Tech. - Reim			
Budget Authority	$0.0	$0.0	$0.0
Full-time equivalents (FTE)	54.9	54.9	24.9
State and Tribal Assistance Grants			
Budget Authority	$64,527.2	$64,527.2	$64,527.2
Full-time equivalents (FTE)	0.0	0.0	0.0
Leaking Underground Storage Tanks			
Budget Authority	$69,156.5	$63,151.3	$69,122.2
Full-time equivalents (FTE)	72.4	72.4	72.4
Oil Spill Response			
Budget Authority	$14,455.0	$14,446.7	$16,778.1
Full-time equivalents (FTE)	103.6	103.6	103.6
Hazardous Substance Superfund			
Budget Authority	$1,943,524.9	$1,347,991.9	$1,934,549.1
Full-time equivalents (FTE)	2,885.5	2,901.9	2,869.6
Superfund Reimbursables			
Budget Authority	$0.0	$0.0	$0.0
Full-time equivalents (FTE)	148.0	143.0	143.0

ENVIRONMENTAL PROTECTION AGENCY

FY 1999 ANNUAL PLAN

Goal, Appropriation Summary

Budget Authority
Full-Time Equivalency
(dollars in thousands)

	FY 1998 President Budget	FY 1998 Enacted Oplan	FY 1999 President Budget
Reduction of Global and Cross-border Environmental Risks			
Budget Authority	$335,952.1	$236,144.4	$394,350.4
Full-time equivalents (FTE)	443.3	448.7	527.4
Environmental Program & Management			
Budget Authority	$193,392.2	$129,550.8	$228,554.0
Full-time equivalents (FTE)	374.1	374.4	431.4
Science and Technology			
Budget Authority	$42,559.9	$31,593.6	$65,796.4
Full-time equivalents (FTE)	69.2	74.3	96.0
State and Tribal Assistance Grants			
Budget Authority	$100,000.0	$75,000.0	$100,000.0
Full-time equivalents (FTE)	0.0	0.0	0.0

ENVIRONMENTAL PROTECTION AGENCY

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Goal, Appropriation Summary

Budget Authority
Full-Time Equivalency
(dollars in thousands)

	FY 1998 President Budget	FY 1998 Enacted Oplan	FY 1999 President Budget
Expansion of Americans' Right to Know About their Environment			
Budget Authority	$156,730.7	$140,371.4	$159,087.8
Full-time equivalents (FTE)	774.4	771.7	757.0
Environmental Program & Management			
Budget Authority	$138,990.8	$128,563.2	$137,625.2
Full-time equivalents (FTE)	736.4	723.5	704.4
Science and Technology			
Budget Authority	$16,716.4	$9,133.7	$18,648.3
Full-time equivalents (FTE)	27.4	33.6	36.8
Hazardous Substance Superfund			
Budget Authority	$1,023.5	$2,674.5	$2,814.3
Full-time equivalents (FTE)	10.6	14.6	15.8

ENVIRONMENTAL PROTECTION AGENCY

FY 1999 ANNUAL PLAN

Goal, Appropriation Summary

Budget Authority
Full-Time Equivalency
(dollars in thousands)

	FY 1998 President Budget	FY 1998 Enacted Oplan	FY 1999 President Budget
Sound Science, Improved Understanding of Env. Risk and Greater Innovation to Address Env. Problems			
Budget Authority	$403,644.3	$404,721.2	$368,477.7
Full-time equivalents (FTE)	1,384.3	1,165.0	1,256.3
Environmental Program & Management			
Budget Authority	$39,983.0	$53,518.8	$45,960.7
Full-time equivalents (FTE)	180.6	226.5	225.6
Science and Technology			
Budget Authority	$354,062.9	$342,143.0	$314,565.8
Full-time equivalents (FTE)	1,173.9	929.1	1,020.4
Leaking Underground Storage Tanks			
Budget Authority	$6.5	$6.5	$6.5
Full-time equivalents (FTE)	0.0	0.0	0.0
Oil Spill Response			
Budget Authority	$2.1	$2.1	$2.1
Full-time equivalents (FTE)	0.0	0.0	0.0
Hazardous Substance Superfund			
Budget Authority	$9,589.8	$9,050.8	$7,942.6
Full-time equivalents (FTE)	29.8	9.4	10.3

ENVIRONMENTAL PROTECTION AGENCY

FY 1999 ANNUAL PLAN

Goal, Appropriation Summary

Budget Authority
Full-Time Equivalency
(dollars in thousands)

	FY 1998 President Budget	FY 1998 Enacted Oplan	FY 1999 President Budget
A Credible Deterrent to Pollution and Greater Compliance with the Law			
Budget Authority	$320,827.7	$315,828.2	$330,951.3
Full-time equivalents (FTE)	2,538.3	2,537.8	2,535.9
Environmental Program & Management			
Budget Authority	$227,640.0	$221,887.9	$234,688.3
Full-time equivalents (FTE)	2,376.3	2,375.8	2,373.9
Science and Technology			
Budget Authority	$8,893.1	$8,215.1	$8,760.7
Full-time equivalents (FTE)	78.7	78.7	78.7
State and Tribal Assistance Grants			
Budget Authority	$67,912.7	$67,912.7	$70,412.7
Full-time equivalents (FTE)	0.0	0.0	0.0
Hazardous Substance Superfund			
Budget Authority	$16,381.9	$17,812.5	$17,089.6
Full-time equivalents (FTE)	83.3	83.3	83.3

ENVIRONMENTAL PROTECTION AGENCY

FY 1999 ANNUAL PLAN

Goal, Appropriation Summary

Budget Authority
Full-Time Equivalency
(dollars in thousands)

	FY 1998 President Budget	FY 1998 Enacted Oplan	FY 1999 President Budget
Effective Management			
Budget Authority	$716,580.2	$668,857.3	$659,860.5
Full-time equivalents (FTE)	2,927.9	2,919.6	2,974.7
Environmental Program & Management			
Budget Authority	$420,117.0	$406,037.6	$442,560.6
Full-time equivalents (FTE)	1,988.7	2,005.4	2,055.9
Envir. Program & Mgmt - Reim			
Budget Authority	$0.0	$0.0	$0.0
Full-time equivalents (FTE)	1.5	1.5	0.5
Science and Technology			
Budget Authority	$227.7	$35.0	$226.0
Full-time equivalents (FTE)	0.0	0.0	0.0
Building and Facilities			
Budget Authority	$141,420.0	$109,420.0	$52,948.0
Full-time equivalents (FTE)	0.0	0.0	0.0
Leaking Underground Storage Tanks			
Budget Authority	$2,047.7	$1,842.2	$2,081.3
Full-time equivalents (FTE)	13.4	13.4	13.4
Oil Spill Response			
Budget Authority	$542.9	$551.2	$541.2
Full-time equivalents (FTE)	0.0	0.0	0.0
Inspector General			
Budget Authority	$28,500.0	$28,501.0	$31,154.0
Full-time equivalents (FTE)	293.8	268.8	284.4
Hazardous Substance Superfund			
Budget Authority	$112,083.6	$110,829.3	$118,112.1
Full-time equivalents (FTE)	527.7	527.7	509.5
Hazardous Substance SF-IG			
Budget Authority	$11,641.3	$11,641.0	$12,237.3
Full-time equivalents (FTE)	102.8	102.8	111.0

ENVIRONMENTAL PROTECTION AGENCY

FY 1999 ANNUAL PLAN

Goal, Appropriation Summary

Budget Authority
Full-Time Equivalency
(dollars in thousands)

	FY 1998 President Budget	FY 1998 Enacted Oplan	FY 1999 President Budget
TOTAL, EPA APPROPRIATIONS			
Budget Authority	$7,645,493.0	$7,360,945.9	$7,795,275.4
Full-time equivalents (FTE)	18,283.1	18,283.1	18,375.1
Pesticide Registration/PMN Fees			
Budget Authority			$-24,000.0
Anticipated FTE Lapse		-308.0	
ENVIRONMENTAL PROTECTION AGENCY (NET)			
Budget Authority	$7,645,493.0	$7,360,945.9	$7,771,275.4
Full-time equivalents (FTE	18,283.1	17,975.1	18,375.1

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ENVIRONMENTAL PROTECTION AGENCY

FY 1999 ANNUAL PLAN

Goal, Objective Summary

Budget Authority
Full-Time Equivalency
(dollars in thousands)

	FY 1998 President Budget	FY 1998 Enacted	FY 1999 President Request
Clean Air			
Budget Authority	$450,680.0	$490,448.2	$506,953.3
Full-time equivalents (FTE)	1,752.2	1,801.8	1,762.4
Obj: 01 Attain NAAQS for Ozone and PM			
Budget Authority	$292,379.9	$337,060.9	$348,584.7
Full-time equivalents (FTE)	1,080.8	1,118.8	1,090.1
Obj: 02 Reduce Emissions of Air Toxics			
Budget Authority	$89,008.8	$85,837.4	$91,924.6
Full-time equivalents (FTE)	387.4	401.4	390.4
Obj: 03 Attain NAAQS for CO, SO2, NO2, Lead			
Budget Authority	$47,497.2	$46,749.6	$44,878.2
Full-time equivalents (FTE)	192.0	189.6	189.9
Obj: 04 Acid Rain			
Budget Authority	$21,794.1	$20,800.3	$21,565.8
Full-time equivalents (FTE)	92.0	92.0	92.0
Clean and Safe Water			
Budget Authority	$2,706,342.7	$3,170,864.6	$2,801,869.3
Full-time equivalents (FTE)	2,381.6	2,440.3	2,449.5
Obj: 01 Safe Drinking Water, Fish and Recreational Waters			
Budget Authority	$966,204.5	$979,216.6	$1,018,705.9
Full-time equivalents (FTE)	803.5	830.9	854.5
Obj: 02 Conserve/Enhance Ecological Health of Nation's Waters/Aquatic Ecosystems			
Budget Authority	$270,281.6	$298,573.9	$296,643.9
Full-time equivalents (FTE)	730.3	749.6	709.3
Obj: 03 Reduce Loadings and Air Deposition			
Budget Authority	$1,469,856.	$1,893,074.	$1,486,519.5
Full-time equivalents (FTE)	847.8	859.8	885.7
Safe Food			
Budget Authority	$59,764.9	$56,459.3	$63,552.4
Full-time equivalents (FTE)	687.2	681.0	682.3
Obj: 01 Reduce Agricultural Pesticides Risk			
Budget Authority	$22,952.3	$19,651.3	$24,926.2

Goal, Objective Summary

Budget Authority
Full-Time Equivalency
(dollars in thousands)

	FY 1998 President Budget	FY 1998 Enacted	FY 1999 President Request
Full-time equivalents (FTE)	283.2	281.5	282.7
Obj: 02 Reduce Use on Food of Pesticides Not Meeting Standards			
Budget Authority	$36,812.6	$36,808.0	$38,626.2
Full-time equivalents (FTE)	404.0	399.5	399.6
Preventing Pollution and Reducing Risk in Communities, Homes, Workplaces and Ecosystems			
Budget Authority	$239,993.1	$240,466.0	$258,845.0
Full-time equivalents (FTE)	1,045.8	1,143.6	1,125.5
Obj: 01 Reduce Public and Ecosystem Exposure to Pesticides			
Budget Authority	$50,789.4	$47,108.9	$50,626.1
Full-time equivalents (FTE)	241.3	240.9	241.0
Obj: 02 Reduce Lead Poisoning			
Budget Authority	$31,078.6	$30,453.7	$30,957.6
Full-time equivalents (FTE)	120.2	121.6	121.4
Obj: 03 Safe Handling and Use of Commercial Chemicals and Microorganisms			
Budget Authority	$31,646.7	$41,024.6	$41,272.5
Full-time equivalents (FTE)	263.2	357.2	343.6
Obj: 04 Healthier Indoor Air			
Budget Authority	$33,235.0	$30,292.2	$33,219.4
Full-time equivalents (FTE)	149.5	150.2	151.8
Obj: 05 Improve Pollution Prevention Strategies, Tools, Approaches			
Budget Authority	$27,074.1	$25,245.9	$26,865.5
Full-time equivalents (FTE)	85.1	79.6	80.2
Obj: 06 Decrease Quantity and Toxicity of Waste			
Budget Authority	$22,327.2	$21,783.3	$25,053.2
Full-time equivalents (FTE)	131.9	127.5	132.9
Obj: 08 Assess Conditions in Indian Country			
Budget Authority	$43,842.1	$44,557.4	$50,850.7
Full-time equivalents (FTE)	54.6	66.6	54.6
Better Waste Management, Restoration of Contaminated Waste Sites, and Emergency			

ENVIRONMENTAL PROTECTION AGENCY

FY 1999 ANNUAL PLAN

Goal, Objective Summary

Budget Authority
Full-Time Equivalency
(dollars in thousands)

	FY 1998 President Budget	FY 1998 Enacted	FY 1999 President Request
Response			
Budget Authority	$2,254,977.3	$1,636,785.3	$2,251,327.7
Full-time equivalents (FTE)	4,348.1	4,373.6	4,304.1
Obj: 01 Reduce or Control Risks to Human Health			
Budget Authority	$2,096,061.	$1,491,429.	$2,091,457.3
Full-time equivalents (FTE)	3,545.3	3,562.0	3,494.2
Obj: 02 Prevent Releases by Proper Facility Management			
Budget Authority	$138,141.5	$126,471.5	$139,531.0
Full-time equivalents (FTE)	679.0	687.7	686.0
Obj: 03 Respond to All Known Emergencies			
Budget Authority	$20,774.3	$18,884.7	$20,339.4
Full-time equivalents (FTE)	123.8	123.9	123.9
Reduction of Global and Cross-border Environmental Risks			
Budget Authority	$335,952.1	$236,144.4	$394,350.4
Full-time equivalents (FTE)	443.3	448.7	527.4
Obj: 01 Reduce Transboundary Threats: Shared North American Ecosystems			
Budget Authority	$122,113.7	$99,730.2	$122,172.8
Full-time equivalents (FTE)	74.8	74.8	74.8
Obj: 02 Climate Change			
Budget Authority	$175,299.7	$109,218.1	$229,033.9
Full-time equivalents (FTE)	247.0	252.1	331.1
Obj: 03 Stratospheric Ozone Depletion			
Budget Authority	$27,381.4	$17,321.8	$26,914.3
Full-time equivalents (FTE)	33.8	33.8	34.4
Obj: 04 Protect Public Health and Ecosystems From Persistent Toxics			
Budget Authority	$4,155.0	$4,250.8	$6,873.7
Full-time equivalents (FTE)	36.2	36.5	39.3
Obj: 05 Prevent Degradation of the Marine and Polar Environments			
Budget Authority	$1,318.2	$1,307.7	$1,397.5
Full-time equivalents (FTE)	9.9	9.9	10.2

ENVIRONMENTAL PROTECTION AGENCY

FY 1999 ANNUAL PLAN

Goal, Objective Summary

Budget Authority
Full-Time Equivalency
(dollars in thousands)

	FY 1998 President Budget	FY 1998 Enacted	FY 1999 President Request
Obj: 06 Achieve Cleaner and More Cost-Effective Practices			
Budget Authority	$5,684.1	$4,315.8	$7,958.2
Full-time equivalents (FTE)	41.6	41.6	37.6
Expansion of Americans' Right to Know About their Environment			
Budget Authority	$156,730.7	$140,371.4	$159,087.8
Full-time equivalents (FTE)	774.4	771.7	757.0
Obj: 01 Increase Quality/Quantity of Education, Outreach, Data Availability			
Budget Authority	$76,246.5	$72,202.0	$75,343.7
Full-time equivalents (FTE)	385.5	381.1	348.6
Obj: 02 Improve Public's Ability to Reduce Exposure			
Budget Authority	$51,493.5	$47,120.6	$51,875.5
Full-time equivalents (FTE)	247.2	244.7	255.1
Obj: 03 Enhance Ability to Protect Public Health			
Budget Authority	$28,990.7	$21,048.8	$31,868.6
Full-time equivalents (FTE)	141.7	145.9	153.3
Sound Science, Improved Understanding of Env. Risk and Greater Innovation to Address Env. Problems			
Budget Authority	$403,644.3	$404,721.2	$368,477.7
Full-time equivalents (FTE)	1,384.3	1,165.0	1,256.3
Obj: 01 Research for Ecosystem Assessment and Restoration			
Budget Authority	$85,172.3	$100,712.5	$85,505.6
Full-time equivalents (FTE)	315.1	354.4	377.9
Obj: 02 Research for Human Health Risk Assessment			
Budget Authority	$52,631.1	$49,006.9	$47,618.5
Full-time equivalents (FTE)	216.8	207.0	224.1
Obj: 03 Emerging Risk Issues			
Budget Authority	$56,414.1	$47,744.4	$55,387.0
Full-time equivalents (FTE)	128.5	143.5	184.7
Obj: 04 Pollution Prevention and New Technology			
Budget Authority	$51,435.0	$69,919.2	$47,997.9
Full-time equivalents (FTE)	132.3	185.1	187.8

Goal, Objective Summary

Budget Authority
Full-Time Equivalency
(dollars in thousands)

	FY 1998 President Budget	FY 1998 Enacted	FY 1999 President Request
Obj: 05 Enable Research on Innovative Approaches to Current and Future Environmental Problems			
Budget Authority	$120,875.0	$86,927.7	$88,745.5
Full-time equivalents (FTE)	449.1	89.6	97.3
Obj: 06 Increase Use of Integrated, Holistic, Partnership Approaches			
Budget Authority	$18,049.3	$19,386.3	$16,810.5
Full-time equivalents (FTE)	35.7	37.6	36.7
Obj: 07 Increase Opportunities for Sector Based Approaches			
Budget Authority	$10,342.7	$16,478.4	$11,496.8
Full-time equivalents (FTE)	79.7	100.7	100.7
Obj: 08 Regional Enhancement of Ability to Quantify Environmental Outcomes			
Budget Authority	$6,306.5	$5,969.0	$7,995.1
Full-time equivalents (FTE)	4.6	4.6	4.6
Obj: 09 Science Advisory Board Peer Review			
Budget Authority	$2,418.3	$2,415.8	$2,586.7
Full-time equivalents (FTE)	22.5	22.5	22.5
Obj: 10 Incorporate Innovative Approaches to Enviromental Management			
Budget Authority	$0.0	$6,161.0	$4,334.1
Full-time equivalents (FTE)	0.0	20.0	20.0
A Credible Deterrent to Pollution and Greater Compliance with the Law			
Budget Authority	$320,827.7	$315,828.2	$330,951.3
Full-time equivalents (FTE)	2,538.3	2,537.8	2,535.9
Obj: 01 Enforcement Tools to Reduce Non-Compliance			
Budget Authority	$275,311.8	$268,534.7	$281,743.1
Full-time equivalents (FTE)	2,057.5	2,052.5	2,055.6
Obj: 02 Increase Use of Auditing, Self-Policing Policies			
Budget Authority	$45,515.9	$47,293.5	$49,208.2
Full-time equivalents (FTE)	480.8	485.3	480.3
Effective Management			

ENVIRONMENTAL PROTECTION AGENCY

FY 1999 ANNUAL PLAN

Goal, Objective Summary

Budget Authority
Full-Time Equivalency
(dollars in thousands)

	FY 1998 President Budget	FY 1998 Enacted	FY 1999 President Request
Budget Authority	$716,580.2	$668,857.3	$659,860.5
Full-time equivalents (FTE)	2,927.9	2,919.6	2,974.7
Obj: 01 Executive Leadership			
Budget Authority	$26,003.4	$27,897.8	$30,895.9
Full-time equivalents (FTE)	257.0	268.8	265.0
Obj: 02 Management Services, Administrative, and Stewardship			
Budget Authority	$175,284.8	$165,331.7	$180,937.4
Full-time equivalents (FTE)	1,502.3	1,521.2	1,551.8
Obj: 03 Building Operations, Utilities and New Construction			
Budget Authority	$367,905.0	$331,959.5	$299,921.3
Full-time equivalents (FTE)	155.4	155.4	154.9
Obj: 04 Regional Management Services and Support			
Budget Authority	$110,769.2	$107,103.7	$108,189.1
Full-time equivalents (FTE)	610.8	596.8	601.8
Obj: 05 Provide Audit and Investigative Products and Services			
Budget Authority	$36,617.8	$36,564.6	$39,916.8
Full-time equivalents (FTE)	402.4	377.4	401.2
TOTAL, EPA APPROPRIATION			
Budget Authority	$7,645,493.0	$7,360,945.9	$7,795,275.4
Full-Time Equivalents (FTE)	18,283.1	18,283.1	18,375.1
Pesticide Registration/PMN Fees			
Budget Authority			$-24,000.0
Anticipated FTE Lapse		-308.0	
ENVIRONMENTAL PROTECTION AGENCY (NET)			
Budget Authority	$7,645,493.0	$7,360,945.9	$7,771,275.4
Full-time equivalents (FTE)	18,283.1	17,975.1	18,375.1

Goal 1: Clean Air

Goal 1: Clean Air **I-1**
Attain National Ambient Air Quality Standards (NAAQS) for Ozone and PM. I-5
Reduce Emissions of Air Toxics. I-22
Attain NAAQS for CO, SO2, NO2, and Lead I-33
Acid Rain I-40

Environmental Protection Aency

1999 Annual Plan Request to Congress

Clean Air

Strategic Goal: The air in every American community will be safe and healthy to breathe. In particular, children, the elderly, and people with respiratory ailments will be protected from health risks of breathing polluted air. Reducing air pollution will also protect the environment, resulting in many benefits, such as restoring life in damaged ecosystems and reducing health risks to those whose subsistence depends directly on those ecosystems.

Goal Summary
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Clean Air	**$450,680.0**	**$490,448.2**	**$506,953.3**
Obj. 01 Attain NAAQS for Ozone and PM	$292,379.9	$337,060.9	$348,584.7
Obj. 02 Reduce Emissions of Air Toxics	$89,008.8	$85,837.4	$91,924.6
Obj. 03 Attain NAAQS for CO, SO2, NO2, Lead	$47,497.2	$46,749.6	$44,878.2
Obj. 04 Acid Rain	$21,794.1	$20,800.3	$21,565.8
Goal Total FTE	1,752.2	1,801.8	1,762.4

Air pollution continues to be a widespread public health and environmental problem in the United States, contributing to illnesses such as cancer and respiratory and reproductive problems. Air pollution reduces visibility, damages crops and buildings, and is deposited on the soil and in water bodies where it affects the chemistry of the water and resident life forms.

Since 1970, air pollutant emissions have been reduced and significant improvements in air quality have been achieved. However, millions of tons of toxic air pollutants are still released into the air. Also, approximately 46 million people live in areas that do not meet EPA's health-based air standards for at least one of six major pollutants.

The problem is nationwide in scope. Air pollution crosses local and state lines and, in some cases, even crosses our borders with Canada and Mexico. Federal assistance and leadership are essential for developing cooperative state, local, regional, and international programs to prevent and control air pollution and for ensuring that national standards are met. Efforts of many other Federal agencies, such as the Department of Transportation and the Department of Energy, are critical to the achievement of the Clean Air goal.

The 1999 President's Budget requests $506,953,300 and 1,762 workyears for the Clean Air goal, an increase of $17,000,000 and a decrease of 40 workyears over 1998. In support of this goal, the Agency will work with and support states and tribes in developing and implementing plans to address air quality problems. As part of this effort, EPA will support state and tribal development of a 1,500-site monitoring network for fine particulates ($PM_{2.5}$), a pollutant for which the Agency issued its first specific standards in 1997. The Agency also will develop and issue other standards, including national technology-based standards to reduce the quantity of toxic air pollutants that are emitted from industrial or manufacturing processes.

The resources requested in this goal will enable the Agency, in conjunction with its state, local, and tribal partners, to meet a number of performance goals in 1999. The most significant of these include:

- Deploy $PM_{2.5}$ ambient monitors at 776 sites.
- Certify that 8 of the 38 estimated remaining nonattainment areas have achieved the current NAAQS for ozone.
- Certify that 13 of the 58 estimated remaining nonattainment areas have achieved the NAAQS for carbon monoxide, sulfur dioxide, or lead.
- Reduce air toxic emissions by 12% in 1999, resulting in a cumulative reduction of 25% from 1993 levels.
- In 1999, maintain 4 million tons of SO_2 emissions reductions from utility sources, and maintain 300,000 tons of NOx reductions from coal-fired utility sources.
- By 1999, identify and evaluate at least two biological mechanisms by which PM causes death and disease in humans.
- In 1999, complete health assessments for five high priority air toxics.

HIGHLIGHTS:

Attaining National Ambient Air Quality Standards for Ozone and Particulate Matter

The 1999 President's Budget requests $348,584,700 and 1090 workyears to attain national ambient air quality standards (NAAQS) for ozone and particulate matter.

Ozone and particulate matter are high risk pollutants, with high potential for risk reduction. Ozone can impair normal functioning of the lungs. More people are exposed to unhealthy levels of ozone than of any other air pollutant. It is projected that over 114 million people live in areas that will not meet the new health standard for ozone, which is 40 million more than under the previous standard.

The health risks estimated from current fine PM exposures represent tens of thousands of premature deaths each year, placing fine PM near the top of environmental health threats. It is estimated that approximately 68 million people live in areas that may not meet the new $PM_{2.5}$ standard. EPA estimates that, once attained, the new standard will prevent up to 15,000 premature deaths per year.

Under the Clean Air Act Amendments of 1990, EPA must set NAAQS for pollutants that endanger public health and the environment. States and tribes then must develop and carry out strategies and measures to attain the NAAQS. EPA reviewed NAAQS set for ozone and particulate matter, as required by the Clean Air Act, and promulgated new standards in July 1997. Following a directive the

President issued with the standards, the Agency worked with states, tribes and local governments, other Federal agencies and regulated sources to develop an implementation strategy for the standards. The implementation strategy allows for implementing the standards in the most flexible, reasonable and least burdensome manner. In addition, the Agency is participating in an interagency research program, including a full scientific and technical review of the new fine particulate ($PM_{2.5}$) standard by 2002, and implementation of a PM monitoring network.

In support of the Agency's implementation strategy for attaining the new air quality standards, EPA will invest $65,700,000 to develop a national PM monitoring network. This monitoring network will provide the data needed for the identification of PM sources and potential PM "hotspots," as well as allow the Agency to designate areas in attainment with the new PM standard and develop control strategies to address PM on a regional basis. Attainment designations will not occur until 2002 when monitoring data will be complete for these decisions. EPA has committed to provide 100 percent of the costs of setting up the $PM_{2.5}$ monitoring network through state and tribal grants under the authority of Section 103 of the Clean Air Act. EPA will be conducting chemical speciation analyses to provide the basis for states and tribes to determine the chemical constituents of the $PM_{2.5}$ and better identify and understand the sources and characteristics of the pollution and its potential effects. States and tribes will use this information to develop control strategies to come into attainment with the new particulate matter standard by 2012 to 2017. This is consistent with the President's commitment to review the new standard before state and tribal plans take effect.

Under the research authorities of the Clean Air Act, EPA carries out ozone and particulate matter research to maintain a strong scientific basis for changing or reaffirming NAAQS, and implementing NAAQS. In the long term, the information gained through research helps protect public health, including the health of children and other sensitive populations, and provides the scientific and technical information required for NAAQS review, as well as the NAAQS implementation by regional, state, tribal and local government air quality managers. EPA research contributes to developing scientifically sound risk assessment procedures, cost-effective risk prevention/management approaches, credible methods, models and guidance, and environmental leadership through partnerships.

Reducing Emissions of Air Toxics

The 1999 President's Budget requests $91,924,600 and 390.4 workyears to reduce air toxic emissions by 12% in 1999, resulting in a cumulative reduction of 25 percent from 1993 levels. This would significantly reduce the risk to Americans of cancer and other serious adverse health effects caused by airborne toxics. Toxic air pollutants pose a significant health risk because they may cause cancer and other health problems such as reproductive disorders, birth defects, and damage to the nervous system.

EPA's air toxics objective focuses primarily on the statutory requirements of the toxics program in the Clean Air Act to reduce emissions levels through the promulgation and implementation of Maximum Achievable Control Technology (MACT) standards. The program will invest in improved and innovative monitoring and modeling, inventories, development and refinement of environmental indicators, and risk assessment tools to better characterize the risk from air toxics and establish a baseline for measuring risk in carrying out the Government Performance and Results Act (GPRA). EPA will build on state efforts to create

a national toxics monitoring and inventory program in order to better characterize exposures to hazardous air pollution.

In 1999, health effects researchers will quantitatively evaluate cancer and non-cancer health effects from air toxics exposures. Exposure researchers will develop methods to identify contributing sources from ambient air measurements, and improved models to characterize actual human exposure. Researchers also will develop and demonstrate new methods to assess risks from urban toxics.

Attaining NAAQS for CO, SO_2, NO_2, and Lead

The 1999 President's Budget requests $44,878,200 and 189.9 workyears to improve air quality for Americans living in areas that do not meet the current NAAQS for carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), and lead, which are all high risk pollutants.

EPA and its partners have been relatively successful in reducing these air pollutants in many urban areas through mobile source measures. Controls included in state SIPs also reduce stationary source emissions. The Agency will continue existing carbon monoxide work, concentrating primarily on mobile source programs (such as oxygenated fuel and reformulated gasoline), and on assisting states to implement attainment and maintenance programs. EPA will continue to provide information to the scientific community and stakeholders on the environmental aspects of the use of oxygenated fuels and recommendations to improve the program.

In 1998, EPA will promulgate the new source review (NSR) reform rules which simplify the new source permitting process. In 1999, EPA will undertake training and technical support activities to ensure smooth implementation of this major regulatory reinvention effort.

Acid Rain

The 1999 President's Budget requests $21,565,800 and 92.0 workyears for reducing ambient sulfates and total sulfur deposition by 20 to 40 percent from 1980 levels due to reduced SO_2 emissions from utilities and industrial sources.

The Acid Rain program is authorized under Title IV of the Clean Air Act and has numerous statutory deadlines. The U.S. is also committed to reductions in SO_2 and NOx under the 1991 U.S.-Canada Air Quality Agreement. In addition to administering the SO_2 and Nox provisions of Title IV, the Acid Rain program will be developing and operating the emissions and NOx allowance tracking systems for the 12 states of the Ozone Transport Region. The first year of compliance for this program is 1999. Achieving this will assist the 12 Northeastern states to attain and maintain the ozone standard. Approximately 400 additional facilities will require certification of emissions monitors and will report quarterly emissions beginning in 1998.

The program is responsible for operating the Clean Air Status and Trends Network (CASTNet) dry deposition network and providing critical support for operations of the National Atmospheric Deposition Program (NADP) wet deposition network and for a number of visibility monitoring sites. These monitoring efforts will play a crucial role in the program's ongoing assessment activities, including reporting program results for the Government Performance and Results Act and fulfilling assessment responsibilities under Title IX of the Clean Air Act and the U.S.-Canada Air Quality Agreement.

Environmental Protection Agency

1999 Plan Annual Request to Congress

Clean Air

Objective #1: Attain National Ambient Air Quality Standards for Ozone and Particulate Matter.

By 2010, improve air quality for Americans living in areas that exceed the National Ambient Air Quality Standards (NAAQSs) for ozone and particulate matter.

Overview

Under the Clean Air Act, EPA must set NAAQSs for five criteria pollutants that endanger public health and the environment. States and tribes then must develop and carry out strategies and measures to attain the NAAQSs. Ozone and particulate matter are criteria pollutants that require NAAQSs. For each pollutant, EPA sets health-based or "primary" standards to protect human health, and welfare-based or "secondary" standards to protect the environment (crops, vegetation, wildlife, buildings and national monuments, visibility, etc.). The Clean Air Act also requires states with national parks and wilderness areas to develop a program to protect and improve visibility.

Under the research authorities of the Act, EPA carries out ozone and particulate matter research to provide a strong scientific basis for (1) changing or reaffirming NAAQSs, and (2) implementing NAAQSs. Long-range, the information gained through research helps protect public health, including the health of children and other sensitive populations, and provides the scientific and technical information required for NAAQS review, as well as NAAQS implementation by Regional, state, tribal, and local government air quality managers. EPA research contributes to developing scientifically sound risk assessment procedures; cost-effective risk prevention/management approaches; credible methods, models, and guidance; and environmental leadership through partnerships.

New NAAQSs. EPA reviewed NAAQSs set for ozone and particulate matter, as required by the Clean Air Act, and promulgated new standards in July 1997. The President, in a July 16, 1997, letter to the Administrator, outlined general ground rules and a strategy for implementing the new standards in a common sense, cost-effective manner. The President's letter also sets forth an interagency research program, including a full scientific and technical review of the new fine particulate ($PM_{2.5}$) standard by 2002.

Ozone. Ground-level ozone is the most complex, difficult to control, and pervasive of the six air pollutants for which EPA has set NAAQSs. Unlike most other pollutants, ozone is not emitted directly into the air by specific sources, but is created in the troposphere by sunlight acting on nitrogen oxides (NO_x) and volatile organic compounds (VOCs). There are thousands of sources of these pollutants. Some common sources include: gasoline vapors, chemical solvents, combustion products of fuels, and consumer products. Emissions of NO_x and VOCs from motor vehicles and stationary sources can be carried hundreds of miles from their origins, and result in high ozone concentrations over very large, multi-state regions.

Ozone can impair normal functioning of the lungs in healthy people, as well as in those with respiratory problems. Relatively low amounts of ozone can cause chest pain, shortness of breath, and coughing. Ozone may also worsen asthma, bronchitis, and emphysema. Repeated exposure to ozone over months to years can damage lung tissue and reduce quality of life. Repeated exposure to high levels of ozone for several months may also produce permanent structural damage in the lungs. Adverse ecosystem effects are known for single species of vegetation and are likely to extend to entire ecosystems. Ozone damage to plants is extensive, with an estimated impact exceeding $34 billion in lost food stuff crops and timber products each year.

More people are exposed to unhealthful levels of ozone than any other air pollutant. It is currently projected that over 114 million people live in areas that will not meet the new health standard for ozone, 40 million more than the previous standard. Once attained, the new ozone standard will protect 13 million more children from exposure to unhealthful levels of smog than the previous standard. Additional scientific information is needed to effectively address these risks: to understand the human and ecological effects caused by chronic and acute ozone exposures; to refine estimates of precursor emissions including their transport and fate; and to improve the models used to quantify the interactions of these precursor emissions in the atmosphere.

Particulate matter. Particulate matter is the term for solid or liquid particles found in the air. Some particles are large or dark enough to be seen as soot or smoke. Others are so small they can be detected only with a microscope. Because particles originate from a variety of mobile and stationary sources (diesel trucks, woodstoves, power plants, etc.), their chemical and physical compositions vary widely. Particulate matter can be directly emitted or can be formed in the atmosphere when gaseous pollutants, such as sulfur dioxide (SO_2) and NO_x, react to form fine particles.

The health risks estimated from current fine particulate matter exposures represent tens of thousands of premature deaths each year, placing fine particulate matter at or near the top of environmental health threats. It is currently estimated that approximately 68 million people live in areas that may not meet the new $PM_{2.5}$ standard. EPA estimates that once the new standard is attained nationwide, it will prevent up to 15,000 premature deaths per year, and protect an additional 12 million children.

Particulate matter research will support Agency efforts to (1) develop scientifically sound risk assessment approaches; (2) provide regulatory officials with technical information on cost-effective risk prevention/management approaches; (3) provide credible methods, models, and guidance to quantify precursor emissions and evaluate alternative control strategies; and (4) promote environmental leadership through partnerships. This program will: improve the scientific understanding of particulate matter health risks and the effectiveness of risk reduction strategies; provide critical scientific information to the Agency program offices and Regions; provide improved tools for environmental assessment so that information developed by the Agency and others is more easily used and understood; and promote private sector involvement in identifying, understanding, and addressing important air pollution problems. The information gained from particulate matter research will: (1) ultimately protect the public health of our children, sensitive populations, and future generations as we better understand the risks associated with and remedies to reduce exposures to particulate matter; (2) provide a strong scientific basis for establishing the NAAQSs; and (3) provide scientific and technical data required for NAAQS implementation by Regional, state, and local government air quality managers.

Visibility. Visibility impairment, caused by the presence of tiny particles in the air, is most simply described as the haze which obscures the clarity, color, texture, and form of what we see. The Clean Air Act gives special protection to natural areas that we want to preserve for future generations, such as our national parks and wilderness areas.

Implementation of new NAAQSs and visibility requirements. Fine particulate matter and ground-level ozone have many similarities. Both pollutants remain in the air for days, leading to regional scale transport that can affect broad areas of the country. Both pollutants are formed under similar atmospheric conditions by gases, such as NO_x and VOCs, emitted by the same types of sources. Moreover, there are similar health effects associated with exposure to ozone and particulate matter (e.g., increased respiratory symptoms and increased hospital admissions and emergency room visits for respiratory causes).

To obtain recommendations on integrated approaches for implementing the new ozone and particulate matter NAAQSs, as well as for a new regional haze program, EPA established a broad-based committee under the Federal Advisory Committee Act (FACA). This FACA committee had workgroups focusing on: assessing the current state of air pollutant emission inventories, air quality and meteorological models, and air quality monitoring data; developing broad strategies to address air pollutant transport issues; examining the existing regulatory programs; and educating the general public about the nature and extent of air quality problems as well as any adverse health and/or welfare effects associated with these problems. EPA will continue this broad-based stakeholder process to further develop the implementation strategy for the new standards.

The strategy for implementing the ozone, particulate matter, and regional haze standards will be targeted at maintaining efforts currently underway towards clean air and building on the agreements and progress already made by communities and businesses. In carrying out the implementation strategy, EPA will seek to reward state, tribal, and local governments and businesses that take early action to reduce ozone air pollution levels through cost-effective approaches and address pollution that travels across jurisdictional lines. EPA will work with states and tribes to develop control programs that employ regulatory flexibility to minimize economic impacts on businesses to the greatest possible degree consistent with public health protection. EPA also will attempt to minimize regulatory burdens for states, tribes, and local governments and businesses, to ensure that air quality planning and related Federal, tribal, state, and local planning are coordinated, and to help urban areas avoid conflicts between economic growth and environmental programs.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 01 Attain NAAQS for Ozone and PM	**$292,379.9**	**$337,060.9**	**$348,584.7**
Environmental Program & Management	$81,251.0	$72,448.3	$86,102.3
Science and Technology	$98,033.2	$126,773.9	$115,862.6
State and Tribal Assistance Grants	$113,095.7	$137,838.7	$146,619.8
Total FTE	1,080.8	1,118.8	1,090.1

1999 Annual Performance Goals

- In 1999, 8 additional areas currently classified as nonattainment will have the 1-hour ozone standard revoked because they meet the old standard.
- In 1999, deploy PM2.5 ambient monitors at 776 sites.
- By 2001, develop tropospheric ozone precursor measurements, and observational modeling to guide cost-effective control options.
- By 2000, evaluate Models-3/Community Multi-Scale Air Quality (CMAC) against field data to demonstrate reliability in ozone NAAQS attainment planning.
- By 2001, develop tropospheric ozone precursor measurements, modeling, source emissions, and control information to guide cost-effective risk management options.
- By 2000, preliminary evaluation of Models-3/Community Multi-Scale Air Quality (CMAQ) for PM to demonstrate reliability in PM NAAQS attainment planning.
- By 2001, provide measurements, modeling, source emissions, and control information for PM by species and size to guide risk assessment and PM risk management.
- By 2000, describe PM health effects in exposed humans.
- By 1999 and beyond, produce data, models, and technical information which can be used by Federal, state and local air pollution officials to refine the accuracy (size distribution and chemical composition) of directly emitted fine particulate (particulate less than 2.5 microns in size) and fine particulate precursor (compounds such as ammonia which lead to formation of fine particles in the atmosphere) emissions and to quantitatively evaluate the viability (cost and performance) of various fine particulate control technologies for stationary combustion sources.
- By 1999, identify and evaluate several plausible biological mechanisms by which PM causes death and disease in humans.

Ozone

EPA will continue to work with affected states and tribes to address the persistent and widespread problem of ozone transport. Two multi-state groups -- the Ozone Transport Commission (OTC) and the Ozone Transport Assessment Group (OTAG) -- collaborated to recommend regional strategies to control ozone transport in the Northeast, Southeast, and Midwest. Building on the model provided by the successful market-based acid rain program, OTAG proposed a large-scale, market-based NO_x trading program. This trading program should result in a cost-effective solution for attaining and maintaining the new NAAQS. To facilitate trading programs, EPA will review and approve emissions trading protocols for nationally significant source categories.

As a follow-on to the successful OTAG experience, EPA will work on partnerships with states to facilitate the development of region-wide strategies for ozone, $PM_{2.5}$ and regional haze. These partnerships are expected to play a significant role in determining control strategies. As with OTAG, regional areas will need dedicated technical support (e.g., modeling) beyond the levels that EPA can provide.

EPA will assist states, tribes, and local governments in devising stationary source and mobile source strategies to reduce ozone before implementing the new standards in state and tribal implementation plans (SIPs and TIPs). All on-going efforts to meet the previous ozone and PM_{10} standards will help to meet the new standards as well. As a result, EPA will assist states and tribes in maintaining existing control programs.

EPA will continue mobile source programs including: implementing the second phase of the RFG program in the 10 worst ozone cities plus opt-in areas; developing emission factors by shifting emphasis from light-duty to heavy-duty vehicles and non-road, heavy-duty engines; building on the NO_x/particulate matter initiative; and developing and implementing non-road diesel, locomotive, heavy-duty engine and marine standards. The Small Spark Ignition (SI) Phase II standards rule and inventory model will be in its final stages in 1999. A Notice of Proposed Rulemaking on large SI non-road engines will be issued in 1999. The Agency will complete a mandated study of light-duty vehicle and light-duty truck emission standards (Tier II study) and potentially promulgate new emission control standards that could take effect as early as 2004. Also, EPA will examine the effects of sulfur levels in gasoline on new car emission technology and take appropriate actions. These programs strive to reduce NO_x, and thus ozone, as well as fine particles.

In the upcoming years, EPA will develop new vehicle emission control programs, including a court-ordered requirement for a recreational vehicle rule in 1999. EPA plans to facilitate integrating OBD systems into state vehicle inspection and maintenance programs and provide training and outreach to the service industry. EPA will re-engineer the vehicle compliance program.

EPA will continue to explore and implement improvements to emissions testing and monitoring approaches for VOCs (precursors to ozone and particulate matter) including better and less expensive continuous monitors and more reliable techniques for analysis of water-based coatings, inks, and other solvents.

EPA will focus extensively on public outreach and access to high quality information for general and technical audiences to facilitate public understanding and smooth implementation of the new NAAQSs. Improved information

quality and access will enable citizens and users to access "real-time" air quality information, and enable EPA to better track environmental indicators and assess progress. EPA will also assist stakeholders in urban areas in developing tools and approaches to help avoid conflicts between economic development and environmental programs.

EPA will support a joint public/private effort to improve (1) the scientific basis for both future ozone attainment strategies and (2) health and ecological effects research. The emphasis of the program is on the former. EPA and the National Academy of Sciences (NAS) agreed that setting an effective national strategy to deal with this problem will require scientific information to come from an expanded national research program. As a result, the NARSTO research program was chartered at the White House in February 1995 with a lifetime of ten years, and with a near-term focus on a 1998-99 assessment of the improved state of the science for use in a mid-course adjustment to the national implementation policy.

In the NARSTO-related exposure research area, EPA will continue research on atmospheric chemistry and modeling to produce, evaluate, and apply a next generation atmospheric model for ozone, addressing the well-documented deficiencies (such as inadequate chemistry mechanisms for biogenic and aromatic VOCs, poor emissions inputs and source plume treatment, insufficient vertical and spatial resolution, and the inability to move from individual episodes to daily and annual representation), in current urban and regional models used for NAAQS attainment demonstrations. Correcting such deficiencies will remove some of the uncertainties that state, tribal and local air quality managers face in forecasting the benefits of alternative source controls in relation to ozone contributions from upwind regions in natural sources. Another area of focus will be the improvement of methods to physically observe ambient VOC and NO_x chemistry leading to ozone formation and the testing of these methods in regional field studies, which may ultimately lead to successfully managing precursor emissions to reduce tropospheric ozone. In addition, some 1999 Science and Technology funds will go toward the (1) Models-3/Community Multi-Scale Air Quality (CMAQ) evaluation against field data to demonstrate reliability in ozone NAAQS attainment planning; and (2) development of tropospheric ozone precursor measurements and observational modeling to guide cost-effective control options. The CMAQ version of Models-3 was released to EPA's Office of Air and Radiation (OAR) as a beta-test version in 1997 and will be released as an Initial Operating Version in 1998. OAR will be able to gain a working familiarity with the model while it undergoes scientific peer evaluation against field data sets, thus leading to its earliest possible use for implementation strategy development.

In the NARSTO-related risk management research area, EPA will continue to develop and refine emission models and methodologies to improve estimates of tropospheric ozone precursors (VOCs and NO_x) emitted from mobile and biogenic sources. The mobile emissions program will include in-house research to improve emissions estimates from light-duty vehicles. Biogenic emissions research will continue to refine and upgrade an emissions model used to estimate nonmethane organic compounds (NMOC) and NO_x emitted from natural sources. The outcome of the mobile and biogenic emissions research will be used as inputs to the next generation atmospheric model described above and by states and tribes to produce improved emissions estimates, thereby supporting development of optimal ozone control strategies.

In the area of health effects, EPA will conduct research on human health mechanisms and dose-response studies. Researchers will perform studies on ozone effects and mechanisms of toxicity in normal and sensitive humans (e.g.,

asthmatics) at near-ambient levels, to define the specific concentration-time relationships between ozone exposures and initiation of health effects and progression and the induction of tolerance to ozone. This health effects research will further support an improved definition of the primary NAAQS to protect human health. The health effects research will fill the current gap in our understanding concerning the relationship between long-term intermittent exposures to ozone concentrations and chronic adverse health effects. Results from epidemiologic and mechanistic toxicological studies will provide the data needed to prepare the mandated NAAQS criteria assessment of the adequacy of the standard in protecting against chronic effects.

In the ecological effects research area, researchers will continue to evaluate the effects of ozone and other stressors on important tree and vegetation species. Three major uncertainties exist in understanding the impact of ozone on trees: (1) tree characteristics (age, size, and species); (2) other stressors (other pollutants, drought, etc.); and (3) exposure dynamics (concentration, frequency, etc.). This information will form the scientific basis of the criteria upon which the secondary NAAQS is based. The ecological effects research will focus on the impacts of atmospheric concentrations of ozone on the health of forests in the eastern region of the United States. The results of the research will provide the data and knowledge needed to describe and quantify adverse economic and ecological impacts. Assessment of the impacts argue for a separate secondary standard, or dictate the need for a particular control strategy, or both.

The risk assessment research program will: (1) develop new methodologies to characterize ozone hazards to humans and ecosystems and the corresponding benefits of reducing these hazards; (2) support improved risk assessments of ozone; and (3) perform periodic, comprehensive scientific assessments. Consultation and support in the area of ozone will permit risk assessments by state, Regional, and international air pollution control organizations with less uncertainty. These efforts will provide OAR with the research results needed to develop and implement ozone policies based on strong science.

Particulate Matter

After promulgating the new $PM_{2.5}$ standard, EPA will be working with states and tribes to install fine particulate monitors and obtain data on fine particle emissions. EPA has committed to provide 100 percent of the $PM_{2.5}$ monitoring network costs through state and tribal grants under the authority of Section 103 of the Clean Air Act. EPA, states, and tribes will continue to monitor PM_{10} but at a reduced level. EPA also will promote the use of continuous particulate matter source monitoring and improved fine particulate test methods. After the scientific review is completed in 2002, EPA will use the monitoring data to designate attainment areas, characterize emission sources, and conduct a scientific health review of the standard. States and tribes will also be using the data to identify particulate matter sources and "hotspots" and will use this information in developing SIPs and TIPs.

EPA will be conducting chemical speciation analyses to provide the basis for states and tribes to determine the chemical constituents of the $PM_{2.5}$ and better identify and understand the sources and characteristics of the pollution and its potential effects. States and tribes will use this information to develop control strategies to come into attainment with the new particulate matter standard.

EPA will assist states, tribes, and local governments in devising stationary source and mobile source strategies to reduce particulate matter before implementing the new standards. All on-going efforts to meet the current standards will help to meet the new standards as well. As a result, EPA will assist states and tribes in maintaining existing control programs in the interim period between the promulgation of the particulate matter standard and the approval of SIPs and TIPs.

EPA will develop a series of guidance documents for the new particulate matter program to provide infrastructure for implementing the new standards. EPA will continue public outreach activities, especially to create materials for the general public on fine particulate matter.

EPA will improve the characterization of mobile, stationary, and fugitive source particulate matter contribution to $PM_{2.5}$ nonattainment designations. Emission factors and inventories will be developed along with air quality models (e.g., MODELS3).

EPA assumes that mobile sources account for one third of fine particle emissions and a larger portion of controllable emissions. Diesel engines, until recently largely unregulated, contribute to the majority of fine particulate emissions. Consequently, EPA will improve its understanding of various mobile source control technologies on particle size, shape, and composition. In collaborating with industry, states, and academia, EPA will better understand diesel particle size under various vehicle, engine, and fuel testing conditions. Because non-road diesels only recently began to be controlled for emissions, there appears to be a great opportunity for large reductions of particulate matter from these engines. Control of these sources are projected to lead to reductions of 800,000 tons per year of NO_x and 300,000 tons of particulate matter. EPA will design and develop new engineering concepts that would allow petroleum-fueled four stroke direct injection (4SDI) engines to meet stringent particulate matter and NO_x emission levels while maintaining high efficiency. These new concepts will include the development of the conventional diesel (4SDI) using petroleum derived diesel fuel to reduce the high fine particulate matter, high NO_x emissions of these engines.

EPA's particulate matter research efforts will focus on furthering the understanding of the role particulate matter plays in human health. Recent epidemiological studies indicate significant associations between a variety of measures of ambient particulate matter and both mortality and morbidity. Of most concern are indications from these studies of increased mortality risks, especially among the elderly and those with pre-existing cardiopulmonary disease. Particulate matter may be the largest single contributor to adverse effects caused by ambient air pollution, ranging from thousands to tens of thousands of premature deaths each year. EPA's research efforts will focus on further understanding the role particulate matter plays on human health.

EPA will evaluate the relationship between health effects and particulate matter exposures, using epidemiology and significantly improved characterization of exposures. Thereby, researchers will characterize and quantify, through epidemiology, the morbidity and mortality associated with "real world" short- and long-term exposures, including the development of new methods and evaluation of existing data.

EPA will continue a substantial effort of toxicological and clinical research to identify and evaluate several hypotheses regarding the biological mechanisms that might lead to respiratory or cardiovascular effects associated

with particulate matter. These hypotheses are not mutually exclusive, and EPA research may demonstrate that multiple mechanisms are operative. Research will focus on the potential role of metals present in particulate matter in producing effects, the effects of pre-existing disease on susceptibility and dosimetry, cardiopulmonary mechanisms, and identifying the characteristics of particulate matter (size, composition) associated with effects. Research to identify and evaluate plausible mechanisms will provide valuable information for future toxicological assessments and epidemiological studies.

Exposure research will continue to concentrate on measurement, characterization, and modeling leading to refined estimates of human exposures to particulate matter. Resources will be used to characterize the population exposures to ambient, indoor, and personal particulate matter by developing and applying improved exposure methodologies and models, as well as the amount of particulate matter from various sources. Researchers will also seek to: (1) understand further the atmospheric chemistry of particulate matter to support fate and transport modeling to support regulatory implementation and (2) develop and evaluate particle measurement methods to characterize atmospheric particulate matter. As such, some 1999 Science and Technology funds will go toward the completion of a preliminary evaluation of Models-3/CMAQ for particulate matter against the comprehensive field data sets to demonstrate reliability in particulate matter attainment planning, which will be completed in a future fiscal year.

The magnitude of potential risks and the uncertainty in existing risk assessments indicates research is needed to support decisions by EPA on the need for and the form of a revised NAAQS for particulate matter and to support control program implementation. Therefore, researchers will continue to perform periodic, comprehensive scientific assessments to understand: the differences in health effects between coarse and fine particles; interactions of particulate matter with other pollutants and weather; lung function as a predictor of mortality; and determination of the best exposure metrics to estimate health outcomes. Consultation and support will enable state, regional, and international air pollution control organizations to perform risk assessments with less uncertainty. These efforts will provide EPA with research results needed to continue to develop and implement particulate matter policies based on strong science.

The health effects research will work to fill the current gap in our understanding of the observed excess mortality and morbidity associated with particulate air pollution. Results from epidemiologic and mechanistic toxicological studies will provide the data needed to prepare the mandated NAAQS criteria assessment of the adequacy of the standard. In addition, research as to whether, and to what extent, the effects attributed to particulate matter exposures are confounded by other commonly occurring pollutants such as sulfur dioxide and ozone, will improve the interpretation of the epidemiological studies.

Risk management research will characterize source emissions to clarify which sources are significant contributors to ambient fine particles. Studies will be conducted to develop particle size distribution data for a variety of sources. The research to characterize particle emissions from residual fuel oil and pulverized coal combustion sources will produce both particle size distribution and chemical composition data. Research will also be conducted to evaluate and, where necessary, improve or develop control technologies for a variety of industrial and commercial sources. Modeling studies will be conducted to predict

the performance of alternative technologies, which will be augmented by experimental studies of innovative, low-cost control devices.

The exposure, modeling and risk management research will provide, by 2001, measurements, modeling, source emissions, and control information for particulate matter by species and size to guide risk assessment and risk management. Particulate matter measurements are needed since current methods are focused on larger particle sizes. Measurement information can support epidemiologic and mechanism studies, and help develop data for implementation strategies. Because particulate matter is by nature a mixture, we need to know the compositions, sizes, physical properties, and sources that cause health effects. A report on the size, distribution, and chemistry of urban particulate matter including spatial and temporal variability at selected sites is called for by 2001. Understanding regional and temporal variability in particle characteristics (e.g., Western versus Eastern U.S.) and toxicity (e.g., coarse Western particles versus fine Eastern U.S. particles) may also lead to more effective risk management. Finally, in the area of risk management research, more efficient and economical particulate matter controls and evaluation of existing and new risk management technologies and strategies, including market-based approaches, that can be cost-effectively used to control emissions will contribute to meeting the objective of making the air safer to breathe for those people living in non-attainment areas.

Visibility

EPA proposed a regional haze program in conjunction with the new standards for ozone and particulate matter. Because of regional variations in natural conditions which combine with man-made pollution to produce regional haze, EPA believes that regional haze should be addressed through a region-specific program that accounts for these variations. This most likely would result in a regional program for Western states that is different, for example, from one for Northeastern states. In 1999, all states and two territories will develop plans to improve visibility in their region of the country.

Since 1987, EPA has supported the long-term visibility monitoring program known as the IMPROVE network. The IMPROVE network gathers data that can be used to identify sources of visibility impairment on an individual site, regional, and national scale. EPA will work with Western states to determine the steps that are needed to preserve clear days and improve visibility in the 16 national parks and wilderness areas located in the Colorado Plateau. An Eastern regional haze program will address visibility impairment in the Appalachian Mountains.

Regional emissions reductions to attain a fine particle NAAQS and meet requirements of other programs (such as the acid rain program) are expected to improve visibility in certain parks and wilderness areas, particularly in the East.

1998 Annual Performance Goals

- Revoke the current 1-hour standard for 21 additional areas classified as nonattainment when they meet the 1-hour ozone NAAQS.

- Propose national guidance for ozone SIP revisions and attainment demonstration requirements so states will know how to proceed in developing plans for attainment.

- Deploy $PM_{2.5}$ ambient monitors at 724 sites.
- Issue rules for improving visibility nationwide.
- New test procedure for PM from non-road engines.
- In 1998, the External Review Draft of the ozone research needs document will be submitted for public and CASAC review, with appropriate revisions then incorporated into final document.
- Conduct PM Assessment Methodology Research in support of 2001 PM AQCD.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
01 Obj. Total Change	**$11,523.8**	**(28.7)**
Environmental Program & Management	$13,654.0	8.9
Science and Technology	$(10,911.3)	(37.6)
State and Tribal Assistance Grants	$8,781.1	

The redirections for 1999 are largely based on a risk-based priority process and reflect a consideration of the Agency's statutory requirements, technical assistance requirements, and the need for scientific and technical transfer of knowledge and expertise.

- (-$8,293,400) Resources are reduced from elements of the ozone program that were associated with development of SIP revisions that are no longer required.
- (+$54,800,000 STAG/S&T) Fine particles are highly complex and pervasive pollutants that are believed to create high health risks for millions of people. To achieve major reductions in fine particles and realize the health benefits from the new NAAQS we need to make a significant investment of $65,700,000 to provide states and tribes with the critical tools they need to better measure and characterize fine particles and understand how they are emitted, formed, and transported. This investment is essential for building a strong foundation for action and will result in more accurate information for identifying problem areas and source categories.

  EPA will need to provide states and tribes with the funding necessary to establish a 1,500-site national $PM_{2.5}$ monitoring network in time to collect complete and accurate information for identifying areas with unhealthy air. Funds allocated to build this network will cover the costs for monitor purchase, network design and siting, operations and maintenance, and continuous monitoring and/or meteorological stations at selected sites.

Funds will also cover costs for chemical speciation analysis so that states and tribes can determine the chemical constituents of the $PM_{2.5}$ and better identify and understand the sources and characteristics of the pollution and its potential effects.

(+$10,000,000 S&T/EPM) We also need to develop and provide to states and tribes source characterization information for use, in conjunction with air quality information provided by the $PM_{2.5}$ network, in identifying the pollution sources that contribute to health and environmental risks. Emissions factors will be developed for point sources, such as utility boilers, as well as key area sources, such as new diesel passenger vehicles, off-road heavy diesel engines, agricultural tilling, construction, woodstoves, open burning, and roads. We will also assist states and tribes in developing or revising data systems to track, report, and analyze emissions and air quality information.

- (+$3,405,000 EPM) Sustainable Development Grants will increase to encourage community, business and government to work cooperatively to develop flexible, locally-oriented approaches, that link place based environmental management and quality of life with sustainable development and revitalization. To secure grant funding, public and private entities within the community must be willing to contribute their resources, either in cash or through in-kind services and supplies.

- (+$1,250,000 EPM) The Right-to-Know program will increase to provide a comprehensive framework for measuring and reporting environmental information. This approach incorporates updated technology for environmental measurement and monitoring; ensures that the information is useful and timely for families and communities; facilitates public access to comprehensive and integrated environmental data; and, provides effective tools for communicating, interpreting and applying environmental data.

- (+$4,310,300) We will focus increased efforts on tools and approaches for addressing the conflict between urban economic development and programs for ozone, particulate matter, and other environmental problems.

- (+$2,552,900) This increase will be used to test vehicles and engines to provide data on emissions under various operating conditions. These data will be used to improve emission models used by the states and EPA.

- (-$578,800 and -7.2 workyears S&T) The Agency will reduce tropospheric ozone health research by redirecting most of these resources to One Atmosphere research (under the Sound Science, Improved Understanding of Environmental Risk, and Greater Innovation to Address Environmental Problems goal). Under the One Atmosphere research program, research efforts on epidemiological methods and on the mechanisms by which pollutants produce effects and the dose-response of those effects will be conducted to address both criteria air pollutants and air toxics rather than individual toxic compounds. Since tropospheric ozone is a prominent air pollutant constituent of urban atmospheres, this redirection provides start-up resources for research on the combined influence of air pollutants and human health. The reduction to tropospheric ozone research will reduce the effort to identify factors affecting human respiratory response to ozone as a single air contaminant.

- (-$775,300 and -6.1 workyears S&T) The Agency will reduce tropospheric ozone terrestrial ecology research. This reduction reflects a reduced effort to characterize the effects of tropospheric ozone on the productivity of tree species and a redirection of effort to the development of global indicators of terrestrial ecosystem change. The terrestrial indicators of global change include similar indicators to those developed under the tropospheric ozone program; thus, this redirection represents consolidation and leveraging of the global and tropospheric ozone ecology research programs.

- (-$768,000 and -10.0 workyears S&T) A redirection of resources from tropospheric ozone risk management emissions reduction research to One Atmosphere risk management integrated emissions reduction research will allow the Agency to focus its resources on development and evaluation of technologies, which have the potential to reduce multiple pollutants rather than focusing solely on technologies to reduce ozone percursors such as NO_x. Multi-pollutant control or prevention devices which can reduce NO_x, as well as other air pollutants of concern, are now a higher priority to the Agency than single pollutant options.

- (-$713,000 S&T) The Agency will disinvest $713,000 from tropospheric ozone methods and observation-based assessments exposure research. The Agency expects to successfully complete methods development for a number of ozone precursors in 1998 in keeping with NARSTO. The next phase of applying these methods as part of an in-house testing and observational approach to assess changes in emissions and their relation to area ozone formation is anticipated, due to this disinvestment, to be completed through a long-term research effort so that no impact will be incurred.

- (-$467,800 and +4.0 total workyears S&T) The Agency will decrease resources allocated to tropospheric ozone emissions characterization research, which will significantly reduce the NARSTO-related risk management research focused on improving the techniques used to estimate emissions of ozone precursors (volatile organic compounds and nitrogen oxides) from mobile (diesel and light-duty vehicles) sources. EPA has developed a model which would substantially improve estimates of mobile source emissions by taking into account various modes of vehicle operation. Components of this model are being factored into the regulatory models which are used by atmospheric modelers, the Office of Mobile Sources, and state regulatory authorities to develop estimates of mobile source emissions. This reduction will eliminate all NARSTO-funded research on heavy duty diesel trucks and significantly reduce the information included in the mobile emissions model. Completion of a version of the model that can be used by other researchers and Federal, state and local policymakers will be delayed substantially.

- (+$2,517,400 S&T) Long-term research efforts will increase for both (1) tropospheric ozone precursor measurements, modeling source emissions, and health and ecological effects for NAAQS related ozone risk assessments ($900,000) and (2) measurements and modeling for particulate matter, epidemiological and toxicological research on long-term effects of particulate matter, and a risk model for short- and long-term effects based on epidemiological, toxicological and mechanistic studies ($1,617,400).

- (-$1,250,000) Funding to support the California Regional PM 10 2.5 Air Quality Study, a Congressional earmark, has been eliminated.

Key Performance Measures	1998	1999
Area designation	Publish notice revoking the 1-hour ozone standard for 21 areas meeting the standard.	Publish notice revoking the 1-hour ozone standard for 8 areas meeting the standard.
	States submit 8 requests for revoking the 1-hour ozone standard.	50 states submit attainment designations under the revised ozone standard.
National guidance for SIP revisions attainment demonstration requirements	Propose national guidance on $PM_{2.5}$ SIP revision and attainment demonstration requirements.	Issue national guidance on $PM_{2.5}$ SIP revisions and attainment demonstration requirements.
	Propose national guidance on ozone SIP revisions and attainment demonstration requirements.	Issue national guidance on ozone SIP revisions and attainment demonstration requirements.
	Issue national guidance on visibility SIP requirements.	Issue SIP processing guidance for visibility SIPs.
		52 States and Territories submit visibility SIPs.
$PM_{2.5}$ Monitoring Network	States deploy 724 $PM_{2.5}$ ambient monitoring sites.	States deploy 776 $PM_{2.5}$ monitoring sites.
Initial evaluation of Models-3 against field observations taken during the Eulerian Model Evaluation Field Study (EMEFS). Plume-in-grid feature incorporated into Models-3 to improve urban scale resolution. Begin training of clients in the use of Models-3 for their analysis of mid-course options.	9/30/98	

Analysis of Southern Oxidant Study (SOS) data from 1995 field program in Nashville/Middle Tennessee region, including methods to measure and model ozone and its precursors.	9/30/98	
Delivery of External Review Draft of ozone research needs to CASAC and complete final document.	9/30/98	
Report on quantifying the uncertainty in emissions, chemical parameters, and meteorological conditions for trajectory model.		9/30/99
Recommend method for measuring NOx (nitrogen oxides and their reaction products.)		9/30/01
Evaluation of fine particle module predictive capability of the Initial Operating Version (IOV) of the Models-3, to assess potential impact of fine particulate source controls on regional to urban to sub-urban scales.	9/30/98	
Identification of biologically plausible hypothesis to explain PM-induced toxicity.	9/30/98	
Delivery of integrated daily time series database for specific regions.	9/30/98	
Produce data on ammonia from hog farm lagoons. Ammonia reacts with other compounds in the atmosphere to form fine particles.	9/30/98	
Reports (1) describing research designed to test a hypothesis about mechanisms of PM-induced toxicity and (2) characterizing factors affecting PM dosimetry in humans.		9/30/99
Reports on (1) long-term exposures to PM and effects on mortality and lung function and (2) reanalysis of Harvard and American Cancer Society cohorts on health effects of long-term exposures to PM.		9/30/99

Delivery of a computer simulation model to generate true air pollution exposure in region.	9/30/99
Produce data on the size distribution of particles emitted from residential wood combustion (fireplaces and wood stoves) and diesel trucks during highway operation.	9/30/99
Award and establish up to five peer reviewed STAR fine particulate research centers.	9/30/99

Conclusion

Attaining and maintaining the ozone and particulate matter objective will significantly enhance public health and welfare in the United States. Large numbers of people will enjoy longer and better lives, and will be able to engage in activities they otherwise would be precluded from enjoying.

To attain the objective, we will need to reassess the population and economic growth assumptions as well as improvements in our scientific understanding of ozone and particulate matter and their solutions; this reassessment most likely will occur beyond the current planning horizon. For example, we know the new $PM_{2.5}$ standard also reduces toxic pollutants in the atmosphere, but we cannot yet quantify the reduction. Improvement in our emission inventories, monitoring, and analysis techniques will provide opportunities for integrating programs to provide emission reductions from multiple pollutants. We also expect to be able to make major progress in the next ten years to reduce emissions from mobile sources, especially those powered by diesel engines. These technological improvements are expected to present opportunities for both reducing emissions and aspiring to higher standards of environmental protection.

Research efforts for tropospheric ozone and particulate matter support the achievement of the objective by providing health and ecological effects information, as well as the exposure, source characterization, and risk management data, to both meet and implement the NAAQSs.

Key Performance Measures Verification

Data sources:

- EPA National Emission Trends Database;
- EPA AIRS Air Quality Subsystem;
- EPA Findings and Required Elements Data System (FREDS);
- Interagency Monitoring of Protected Visual Environments (IMPROVE) database.

Data from the National Emission Trends Database and the AIRS Air Quality Subsystem is used to determine if nonattainment areas have their requisite three years of clean air data needed for redesignation. The FREDS system tracks the progress of states and Regions in reviewing and approving the required elements

of the SIPs also needed for redesignation to attainment. The IMPROVE database provides data on visibility improvement from various sites nationally.

QA/QC procedures:

To assure that the ambient air quality data provides a sound basis for monitoring the progress in air quality, the following quality assurance steps are taken. There are quality control methods specified for the collection of data such as filter handling to ensure the technical quality of the data at each site. There are also methods in place such as co-location of monitors to ensure uniform readings across the monitoring network. Finally, there are systems audits which regularly review the overall air quality data collection activity for any needed changes or corrections.

In the area of environmental science and research, EPA has several strategies to validate and verify performance measures in the area of environmental science and research. The Agency has implemented a risk-based research planning process to use risk assessment and risk management as principal priority-setting criteria. EPA conducts annual research program reviews to both evaluate the status and accomplishments of its research and determine planning priorities. To better draw upon the expertise of the environmental academic community, EPA created the Science to Achieve Results (STAR) program of peer-reviewed, mission-driven extramural grants. The Agency is also working with various professional societies on research issues.

Chief among the Agency's validation and verification mechanisms is a rigorous peer review process. In a July 1997 memorandum, EPA's Deputy Administrator states that peer review will be expanded, "to include both the major work products provided in the past and...all scientific and technical products supporting Agency decisions..." This expanded and strengthened focus on peer review will help ensure that the performance measures listed here are verified and validated by external organizations. The Agency utilizes peer review throughout the research planning and implementation process, both to ensure that planned research addresses critical knowledge issues within EPA's mission, and to assess the quality of scientific research plans, products, and proposals. This is accomplished through the use of independent entities such as the Science Advisory Board (SAB) and the Board of Scientific Councilors (BOSC). The BOSC, established under the Federal Advisory Committee Act, will even examine the way the Agency uses peer review, as well as the management of its research and development laboratories.

EPA's external research program undergoes extensive peer review. Proposals from the external scientific community are peer-reviewed and projects are then selected for funding through grants or cooperative agreements. In addition, Requests for Applications (RFAs) under the STAR program are often developed jointly with outside partners such as the National Science Foundation. In this way, EPA has developed a mechanism by which to check the quality and relevance of its research program.

The Office of Research and Development Management Information System (OMIS) will be another accountability tool used to verify and validate performance measures. The recently developed GPRA structure will be incorporated into OMIS to ensure consistent maintenance and reporting, resulting in greater accuracy and consistency of information to users.

Statutory Authority

Clean Air Act

Environmental Protection Agency

1999 Annual Request to Congress

Clean Air

Objective #2: Reduce Emissions of Air Toxics

By 2010, reduce air toxic emissions by 75 percent from 1993 levels to significantly reduce the risk to Americans of cancer and other serious adverse health effects caused by airborne toxics.

Overview

Toxic air pollutants pose a significant health risk because some may cause cancer and others may cause other health problems such as reproductive disorders, birth defects, and damage to the nervous system. It is common for the increased lifetime cancer risks from the mixture of a subset of urban air toxics to exceed 1 in 10,000 in U.S. cities. People who live near major industrial plants may face even higher cancer risks from air toxics.

Air toxics programs can be categorized into four key areas: 1) characterization of air toxics from stationary and mobile sources, 2) working with states and localities to implement the air toxics program, 3) technology- and risk-based standards for emissions from stationary sources and residual risk; and, 4) research to support the air toxics program. Most sources that emit air toxics are believed to also emit other air pollutants (such as ozone precursors and fine particles). EPA will maximize the possibilities for co-control of pollutants by focussing on developing Maximum Achievable Control Technology (MACT) standards and other standards that will reduce emissions from both air toxics and other key pollutants.

Titles II and III of the Clean Air Act Amendments of 1990 mandate air toxics regulations. Title II programs regulate clean fuels; Title III lists 189 hazardous air pollutants (HAPs) and requires the implementation of MACT standards for major sources emitting these HAPs. EPA has promulgated approximately 25 percent of these standards, with the remaining standards to be promulgated by the year 2000. Eight years after MACT standards are developed, EPA must determine residual risk from HAPs, and revise the standards if there is not an ample margin of safety to protect the public health. Title III also mandates a national urban air toxics strategy along with assessment and control of the 30 most hazardous air pollutants found in urban areas. In addition, Title III requires control of combustion sources with emphasis on mercury and analysis of emissions from steam powered utility plants. The affected sources include municipal waste combustors, medical waste incinerators, industrial and commercial waste incinerators, and other solid waste incinerators. Title II of the Clean Air Act requires standards for air toxics emitted from mobile sources.

EPA's research program is charged with producing technical reports, papers, models, and other data to improve the scientific understanding of air toxic health risks and providing data to be used by regulatory officials and industry to evaluate the effectiveness of various emission reduction technologies. The program is designed to provide the critical scientific information that Agency program offices and Regions need to develop, implement, and evaluate risk management options and to produce improved tools for environmental assessment so

that information developed by the Agency and others is more easily used and understood.

Research priorities are determined using a risk-based priority process focusing on effects, exposure, risk assessment, and risk management. The information gained from the air toxics research will: 1) protect the public health of our children and future generations as we better understand the risks associated with and remedies to exposure to air toxics and mixtures of air toxics; 2) provide strong science and readily available and more effective information to support Regional, state, and local government risk assessors/managers; and 3) quantify the impacts of air toxic emissions from mobile and stationary air toxic sources on air quality.

The Agency supports this objective through legal counseling and advocacy. This may include advice, participation in the development of Agency actions, document review, and the conduct of defensive litigation.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 02 Reduce Emissions of Air Toxics	**$89,008.8**	**$85,837.4**	**$91,924.6**
Environmental Program & Management	$52,685.4	$47,723.4	$52,651.7
Science and Technology	$17,411.3	$19,201.9	$17,178.4
State and Tribal Assistance Grants	$18,912.1	$18,912.1	$22,094.5
Total FTE	387.4	401.4	390.4

1999 Annual Performance Goals

- In 1999, reduce air toxics emissions by 12 percent, resulting in a cumulative reduction of 25 percent from 1993 levels.
- In 1999, complete oral and inhalation noncancer health assessments for benzene.
- In 1999, complete health assessments for five air toxics to be indicated as high priority by the EPA and regional offices.
- In 1999, provide models and methods needed to estimate health risks from 30 highest priority air toxics.
- By 2000, develop a preliminary urban scale Models-3/Toxics Model for community-based human exposure assessment for air toxics having known emissions and air chemistry.

The air toxics program involves setting standards and providing the framework and information to fully implement programs to reduce emissions and risk. To meet the air toxics objective, EPA will shift its efforts from setting

standards to assisting states and industries in implementing rules and to monitoring progress in reducing emissions and risk.

Air Toxics Characterization

Following promulgation of the MACT standards, EPA must determine if there is any remaining risk from the regulated compounds. EPA's air toxics objective focuses primarily on the statutory requirements of the toxics program in the Clean Air Act to reduce emissions by issuing technology-based standards. The objective seeks to reduce emissions through the promulgation and implementation of MACT standards. Although this goal is measurable it does not encompass the health and ecological benefits that the public expects from the program. Although a health and environmental goal is more appropriate, EPA lacks the information and tools to adequately characterize and measure progress in improving public health and environmental impacts of air toxics. The program will need to invest in improved and innovative monitoring and modeling, inventories, development and refinement of environmental indicators, and risk assessment tools to better characterize the risk from air toxics and establish a baseline for measuring risk in carrying out the Government Performance and Results Act (GPRA). EPA will build on state efforts to create a national toxics monitoring and inventory program in order to better characterize exposures to hazardous air pollution.

Mobile source programs currently reduce air toxics with vehicle-based controls and with cleaner burning fuels. Air toxics reductions result from gas and diesel powered vehicles and non-road equipment meeting more stringent "tailpipe" standards; improved evaporative controls on cars and trucks; reduced gasoline volatility; reformulated gasoline; and enhanced vehicle inspection and maintenance programs. In addition, EPA will conduct a study of the need for and the feasibility of controlling emissions of unregulated toxic air pollutants associated with motor vehicles and fuels. In addition to reducing air toxics, vehicle tailpipe controls reduce ozone and particulate matter. Consequently, we have counted these programs under the ozone and particulate matter objective. We are counting only fuels programs under the resource profile for air toxics.

Phase I reformulated gasoline (RFG) reduces toxics by 15 percent; Phase II RFG will reduce toxics by 28 percent beginning in 2000. The Fuels and Fuel Additives Registration Program provides for the review and screening of potential toxic substances prior to introduction into motor vehicle fuel supplies. Approximately 10,000 registration requests will be submitted.

Air Toxics Implementation

As EPA develops standards for controlling the emissions of HAPs, each state must implement these rules with compliance monitoring. The Agency delegates the implementation activities to the states and provides the tools and guidance to ensure smooth and consistent implementation of the standards. EPA will issue guidance and conduct outreach activities to help sources comply. EPA will use emissions testing and, where feasible, continuous emission monitoring or emission inventories to monitor compliance with MACT and other air toxics standards. EPA will continue the fuels and fuel additives registration system.

EPA will perform studies related to air toxic deposition into selected bodies of water; the urban air toxics problem; and municipal waste combustors. Again, OAR will rely on research from the Office of Research and Development (ORD) in these areas, and will work cooperatively with the Office of Water (OW) in the Great Waters Acid Deposition Study.

Concurrent with the release of the updated Great Waters report in June 1997, EPA issued a Notice of Availability announcing and seeking comment on its determination that section 112 of the Clean Air Act provides adequate authority to regulate air pollutants to prevent adverse effects due to deposition in Great Waters. In 1999, the Agency will continue multi-media modeling and deposition studies, and will facilitate state and regional deposition reduction strategies, proposing necessary, cross-media regulations to allow state and local governments to implement control programs to reduce air deposition.

In 1999, EPA will publish the Urban Area Source Report and Strategy. EPA will focus on an integrated urban toxics strategy by identifying the 30 hazardous air pollutants that pose the greatest threat in urban areas. EPA will identify in the strategy the source categories that emit these pollutants and assure that 90 percent of these urban areas sources are subject to regulation.

As part of the work performed under the Clean Air Act, EPA will reduce the emissions and lower the risk associated with the persistent, bioaccumulative toxics (PBTs). The air program will work to achieve these reductions through regulatory and prevention-based measures. EPA will be developing tools to evaluate the impact of PBTs and the impact of reductions in PBTs on human health and the environment.

Air Toxics Rules and Standards Development

In developing the 10-year MACT standards, EPA will continue to streamline the air toxics program by building on experience from earlier standards and by providing greater flexibility for states that want to achieve the emission reductions, but in ways that are different from those proposed by EPA. EPA will continue approaches such as the Common Sense Initiative, consolidated rules, partnerships with states in making presumptive MACT determinations, and the generic MACT approach where rulemakings for source categories with four or fewer major facilities would be developed as a broad-based rule. All of the four-year MACT standards have been completed. EPA is planning to move three source categories into the ten-year bin (statutory deadline November 2000). EPA plans to promulgate all ten-year standards on schedule.

The second phase of air toxics standards will address the risks to public health and the environment that remain after the application of MACT controls. Often referred to as residual risk standards, these standards would be established eight years after promulgation of MACT standards. EPA is developing a strategy for identifying and dealing with residual risk through studies related to emissions from electric utilities and EPA risk assessment procedures and methods.

Section 129 of the Clean Air Act requires the establishment of performance standards for each category of solid waste incinerators. These categories include: municipal waste combustors, medical waste incinerators, industrial and commercial waste incinerators, and other solid waste incinerators. EPA will provide guidance for implementing the rules promulgated for municipal and medical waste incinerators. The rules for industrial and commercial and other waste incinerators have been combined and are part of the Industrial Combustion Coordinated Rulemaking (ICCR), which has a statutory deadline of November 2000. The ICCR also includes: boilers, process heaters, gas turbines, and internal combustion engines, which are regulated under sections 111 and 112 of the Clean Air Act. These standards are being developed using the Federal Advisory Committee Act in a effort to involve all interested stakeholders. EPA will

develop regulatory options for the various categories and subcategories of incinerators and develop a proposal package for the ICCR.

Reinvention efforts continue in the form of Common Sense Initiatives, Project XL, and the Consolidated Federal Air Rule. The Common Sense Initiative is an industry-by-industry approach to environmental policy and rule development. Project XL offers sources alternative compliance methods for greater environmental benefit, and the Consolidated Federal Air Rule reduces costs and regulatory burdens by simplifying and consolidating reporting and record keeping requirements affecting an industry.

Air Toxics Research

The air toxics research program: (1) defines the magnitude of the urban air toxics problem through effects and exposure research; (2) determines the most cost-effective ways to manage the risks through development of modeling tools and evaluation of control options; and (3) characterizes and measures emissions from vehicles. The data and methods available to assess and manage non-cancer health risks of air toxics are very limited. For example, the Clean Air Act requires substantial assessment of risks posed by air toxics in urban areas and public comments on local permits within the decade. Exposures from these sources may have an impact on most of the U.S. population. Uncertainties in exposure assessment and dose-response assessment often prevent adequate evaluation of risks, and may lead to either unnecessary controls if assumptions are overly conservative or inadequate protection of public health if assumptions are not protective enough. In addition, many of the sources contributing to pollution in urban areas are small and guidance/assistance is needed on how to reduce emissions in a cost-effective manner. The array of scientific methods, models, and data developed by the Agency and others are frequently difficult to use and interpret, particularly for communities faced with evaluation of their specific situations. For these reasons, in 1999 EPA will conduct research and provide assistance that may reduce these uncertainties.

Health effects researchers will quantitatively evaluate cancer and non-cancer health effects from air toxics exposures emphasizing: effects of acute and recurrent acute exposures; impacts on sensitive subpopulations; and development of methods to assess effects from chemical classes and common urban air pollutant mixtures. Researchers will also improve methods for extrapolations of health data from animals to humans to improve our understanding of health effects and risk assessment methods. Resources will be applied to better understand the impacts on health of exposure to air toxics in the urban setting, where most risks are anticipated to occur. Techniques will also be developed from long-term, multi-disciplinary studies to characterize health outcomes associated with urban toxics.

Exposure researchers will develop (1) methods to identify contributing sources from ambient air measurements; and (2) improved models to characterize actual human exposure. Scientists will determine the factors to ascertain whether inner city and other low income communities are being subjected to exposures to air toxics at a greater degree than other communities. Resources will provide limited support to the development of approaches for assessing cumulative exposures to air toxics from both area sources and previously controlled major point sources. These approaches should be useful in assessing residual risks. Some 1999 Science and Technology funds will go toward the development of a preliminary urban scale Models-3/Toxics Model for Community-Based Human Exposure Assessment for air toxics having known emissions and air chemistry, but the preliminary model will not be realized until a future fiscal

year. This model will for the first time estimate regional urban and source specific air toxics exposures and allow multi-scale air toxics exposure projections.

Research will also be conducted to develop and demonstrate new methods to assess risks from urban toxics. The goal is to take information developed in a research context and communicate the information more effectively to regional and local government risk assessors/managers through technology transfer centers. These risk assessors/managers will use the new risk assessment methods for chronic and acute non-cancer assessments and the new guidance for cancer risk assessment to determine with greater certainty the risks associated with the HAPs arising from area sources. In 1999, resources will: enhance the development of health effects assessments from chronic (life-time) and acute (short-term) exposures and cancer risk determinations for the urban toxics program; staff the Air Risk Information Support Center (Air RISC) Hotline to communicate risk assessment methodologies and respond to air pollution questions from regional, state, and community air pollution control offices; and provide consultation to program, state, regional, and community offices on urban toxics. These resources will enable EPA to more effectively manage program coordination and meet program goals of supporting and transferring information to communities. Researchers will continue to incorporate more recent human epidemiological findings and other data, as appropriate, into the integrated human and environmental health risk assessment of mercury emissions.

In 1999, using prior year Science and Technology funding for air toxics emissions reduction research (at $500,000 per year for 1996-1998), EPA will produce data, models, and technical information that can be used by Federal, state, and local air pollution regulatory officials to (1) understand the processes which lead to the formation of organic and metal compounds in combustion systems and (2) quantitatively evaluate the viability (cost and performance) of various technologies to control or prevent these emissions.

Air pollution from mobile sources has been estimated to account for over half of the nationwide emissions of air toxics, ozone precursors (volatile organic compounds and nitrogen oxides), and carbon monoxide. Mobile sources research will be in the areas of exposure and risk assessment. The exposure work will consist of: (1) chemical characterization of vehicle emissions and (2) measuring "real world" emissions from in-use vehicles. As such, some 1999 Science and Technology funds will go toward completing the characterization of emissions and attendant risks associated with new fuels and fuel additives, but full characterization will not be realized until a future fiscal year.

In support of the mobile sources risk assessment efforts, the Agency will continue to support limited emissions characterization for exposure assessments. Consultation on data collection, risk assessments, and health-related regulatory decisions for fuels and fuel additives will support the control of HAPs from motor vehicles. Assessment activities will also result in the completion of the Health Risk Assessment Document for Diesel Engine Emissions. In addition, research will focus on the health effects associated with air toxics (such as benzene and butadiene) and emerging motor vehicle technologies and fuels, including the impact of new engine and emission control technologies, new fuels, and other fuels.

1998 Annual Performance Goals

- In 1998, reduce air toxic emissions by 13 percent from 1993 levels.
- In 1998, diesel and 1,3-butadiene health assessments submitted to the Science Advisory Board, and benzene cancer unit risk completed.
- In 1998, complete dose response assessments for six listed air toxics (beryllium, chromium, bentazon, cadmium, acetonitrile, and vinyl chloride) and assessments for mercury report to Congress.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
02 Obj. Total Change	**$6,087.2**	**(11.0)**
Environmental Program & Management	$4,928.3	1.8
Science and Technology	$(2,023.5)	(12.8)
State and Tribal Assistance Grants	$3,182.4	

- (+$2,700,000) Increase resources for better identifying the nature and extent of air toxics problems and providing states and tribes, as well as the regulated community, with tools to address the problem. We have directed resources to develop monitoring strategies, models, and emissions inventories that will enable the Agency to begin to better define the scope of the air toxics problem, identify the associated health risks, and track progress in reducing risks. We also have increased resources for programs to help state, tribal, and local agencies, as well as the regulated community, implement national standards to reduce toxic emissions. Establishing a solid air toxics health baseline and developing human health indicators are particularly important to measuring program effectiveness and communicating to the public meaningful health and environmental outcomes. Although we know that air toxics are harmful to human health we have not been able to adequately characterize exposure results. In addition, as greater numbers of MACT and other air toxic rules are finalized by the Agency, states will be required to implement these emission standards. The Agency will be providing tools and guidance as well as conducting outreach activities to accept delegation of the air toxics programs.
- (+$1,200,000) Provide increased support for a cross-Agency initiative aimed at addressing persistent bio-accumulative toxics. The pervasiveness and complexity of these pollutants and the lessons learned from actions to date point to the need for a more significant linkage among the statutory and programmatic requirements for which EPA is responsible. Examples of such pollutants include nitrogen, mercury, and dioxin. In particular, it is important to assess the disproportionate effects that these pollutants have on human health; particularly children's health, ecosystems, and the economy.

- (+$3,200,000) Target increased state grant resources, through reprogramming, to measuring levels of airborne air toxics, particularly in urban areas. This increase is part of a strategic re-direction for the air grants program, developed jointly with our state and local partners. Redirection of grant resources to air toxics would expand the pollutant and geographic coverage of air toxic monitoring. State and local agencies also will expand pollutant characterization and speciation efforts to better identify the sources of airborne toxics and develop control strategies to address them.

- (-$1,245,600 extramural and -8.7 total workyears S&T) Eliminate all of the urban toxics risk management emissions reduction research. All of the funding and workyears have been redirected to the One Atmosphere research program (under the Sound Science, Improved Understanding of Environmental Risk, and Greater Innovation to Address Environmental Problems goal), which will focus on integrated technologies that can address both criteria pollutants and air toxics, including pollutants of concern, such as mercury.

- (+$500,000) Increase the amount of funding toward long-term multi-disciplinary studies associated with urban toxics.

Key Performance Measures	**1998**	**1999**
Air toxics emission reduction from 1993 levels	Complete National Toxics Inventory for 1996	Begin compiling national toxics inventory for 1999
	States collect 18 emission inventory & ambient data from 140 monitoring sites	States collect 25 emission inventory & ambient data from 165 monitoring sites
Air Toxics Implementation	Develop implementation tools for 12 of the MACT standards	Develop implementation tools for 12 of the MACT standards
	States assume implementation of 85% of MACT standards for major sources	States assume implementation of 85% of MACT standards for major sources
MACT Promulgation	Promulgate 16 MACT standards for 25 source categories	Promulgate 12 MACT standards for 14 source categories
Report on benzene cancer unit risk completed.	9/30/98	
Health Risk Assessment Document for Diesel Engine Emissions submitted for SAB review.	9/30/98	

Mercury Report to Congress finalized.	12/15/97	
Submit chemical-specific dose-response assessments (RfC, RfD, cancer unit risks) to Integrated Risk Information System (IRIS).	9/30/98 (six)	
Complete the adaptation and development of the Regional Particulate Module of Models-3 begun for mercury and semi-volatile compounds.	9/30/98	
Develop a preliminary version urban scale model for community-based human exposure assessment based on the HAP exposure model.		9/30/99
Benzene RfD & RfC, Diesel, 1-3 Butadine Mobile Source Assessments completed.		9/30/99
Report on extrapolation across concentration and time to support health risk assessment for acute exposures.		9/30/99
Benchmark dose software available for public use.		9/30/99

Conclusion

Achieving the air toxics objective will greatly benefit public health in the U.S. The risk of cancer attributable to air toxics will be significantly reduced, as will other serious toxic effects to humans and the environment (e.g., birth defects, developmental effects, etc.). We will also enjoy the collateral public health benefit of reducing ozone and fine particles, since many air toxics are present in these pollutants. Many millions of people, particularly in cities and in lower-income areas around factories, will be able to breathe air that contains less of these dangerous pollutants and enjoy longer, healthier lives. In addition, we will increase our overall understanding of the air toxics problem through advancements in monitoring and modeling methods, as well as improved science for characterizing risk. These improvements will enable us to uncover additional cost-effective opportunities for further reducing air toxics emissions and decreasing their risk to public health and the environment.

Key Assumptions and External Factors

- EPA promulgates all MACT standards on time with no litigation.
- Sources are in compliance by required dates.

- EPA and states will develop and agree upon sound environmental and health indicators to measure emissions reductions and human health improvements. Resources will be available to develop needed infrastructures.

Key Performance Measures Verification

Data sources include:
- EPA's Toxics Release Inventory (TRI);
- National Toxic Inventory (NTI);
- AIRS
- MACTRAX

The NTI contains emission estimates for major, area, and mobile source categories. To date, we have collected emission inventory data to update the NTI from the externally and internally peer-reviewed Clean Air Act section 112(c)(6) inventory; MACT emissions data gathered for 2-, 4-, and 7-year standards; state and local inventories (five states); and the TRI. We have also developed emissions data using emission factors and activity level data to update source categories for which we do not have MACT, state or local, or TRI inventory data. We have identified an additional 12 states that have available HAP inventory data. By the end of the year, we will complete the update of NTI Version 3.0 for base year 1993, provide peer-reviewed inventories for 40 hazardous air pollutants to support Clean Air Act section 112(k), and complete compilation of MACT baseline emissions data for 2-, 4-, and half of the 7-year source categories. A 1993 baseline emissions inventory will allow us to track emission reductions of HAPs as control programs are implemented. We will be able to store and retrieve all these data from the AIRS system.

MACTRAX provides a mechanism to track the air implementation activities by each state to insure that the emission reductions expected from the development of MACT standards can be realized through full implementation of the standards.

Procedures for quality assurance/quality control (QA/QC) of emission and ambient air toxics data are not as institutionalized as those used for the criteria pollutant program. Air toxics data are not required of states, but are voluntary. EPA does review the data to assure data quality and consistency, but no formal procedures are in place for QA. Regional offices do review all data before it is placed in MACTRAX. Procedures are now being finalized to ensure the quality of emissions data collected from industry that are used for the development of technology-based emission standards.

In the area of environmental science and research EPA has several strategies to validate and verify performance measures. The Agency has implemented a risk-based research planning process to use risk assessment and risk management as principal priority-setting criteria. EPA conducts annual research program reviews to both evaluate the status and accomplishments of its research and determine planning priorities. To better draw upon the expertise of the environmental academic community, EPA created the Science to Achieve Results (STAR) program of peer-reviewed, mission-driven extramural grants; the Agency is also working with various professional societies on research issues.

Chief among the Agency's validation and verification mechanisms is a rigorous peer review process. In a July 1997 memorandum, EPA's Deputy Administrator stated that peer review will be expanded, "to include both the major work products provided in the past and...all scientific and technical products supporting Agency decisions..." This expanded and strengthened focus

on peer review will help ensure that the performance measures listed here are verified and validated by external organizations. The Agency utilizes peer review throughout the research planning and implementation process, both to ensure that planned research addresses critical knowledge issues within EPA's mission, and to assess the quality of scientific research plans, products, and proposals. This is accomplished through the use of independent entities such as the Science Advisory Board (SAB) and the Board of Scientific Councilors (BOSC). The BOSC, established under the Federal Advisory Committee Act, will even examine the way the Agency uses peer review, as well as the management of its research and development laboratories.

EPA's external research program undergoes extensive peer review. Proposals from the external scientific community are peer-reviewed and projects are then selected for funding through grants or cooperative agreements. In addition, Requests for Applications (RFAs) under the STAR program are often developed jointly with outside partners such as the National Science Foundation. In this way, EPA has developed a mechanism by which to check the quality and relevance of its research program.

The Office of Research and Development Management Information System (OMIS) will be another accountability tool used to verify and validate performance measures. The recently developed GPRA structure will be incorporated into OMIS to ensure consistent maintenance and reporting, resulting in greater accuracy and consistency of information to users.

Statutory Authority

Clean Air Act

Environmental Protection Agency

1999 Annual Plan Request to OMB

Clean Air

Objective #3: Attain NAAQS for CO, SO2, NO2, and Lead

By 2005, improve air quality for Americans living in areas that do not meet the current National Ambient Air Quality Standards (NAAQSs) for carbon monoxide (CO), sulfur dioxide (SO_2), lead, and nitrogen dioxide (NO_2).

Overview

Under the Clean Air Act, EPA must set NAAQSs for pollutants that endanger public health and the environment. CO, SO_2, lead, and NO_2 are all high-risk pollutants. EPA has been relatively successful in reducing these air pollutants in many urban areas through stationary and mobile source controls. EPA also includes new source review (NSR) and operating permit programs for multiple pollutants under this objective. Each pollutant and the programs that reduce them are described separately below:

Carbon Monoxide

CO is a colorless, odorless, poisonous gas formed when carbon in fuels is not burned completely. It is a byproduct of highway vehicle exhaust, which contributes about 60 percent of all CO emissions nationwide. In cities, automobile exhaust can cause as much as 95 percent of all CO emissions. Vehicle Miles Traveled (VMT) continue to increase each year. These emissions can result in high concentrations of CO, particularly in local areas with heavy traffic congestion. Other sources of CO emissions include industrial processes and fuel combustion in sources such as boilers and incinerators.

Carbon monoxide enters the bloodstream and reduces oxygen delivery to the body's organs and tissues. The health threat from exposure to CO is most serious for those who suffer from cardiovascular disease. Healthy individuals are also affected, but only at higher levels of exposure. Exposure to elevated CO levels is associated with visual impairment, reduced work capacity, reduced manual dexterity, decreased learning ability, and difficulty in performing complex tasks.

Despite an overall downward trend in concentrations and emissions of CO, some metropolitan areas still experience high levels of CO. Approximately 29 areas are still classified as non-attainment for the air quality standard for carbon monoxide.

Sulfur Dioxide

Sulfur dioxide (SO_2) belongs to the family of gases called sulfur oxides (SOx). These gases are formed when fuel containing sulfur (mainly coal and oil) is burned, and during metal smelting and other industrial processes. The major health concerns associated with exposure to high concentrations of SO_2 include effects on breathing, respiratory illness, alterations in pulmonary defenses, and aggravation of existing cardiovascular disease. Children, the elderly, and people with asthma, cardiovascular disease or chronic lung disease (such as

bronchitis or emphysema), are most susceptible to adverse health effects associated with exposure to SO_2. In the atmosphere SO_2 can react to form fine particles which may aggravate respiratory disease and lead to premature death. SO_2 is also a precursor to sulfates, which are associated with acidification of lakes and streams, accelerated corrosion of buildings and monuments and reduced visibility.

Approximately 40 areas are still classified as non-attainment areas for the air quality standard for SO_2.

Lead

Exposure to ambient lead mainly occurs through inhalation of air and ingestion of lead in food, paint, water, soil, or dust. Lead accumulates in the body in blood, bone, and soft tissue. Because it is not readily excreted, lead can also affect the kidneys, liver, nervous system and other organs. Excessive exposure to lead may cause kidney disease, reproductive disorders, and neurological impairments such as seizures, mental retardation, and/or behavioral disorders. Fetuses and children are especially susceptible to low doses of lead, often suffering central nervous system damage or slowed growth.

Thanks largely to the elimination of leaded gasoline, human exposure to lead is currently much less of a problem. Today, smelters and battery plants are the major sources of lead in the air. Approximately 10 areas are still classified as non-attainment for the air quality standard for lead.

Nitrogen Dioxide

Nitrogen dioxide (NO_2) belongs to a family of highly reactive gases called nitrogen oxides (NOx). Nitrogen oxides form when fuel is burned efficiently at high temperatures. They are derived primarily from motor vehicle exhaust and stationary sources such as electric utilities and industrial boilers. By itself, NOx poses a human health and ecosystem threat, but it also serves as a precursor to ozone and particulate matter. NOx reacts with volatile organic compounds in the presence of sunlight to form urban haze. Nitrogen dioxide can be converted into fine nitrate aerosols, a constituent of fine particles ($PM_{2.5}$). In addition, it is a strong oxidizing agent and reacts in the air to form corrosive nitric acid, as well as toxic organic nitrates.

Nitrogen oxides irritate the lungs and lower resistance to respiratory infections such as influenza. They can also have adverse effects on both terrestrial and aquatic ecosystems, contributing to acid rain and eutrophication in coastal waters.

Currently, all areas in the U.S., except southern California, are classified as in attainment for the NO_2 air quality standard.

EPA has made progress toward reducing the emissions of these pollutants and toward the goal of having all areas in attainment for all of these pollutants by 2005. Over the next several years we will continue to work with areas to achieve attainment and with those areas in attainment to maintain that status. We will also review the standards to assure that they are at a level that protects public health.

Key Milestones

1999: Start phasing in revised motor vehicle revised exhaust emission test procedure for an 11% reduction in CO emissions.

Establish a plan and schedule for the review of the NAAQS for nitrogen dioxide.

Issue final intervention level policy to give states guidance on identifying and addressing peak exceedences of the sulfur dioxide NAAQS that are only of short durations.

2000: Prepare carbon monoxide NAAQS review staff paper for CASAC review.

Propose reaffirmation or revision to carbon monoxide NAAQS.

2001: Promulgate revision or reaffirmation of the NAAQS for carbon monoxide.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 03 Attain NAAQS for CO, SO2, NO2, Lead	**$47,497.2**	**$46,749.6**	**$44,878.2**
Environmental Program & Management	$16,546.2	$15,814.1	$16,750.5
Science and Technology	$130.0	$114.5	$113.2
State and Tribal Assistance Grants	$30,821.0	$30,821.0	$28,014.5
Total FTE	192.0	189.6	189.9

1999 Annual Performance Goals

- Redesignate 14 areas to attainment for carbon monoxide, sulfur dioxide, lead, and/or nitrogen dioxide.

Carbon Monoxide

EPA has set standards for CO and currently assists states in implementing strategies to reduce CO pollution and maintain compliance with the standard. CO tends to be a local pollution problem and is not transported from one area to another. States submit state implementation plans for CO, which include many mobile-source related programs such as reformulated gasoline.

EPA will continue existing CO work, concentrating primarily on mobile source programs (such as oxygenated fuel and reformulated gasoline), and on assisting states to implement attainment and maintenance plans. EPA will provide information to the scientific community and stakeholders on the environmental aspects of the use of oxygenated fuels and will provide recommendations to improve the program.

In the mobile source program, the control of CO at the Federal level is carried out as an integral part of the control programs for ozone and NO_x. The resources associated with these integrated programs are accounted for under the ozone and PM objectives. Additional benefits will be derived from programs (Partnership for a New Generation of Vehicles (PNGV)) accounted for under the Climate Change goals and objectives. Only a relatively small amount of work is performed directly aimed at CO control, mainly as it relates to non-attainment areas, and the associated planning (SIPs, conformity) and control measures (I/M, oxygenated fuels).

Sulfur Dioxide

EPA will continue to ensure that all areas are in compliance with the standard and will review the standard, as the Clean Air Act mandates, to ensure that it adequately protects human health. The sulfur dioxide program is not expected to grow in the near future. The most recent review of the sulfur dioxide standard is complete and the standard has been reaffirmed. In 1999, EPA will issue the final intervention level policy which is intended to give states guidance on identifying and addressing peak exceedences of the sulfur dioxide standard that occur for only short durations.

EPA will boost efforts to reduce the more pervasive sulfur oxides in the acid rain, particulate matter and regional haze programs. Information on sulfur dioxide and the programs that reduce it, are described in the acid rain objective.

Lead

EPA will continue a relatively low level of existing work, emphasizing primarily the few nonattainment areas near smelters. Mandating the use of unleaded gasoline will continue to be the most effective way to prevent airborne lead. EPA will review the standard, as the Clean Air Act mandates, to ensure that it adequately protects human health.

Nitrogen Dioxide

EPA will continue to ensure that all areas are in compliance with the standard and will review the standard, as the Clean Air Act mandates, to ensure that it adequately protects human health. The nitrogen dioxide program is not expected to grow in the near future.

However, EPA will boost efforts to reduce the more pervasive nitrogen oxides in the acid rain and mobile source programs, encouraging market-based, low cost pollutant trading. These programs will simultaneously address nitrogen oxides, ozone, and fine particulate matter. Information on nitrogen oxides and the programs that reduce it are described in the ozone, particulate matter and visibility objective.

Permits/NSR

EPA will make revisions to Part 71 Federal operating permit rules to include state operating permit requirements and provide technical support to Regions and states on permit program revisions. In 1998, EPA will promulgate the NSR reform rules which simplify the new source permitting process. In 1999, EPA will enter an intensive period of training and technical support activities to ensure smooth implementation of this major regulatory reinvention effort. We

will continue to be involved in and expand as needed our efforts to reform and streamline our permitting programs.

1998 Annual Performance Goals

- Redesignate 22 areas to attainment for carbon monoxide, sulfur dioxide, lead, and/or nitrogen dioxide.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
03 Obj. Total Change	**$(1,871.4)**	**0.3**
Environmental Program & Management	$936.4	0.3
Science and Technology	$(1.3)	0.0
State and Tribal Assistance Grants	$(2,806.5)	

Between 1998 and 1999:

- (-$2,806,500) The budget request reduces grant funding to four criteria pollutant programs. Much of the work directed towards carbon monoxide, lead, nitrogen dioxide, and sulfur dioxide is associated with maintenance level activities. Ambient monitoring for these pollutants is being reduced as well as resources associated with developing the SIP revisions required under the Clean Air Act amendments of 1990 (CAAA).
- (+$873,800) Total payroll costs for this objective will increase to reflect increased workforce costs.

Key Performance Measures	1998	1999
HEADQUARTERS		
Areas redesignated to attainment for CO, SO2, Pb, and NO2. (Only 1 nonattainment area exists for NO2 and it will not be redesignated in 1998 or 1999.	22 areas.	14 areas.
REGIONS		
Final action on CO redesignation requests taken.	16 final actions.	7 final actions.
Final action on SO2 redesignation requests taken.	5 final actions.	5 final actions.

Final action on Pb redesignation requests taken.	1 final action.	2 final actions.
STATES		
Requests for redesignation to attainment for CO submitted.	7 requests.	5 requests.
Requests for redesignation to attainment for SO2 submitted.	5 requests.	5 requests.
Requests for redesignation to attainment for Pb.	2 requests.	1 request.

Conclusion

Through achievement of this objective, EPA will significantly enhance public health and welfare for the 45 million Americans currently living in non-attainment areas. These people will enjoy longer and better lives, and will be able to engage in activities they otherwise would be precluded from doing. Although the attainment of the objectives will lead to improvements, it is also likely that additional work will have to be done beyond the current planning horizon to account for growth in both population and economic activity and improvements in our scientific understanding of the environmental problems and their solutions. For example, health risks and exposure assessments have always been done pollutant-by-pollutant. We do not know the effects of exposure to low doses of multiple pollutants. Improvements in risk assessment techniques and multiple exposure analysis will present us with greater options for improving the protection to public health.

Key Performance Measures Verification

Data sources:

- EPA National Emission Trends Database;
- EPA AIRS Air Quality Subsystem;
- EPA Findings and Required Elements Data System;
- Area redesignations in the Federal Register.

Data from the National Emission Trends Database and the AIRS Air Quality Subsystem is used to determine if nonattainment areas have the requisite 3 years of clean air data needed for redesignation. The FREDS system tracks the progress of states and Regions in reviewing and approving the required elements of the state implementation plans also needed for redesignation to attainment.

QA/QC procedures:

To assure that the ambient air quality data provide a sound basis for monitoring the progress in air quality, the following quality assurance steps are taken. There are quality control methods specified for the collection of data such as filter handling to ensure the technical quality of the data at each site. There are also methods in place such as collocation of monitors to ensure uniform readings across the monitoring network. Finally, there are systems audits which regularly review the overall air quality data collection activity for any needed changes or corrections.

Plans to Improve Data:

The emissions data are much harder to quality assure because of the varying methods of determining the total emissions in a given area. In the future all state emissions data will be posted in a compiled data base so that states and other interested parties can provide a much more complete review of the inventory. One other method for developing better state emissions data will result from the Emissions Inventory Improvement Project which will provide consistent methods of estimating emissions data.

Statutory Authority

Clean Air Act

Environmental Protection Agency

1999 Annual Request to Congress

Clean Air

Objective #4: Acid Rain

By 2010, reduce ambient sulfates and total sulfur deposition by 20-40 percent from 1980 levels due to reduced sulfur dioxide emissions from utilities and industrial sources. By 2000, ambient nitrates and total nitrogen deposition will be reduced by 5-10 percent from 1980 levels due to reduced emissions of nitrogen oxides from utilities and mobile sources.

Overview

Emissions of sulfur dioxide (SO_2), primarily from power plants and other industrial sources, and nitrogen oxides (NOx), primarily from power plants and motor vehicles, react in the atmosphere and fall to earth as acid rain, causing acidification of lakes and streams and contributing to the damage of trees at high elevations. NOx emissions are a major precursor of ground-level ozone, which affects public health and damages crops, forests, and materials. NOx deposition also contributes to eutrophication of coastal waters, such as Chesapeake Bay and Tampa Bay. Additionally, before falling to earth, SO_2 and NOx gases form fine particles that affect public health through premature mortality, chronic bronchitis, and other respiratory problems, and that contribute to reduced visibility in national parks and elsewhere. Acid rain also accelerates the decay of building materials and paints and contributes to degradation of irreplaceable cultural objects such as statues and sculptures.

The Acid Rain program is authorized under Title IV of the Clean Air Act and has numerous statutory deadlines. In addition, the U.S. is committed to reductions in SO_2 and NOx under the U.S.-Canada Air Quality Agreement of 1991. EPA's Acid Rain program uses market-based approaches to achieve SO_2 and NOx emission reductions. The program provides affected sources with flexibility to meet required emission reductions at least cost (both to industry and government). The SO_2 program features tradeable units called allowances (1 allowance = 1 ton of SO_2), accurate and verifiable measurement of emissions, and a cap on total emissions. The acid rain program is seen as a model for flexible and effective regulation both here and abroad.

Major program activities include measurement, quality assurance, and tracking of SO_2, NOx and CO_2 emissions as recorded by continuous emissions monitors at more than 2000 electric utility units, conducting field audits and certifying emissions monitors, operation of an allowance tracking system to record transfers of emission allowances between different parties, reconciliation of emissions and allowances at each electric utility unit to ensure compliance, processing of permit actions, and assessing the environmental impacts of emission reductions.

Phase I of the Program began in 1995 for 450 electric utility units. In the year 2000, Phase II of the program begins and approximately 2,000 electric utility units will be affected. Despite this increase in the number of affected units, the number of quarterly emission reports processed (8,000 per year) will remain unchanged because Phase II electric utility units are already required to

report their emissions. However, there will be a five-fold increase in the number of electric utilities units for which an annual reconciliation of allowances with measured emissions will be conducted. In addition, there is likely to be a significant increase in allowance trading activity in Phase II of the program. (More than 1,000 private allowance transfers per year are currently processed and this number is expected to triple in Phase II of the program.) This increased workload will be handled through improved information resource management and by improving program operation and efficiency through rule revisions.

In addition to administering the SO_2 and NOx provisions of Title IV, the Acid Rain Program will be developing and operating the Emissions and NOx allowance tracking systems for the 12 states of the Ozone Transport Region. The first year of compliance for this program is 1999. Approximately 400 additional facilities will require certification of emissions monitors and will report quarterly emissions beginning in 1998. NOx allowance trading will begin as soon as the NOx Allowance Tracking System is operational in 1998. The Acid Rain Program is also assisting with the development of the 22 State ozone transport SIP call and is leading the effort to develop a model NOx budget trading rule. This effort will help States to meet their NOx budgets cost effectively.

The program has recently been given the responsibility to operate the Clean Air Status and Trends Network (CASTNet) dry deposition network and to provide critical support for operations of the National Atmospheric Deposition Program (NADP) wet deposition network and for a number of visibility monitoring sites. These monitoring efforts will play a crucial role in the program's ongoing assessment activities, including reporting program results for the Government Performance and Results Act (GPRA) and fulfilling assessment responsibilities under Title IX of the Clean Air Act and the U.S.- Canada Air Quality Agreement.

In addition to EPA programmatic activities, states will carry out activities to implement the SO_2 and NOx portions of the Acid Rain Program, including certification and recertification of continuous emissions monitors (CEMs), field audits of CEMs, and permitting activities. Some states may use acid rain state grant funds for monitoring programs to help assess the success of the program in reducing environmental risks.

When fully implemented in 2010, the SO_2 reductions alone under Title IV could provide as much as $12 - $40 billion in health benefits (mostly from an estimated reduction in premature mortality of 1,500 to 9,600 cases per year) and $3-4 billion in improved visibility, largely from an expected 30% improvement in visibility in the eastern United States. Acid Rain control will also produce significant benefits in terms of lowered surface water acidity and less damage to high elevation forests and materials. Nevertheless, after full implementation of the program, significant residual risks will remain to human health, ecological systems and quality of life.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 04 Acid Rain	**$21,794.1**	**$20,800.3**	**$21,565.8**
Environmental Program & Management	$13,264.1	$11,770.3	$13,035.8
Science and Technology	$4,000.0	$4,500.0	$4,000.0
State and Tribal Assistance Grants	$4,530.0	$4,530.0	$4,530.0
Total FTE	92.0	92.0	92.0

1999 Annual Performance Goals

- In 1999, maintain 4 million tons of SO_2 emissions reductions from utility sources.
- In 1999, maintain 300,000 tons of NOx reductions from coal-fired utility sources.
- Launch the NOx Emissions and Allowance Tracking System for the Ozone Transport Region.

The acid rain program will complete its rule revisions, thus streamlining implementation of the program for industry and the Agency, and also process all quarterly emissions reports and verify annual compliance of affected sources with SO_2 and NOx limitations. Achieving these performance goals will lead to the attainment of our programmatic objectives: in 2000, the reduction of ambient nitrates and total nitrogen deposition by up to 10% from 1980 levels, and the beginning of the Phase II SO_2 reductions which will culminate in a reduction of ambient sulfates and total sulfur deposition of up to 40% from 1980 levels by the year 2010.

The program will also begin operation of the NOx Allowance Tracking System for the Ozone Transport Region. Achieving this performance goal will assist the 12 Northeastern states to attain and maintain the ozone standard.

1998 Annual Performance Goals

- In 1998, maintain 4 million tons of SO_2 emissions reductions from utility sources.
- In 1998, maintain 300,000 tons of NOx reductions from coal-fired utility sources.
- Develop NOx Emissions and Allowance Tracking Systems for Ozone Transport Region.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
04 Obj. Total Change	**$765.5**	**0.0**
Environmental Program & Management	$1,265.5	0.0
Science and Technology	$(500.0)	0.0

- Major programmatic changes between 1998 and 1999 include:
  - The completion of rulemaking and,
  - The operation of the NOx Emissions and Allowance Tracking Systems for the Ozone Transport Region.

Key Performance Measures	**1998**	**1999**
SO_2 Emissions	4,000,000 tons of SO_2 emissions from utility sources reduced from 1980 baseline.	4,000,000 tons of SO_2 emissions from utility sources reduced from 1980 baseline.
NOx Reductions	300,000 tons of NOx emissions from coal-fired utility sources reduced from uncontrolled levels.	300,000 tons of NOx emissions from coal-fired utility sources reduced from uncontrolled levels.

Reductions of SO_2 and NOx emissions and sulfate and nitrate deposition are indicators of achievement of program objectives.

Conclusion

Accomplishing the Acid Rain Program objective's target for a decrease in ambient concentration and deposition of nitrates assumes that other sources of nitrogen oxides (e.g., mobile sources) do not grow at a faster rate than currently projected. Despite this caveat, progress is already being made in meeting the Acid Rain Program objectives. In 1995, the first year of compliance under the program, sulfur dioxide emissions dropped by about 3.5 million tons, the greatest one year drop in SO_2 emissions ever recorded. This has led to a 10 - 25 percent reduction in rainfall acidity throughout the Northeastern U.S. and has reduced fine sulfate particulates.

Full implementation of the objective will further reduce deposition and ambient concentration of sulfates and nitrates, thereby reducing a variety of risks to human health, ecosystems, and quality of life. In addition, full implementation of the sulfur dioxide reductions under the Acid Rain Program will

be a critical component for nonattainment areas as they work to meet the PM2.5 standard once it is implemented.

Although implementation of this objective will significantly reduce risks, residual risks will remain. For example, further reductions in SO_2 and NOx (such as reductions that would be required under the NAAQS revisions) would be necessary to reduce the health impacts of $PM_{2.5}$ and ozone. In addition, further reductions in nitrogen and sulfur deposition would be necessary to fully protect the most sensitive ecosystems from acidification.

Key Performance Measures Verification

The Acid Rain program performance data is some of the most accurate data collected by the EPA because the data consists of *actual* monitored, instead of estimated, emissions. The emissions data is collected through continuous emissions monitors (CEMS) and electronically transferred directly into EPA's Emissions Tracking System (ETS). Actual emissions of SO_2 and NOx are measured for each unit/boiler within a utility plant. The ETS allows EPA to track actual reductions for each utility, as well as aggregate emissions by all power plants. A principal output of the ETS is the publication of quarterly and annual utility emission reports based on emissions monitoring data. The ETS quarterly and annual reports include summary statistics for SO_2 and NOx emissions.

The Acid Rain program also tracks indicators which validate the quality of the emissions data, such as the accuracy of the monitors achieved during certification testing. There are four validation measures that help to demonstrate the high quality of the data collected: the number of CEMS certified; the percentage of CEMS that meet the 10% relative accuracy standard; the percentage of CEMS that exceed the 7.5% relative accuracy target; and, the number of quarterly reports processed.

Finally, the program also tracks trends in wet acidic deposition data from the National Acid Deposition Program (NADP) and dry acid deposition from the Clean Air Status and Trends Network (CASTNet).

Statutory Authority

Clean Air Act (CAA)

Goal 2: Clean and Safe Water

Goal 2: Clean and Safe Water **II-1**
Enhance Human Health Through Safe Drinking Water II-7
Conserve and Enhance Nation's Waters II-26
Reduce Loadings and Air Deposition II-47

Environmental Protection Agency

1999 Annual Plan Request to Congress

Clean and Safe Water

Strategic Goal: All Americans will have drinking water that is clean and safe to drink. Effective protection of America's rivers, lakes, wetlands, aquifers, and coastal and ocean waters will sustain fish, plants, and wildlife, as well as recreational, subsistence, and economic activities. Watersheds and their aquatic ecosystems will be restored and protected to improve human health, enhance water quality, reduce flooding and provide habitat for wildlife.

Goal Summary
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Clean and Safe Water	**$2,706,342.7**	**$3,170,864.6**	**$2,801,869.3**
Obj. 01 Safe Drinking Water, Fish and Recreational Waters	$966,204.5	$979,216.6	$1,018,705.9
Obj. 02 Conserve and Enhance Nation's Waters	$270,281.6	$298,573.9	$296,643.9
Obj. 03 Reduce Loadings and Air Deposition	$1,469,856.6	$1,893,074.1	$1,486,519.5
Goal Total FTE	2,381.6	2,440.3	2,449.5

Safe and clean water is needed for drinking, recreation, fishing, maintaining ecosystem integrity, and commercial uses such as agricultural and industrial production. Our health, economy, and quality of life depend on reliable sources of clean water.

Safe drinking water is the first line of defense in protecting human health. While most drinking water is very safe, occasional violations of pollutant standards are of concern because of the large number of people that can be exposed to microbiological contaminants or toxic chemicals. The greatest risks posed by such contaminants are to sensitive populations, such as children and adults with compromised immune systems.

The passage of the Federal Water Pollution Control Act of 1972 has led to tremendous success in reducing pollution entering surface waters. In 25 years, EPA has worked with its State, local, and Tribal partners to stop billions of pounds of pollution from flowing into our rivers, lakes, and streams, and doubled the number of waterways that are safe for fishing and swimming. Polluted rivers and lakes devoid of life are now restored centerpieces of healthy communities because of combined governmental and private sector efforts.

The goal of protecting our Nation's waters, however, remains unrealized. Approximately 40% of surveyed waters still do not meet Clean Water Act standards. The health of Americans continues to be threatened by exposure to harmful organisms in our waters; consumption of fish from many of our waters presents a

threat to the most vulnerable among us; polluted runoff has had a degenerative effect on the country's watersheds and wetlands. All living things need clean water. Waterfowl, fish, and other aquatic life that live in and on the water, as well as plants, animals, and other life forms in terrestrial ecosystems are dependent on clean water. The challenge of maintaining clean water focuses on ensuring that the entire aquatic ecosystem remains healthy.

The 1999 President's Budget requests a total of $2,801,869,300 and 2,450 workyears to support its efforts to ensure clean and safe water. To achieve this goal, EPA will focus its efforts on carrying out the Safe Drinking Water Act Amendments of 1996 and will build on the Clean Water Act's success of maintaining water quality by implementing the Clean Water Action Plan -- a plan to restore and sustain the nation's watersheds and further address polluted runoff. Protecting watersheds involves participation by a wide variety of stakeholders, a comprehensive assessment of the condition of watersheds, and implementation of solutions based on the assessment of conditions and stakeholder input. The watershed approach enhances the abilities of EPA, its Federal partners, States, tribes, local governments, and other stakeholders to implement tailored solutions and maximize the benefits gained from the use of increasingly scarce resources.

As part of the Agency's commitment to using sound science to achieve clean and safe water, EPA's research activities will provide a better understanding of the risks to human health. Research activities in this goal will focus on increasing our understanding of health effects, exposure assessment, and risk management issues associated with contaminants in drinking water. EPA's research activities also will support watershed protection.

The resources requested in this budget will enable the Agency, in conjunction with EPA's State, local, and Tribal partners, to achieve several important goals for 1999. The most significant of these goals include:

- 85% (an increase of 2% over 1998) of the population served by community water systems will receive drinking water meeting all health-based standards, up from 81% in 1994;
- 6,000 community water systems (serving 24 million people) will be implementing programs to protect their source water (an increase of 3,250 systems over 1998);
- EPA will issue and begin implementing two protective drinking water standards for high-risk contaminants, including disease-causing micro-organisms (Stage I Disinfection/Disinfection Byproducts and Interim Enhanced Surface Water Treatment Rules);
- EPA will develop critical dose-response data for disinfectant by-products (DBPs), waterborne pathogens, and arsenic for addressing key uncertainties in the risk assessment of municipal water supplies;
- As part of the Clean Water Action Plan, all states will be conducting or have completed unified watershed assessments, with support from EPA, to identify aquatic resources in greatest need of restoration or prevention activities;
- EPA will provide funding support to community-based projects for watershed restoration including restoration of wetlands and river corridors in 160 watersheds (an increase of 110 watersheds from 1998);

- EPA will provide data and information for use by states and regions in assessing and managing aquatic stressors in the watershed, to reduce toxic loadings and improve ecological risk assessment;

- Another 3.4 million people will receive the benefits of secondary treatment of wastewater, for a total of 183 million;

- More than 220 communities will have local watersheds improved by controls on combined sewer overflows and storm water;

- In support of the Clean Water Action Plan, 10 additional states will upgrade their nonpoint source programs, to ensure that they are implementing dynamic and effective nonpoint source programs that are designed to achieve and maintain beneficial uses of water; and

- By 2003, EPA will deliver support tools, such as watershed models, enabling resource planners to select consistent, appropriate watershed management solutions and alternatives, and less costly wet weather flow technologies.

HIGHLIGHTS:

Protecting the Public Health and the Nation's Watersheds - Clean Water Action Plan

The current pace of implementation of Clean Water programs will not achieve the goal of providing safe and clean water to all Americans. In recognition of this, the Administration has called for a renewed effort to restore and protect our nation's waters - the Clean Water and Watershed Restoration Initiative. In 1999, EPA is requesting an additional $145,000,000 in support of this commitment. To achieve the key elements of the initiative, the Administrator of the Environmental Protection Agency and the Secretary of Agriculture, in consultation with other affected agencies, would implement a Clean Water Action Plan. This plan addresses three major goals:

-- strengthening and enhancing core programs, including protecting public health, preventing polluted runoff and addressing source water protection for safe drinking water, enhancing natural resources, and improving information and citizens' right-to-know;

-- promoting a state-led watershed approach, including restoring and sustaining watershed health through coordination of Federal programs across departments and agencies; and

-- assisting states with reducing nonpoint source pollution by expanding state grant assistance.

The Action Plan builds on the solid foundation of the existing clean water program and proposes important new steps to strengthen the program. A key new element of the program will be a cooperative effort by State, Federal, and local governments and citizens to restore the health of aquatic systems in watersheds not meeting clean water goals and to sustain healthy conditions in other watersheds. Other new elements of the program will reduce the public health threats of water pollution, enhance natural resources (e.g. wetlands, coastal areas, and stream corridors), prevent polluted runoff, and make water quality information more accessible to citizens. The 1999 Budget Request reflects this Plan to revitalize our efforts to ensure clean and safe water.

Enhancing Human Health through Safe Drinking Water

In 1999, EPA is requesting $1,018,705,900 and 855 workyears for efforts addressing the threats of unsafe drinking water. (These resources include $775,000,000 as part of the Drinking Water State Revolving Fund discussed in the Water Infrastructure section, and $3,200,000 as part of the Clean Water Action Plan investment.) Safe drinking water is essential to human health. Contaminated drinking water can cause illness and even death, and exposure to contaminated drinking water poses a special risk to such populations as children, the elderly, and people with compromised immune systems (susceptible populations). EPA's Science Advisory Board, in its 1990 report *Reducing Risk: Setting Priorities and Strategies for Environmental Protection*, concluded that drinking water contamination is one of the highest environmental risks to human health. In 1994, 19 percent of those served by community water systems, or approximately 46 million people, drank water that violated health standards at least once during the year.

The drinking water program's highest priority is protecting human health from microbiological contaminants and disinfectant/disinfection byproducts, as well as critical chemical contaminants (e.g., arsenic and radon). Health assessments, risk characterizations, and regulatory support documents are integral components of the standard setting/rule development process and will be conducted for all these contaminants. In addition, the Agency-issued Contaminant Candidate List, which identifies known or anticipated priority contaminants that may require regulation, the unregulated contaminant monitoring rule, and the national drinking water contaminant occurrence data base are crucial tools in ensuring safe drinking water.

EPA's research efforts will continue to strengthen the scientific basis for drinking water standards, through the use of improved methods and new data to better evaluate the risks associated with exposure to chemical and microbial contaminants in drinking water.

Reducing Point and Nonpoint Source Loadings

EPA is requesting $1,486,519,500 and 886 workyears to address the fundamental problems concerning the nation's waters: point and nonpoint source pollution. (The resources requested include $1,075,000,000 for the Clean Water State Revolving Fund, and $78,000,000 as part of the water infrastructure financing resources for needy cities discussed in the Water Infrastructure section. These resources also include $110,768,600 as part of the Clean Water Action Plan investment.) A key element of the Agency's effort to achieve its overarching goal of clean and safe water is the reduction of pollutant discharges from point and nonpoint sources. To reduce pollutant loadings from sources, the Clean Water Act established requirements for national technology-based effluent limitations and water quality based limitations.

EPA and its partners have made much progress in reducing pollutant discharges from point sources. A key goal for the National Water Program in 1999 is to have local watersheds in more than 220 communities improved by controls on combined sewer overflows (CSOs) and storm water. CSOs contribute to shellfish bed closures, beach closures, aesthetic problems, and impairment of designated uses. Controlling CSOs will reduce pathogens, biological oxygen demand (BOD), total suspended solids (TSS), and will contribute to the overall reduction in pollutant loadings.

EPA's nonpoint source program provides program, technical, and financial assistance to help states implement programs to control various forms of runoff.

While agricultural sources are the most significant category of nonpoint source runoff, state NPS programs address all categories of NPS runoff with a mix of voluntary and regulatory approaches. These state programs are the primary means for implementing nonpoint source TMDL allocations and for achieving water quality standards. EPA's nonpoint source program works closely with a number of other Federal agencies to help reduce runoff and encourage private sector partnerships to spur voluntary adoption of NPS controls. As the program moves forward, new tools, best management practices, and NPS and contaminated sediment control strategies will need to be developed in cooperation with States, tribes, other Federal agencies and the private sector. State implementation plans for nonpoint sources will be required to provide reasonable assurances that load allocations within an approved TMDL are met for waters impaired solely or primarily from nonpoint sources.

EPA's research program will also focus on aiding effective watershed management strategies for controlling Wet Weather Flows.

Reduce the Consumption of Contaminated Fish and Exposure to Contamination From Recreational Waters

EPA is requesting a total of $7,151,600 and 8 workyears to address the health threats from consumption of fish with elevated levels of contamination and exposures to pathogens and other pollution in recreational waters. (These resources include $1,250,000 as part of the Clean Water Action Plan investment, and are included in Objectives 1 and 3 of this Goal.) Protecting Americans from these threats is high priority. Exposure to contaminated water can cause serious illness. These types of exposures pose a special risk to children, women of childbearing age, subpopulations who fish for food or sport, and people with compromised immune systems. Through enhanced fish tissue monitoring, risk assessment, and beach assessment, EPA will work to improve the understanding of the effects exposure to contaminated waters and consumption of contaminated fish has on sensitive populations and human health as a whole.

Financing Water Infrastructure

The President's Budget requests a total of $1,928,000,000 for water infrastructure financing through the State and Tribal Grants (STAG) Appropriation under the Clean and Safe Water Goal. EPA's Water Infrastructure Program provides financial assistance to States, municipalities and Tribal governments to fund a variety of drinking water and wastewater infrastructure projects. These funds are essential to fulfill the Federal government's commitment to help our State, Tribal and local partners obtain adequate funding to construct the facilities required to comply with Federal environmental requirements. States and localities rely on a variety of revenue sources to finance their environmental programs and to pay for the facilities needed to keep the water clean and safe from harmful contaminants.

The Clean Water and Drinking Water State Revolving Funds (CW and DW SRFs) demonstrate a true partnership between States, localities, and the Federal government. In 1999, the President is requesting $1,850,000,000 for these funds. The Administration's 1999 request, combined with the outyear capitalization of these funds, enables the Administration to meet its long term goals for both funds to provide a total of $2,500,000,000 in annual financial assistance to needy communities. In addition, states will have more funding flexibility starting in 1998. The Safe Drinking Water Act Amendments of 1996 allow states to move funds between the two SRFs, based on a percentage of the state's annual allocation to the DW SRF.

The President's Budget also requests $63,000,000 for the construction of wastewater treatment facilities for Boston Harbor and Bristol County, Massachusetts, and New Orleans, Louisiana. Funds are targeted to these areas because of special circumstances including financial hardship and unique sewer system problems. In addition, $15,000,000 is requested for Alaskan Native villages for the construction of wastewater and drinking water facilities, to address serious sanitation problems.

Environmental Protection Agency

1999 Annual Plan Request to Congress

Clean and Safe Water

Objective #1: Enhance Human Health through Safe Drinking Water

By 2005, protect human health so that 95 percent of the population served by community water systems will receive water that meets drinking water standards, consumption of contaminated fish and shellfish will be reduced, and exposure to microbial and other forms of contamination in waters used for recreation will be reduced.

Overview

Safe drinking water is essential to human health. Contaminated drinking water can cause illness and even death, and exposure to contaminated drinking water poses a special risk to such populations as children, the elderly, and people with compromised immune systems (susceptible populations). EPA's Science Advisory Board, in its 1990 report *Reducing Risk: Setting Priorities and Strategies for Environmental Protection*, concluded that drinking water contamination is one of the highest environmental risks to human health. In 1994, 19 percent of those served by community water systems, or approximately 46 million people, drank water that violated health standards at least once during the year.

The continued occurrence of waterborne disease outbreaks demonstrates that contamination of drinking water with pathogenic bacteria, viruses, and parasites still poses a serious health risk when protection is inadequate, or when contamination occurs in the distribution system. Pathogens such as bacteria, protozoa and viruses are the cause of these illnesses. A single outbreak of *cryptosporidium* in Milwaukee in 1993 resulted in an estimated 400,000 cases of acute gastroenteritis, and 100 deaths.

A large number of organic and inorganic chemicals, such as trihalomethanes and haloacids, has been identified as occurring in drinking water. These disinfection byproducts (DBPs) result from the disinfectant used in the treatment process reacts with organic matter in the source water. These DBPs have been shown to cause adverse health effects, such as cancer, renal failure and adverse reproductive outcomes in experimental animals. In addition, high levels of arsenic are known to cause cancer as well as reproductive, developmental or other adverse human health effects.

Unsafe drinking water not only poses a health threat, but it can also impose large economic burdens. The cost of treating contaminated water to make it safe for drinking can be quite substantial. These costs can be reduced by better protecting source water and thus possibly eliminating some of the costs associated with treatment.

The responsibility for ensuring that 260 million Americans have safe drinking water rests with EPA, the states, and water suppliers as mandated by the Safe Drinking Water Act (SDWA) and its 1996 Amendments. To carry out its portion of the responsibility, EPA must work with the states and tribes on drinking water protection regulation, and enforcement for drinking water during the phases of

the drinking water cycle -- the raw source water, the water treatment plant, and the pipes that deliver the finished water from the treatment plant to the tap.

The 1996 SDWA Amendments improve the ability of states, water suppliers, and EPA to prepare for future drinking water safety challenges and assure sustained availability of safe drinking water. The Amendments center around four major areas of change: 1) improving the way that EPA sets drinking water safety standards and develops regulations that are based on good science and data, prioritization of effort, sound risk assessment, and effective risk management; 2) establishing new prevention approaches, including provisions for operator certification, capacity development, and source water protection; 3) providing better information to consumers, including consumer confidence/right-to-know reports (see Goal 7); and, 4) expanding funding for states and communities through a Drinking Water State Revolving Fund (DWSRF). In addition, the 1996 Amendments increase the states' flexibility to focus on human health-based priorities and make better use of resources, recognize the problems facing small systems and establish appropriate cost-effective approaches for such systems, and emphasize the role of stakeholders and partnerships as a key aspect of an effective national drinking water program.

For 1999 and future years, EPA's drinking water program closely relates to the 1996 SDWA Amendments' four major areas of change. The program provides the basis on which to measure the Agency's implementation of its statutory responsibilities and ultimately its success in protecting human health.

The drinking water program's highest priority is protecting human health from microbiological contaminants and disinfectant/disinfection byproducts, as well as critical chemical contaminants (e.g., arsenic and radon). Health assessments, risk characterizations, and regulatory support documents are integral components of the standard setting/rule development process and will be conducted for those contaminants for which standards and regulations are in progress. In addition, the Agency-issued Contaminant Candidate List, which identifies known or anticipated priority contaminants that may require regulation, the unregulated contaminant monitoring rule, and the national drinking water contaminant occurrence data base are crucial tools in ensuring safe drinking water. Within this objective, $40,065,300 is requested for establishing additional contaminant protective levels.

Federal/state/local government partnership is another key priority in ensuring that safe drinking water is supplied to all Americans. The President's Budget requests $775,000,000 for the Drinking Water State Revolving Fund (DWSRF). The DWSRF program assists public water systems in financing the cost of drinking water infrastructure construction or retrofitting to achieve or maintain compliance with SDWA requirements. The 1999 DWSRF request is $50,000,000 above the 1998 level, in order to provide states with greater flexibility to address their highest priority drinking water and water quality needs. Beginning in 1998, the SDWA Amendments of 1996 allow states to move funds between the DWSRF and the Clean Water SRF. The amount available for transfer is based on a percentage of the amount available in the DWSRF.

In addition, emphasis has been placed on assisting water systems, including small systems, in strengthening their technical, financial, and managerial capacity to meet the requirements set forth in drinking water regulations. The new statute also empowers EPA to publish national certification guidelines for the state certification programs applicable to operators of public water systems. Within this objective, $31,798,800, as part of the EPM appropriation, is requested for increasing the number of the Nation's drinking water systems that meet the SDWA requirements.

Preventing contamination of the sources of our Nation's drinking water is a new priority area in the 1996 SDWA Amendments and a focal point of the Clean Water Action Plan. States are required to conduct source water assessments that help determine the vulnerability of each state's sources of drinking water to contamination and their consequent risk to human health. Within this objective, $13,653,500 is requested for source water assessment activities. In 1999, EPA will work with the states, tribes, other Federal agencies, appropriate organizations, and local communities to conduct source water assessments and develop and implement source water protection programs. Source water assessments are a feature of the Clean Water Action Plan, which is partially funded by the Administration's Clean Water and Watershed Restoration Initiative, and increased resources will be provided to the states for their assessments and program development activities.

Increasing protective measures for source waters is the principal focus of the Class V underground injection well rule that will be promulgated in 1999. This rule is directed to those states with primary enforcement authority (primacy) for the Underground Injection Control (UIC) program and to EPA in those states without primacy or with partial primacy. The Class V rule applies to the 120,000 shallow, industrial injection wells that exist nationwide. Through its multi-partner effort, EPA will work with states and local government managers of source water protection programs to incorporate the implementation of the Class V rule into their ongoing activities. Within this objective, $11,856,400 is requested for increasing ground water contamination protection from injection wells.

Under the Clean Water Action Plan, the drinking water and ground water programs will be linked more closely with Clean Water Act (CWA) activities. EPA will work with the states in integrating more effectively SDWA and CWA assessment activities, especially with respect to protecting critical watersheds. The Agency will also accelerate its efforts in researching microbial contaminants of drinking water and the criteria to be developed for these contaminants will be used under both the CWA and SDWA.

To support SDWA and the 1996 Amendments, the Agency's drinking water research will develop dose-response information on DBPs, waterborne pathogens, arsenic and other drinking water contaminants for characterization of potential exposure risks from consuming tap water. This work will also evaluate trade-offs between disinfecting drinking water versus exposure to DBPs. Cost-effective treatment technologies will be developed and evaluated for removing pathogens from water supplies with as little DBP formation as possible. Treatment technologies will also be developed and evaluated for treatment and removal of arsenic with a focus on small systems. Within this objective, $35,573,000 is requested for drinking water research.

Reducing exposure to contaminants in fish and shellfish and through contact in recreational waters is another top priority for the National Water Program. The Clean Water Action Plan charges the Agency with assuring that fish are safe to eat and beaches are safe for swimming. In 1999, the Agency will continue to work with its state partners to ensure that they adopt into their standards a suite of criteria to protect recreational, fish consumption, drinking water, human health, and aquatic life uses. Within this objective, $4,332,500 is requested for ensuring the safe consumption of fish and shellfish, and for reducing microbial contamination from recreational waters.

Approximately 75 percent of the nation's population lives, works, or plays on or near our coastal waters. Use of water for recreation is divided into primary contact recreation (swimming) and secondary contact recreation (activities such as boating). Several recent studies indicate that recreational

waters (inland rivers, lakes, and coastal waters) expose swimmers to unacceptable levels of infectious disease. Susceptible populations are the most likely to develop illnesses or infections after swimming in polluted water. The Agency's goal is to establish improved safety guidelines and pollution indicators so that local authorities can monitor their recreational waters in a cost-effective way and close them to public use when necessary to protect human health. For beaches, the Agency will begin to implement the Clean Water Action Plan by addressing the need to safeguard the health of children and other recreational swimmers at beaches. Our goal is to strengthen beach standards and testing, improve the scientific basis for beach assessment, and develop methods to inform the public about beach conditions. EPA will also work with the states to adopt appropriate microbiological water quality standards for recreational waters by 2001. Within this objective, $1,019,100 is requested to upgrade safety standards and provide public access regarding beach conditions.

Monitoring and risk assessment procedures used by states in their fish and shellfish and beach contamination advisory programs vary widely. In 1999, the Agency will develop guidance documents addressing sampling and risk assessment methods to provide a more uniform nationwide standard of protection. In keeping with the Clean Water Action Plan, the Agency will promote Federal, state, tribal, and local implementation of beach monitoring and notification programs. By identifying and informing the public of human health risks and providing the tools needed to address those risks (including consistent national guidance, methods, and monitoring/sampling protocols), the Agency can help improve the ability of states, tribes, and local communities to protect their citizens from this type of exposure. In support of this effort, the Agency will also undertake a nationwide survey of toxic residues in fish. In addition, the Agency will conduct monitoring/modeling pilot programs to improve its ability to predict and address contamination events at beaches; these demonstrations will be applicable nationwide. The Agency will also complete peer review for alternative risk-based indicators and methods for skin, respiratory, eye, ear, throat, and gastrointestinal diseases most commonly resulting from exposure to contaminants at beaches.

In addition, the Agency will work with stakeholders, encouraging full involvement at all levels of government, to expand the total proportion of surface waters assessed for possible fish and beach contamination and to implement fish consumption and beach contamination advisory programs that are consistent with published national guidance. The Agency will also provide tools, such as scientifically-based models and methods, that will enable environmental managers to better predict, assess, and take appropriate actions to protect the public. The Agency will ensure that the public and regulators have access to information about beach conditions nationwide by enhancing a database available on the Internet by adding the locations of combined sewer overflow outfalls near beaches. The Agency will also work with its state and local partners to assess and document beach health conditions through the national database, identify major priorities and scientific concerns, and improve public notification practices. These efforts will be supported by the Agency's Beaches Environmental Assessment, Closure and Health (BEACH) Program which is developing better tools for determining when beach closures and advisories are warranted and is developing better mechanisms for detecting and measuring microbial contamination.

The Agency, through Office of General Counsel activities, also supports this objective through legal counseling and advocacy. This may include advice, participation in the development of Agency actions, document review, and the conduct of defensive litigation.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 01 Safe Drinking Water, Fish and Recreational Waters	**$966,204.5**	**$979,216.6**	**$1,018,705.9**
Environmental Program & Management	$101,317.5	$107,872.8	$101,726.1
Science and Technology	$35,606.5	$42,063.3	$37,699.3
State and Tribal Assistance Grants	$829,280.5	$829,280.5	$879,280.5
Total FTE	803.5	830.9	854.5

1999 Annual Performance Goals

- 85 percent (an increase of 2% over 1998) of the population served by community water systems will receive drinking water meeting all health-based standards, up from 81 percent in 1994.
- At least 400 community water systems will receive Drinking Water State Revolving Funds that will help ensure that these systems provide drinking water that meets all health-based standards.
- EPA will issue and begin implementing 2 protective drinking water standards for high risk contaminants, including disease-causing micro-organisms (Stage I Disinfection/Disinfection Byproducts and Interim Enhanced Surface Water Treatment Rules).
- Reduce risk of exposure to lead in drinking water by ensuring implementation of corrosion control treatment required by the Lead and Copper rule (LCR) and decrease by 25 percent the number of systems (and population served) with lead levels in drinking water exceeding the LCR's action level in 1996.
- 6,000 community water systems (serving 24 million Americans) will be implementing programs to protect their source water (an increase of 3,250 systems over 1998).
- At least 20 states will have satisfied the requirements for ensuring that new small systems have adequate capacity.
- EPA will promulgate the monitoring of unregulated contaminants rule to ensure that the highest risk contaminants are identified and managed.
- EPA will ensure protection of ground water sources of drinking water from potential endangerment by promulgating the regulation of UIC Class V wells.
- EPA will develop major risk analyses for microbial and chemical contaminants to support selection of contaminants to be regulated.

- EPA will ensure that 95 percent of injection wells requiring mechanical integrity testing in a designated high priority protection area pass the test on schedule.

- At least five tribes will assume major responsibility for their Public Water System Supervision (PWSS) programs.

- 25% of the nation's rivers and lakes will have been assessed to determine if they contain fish that should not be eaten or should be eaten in only limited quantities.

- Expand baseline public right-to-know database on state/local government beach monitoring and closure methods to include more beaches nationwide and enter data for 42 states.

- EPA will develop critical dose-response data for disinfectant by-products (DBPs), waterborne pathogens, and arsenic for addressing key uncertainties in risk assessment of municipal water supplies.

- Provide methodology for evaluating and comparing the health risks and benefits associated with different drinking water configurations for implementing the Safe Drinking Water Act.

- By 2003, provide cost effective risk management options to control contaminants in drinking water.

- Provide methods to assess vulnerability to ground water supplies to viral contamination to support decisions on the necessity to disinfect these supplies.

In 1999, EPA, states/tribes, and water suppliers will be continuing to implement the 1996 Amendments to the Safe Drinking Water Act (SDWA) with the principal purpose of improving and maintaining drinking water safety and, thereby, health protection for the 240 million Americans who get their drinking water from public water systems. Under SDWA, EPA and the states are charged with ensuring that consistently safe drinking water is provided to all persons served by public water systems. EPA meets that responsibility by setting drinking water safety standards and providing technical assistance and other support to states that have primary enforcement authority (primacy) of the drinking water program.

The Agency will increase the compliance rate of community water systems with drinking water standards and consequently reduce the health risk of people served by those systems. The baseline for measuring progress is 1994 when 81 percent of the population, about 194 million people, were served by community water systems that complied with contaminant level requirements throughout the year. The target that EPA is working toward in 1999 and future years is that the population served by community water systems providing drinking water that meets all existing health-based standards will increase to 95 percent, or 228 million people, by 2005. In 1999, EPA will continue its long tradition of support and technical assistance to states and public water systems in the implementation of all drinking water regulations. Increased support will be targeted to the states, through the Clean Water Action Plan, to support their activities in better integrating SDWA and CWA programs. By making use of the assessment information available from both SDWA and CWA programs, states will benefit both in terms of saving time and reducing costs by aggregating existing water information as well as undertaking new assessment activities. Increased attention will be focused on Indian tribes in 1999. EPA will develop and implement activities tailored to the needs of tribes and will help at least five Indian tribes to assume major responsibility for their Public Water Systems Supervision (PWSS) program. EPA

will also carry out PWSS direct implementation activities on the majority of tribal lands.

Some of the new programs authorized in the 1996 SDWA Amendments will play an important role in achieving this objective. For instance, all states will be fully implementing the Drinking Water State Revolving Fund (DWSRF) in 1999 as EPA expects to have awarded DWSRF capitalization grants to all 50 states and Puerto Rico by the end of 1998. The states will be providing loans to public water systems that will assist in financing the costs of drinking water infrastructure improvements necessary to achieve or maintain compliance with drinking water safety standards. At the same time, EPA will be providing extensive support to the states to help them meet the statutory mandates of the DWSRF related to systems' capacity (i.e., technical, financial, and managerial development and operator certification). Specifically, if the states have not established the legal authorities and developed strategies or similar mechanisms to ensure capacity development as well as operator certification and training for all public water systems, then EPA can withhold a portion of the states' DWSRF allotment beginning in 1999. In addition, EPA will be continuing its activities, as required by the 1996 SDWA Amendments, on the Drinking Water Needs Survey that serves as the basis for the DWSRF's allotment formula to the states.

Competency of operators of public water systems is critical for the protection of public health and the maintenance of safe, optimal, and reliable operation of water treatment and distribution facilities that meet all drinking water standards. Under the 1996 SDWA Amendments, EPA is required to issue by February 1999 guidelines specifying minimum standards for certification and recertification of the operators of community and nontransient, noncommunity public water systems. These minimum Federal guidelines ensure that operators have the skills, knowledge, experience, education, and training required to operate water systems. The enabling legislation also requires EPA to obtain and incorporate public comment in these guidelines and to communicate the requirements of the guidelines to the states, water systems, and the public. EPA will support a series of meetings to establish the criteria for both determining the minimum standards for state operator certification programs and evaluating existing state programs vis-a-vis the minimum standards. EPA will work very closely with state officials in the necessary modification of existing programs or the development of new programs to ensure that all states' operator certification programs meet the Federal guidelines.

Enhancing and ensuring the technical, financial, and managerial capacity of all water systems, and especially small systems, is widely believed to offer great potential for correcting and preventing noncompliance with drinking water standards. By 1999, EPA will have completed all its system capacity guidelines mandated in the 1996 SDWA Amendments and the states will be implementing small systems programs that are tailored to their unique circumstances. EPA will collaborate with states and other interested stakeholders to assist them in building strong and solid capacity development approaches. States can set aside funds from their DWSRF allotment to help support small systems' program development and implementation. In fact, a state's DWSRF allotment will be reduced if it fails to implement the capacity development provisions in SDWA.

EPA will continue to install the Safe Drinking Water Information System (SDWIS) in the states and provide hands-on training to state and Regional staff. EPA will emphasize the importance of quality assurance and quality control of data in SDWIS as this data provides the basis for assessing how drinking water program efforts are contributing to enhancing public health through safe drinking water and increasing public water systems' compliance with drinking water standards.

The drinking water program will issue at least 10 new standards focusing on high risk contaminants by 2005. The 1996 SDWA Amendments affirm EPA's position that the greatest risk reduction efforts for drinking water protection are through the regulation of microbiological contaminants, especially *cryptosporidium*, and disinfection byproducts. In 1999, EPA will promulgate two regulations that are pivotal in the Agency's efforts. The Interim Enhanced Surface Water Treatment rule (IESWTR), which has a statutory deadline of November 1998, focuses on microbiological contaminants and will revise and strengthen the existing 1989 Surface Water Treatment rule (SWTR). The SWTR contains filtration and disinfection requirements for surface water systems as well as requirements for the removal of *giardia*, viruses, and bacteria, but it does not specifically address *cryptosporidium*, and may not be adequate for heavily contaminated source waters. Both of these concerns will be addressed in the IESWTR. By November 1998, EPA will also issue the Stage 1 Disinfection Byproducts rule that will revise an existing maximum contaminant level (MCL) for total trihalomethanes and establish new MCLs for additional disinfection byproducts, such as haloacetic acids, bromate, and chlorite. The Stage 1 rule will also establish enhanced coagulation requirements for precursor removal, which is not addressed by current standards. The Information Collection Rule (ICR), an extensive national information collection effort on contaminant occurrence, disinfection byproduct formation, and treatment effectiveness in controlling for microbiological and disinfection byproducts contaminants, will provide EPA and its stakeholders essential data for regulatory risk management decisions. This data will support development of microbial and disinfection byproducts rules by providing information in such areas as source water protection, disinfection byproducts precursors, *crytosporidium*, *giardia*, bacteria and viruses, and water quality parameters in both treatment plants and distribution systems. These three rules --IESWTR, Stage 1, and ICR -- are part of the six rule microbial/disinfectants and byproducts (M-DBP) rule cluster. The cluster is the Agency's effort to address comprehensively the risk/risk tradeoffs among these priority contaminants of concern.

In addition to emphasis on microbial and disinfection byproducts contaminants, EPA will be publishing materials and issuing MCLs on certain high priority chemical contaminants in 1999. For sulfate, the Agency is required by the 1996 SDWA Amendments to publish, by February 1999, the results of the joint EPA/Centers for Disease Control and Prevention (CDC) study of the dose response relationship for adverse human health effects from sulfate in drinking water including effects on populations at greater risk. With respect to radon, the Agency will publish the health risk reduction and cost analysis for possible MCLs for public comment by February 1999. These materials will be developed on the basis of the National Academy of Sciences' risk assessment for radon in drinking water as well as other analyses and information. The Agency must address comments provided on the health risk reduction and cost analysis in the proposed MCL goal and standard for radon in drinking water to be issued by August 1999. For arsenic, EPA will be taking the necessary steps in the development of a proposed regulation; such proposed regulation for arsenic has a statutory deadline in early 2000.

The selection of contaminants for possible regulatory investigation and research is another major statutory requirement, imposed by the 1996 SDWA Amendments, that will contribute to the attainment of the objectives of the drinking water program. The 1996 SDWA Amendments require EPA to list priority contaminants, which are known or anticipated to occur in public water systems, and which *may require* regulation. This Drinking Water Contaminant Candidate List, issued in February 1998, will be used by EPA and stakeholders to determine the appropriate action regarding each contaminant on the list, whether it be health advisories, guidance, toxicity research, monitoring, or the development

of a regulation. As part of the contaminant identification process, EPA must consider the effect of these contaminants on sensitive subpopulations, such as infants, children, pregnant women, the elderly, and individuals with a history of serious illness. For those contaminants with adequate current information, EPA must make a determination if a regulation is necessary by 2001 and issue a regulation shortly thereafter. Where there is inadequate health, analytic method, and treatment information, the Agency must conduct additional research. For those contaminants that have insufficient exposure information, the Agency must collect additional occurrence data. The primary mechanism to collect this occurrence information is the unregulated contaminated monitoring rule to be issued by August 1999. That data and any additional data will be stored in the national drinking water contaminant occurrence data base. The results of analysis of contaminants occurring in drinking water and source water will provide the basis for establishing contaminant lists for future research, regulations, and monitoring. The occurrence of contaminants will be evaluated against their toxicity and exposure to ensure that the contaminants of greatest risk are regulated first. The selection of priority contaminants is the linchpin toward more effective expenditures for drinking water protection at the Federal, state, and local levels and is an important component within the Clean Water Action Plan to protect America's waters. Resources to implement the Action Plan will be targeted to collecting information that will identify and document microbial contaminants of highest human health risk and entering this information in the national drinking water contaminant occurrence data base.

Preventing contamination of sources of drinking water is a major objective of the drinking water program. The 1996 SDWA Amendments expanded EPA's leadership role in drinking water protection to both include the establishment of a source water assessment program and work with states and Indian tribes in preventing contamination of the surface and ground water sources of drinking water. The 1996 Amendments ensure that states conduct assessments, coordinated with existing information and programs, to determine the vulnerability of sources of drinking water to contamination. The delineations of source water protection areas and the inventories of sources of contamination are required state activities that will provide the information necessary for communities to know the threats to their drinking water, which, in turn, will prompt them to develop and implement protection efforts to address known threats. In 1999, EPA will work with the states, tribes, other Federal agencies, appropriate organizations, and local communities to conduct source water assessments and develop and implement source water protection programs. Source water assessments are a feature of the Clean Water Action Plan and increased resources will be provided to the states for their assessments and program development activities. Furthermore, EPA staff will work both within the Agency as well as with stakeholders to make sure that source water assessments are incorporated, as required by the 1996 SDWA Amendments, into such activities as monitoring relief, consumer confidence reports, and the national contaminant occurrence data base. The source water protection programs are expected to build on sole source aquifer, wellhead protection, and comprehensive state ground water protection programs already in place.

Assurance of source water quality must also include compliance with regulations for underground injection control. The Underground Injection Control (UIC) program protects source water by focusing on the most likely source of contamination — underground injection wells, especially the shallow Class V well. The shallow Class V well is usually an on-site drainage system for disposal of industrial wastes. EPA estimates that each year shallow Class V wells inject 1.3 billion gallons of untreated industrial waste waters above the water table or directly into ground water. By 2005, EPA intends to increase protection of community water supplies from contamination by injection wells. In 1999, the Agency will promulgate the final rule for Class V shallow industrial injection

wells and cesspools, accompanied by guidance on implementation and a variety of technical issues. This rule will assure that high priority Class V wells are addressed properly and that the threats to human health and the environment are reduced or eliminated. Through a $500,000 increase in 1999, EPA will support a pilot initiative in selected states that are ready to adopt and implement this regulation. EPA will also publish the results of a study of all categories of Class V injection wells and determine if other Class V wells, beyond the shallow industrial type, need to be regulated in source water protection areas. Furthermore, the Agency will continue its ongoing responsibilities to regulate and manage Class I, II, and III underground injection wells and to work with primacy states in assuring the full implementation of the UIC program.

In 1999, EPA's drinking water research will support the SDWA priorities emphasizing research on sensitive subpopulations, adverse reproductive effects of drinking water contaminants, research on selected DBPs and arsenic, and waterborne disease occurrence studies, as well as treatment and maintenance of water quality in the distribution system.

Health effects research will strengthen the scientific basis for drinking water standards through the development of improved methods and new data to better evaluate the risks associated with exposure to chemical and microbial contaminants in drinking water. This will include studies to evaluate the extent to which subpopulations, such as infants and pregnant women, may experience elevated health risks from contaminants in drinking water. Research on chemicals will emphasize laboratory and field research on the health effects of DBPs and arsenic. The President's Budget request for drinking water health effects research includes $10,000,000 to support work authorized by the Safe Drinking Water Act Amendments, Section 1452(n). This research is being funded as a direct appropriation from the Science and Technology appropriation, rather than reserving funds from the DWSRF.

Many uncertainties still exist with respect to our ability to adequately assess the health effects associated with many pathogenic bacteria, viruses and parasites in drinking water. Microbial research will continue to emphasize field studies to evaluate the nature and magnitude of waterborne diseases in communities as a function of quality, treatment process, and demographic characteristics. Development and application of improved tools for conducting epidemiology studies of waterborne diseases will continue. Studies will further evaluate various pathogen- and host-specific factors involved in human illness for the most important waterborne pathogens, including the Norwalk virus and *cryptosporidium*.

Work in the risk assessment area will characterize the magnitude and severity of adverse health effects associated with exposures to DBPs, either individually or as complex mixtures. Where possible, assessments will characterize actual human risks associated with exposures to chlorinated waters and provide improved methods for assessing epidemiologic exposures and risks. Through the development and application of newer risk science methods and tools for integrating and interpreting the scientific data, risk assessment studies can provide the framework for comparing chemical and microbiological risks and identify critical research needs and uncertainties. In addition, researchers will focus on the areas of pathogen risk assessment, mixtures feasibility studies, and comparative risk modeling as well as more fully characterizing uncertainties and assumptions associated with risk estimates.

In 1999 risk assessment research and assessment efforts will also include the assessment and characterization of non-DBP drinking water contaminants. Research will focus on the assessment of exposure and human susceptibility parameters impacting arsenic toxicity and the assessment of dose response data

for noncancer effects in human populations. Work will also commence on the next round of contaminants identified in the 1998 contaminant candidate list.

Risk management researchers will focus on developing cost-effective treatment and management approaches that simultaneously reduce the risk of waterborne diseases and exposure to DBPs. Researchers will evaluate different treatment processes for their ability to control pathogens and DBPs. As progress is made in this area regarding the control of *cryptosporidium*, work will begin to shift to other emerging pathogens of concern as their significance is identified.

Additionally, to date, the focus of most of the EPA efforts to assure that drinking water is safe has been on the quality of water leaving the treatment plant. In order to effectively protect the health of the consumer there must be also be assurance that the transmission and delivery of the water to the tap is done such that pathogens do not contaminate the water in this phase of the operation. There is substantial evidence that many factors can cause the quality of water to deteriorate after treatment. Greater attention needs to be given to the design, operation, and maintenance of distribution systems to ensure water quality as well as hydraulic reliability. This will include consideration of advanced materials of construction as well as the installation of sensors for real-time monitoring of important distribution system quality indicators such as disinfectant residual, water pressure, flow direction, microbial densities, total organic halides, and others.

In order to maintain the integrity of drinking water distribution systems, risk management scientists will initiate research to quantify the magnitude of risk due to microbial intrusion into the distribution system, understand how this intrusion occurs, determine the types of approaches needed to detect pathogens in the distribution system and operating procedures needed to minimize exposure, and identify how intrusion can best be prevented. This effort will include developing guidance on rehabilitating, designing, replacing, operating and maintaining distribution systems. In addition, efforts to evaluate and protect source waters will be expanded.

Research will continue on the evaluation of technologies and the development of techniques for controlling the formation of corrosion by-products in household plumbing and drinking water distribution systems and controlling inorganics, such as arsenic. As required by SDWA, the Maximum Contaminant Level (MCL) for arsenic (50 ug/liter) is being reevaluated by EPA. If a more stringent standard is adopted, it will have important implications in terms of both cost and technical feasibility, particularly for small community water systems. This research will focus on the identification and evaluation of more cost effective treatment systems for small communities, in order to meet SDWA's revised MCL. Corrosion research will assist community water systems in achieving lead and copper levels established under SDWA.

In 1999, the ground water research program will focus on determining the factors that govern the transport and survival of pathogens in the subsurface, which are critical in determining whether ground water as a source of drinking water does or does not need to be treated and provides support to the Ground Water Disinfection Rule rulemaking process.

The President's Budget Request includes a total of 50 workyears to be used for 3-year term appointments of postdoctoral candidates to work at Office of Research and Development laboratories. Of the 50 workyears, 5.7 will support this objective.

Reducing exposure to contaminants in fish and shellfish and through contact in recreational waters is a another priority for the National Water Program and a major component of the Clean Water Action Plan. The National Water Program's ultimate goal is to eliminate the presence of contaminated fish/shellfish in the environment and eliminate contamination of public waters used for recreation; however, a number of interim goals will allow the Agency to more quickly address the human health threats that result from these environmental problems. Steps that the Agency can take until such risks are eliminated include increasing our knowledge of current conditions and providing easy-to-use, scientifically-defensible tools to allow states, tribes, and local communities to assess the extent of contamination and communicate the risks to the general public.

Today's knowledge base is limited because states have not assessed all of their waters for contaminated fish and recreational waters. The Agency's interim goal, therefore, is to increase the proportion of waters assessed. In 1999, the Agency will also continue to devote resources to manage the ongoing base fish consumption/advisory program.

States and tribes need to address first those areas where contaminants in fish are of greatest risk to human health. Ten years ago, the Agency conducted a survey to evaluate the incidence and severity of known toxics like DDT and PCBs, however, there remain many potential threats from pollutants in use today whose effects are not as well studied. The Agency proposes to invest $2,500,000 to conduct a nationwide survey to determine the extent and impact of pollutants in fish (including mercury, as noted in the Clean Water Action Plan) in order to build the Agency's nationwide knowledge base and to help states and tribes establish priorities for addressing fish contamination problem areas. The fish tissue survey will also include other Persistent Bioaccumulative Toxics (PBTs).

In the beach health protection area, the Agency will invest $250,000 to focus on expanding baseline data on storm water/CSO outfall locations and completion of peer review activities for alternative risk based indicators for diseases associated with exposure to contamination at bathing beaches.

1998 Annual Performance Goals

- 83 percent of the population served by community water systems will receive drinking water meeting all health-based standards, up from 81 percent in 1994.
- 50 states will be awarded DWSRF capitalization grants by EPA.
- EPA will complete risk analyses, including MCLGs for human health protection, to support promulgation of the Stage 1 Disinfection/ Disinfection Byproducts rule.
- 2,750 community water systems (serving 12 million Americans) will be implementing programs to protect their source water resources.
- EPA will publish information to assist states in developing affordability criteria.
- EPA will issue the initial unregulated contaminants' candidate list.

- Reduce risk of exposure to lead in drinking water by ensuring implementation of corrosion control treatment required by the Lead and Copper Rule (LCR) and decrease by 15 percent the number of systems (and populations served) with lead levels in drinking water exceeding the LCR's action level in 1996.

- EPA will propose the UIC Class V regulation that focuses on management practices of injection wells identified as high risk (based on existing data) in priority protection areas.

- 300 large public water systems will report occurrence and treatment data on contaminants in the drinking water they provide.

- At least 15 Indian tribes will be strengthening their capacity to provide safe drinking water.

- Ensure that 95 percent of all scheduled mechanical integrity tests for injection wells are completed.

- 20% of the nation's rivers and lakes will have been assessed to determine if they contain fish that should not be eaten or should be eaten in only limited quantities.

- Establish baseline public right-to-know database, and enter data for the 8 Great Lakes states, on state/local government methods for monitoring microbial contamination at bathing beaches and deciding on beach closures.

- Provide analytical methods for bromate and aldehydes in drinking water.

- Address uncertainties and improve risk assessments associated with cancer risks from chlorinated drinking water using epidemiologic data.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
01 Obj. Total Change	**$39,489.3**	**23.6**
Environmental Program & Management	$(6,146.7)	12.3
Science and Technology	$(4,364.0)	11.3
State and Tribal Assistance Grants	$50,000.0	

- (+$50,000,000 STAG) for the Drinking Water State Revolving Fund (DWSRF). The President's Budget request supports the Administration's long term goal for annual financial assistance.

- (+16.9 workyears and +$1,226,500 EPM) to reflect a technical correction to the distribution of Regional Management workyears.

- (+$500,000 EPM) to support state implementation of the Class V shallow industrial injection well regulation. These funds will support demonstration and model activities that states can undertake as they adopt and implement these regulations.

- (+$1,950,000 EPM) to implement the Clean Water Action Plan to enhance the protection of the nation's drinking water. EPA will work with the states in integrating more effectively SDWA and CWA assessment activities, especially with respect to protecting critical watersheds.

- (+$2,500,000 EPM) to help reduce the need for fish advisories called for in the Clean Water Action Plan. This investment will allow the Agency to initiate a nationwide study to document the extent and nature of fish tissue contamination. The survey will focus on mercury, persistent bioaccumulative toxics (PBTs), and other contaminants that were not considered when the prior study was done ten years ago. The results of the study will be used to assess the impact of emissions from targeted industries and storm water runoff from specific land use activities and to help identify areas where cross-media prevention and control measures can be effectively implemented.

- (+$250,000 EPM) to expand the baseline public right-to-know data base containing beach monitoring data to include information on all 50 states as well as on state and local government methods to include GIS information on storm water/CSO outfall locations on beaches.

- (+$468,000 EPM) to support drinking water standard setting and regulatory development.

- (+$830,000 EPM) for activities related to risk characterization and the development of criteria for the selection of contaminants to be regulated.

- (+$892,100 EPM) for source water protection activities.

- (-$6,298,900 EPM) from support to the National Rural Water Association and the Rural Community Assistance Program for drinking water and ground water activities in rural communities. These activities are eligible for funding from the state 2 percent technical assistance set-aside in the Drinking Water SRF. While not targeted specifically to rural areas, this set-aside may provide up to $15.5 million for drinking water and ground water technical assistance. All 50 states will have established DWSRFs and will be able to take advantage of this set-aside in 1999.

- The 1999 request is $11,736,000 below the 1998 Enacted budget level due to Congressional Add-ons received during the appropriations process, but not part of the 1999 President's Request.

- (-4.6 workyears and -$383,200 EPM) from drinking water implementation activities to support EPA's implementation of the drinking water Information Collection Rule.

- (+$571,800 and +1.0 workyear S&T) will be used to address the issue of maintaining the integrity of drinking water distribution systems. This new research will be conducted to quantify the magnitude of microbial intrusion into the distribution system, understand how this intrusion occurs, determine the types of approaches needed to detect pathogens in the distribution system and operating procedures needed to minimize exposure, and identify how intrusion can best be prevented. This effort would include developing guidance on rehabilitating, designing, replacing, operating and maintaining distribution systems.

- (+$383,200 and +4.6 workyears S&T) to support EPA's implementation of the drinking water Information Collection Rule.

- (+5.7 workyears S&T) This request includes workyears for postdoctoral scientists and engineers to enhance the intramural research program. These 3-year term appointments will provide a constant stream of highly-trained postdoctoral candidates who can apply state-of-the-science training to EPA research issues.

- The 1999 request is $5,850,000 (S&T) below the Enacted budget level due to Congressional Add-ons received during the appropriations process, but not part of the 1999 President's request.

Key Performance Measures	1998	1999
Population served by CWSs that will receive drinking water meeting all health-based standards	83% Population	85% Population
States awarded DW SRF capitalization grants	50 States	
Tribes participating in EPA-funded capacity development	15 Tribes	
Tribes assuming responsibility for their PWSS programs		5 Tribes
CWSs providing drinking water that meets all health-based standards		400 CWSs
Availability of affordability criteria information	1 Guidance	
States with legal authority for ensuring that new small systems have adequate capacity		20 States
Number of large drinking water systems reporting data on occurrence and treatment	300 DW systems	
Availability of unregulated contaminants' candidate list	1 List	
Availability of monitoring of unregulated contaminants rule		1 Regulation
Risk analyses completed for Stage I D/DBP	1 List	
Risk analyses for microbial/ chemical contaminants		1 List
Regulations promulgated that establish protective levels for high-risk contaminants		2 Rules
CWSs with ground or surface water protection programs in place	2,750 CWSs	6,000 CWSs

Availability of UIC Class V Regulation	1 Proposed Reg	1 Final Reg
Underground injection wells tested for mechanical integrity	95% Wells	95% Wells
CWSs/NCWSs with lead levels in drinking water above action level in Lead and Copper Rule	15% CWS/NCWS	25% CWS/NCWS
States/Tribes monitoring and assessing for fish advisories	1 List	1 List
Rivers/Lakes assessed for contaminated fish	20% Rivers/Lakes	25% Rivers/Lakes
States with data entered into the public right-to-know database on beach monitoring/closures	1 List	1 List
Report on meta-analysis of epidemiologic studies on cancer and chlorinated water	9/30/98	
Publication of bromate assay methods	9/30/98	
Determination of infectious dose for Norwalk virus	9/30/98	
Publication of aldehyde assay method	9/30/98	
Report on evaluation of membrane technology to control oocysts	9/30/98	
Report on results of technology evaluations for controlling DBPs		9/30/99
Report summarizing results of two technology evaluations		9/30/99
Interim report on modeling methods for estimating the vulnerability of ground water to viral contamination		9/30/99
Completed hazard l.d./screening studies on reproductive/ developmental effects of selected DBPs		9/30/99
Data on first city study on microbial enteric disease		9/30/99
Report on results of technology evaluations controlling cryptosporidium		9/30/99
Comparative Risk Framework Report		9/30/99

Statistical models for dose-response modeling of risk waterborne pathogens	9/30/99
Assessment of health risks associated with three waterborne pathogens	9/30/99

Conclusion

Many of the activities to be carried out in 1999 will make significant contributions to achieving the objective of protecting public health through the delivery of consistently safe drinking water by community water systems. Through loans awarded to systems under the DWSRF, new or strengthened operator certification programs administered by the states, and capacity development efforts (especially by small systems), EPA expects that substantial progress in improving both the infrastructure and day-to-day operations of public water systems will be made and sustained.

EPA believes that the greatest risk reducing efforts are through the regulation of microbial contaminants and has therefore put a very high priority on promulgating the IESWTR and the Stage I Disinfection Byproducts rule in 1999. In addition, the risk-based contaminant selection process and better technical data will lead to better regulations focused on contaminants that pose the greatest threat to human health.

Gains will also be made in preventing drinking water problems by increasing states' and public water systems' capacity to provide safe water. The source water assessment program will give states and water suppliers information they need to determine what is needed to prevent contamination of a community's drinking water source, thereby adding an extra layer of defense to current treatment options. The promulgation of the rule for Class V shallow industrial injection wells and cesspools will greatly reduce their contribution to drinking water contamination.

Drinking water research will develop dose-response information on DBPs, waterborne pathogens and arsenic for characterization of potential exposure risks from consuming municipal drinking water. This work will also evaluate trade-offs between disinfecting drinking water vers. exposure to DBPs. Cost-effective treatment technologies will be developed and evaluated for removing pathogens from water while minimizing DBP formation. Treatment technologies will also be developed and evaluated for treatment and removal of arsenic with a focus on the special needs of small drinking water systems. Methods will be developed to help assess whether or not ground-water sources need to be disinfected to control viral contamination and cost effective approaches will be identified for maintaining the quality of treated water in the distribution system and preventing the intrusion of microbial contamination.

Whether through drinking water, eating contaminated fish or shellfish, or contact with water while recreating, exposure to contaminated water can cause serious illness and even death. These types of exposure pose a special risk to children, women of child-bearing age, sub-populations who fish for food or sport or who use public bathing beaches or waters for recreation, and people with compromised immune systems. The states and tribes have primary responsibility for protecting their residents from the health risks associated with eating contaminated non-commercially caught fish and wildlife and with recreation in public waters.

Both the Fish Consumption Advisory and Beach Protection programs are voluntary, and the Agency does not have the statutory or regulatory authority to impose specific methods or practices. EPA's efforts are predicated on the continuation and improvement of relationships with its state, tribal, and local partners as well as the continuing and enhanced cooperation of other Federal agencies like the Army Corps of Engineers, Fish and Wildlife Service, National Marine Fisheries Service, and the Natural Resources Conservation Service.

Key Performance Measures Verification

The Safe Drinking Water Information System (SDWIS) is the primary data source for verifying and validating the performance measures related to the objective of enhancing public health through safe drinking water in the Agency's annual plan. There are two components to SDWIS. SDWIS/FED is a national data base (housed on a mainframe computer) that includes the core information needed by EPA to assure that public water systems are in compliance with all of the statutory requirements in SDWA. SDWIS/ STATE is a PC-based system at the state level that has been designed to address the specific drinking water information needs of the state. It includes not only the data that the state must report to SDWIS/FED but also data the state determines to be critical to carry out its primary enforcement authority. Formal QA/QC procedures have been implemented for both data entry and data retrieval. In addition, the SDWIS Executive Board reviews QA/QC approaches regularly and a peer review process is in place to test any new modules or revisions to existing modules of SDWIS.

Data will also be compiled on efforts to implement the underground injection control program, including performance data on mechanical integrity testing of UIC wells and permitting and closure efforts targeted at Class IV and V wells. EPA will collect this data from the UIC Federal Reporting System (7520 forms), which includes information submitted annually by EPA and State UIC Program directors to Headquarters.

EPA has several strategies to validate and verify performance measures in the area of environmental science and research. The Agency has implemented a risk-based research planning process to use risk assessment and risk management as principal priority-setting criteria. EPA conducts annual research program reviews to both evaluate the status and accomplishments of its research and determine planning priorities. To better draw upon the expertise of the environmental academic community, EPA created the Science to Achieve Results (STAR) program of peer-reviewed, mission-driven extramural grants.

Chief among the Agency's validation and verification mechanisms is a rigorous peer review process. In a July 1997 memorandum, EPA's Deputy Administrator states that peer review will be expanded "to include both the major work products provided in the past and...all scientific and technical products supporting Agency decisions..." This expanded and strengthened focus on peer review will help ensure that the performance measures listed here are verified and validated by external organizations. The Agency utilizes peer review throughout the research planning and implementation process, both to ensure that planned research addresses critical knowledge issues within EPA's mission, and to assess the quality of scientific research plans, products, and proposals. This is accomplished through the use of independent entities such as the Science Advisory Board (SAB)and the Board of Scientific Councilors (BOSC). The BOSC, established under the Federal Advisory Committee Act, will even examine the way the Agency uses peer review, as well as the management of its research and development laboratories.

EPA's external research program undergoes extensive peer review. Proposals from the external scientific community are peer-reviewed and projects are then selected for funding through grants or cooperative agreements. In addition, Requests for Applications (RFAs) under the STAR program are often developed jointly with outside partners such as the National Science Foundation. In this way, EPA has developed a mechanism by which to check the quality and relevance of its research program.

The Office of Research and Development Management Information System (OMIS) will be another accountability tool used to verify and validate performance measures. The recently developed GPRA structure will be incorporated into OMIS to ensure consistent maintenance and reporting, resulting in greater accuracy and consistency of information to users.

The National Listing of Fish and Wildlife Advisories database is the primary data source for verifying and validating the performance measures related to safe consumption of fish and wildlife. Each year, states and tribes submit information that the Agency enters into the database and validates. The database contains information on the waterbodies under advisory, the types of advisories and bans in place, the special category and size ranges of fish and/or wildlife involved, chemical contaminants identified in the advisories, lake acreage of river miles under advisory, the data advisories were issued, and the proportion of assessed waters that are under advisory in a given year.

EPA data is not currently available on beach monitoring and closures. However, the Agency issued and Information Collection Request (ICR) to solicit data on beach monitoring and actions taken to protect the public from contamination in these recreational waters. The state/local government survey that will be developed as a result of the ICR will be the key piece of information used to report progress. The EPA survey will be phased in to obtain data on all beaches. The survey will be designed to report all information necessary to measure progress against the annual performance measure.

Statutory Authority

Clean Water Act (CWA)(33 U.S.C. 1251-1387)

Safe Drinking Water Act (SDWA)(42 U.S.C. 300f-300j-26)

Toxic Substances Control Act (TSCA)(15 U.S.C. 2601-2692)

Objective #2: Conserve and Enhance Nation's Waters

By 2005, conserve and enhance the ecological health of the nation's (state, interstate, and tribal) waters and aquatic ecosystems -- rivers and streams, lakes, wetlands, estuaries, coastal areas, oceans, and groundwater -- so that 75 percent of waters will support healthy aquatic communities.

Overview

Healthy aquatic communities depend on ecologically healthy waters and aquatic ecosystems. This objective will be met through a broad array of activities performed by organizations across the Office of Water and in all Regions. It is supported by the Office of General Counsel (OGC) and the Office of Research and Development (ORD) and is accomplished in coordination with the Office of Enforcement and Compliance Assurance (OECA), as well as through the efforts of other Federal agencies (e.g., USDA), state, tribal, and local governments, and organizations outside government.

Activities undertaken to meet this objective are essential to the successful implementation of the interagency Clean Water Action Plan, which will strengthen and enhance core programs including prevention of polluted runoff, protection of public health, enhancement of natural resources, and improved information for citizens' Right-to-Know. In addition, it will promote a watershed approach and building partnerships, as well as expanding program funding, including state grant assistance.

Critical to improving water quality is our refinement of water quality criteria for human health, aquatic life, and sediments. EPA will work with its state partners to ensure that they adopt into their standards a suite of criteria to protect designated uses. The Agency will support risk characterization analyses, priority setting, risk management decisions, and state/tribal adoption and implementation of water quality standards based on revised criteria. These activities are conducted through the development and implementation of a consistent regulatory framework and through scientifically sound tools and quality technical assistance and training. In support of these efforts, the Agency will move toward providing the BASINS modeling package, a powerful geographic information system on the Internet which integrates projected nonpoint source runoff with point source discharges. The BASINS model will also allow states and tribes to simulate complex and local environmental conditions. By providing training and workshops, EPA will work with tribes to implement "Treatment in a Similar Manner as a State" provisions and establish final water quality standards approved by EPA for waters under tribal jurisdiction.

In watersheds where sediment contamination is determined to be widespread, EPA will ensure greater controls of point and nonpoint sources of that contamination. The Agency will assist states and tribes in addressing sediment contamination by publishing a Sediment Quality Criteria users guide and distributing a sediment quality criteria modeling package. The Agency will also conduct a case study of assessment, prevention, or remediation within an area of concern, and issue guidance for assessing the environmental benefits and costs

of remediation of sediment contamination. The Agency will publish new and existing sediment quality advisory levels in a document and verify advisory levels using chronic test methods for five compounds.

EPA is working towards providing a means to identify, assess, and manage aquatic stressors, including contaminated sediments. Threats to human health occur when contaminants bioaccumulate in fish and shell fish consumed by humans. Risk assessments conducted for individuals consuming contaminated fish, shell fish, and lobster on a weekly basis have estimated excess cancer risks ranging from 1 in 100 (New Bedford Harbor study) to 4 in 1,000 (Puget Sound, Santa Monica Bay studies). Thus, sediment contamination is of national concern and poses risks to aquatic life, human health and wildlife.

Contaminated sediments research will focus on the development of toxicity criteria for aquatic life for chemical and nonchemical stressors to allow for the characterization of these stressors in aquatic ecosystems. These efforts will determine biological effects from exposure to contaminated sediments leading to the development of methods to predict toxicity at the organismal and ecological community scale. More cost-effective technologies and approaches for managing contaminated sediments will be developed and evaluated and will emphasize the identification of innovative in situ solutions.

The Agency will also make available to states and tribes updated, scientifically-based tools to enhance their ability to assess and address ecological problems on a watershed basis. EPA will develop guidance on base monitoring requirements to support comprehensive, resource-based water quality programs. EPA will also publish final revisions to the aquatic life criteria methodology and publish new or revised aquatic life criteria for selenium. The Agency will complete and distribute an ecological risk assessment guidance document. To promote the comprehensive ecological approach, EPA will begin to integrate biological assessment and criteria into water quality standards, Total Maximum Daily Load (TMDL), and permit programs by developing a comprehensive, biologically-weighted approach to evaluate aquatic life use support, including case studies and pilot projects to test this integrated approach.

Based on the findings of the Nutrient Assessment Workshop, in particular the recommendation to set nutrient standards on an eco-region or watershed basis, the Agency's strategy will develop a summary of currently available tools for assessing eutrophication, identify gaps in our understanding, and discuss implementation issues related to controlling eutrophication. The strategy will provide the Agency's long term plan for developing guidance for specific types of water bodies and, simultaneously, beginning development of detailed technical guidance documents which can serve as "user manuals" for specific water body types. Since the process for assessing and controlling eutrophication is considered site-specific in nature, the best assistance will allow state and tribes to pick and choose the tools that best fit their conditions (water body-specific guidance). Additionally, the Agency will provide information for specific types of lakes or types of estuaries to illustrate practical site-specific applications. Consistent with the Clean Water and Watershed Restoration budget initiative to help fund implementation of the Clean Water Action Plan, the Agency will establish numeric criteria for nutrients (i.e., nitrogen and phosphorus), that are tailored to reflect different water body types and different geographical regions.

The Agency will support comprehensive water quality assessments that will establish baselines against which to gauge progress toward objectives and goals and support decision-making necessary to implement watershed enhancements on a priority basis. The Agency will continue to work with our state and tribal partners to establish water quality monitoring and assessment programs

appropriate to their identified goals and needs, including addressing the elements outlined in EPA's monitoring guidance. EPA will assemble and report state water quality assessments under Clean Water Act Section 305(b). EPA will also ensure that states and tribes are entering relevant water quality and related data into EPA's modernized national data systems. An important use of state comprehensive quality assessment programs and other data is the Index of Watershed Indicators (IWI), a collaborative exercise with EPA stakeholders to clearly characterize the condition and vulnerability of all of the Nation's watersheds and coastal waters (as defined by the USGS 8-digit Hydrological Unit Code). The IWI will be critical to understanding and communicating progress toward the Agency's goals.

As part of the Clean Water Action Plan, EPA, in concert with USDA, USDOI and other Federal agencies, will produce estimates of inputs (by major source category), transport, and exports of nitrogen and phosphorus in watersheds across the Nation. Existing hydrologic models, such as USGS-SPARROW, will be used. We will help initiate a tracking system in 1999 to report key indicators of the success of programs to reduce nutrient runoff to America's waters. Working through the National Water Quality Monitoring Council, we will cooperate on a comprehensive assessment of nutrient reduction program effectiveness (to be completed in 2001).

As part of the Agency's Tribal Partnership initiative, increased resources will support the development, modification, and delivery of EPA training materials and workshops for tribes on water quality monitoring, quality assurance and water quality standards. Funding under this initiative will also support development of a National Tribal Watershed Assessment Framework to support defensible, reproducible Tribal assessments of the conditions of their watersheds and the sources of watershed impairments.

Fundamental to all of the Agency's efforts to meet this objective is managing water quality resources on a watershed basis, with full involvement of all stakeholders including communities, individuals, businesses, state and local governments and tribes. EPA's ability to meet this objective will depend on the success of regulatory and non-regulatory programs and nationwide efforts to provide and use a broad range of policy, planning, and scientific tools to establish local goals and assess progress. The Agency will continue to work with states to implement Total Maximum Daily Load (TMDL) programs to establish the analytic underpinning for watershed decisions. EPA will also provide up-to-date scientific tools (such as easy-to-use geographically-based models), training, and technical assistance to support state TMDL programs. These TMDLs will meet the requirements of Clean Water Act Section 303(d), including timely submission of approvable lists of impaired waters and development of TMDLs at an appropriate pace.

As part of the Clean Water Action Plan, EPA will substantially increase direct technical and program assistance to states to help them integrate their new State Unified Watershed Assessments and Restoration Action Strategies with their ongoing implementation of 303(d) lists of impaired waters and resultant priority total maximum daily loads (TMDLs). This increased assistance will also help states accelerate the pace and implementation of TMDLs for NPS-impaired priority waters in the key watersheds where Unified Assessments will be conducted under the Clean Water Action Plan. We will expand and improve the Watershed Academy and its course offerings specifically to better train state and local agencies in meeting these needs in these watersheds.

EPA will continue its targeted efforts (in particular, under the National Estuary Program) to work with states and other stakeholders to develop and implement watershed management plans for coastal ecosystems that restore and

maintain the health of degraded and threatened coastal aquatic communities. For coastal ports, EPA will work with Federal and state partners and other stakeholders to help ensure that comprehensive dredged material management plans are developed to maintain, restore, and improve the health of coastal ecosystems. The Agency will also manage pollution sources subject to the Marine Protection, Research, and Sanctuaries Act; Clean Water Act; Marine Plastic Pollution Research and Control Act; and other related programs in such a way as to further protect and enhance our Nation's coastal and ocean waters.

As part of the Clean Water Action Plan, EPA will begin providing small grants to non-profit organizations to support development of watershed partnerships and advance watershed restoration efforts. Priority in allocation of grant assistance will be given to organizations that have the capacity to bring diverse interests together to work to find creative ways to restore and sustain the health of aquatic systems on a watershed basis. EPA, in concert with USDA and NOAA, will also work with other Federal agencies and states to dramatically increase the number of people involved in local organizations that have "adopted" their watersheds and to encourage new efforts where there are none. A major focus will be to engage students, seniors, business owners and workers and others not traditionally involved in water resource issues and encourage their participation in ongoing community watershed efforts.

Geographic Initiatives

EPA will continue to support targeted geographic initiatives of national importance, including the National Estuary Program, the Chesapeake Bay Program, Gulf of Mexico Program, South Florida/Everglades, the Acadian Prairie, the Great Lakes, and the Pacific Northwest Forest Plan. Special emphasis in these areas provides the opportunity not only to have necessary heightened Federal involvement in critical watersheds, but to develop and implement water quality control practices whose successes can be transferred to other watersheds nationwide. EPA is also committed to supporting the implementation of the Interior Columbia Basin Ecosystem Management Project, the Long Island Sound Office, and the Lake Champlain Management Conference in 1999.

The Gulf of Mexico Program performance goals and activities for 1998 and 1999 support three interrelated regional environmental goals: (1) protecting human health and the food supply; (2) maintaining and improving Gulf habitats that support living resources; and (3) maintaining and enhancing the sustainability of Gulf living resources. Within these goals, the Program's focus is on four areas: public health, nutrient enrichment, non-indigenous species, and habitat restoration. In 1999, the Gulf Program will work to reduce sources contributing to fecal contamination in Gulf shellfish growing waters and nutrient pollution into Gulf estuaries.

The Chesapeake Bay Program's overall goal is to restore and protect living resources and their habitats. To accomplish this goal, the Chesapeake Bay Program has focused on reducing the level of nutrients by 40 percent by the year 2000 and maintaining that level thereafter, and on reducing toxics and restoring habitats important to fish and shellfish in the Bay. Annual performance goals for 1998 and 1999 reflect these three areas through point and nonpoint source controls, pollution prevention initiatives, and habitat restoration.

Wetlands

This objective also encompasses the Agency's efforts to protect and restore the Nation's wetlands through a combination of regulatory approaches and assistance and incentive-based programs. Within this objective, $33,115,400 is

requested for the Wetlands Program, of which $15,000,000 is requested from the STAG appropriation for the wetlands grants program. EPA will work with other federal agencies and non-federal partners to continue implementation of the Clean Water Action Plan in an effort to achieve a net gain of 100,000 acres of wetlands per year by 2005. This goal, adopted from EPA's Strategic Plan under the Government Performance and Results Act, will require that wetland loss rates be reduced by continued reliance on avoiding and minimizing destruction of wetlands to the extent practicable. Information on watersheds will be reviewed to identify where the continuing loss of wetlands is a significant factor contributing to problems of water quality and loss of species. Working with Federal agencies through the White House Interagency Wetlands Working Group, and with state and tribal agencies, we will develop a program to reduce wetland losses in those watersheds in a manner that will yield the most water quality and habitat benefits. EPA will continue to work with other Federal agencies to implement the provisions of the Clean Water Act (CWA) Section 404 program to protect wetlands, free-flowing streams, and shallow waters in a fair, flexible, and effective manner. EPA will support community-based partnerships to restore river corridors and wetlands to remediate significant ongoing adverse impacts of past policies and practices. EPA will work with state and tribal partners to provide comprehensive protection and efficient implementation of government programs. With these partners, EPA will develop biological indicators, criteria and assessment methods to relate net changes in wetland acreage to its effect on environmental functions. EPA will provide training to its partners and sponsor demonstration projects to improve the quality of decisions affecting wetlands and associated resources. EPA will work with economic sectors that impact wetlands to improve communication and to engage them in dialogues with environmental interests.

With its programs for Watershed Management and Restoration Partners, EPA is uniquely positioned to direct these resources to community-based restoration projects and to attract matching resources from many partners, including corporate, state, tribal, local, non-profit, volunteer, and Service/Conservation Corps groups. EPA will help its partners to identify new opportunities for collaboration so that they can undertake future restoration independent of on-going Federal assistance. The initiative will also enable EPA to provide additional guidance, training, methods and technical assistance to support restoration programs nationwide.

The wetlands state/tribal/local grant program will enhance the Agency's wetland protection efforts, fostering strong partnerships between EPA and the states, tribes, territories, and local entities. Agencies at all levels of government will continue to develop programs that move toward the Administration's goal of no overall net loss and long-term gain in the quantity and quality of wetlands. The grants will provide assistance for state, tribal and local programs contributing to the goal of a net gain per year of 100,000 acres of wetlands per year by 2005, watershed protection and restoration projects, development of programs to assume Section 404, streamlining regulatory programs (including development of programmatic general permits), incorporating wetlands protection in state water quality certification processes, development of programs to monitor wetlands, and development of State Wetlands Conservation Plans.

Other Grant Assistance

Section 106 grants to states, tribes, and interstate agencies are a primary funding source for the prevention, reduction, and elimination of surface and ground water pollution from point and nonpoint sources (under Goal 2, Objective 3) and for enhancing the ecological health of the Nation's waters. Within this

objective, $115,529,300 is requested for Section 106 grants, an increase of $20,000,000 over 1998. Activities within the Section 106 program include permitting, water quality planning and standard setting, pollution control studies, assessment and monitoring, and training and public information. State efforts will include developing Total Maximum Daily Loads (TMDLs), implementing an integrated wet weather strategy in coordination with nonpoint source programs, and developing wellhead protection programs and comprehensive state groundwater protection programs. Tribes will continue to conduct watershed assessments and will maintain and improve their capacity to implement water quality programs through monitoring, assessments, planning, and standards development. The $20 million increase will support activities in support of watershed restoration efforts in the Clean Water Action Plan.

As part of the Clean Water Action Plan, states will be undertaking a new cooperative, intergovernmental and public process to identify watersheds where aquatic systems do not meet clean water goals and take action to address problems in these watersheds, including developing State Unified Watershed Assessments/Restoration Priorities followed by State Watershed Restoration Action Strategies. Working with public agencies and the private sector, states will develop Watershed Restoration Action Strategies for those watersheds most in need of attention in 1999-2000 while buttressing their existing water quality management programs to better address the watershed and nonpoint source needs required by these Strategies. The increase will also support efforts to permit Confined Animal Feeding Operations (CAFOs.)

Water Quality Cooperative Agreements (WQCA) support the creation of unique and innovative approaches to address requirements of the NPDES program, with special emphasis on wet weather activities, i.e., storm water, combined sewer overflows, sanitary sewer overflows and animal feeding operations. In the wet weather area, these grants have been invaluable in enabling demonstrations of unique technical, as well as managerial and funding techniques for addressing wet weather problems. Specifically these funds will be used to conduct special studies, demonstrations, outreach and training efforts which will enhance the ability of the regulated community to deal with non-traditional pollution problems in priority watersheds. Within this objective, $19,000,000 is requested for WQCA grants.

Legal Support

The Agency supports this objective through legal counseling and advocacy by the Office of General Counsel. This may include advice, participation in the development of Agency actions, document review, and the conduct of defensive litigation.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 02 Conserve and Enhance Nation's Waters	**$270,281.6**	**$298,573.9**	**$296,643.9**
Environmental Program & Management	$127,261.4	$155,638.1	$135,543.9
Science and Technology	$12,490.9	$12,406.5	$11,570.7
State and Tribal Assistance Grants	$130,529.3	$130,529.3	$149,529.3
Total FTE	730.3	749.6	709.3

1999 Annual Performance Goals

- 20 states will electronically update their 1998 305(b) information reflecting adequate monitoring and assessment programs. (Base of 0).
- 25 states submit implementation plans to EPA (either as separate plans or as part of water quality management plans or other watershed planning process) that describe the processes for implementing TMDLs developed for waters impaired solely or primarily by nonpoint sources.
- Complete 24 of 28 Comprehensive Conservation and Management Plans (CCMPs) in the National Estuary Program. (Base of 19)
- Complete review of ocean disposal testing requirements.
- Appropriate action taken in five additional cases with regard to dredged material ocean disposal site designation. (Base of 77).
- Provide to states and tribes appropriate tools for risk characterization of and decision-making regarding surface water contaminants, including persistent bioaccumulative toxics and nutrients, that allow them to set and meet their own water quality standards.
- EPA will review and approve or disapprove new or revised water quality standards for 15 states that reflect current guidance, regulation, and public input. (Base of 10).
- 22 Tribes will have established effective water quality standards programs. (Base of 17).
- Conduct broad-based shareholder development of quantitative and/or qualitative nutrient loadings reduction goals and supporting strategies to reduce the adverse impacts of Gulf hypoxia in two states.
- Complete coordination of modeling efforts among state and federal agencies to develop basin level modeling/decision support capacity for targeting future nutrient loading reduction support and reporting environmental progress for six Mississippi River Basins.

- Reduce the number of point and nonpoint sources contributing to the total load of fecal contamination in Gulf shellfish growing waters, in two priority Gulf coastal watersheds.

- There will be 65,000 acres of submerged aquatic vegetation (SAV) in the Chesapeake Bay.

- 15 states/tribes developing tools and programs to assess and monitor overall wetland improvements/deterioration (Base of 10).

- EPA will provide funding support to community-based projects for watershed restoration including restoration of wetlands and river corridors in 160 watersheds (an increase of 110 from 1998).

- Develop methods for screening aquatic systems, including sediments, for significant chemicals.

- By 2003 develop and/or evaluate promising technologies for the ex-situ and in-situ management of contaminated sediments.

- By 2005 develop technical resource documents on the risk management of contaminated sediments.

- EPA will provide data and information for use by states and regions in assessing and managing aquatic stressors in the watershed to reduce toxic loadings and improve ecological risk assessment.

- As part of the Clean Water Action Plan, all states will be conducting or have completed unified watershed assessments, with support from EPA, to identify aquatic resources in greatest need of restoration or prevention activities.

The Agency's goal of having states electronically update their 1998 Clean Water Act 305(b) water quality assessments reflects a significant enhancement of service delivery for one of the key sources of information available on the quality of the nation's waters. Current information on the extent to which waters have attained their designated uses is critical to effective planning and decision-making.

The establishment of agreements between states and EPA on state-specific, tailored processes for implementing approved Total Maximum Daily Loads (TMDLs) will ensure substantial progress toward achieving water quality standards. Effective TMDL programs will integrate long-standing programs of regulatory controls, financial incentives, and training to reduce pollutant loads and meet the environmental goal.

State adoption of the Watershed Approach represents a key element of Community Based Environmental Protection (CBEP), including full stakeholder participation and the need to address environmental issues on a geographic, rather than a media- or statute-specific basis. By supporting state efforts to move permitting, wetlands, nonpoint source and other programs to a watershed orientation, EPA can help ensure that the limited water quality resources available to states are most efficiently and effectively deployed.

As provided in Clean Water Act Section 320, development of Comprehensive Conservation and Management Plans (CCMPs) under the National Estuary Program represents a key component of ensuring the conservation and enhancement of coastal watersheds. Serving as a blueprint for protection and restoration within and around estuaries, CCMPs are developed by management conferences comprising

a diverse cross-section of Federal, state, and local government representatives and interested members of the environmental community, industry and the general public. Involving all stakeholders, tailoring solutions to watershed- and community-specific problems and developing or identifying funding mechanisms for implementation are critical steps toward re-establishing the health of our coastal resources.

Under Section 102 of the Marine Protection, Research and Sanctuaries Act (MPRSA), EPA is responsible for designating ocean sites for the disposal of dredged material to ensure that the dredged material is disposed of in locations that are not harmful to human health and aquatic communities. Generally, the Water Resources Development Act of 1992 prohibits the issuance of a permit for disposal at such a site unless it has been finally designated by EPA and has a Site Management and Monitoring Plan developed by EPA and the Corps of Engineers. The additional designations are critical to necessary dredging, and to ensuring that disposal of the material occurs in an environmentally sound manner.

As directed in Section 102 of the MPRSA, EPA develops ecological criteria to be used to evaluate the suitability of dredged material for disposal at ocean disposal sites. Specific testing requirements exist in order to ensure that dredged material meets the ecological criteria before it is disposed. The ongoing comprehensive review of the ocean disposal testing requirements is pursuant to the Administration's commitment (July 24, 1996), and is designed to ensure that any revisions to these criteria reflect both sound policy and sound science.

The environmental functions of many of the nation's remaining wetlands are adversely affected by stressors such as pollution, hydrological disturbances, and proliferation of non-native species. To respond to these problems, EPA needs monitoring data on the health of wetlands. Such data will be used to set program and geographical (watershed) priorities, and to help identify the actions that will improve the functions of impaired wetlands. Ten states/tribes are now in the process of selecting and calibrating indicators of wetlands health or are developing monitoring programs to collect and evaluate data on wetlands within their jurisdiction. In 1999 five additional states/tribes, with EPA financial and technical support, will be undertaking significant efforts on wetlands monitoring.

As part of the Clean Water Action Plan, EPA will provide financial and technical assistance to communities to restore wetlands and associated river corridors. These projects involve partnerships of local governments, the corporate and non-profit sectors, other government agencies, foundations, and volunteer and or Conservation/Service Corps labor. EPA has developed partnership networks that rely upon extensive cost-sharing and contributions of labor, equipment and materials. This enables a significant expansion of watershed coverage in 1999 with strategically targeted EPA investments. EPA's community-based approach enables progress in revitalizing wetlands and river corridors in places traditionally under served by environmental programs, such as economically disadvantaged urban areas and tribal lands.

With respect to assessing and managing aquatic stressors, effects research will be done to develop methods to predict toxicity at the organismal and ecological community scale. EPA has developed an equilibrium partitioning theory that causally links the normalized bioavailable concentrations of sediment contaminants to organism response. This information has been used to predict toxicity for specific species and has been applied for nonionic organic contaminants. Research is needed to apply this theory for other types of sediment contaminants, individually and as a mixture such as ionic organics, metals, and bioaccumulatives. This area of research involves the development and

application of methods to evaluate the potential impact of specific chemicals and mixtures of chemicals in sediments.

Effects research will also be done to characterize the effects of nonchemical stressors on aquatic ecosystems. Research in this area will build on what is learned concerning the effect of chemical stressors on aquatic organisms and wildlife and will evaluate the combined impact of chemical and nonchemical stressors on aquatic ecosystems.

Exposure research will be done to develop models to characterize sediment loading of various contaminants. Research on exposure, especially modeling, is required for risk assessments and permit development. The primary environmental focus for this research is the characterization of sources of nutrients, metals, pesticides (i.e., EDCs) and other hazardous chemicals, particularly those associated with sediment loads, transport and deposition; the relative loadings from watersheds; and the evaluation of the role of these sediment-related contaminants from sub-basins on downstream water bodies from both a human and ecosystem exposure-risk perspective.

Risk assessment research will be done to improve methodologies for developing specific criteria (e.g., aquatic life and human health criteria for ambient water of the U.S.), including wildlife criteria reflecting endangered species concerns. This research encompasses the development of risk assessment/characterizations of human health and ecological risks for exposures to contaminants (single and multiple stressor) in ambient waters. This research would support the establishment and communication of fish health advisories, beach closing warnings, remediation actions to protect human uses of the water body and ecosystem health. Methods will be developed with both specific application to a water body and broader application to an eco-region or community. Models or tools are needed to integrate risks from multiple sources of stressors and for performing ecological and economic analyses of environmental impacts.

Risk management research will be done to develop and evaluate more cost-effective technologies and approaches for managing contaminated sediments. This research will focus on the development and evaluation of less costly technologies and approaches for managing contaminated sediments and will emphasize the identification of innovative, in situ solutions.

EPA's research program will invest in a cadre of highly-trained postdoctoral scientists who can apply state-of-the knowledge to EPA research issues and will make a significant contribution to EPA's in-house research capability. This investment will introduce more highly educated, energetic, and innovative researchers into EPA's national laboratories and centers.

To identify, control, and address ecological problems, the states and tribes must have and be able to use a variety of scientifically-based tools for risk characterization. The Agency will provide case studies, models, sampling and assessment methods, and a host of guidance documents to address specific chemicals, specific water body types, and specific environmental problems.

To assure human and ecological health, the Clean Water Act requires states to review and revise their water quality standards every three years. The Agency will review and approve these triennial reviews to assure that state standards employ the latest scientific information and that they are consistent with guidance and regulation. EPA will provide direct technical assistance and support to the states in reviewing, revising, and managing their water quality programs; these standards are a vital part of the Agency's efforts to encourage the states to incorporate the latest scientific knowledge and biological

approaches into their programs. This review and approval process, which is a critical part of the ongoing base water program, promotes nationwide consistency in ecological and human health protection.

Indian tribes are only just beginning to address their environmental problems. The Agency will provide guidance, training, and other assistance to tribes to assure that they adopt and implement water quality standards programs that are consistent with those managed by the states. Ultimately, the Agency hopes that all tribes will have in place adequate water quality programs.

Beginning in 1999, the Gulf of Mexico Program will broaden assistance to the Gulf State partners to reduce the loading of nutrients into tributaries and Gulf estuaries and to implement voluntary actions to reduce nutrient pollution. The Program will work to reduce the negative consequences of Gulf hypoxia (i.e., low-dissolved oxygen) by: (1) facilitating efforts to understand the ecological and economic consequences of the hypoxic zone; (2) developing monitoring and modeling strategies necessary to characterize the impacts of the hypoxic zone on the Gulf ecosystem; and (3) assisting Mississippi and Louisiana in quantifying and reducing nutrient loads from tributaries that contribute to Gulf hypoxia.

Within its partnership framework, the Gulf Program will support monitoring of shellfish growing waters and shellfish quality to identify incidences of disease, source waters causing the disease, areas of water contamination, and potential sources of pollution causing the contamination. The Program will focus on reducing human exposure through improved public information (e.g. food consumption and swimming advisories) and through improved control of sources of water pollution.

In 1999, voluntary Integrated Pest Management (IPM) practices in the Chesapeake Bay watershed will be implemented through working with the state agricultural agencies in Maryland, Pennsylvania, and Virginia, the Natural Resources Conservation Service (NRCS) and the USDA Extension Service to work with farmers and suburban land owner groups to teach different IPM approaches. EPA will continue to provide funding to the states to accomplish this goal, will support workshops, and will develop and implement a tracking system to show results.

The Chesapeake Bay Program will work with member states and wastewater treatment facilities to upgrade treatment facilities for biological nutrient removal (BNR). This activity is critical for meeting the 40 percent nutrient reduction goal, particularly for nitrogen. By the end of 1999, at least 25 percent of sewage plant loadings will be on BNR.

Acreage of submerged aquatic vegetation (SAV) has been increasing in the Chesapeake Bay since a low point in 1984. SAV has certain light requirements necessary to reestablish itself. These light requirements are affected by loadings of nutrients and sediment. By continuing implementation of the tributary strategies in the Chesapeake Bay, habitat for SAV should increase. By the end of 1999, there will be at least 65,000 acres of SAV in the Chesapeake Bay.

1998 Annual Performance Goals

- 50 states submit 1998 305(b) information reflecting adequate monitoring and assessment programs and characterizing the extent to which US waters are meeting all designated uses (approximately 62% of assessed waters in 1996).

- 50 states submit 303(d) lists, including specific written agreements in each State with an expeditious schedule for establishing TMDLs for the listed waters.

- Complete 19 of 28 Comprehensive Conservation and Management Plans (CCMPs) in the National Estuary Program. (Base of 17)

- Progress in implementing CCMP priority actions is reviewed for the first 12 NEPs. (Base of zero)

- Establish National Marine Debris Monitoring program with 20 states/territories. (Base of 15)

- Technical support to Gulf States threatened and/or impaired by Gulf hypoxia through improved monitoring of nutrient loads from major tributaries and implementation of innovative management and prevention approaches to reduce nutrient loading to surface waters.

- Coordinate modeling efforts among state and federal agencies to develop basin level modeling/decision support capacity for targeting future nutrient loading reductions and reporting environmental progress for two Mississippi River Basins.

- Provide to states and tribes appropriate tools for risk characterization of and decision-making regarding surface water contaminants, including persistent bioaccumulative toxics and nutrients, that allow them to set and meet their own water quality standards.

- EPA will review and approve or disapprove new or revised water quality standards for ten states that reflect current guidance, regulation, and public input.

- 17 Tribes will have established effective water quality standards programs.

- Reopen 137 miles of spawning habitat to anadromous fish through fish passage in the Chesapeake Bay watershed.

- 10 states/tribes developing tools and programs to assess and monitor overall wetland improvements/deterioration. (Base of 4)

- Provide funding support to community-based projects for the restoration of wetlands and river corridors in 50 watersheds.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
02 Obj. Total Change	**$(1,930.0)**	**(40.3)**
Environmental Program & Management	$(20,094.2)	(42.1)
Science and Technology	$(835.8)	1.8
State and Tribal Assistance Grants	$19,000.0	

STAG

- (+$20,000,000 STAG) These funds in the Section 106 grant program will support activities in reducing pollutant discharges from point and nonpoint sources and management programs to support healthy aquatic communities in support of the Clean Water Action Plan. Of this amount, $2,600,000 will support eligible tribes conducting comprehensive monitoring programs and implementing water quality programs.

- (-$1,000,000 STAG) This reflects a decrease in the Water Quality Cooperative Agreements to fund Underground Injection Control Class V implementation pilots.

EPM

- (+$4,000,000 EPM) This will to encourage and assist comprehensive watershed management programs for all states and tribes for the waters under their jurisdiction, including development of locally-determined watershed management plans needed to restore and maintain the health of aquatic communities on a priority basis. Supports implementation of the Clean Water Action Plan.

- (+$2,200,000 EPM) This will fulfill commitments in the Clean Water Action Plan to restore water quality on a watershed basis where polluted runoff has created significant water pollution problems. To this end, the Agency will establish numeric criteria for nutrients that are tailored to reflect the different types of water bodies and different regions of the country. The Agency will also assist states to adopt numeric water quality standards based on these criteria over the following three years. EPA will complement these tools with data retrieval and assessment methods to help states develop their own criteria and descriptions of Best Management Practices (BMPs) to support active management of nutrient-related pollution. EPA will also revise and fine-tune existing geographically-based water quality models to include a variety of sources (including air deposition) and provide workshops and technical assistance to states/tribes in using these models to develop TMDLs and address nutrient problems.

- (+$1,500,000 EPM) This is for small grants to organizations to support development of watershed partnerships, in support of the CWAP.

- (+$1,500,000 EPM) This will advance wetlands restoration in support of the Clean Water Action Plan (CWAP). EPA will provide financial and technical assistance to communities to restore wetlands and associated river corridors. These projects will involve partnerships of local governments, the corporate and non-profit sectors, other government agencies, foundations, and volunteer and or Conservation/Service Corps labor.

- (+1,000,000 EPM) This will support implementation of the Lake Champlain Management Conference. This does not carry forward the $1,500,000 Congressional addition and provides a total of $1,000,000 in 1999.

- (+$616,900 EPM) This supports completion and implementation of recommendations from review of ocean disposal testing requirements (per Administration's 7/96 commitment) into the ocean dumping permit program and the guidance for long-term dredged material management planning.

- (+$500,000 EPM) This will support enhanced monitoring and assessment activities, in concert with other Federal agencies, in support of the CWAP.

- (+$500,000 EPM) This will support the Agency's Tribal Partnership Initiative, funding training and technical assistance on water quality monitoring and support for baseline watershed assessments on tribal lands.

- (+$500,000 EPM) This is to support the Long Island Sound Office. This does not carry forward the $700,000 Congressional addition and provides a total of $750,000 in 1999.

- (+$500,000 EPM) This will continue support to state responses to toxic Pfiesteria outbreaks. Activities include monitoring and assessment to identify Pfiesteria outbreaks and potential sites vulnerable to Pfiesteria outbreaks; transferring new technologies and methodologies for identifying Pfiesteria or mitigating the impacts of Pfiesteria outbreaks; and providing public education and outreach information on the risks to human health posed by Pfiesteria outbreaks. Supporting these activities will achieve the Clean Water Action Plan (CWAP) goals of protecting public health and ensuring community-based watershed management. The CWAP will also help prevent future outbreaks of Pfiesteria by reducing nutrient pollution from nonpoint sources and animal feeding operations.

- (+$325,000 EPM) This will support addressing the environmental problem of persistent bioaccumulative toxics (PBTs). Complementing the fish tissue survey described in objective 1 under the Clean and Safe Water goal, the Agency will revise and develop water quality criteria to assure the greatest possible protection that can be attained with available scientific knowledge and tools. In 1999, EPA will develop monitoring, screening, and testing protocols that are both affordable and provide timely results that will afford the greatest possible human health protection. EPA will produce guidance documents, training, and technical assistance necessary for states and tribes to effectively monitor and evaluate their waters for the presence and control of PBTs. Supporting objective 3, these water quality criteria could be used to modify in-plant processes in the Effluent Guideline process and to modify NPDES permit limits.

- (+$300,000 EPM) This will support helicopter-based monitoring activities in the New York-New Jersey area.

- (+$250,000 EPM) This supports improving the Integrated Risk Information System (IRIS) database. EPA will work to ensure consistent quality preparation and peer review of new or revised IRIS files and support documents that we will generate for high-priority chemicals.

- (+$103,000 EPM) This supports the continued use of ecological assessments in the permitting of ocean discharges. Use of ecological assessments helps ensure the health of living marine resources, including commercially-important fish species taken for human consumption.

- (+$70,400 EPM) This increases support for higher-priority water quality monitoring and assessment activities.

- (-41.7 total workyears EPM) and (-$2,873,200 EPM) This reflects a technical correction to the distribution of Regional management workyears.

- (-$1,000,000 EPM) This reduction from EPA support for CALFED is in

recognition of the interagency resources requested by the Department of Interior.

- (-$700,000 EPM) This is a reduction from the Chesapeake Bay Implementation Grants to states. The states will be encouraged to apply for nonpoint source funding assistance under Section 319, which is an area of investment in the Budget.

- (-$519,200 EPM) This reflects the completion of major system development work in our efforts to modernize STORET, our national ambient water quality data system.

- (-$136,600 EPM) This is a reduction from Great Lakes RAP implementation.

- (-$100,000 EPM) This reflects the completion of the final contaminated sediment strategy in 1998.

- (-$87,500 EPM) This reduction is from the Chesapeake Bay modeling program. Modeling has been a large focus of the CBP to be able to understand how nutrient reductions will affect nutrient levels in the Bay and, ultimately, living resources. Model development has been ongoing for several years and the CBP now has internationally recognized models. While the models will continue to be refined, it is no longer necessary to fund model development at current levels.

- (-$87,500 EPM) This reduction is from the Chesapeake Bay living resources program. The CBP will work with other Federal agencies to combine funding for priority habitat restoration projects.

- The 1999 request is $29,862,000 below the 1998 Enacted budget level due to Congressional Add-ons received during the appropriations process, but not part of the 1999 President's Request.

S&T

- (6.9 total workyears S&T) This supports EPA's Postdoctoral research program. This investment will introduce highly educated, energetic, and innovative researchers to EPA's in-house research program.

- (17.0 total workyears S&T) These will be redirected within this objective to support an increased emphasis on the development of data and methods to evaluate the effects of sediment contaminates at the ecosystem level, with a transition of resources from strictly chemical-specific research. The 17 workyears will be directed out of more narrowly focused research to determine the biological effects resulting from exposure to specific contaminants in sediments.

- (-$833,600 S&T) This will be reduced from research to evaluate the exposure to contaminated sediments at population, community and ecosystem scale. Limited funds were allocated to other, higher priority research areas.

Key Performance Measures	1998	1999
States submit adequate 305(b)	50 States	
States electronically submit updated 305(b)		20 States
States submit 303(d) lists	50 States	
States submitting implementation plans for TMDLs impaired solely or primarily by NPS		25 States
Completed CCMPs	19 CCMPs	24 CCMPs
Biennial review of first NEPs	12 NEPs	
States/territories with National Marine Debris Monitoring	20 States	
Report on ocean disposal testing requirements		1 Report
Appropriate actions taken re: dredged material ocean disposal		5 Actions
Gulf States with enhanced nutrient monitoring/management programs	2 States	
Gulf States with community-led nutrient loadings reduction strategies		2 States
MS River Basins integrated in the Gulf hypoxia assessment system	2 Basins	6 Basins
Gulf watersheds with State actions to reduce point and NPS loads to shellfish growing waters		2 Watersheds
Models, methods, criteria developed/available for risk characterization of surface water contaminants	1 List	1 List
States for which EPA has reviewed and approved or disapproved new or revised water quality standards	10 States	15 States
Tribes with water quality standards adopted and approved	17 Tribes	22 Tribes
Stream miles reopened	137 miles	
Acres of submerged aquatic vegetation (SAV) in the Chesapeake Bay		65,000 Acres

Key Performance Measures	1998	1999
States developing tools/programs to assess wetland improvement or deterioration	10 States	15 States
Watersheds that received funding support for CBEP wetlands/river corridors	50 Watersheds	160 Watersheds
Report on sediment quality criteria for PAHs in sediments.	9/30/98	
Publish reports on Big Darby Watershed-Phase I analysis and Problem Formulation.	9/30/98	
Report on the requirements of submerged aquatic vegetation in coastal environments.		9/30/99
Publish peer reviewed journal article on biotreatment of PAH contaminated sediments.		9/30/99
Methods for assessing ecological and economical impacts for managing watershed protection.		9/30/99

Conclusion

Over the last 25 years, substantial progress has been achieved in cleaning up waters polluted by major dischargers such as sewage treatment plants and industrial facilities. However, states report that broad-based surface water and groundwater quality problems remain. In addition to the problems of chemical pollution, much work remains to be done to maintain and restore the physical and biological integrity of our waters, adversely affected by habitat alteration and destruction, hydrological modification, emerging threats from exotic species and other ecosystem stressors. The principal remaining threats do not involve discrete facilities and conveyances, but derive from the activities of citizens in general. In order to address these more diffuse sources and regionally variable problems, activities conducted in pursuit of this objective will focus on implementing the watershed approach, enlisting as allies all stakeholders, including communities, individuals, businesses, state and local governments, and tribes. Achievement of this objective will confirm substantial progress toward our goal of clean and safe water.

To fully understand the impairments threatening the Nation's water resources and better determine the steps to take to remedy these impairments, comprehensive assessment of water quality is essential. In order to achieve this objective, states and tribes must increase monitoring and assessment of their waters. The EPA Science Advisory Board's 1990 report, "A Framework For Change," has led to a wider acceptance of the fact that physical and biological indicators, as direct measures of aquatic health, are needed in addition to long-standing chemical assessment methods. Chemical methods of assessing water quality need to be supplemented with biological criteria and risk characterization that use the health of the natural systems as measures of progress.

This objective is designed to restore and maintain the chemical, physical, and biological integrity of the Nation's waters overall and reduce human health, ecological and quality of life risks. By identifying and informing the public of risks and providing the tools needed to assess and address those risks, we can better focus the management of environmental risks on a watershed basis. In addition to risk reductions, we will enhance service delivery through our targeted electronic information initiatives, streamlining efforts, and a continued emphasis on information flow to and from stakeholders via the watershed approach.

Key to the success of this objective is the attainment of "designated uses" as determined by states and tribes and reported by them periodically as required by Clean Water Act §305(b). These designated beneficial uses include drinking water supply; recreation; protection, propagation, and consumption of fish, shellfish, and wildlife; and other agricultural, industrial, and navigational uses. Biological and numerical chemical water quality and sediment criteria are crucial to quantifying the minimum physical, chemical, and biological parameters required to support a designated use. By moving from 69% attainment in assessed waters to our goal of 75% attainment, EPA will continue to move aggressively toward its goal of clean and safe water.

Source reduction activities under objective 3 are also critical to achieving the designated use targets under objective 2. Efforts to support environmentally-sound planning and management practices in coastal and marine areas will also address problems facing our Nation's aquatic ecosystems such as aquatic debris, vessel discharges, dredged material management, control of non-indigenous species, habitat loss, nutrient and pathogen contamination, and declines in fish and wildlife.

Consistent with the President's Wetlands Plan and with the Clean Water Action Plan, the Nation will progress towards a significant reversal in historic trends of wetlands destruction, first by achieving a balance between the annual acreage lost and that gained and subsequently by achieving a net annual gain, primarily by restoring former wetlands. This will re-establish fish and wildlife habitat, improve water quality, and restore hydrological processes. This initiative will expand community-based partnerships to restore wetlands and associated river corridors, using nutrients to produce helpful wetland plants instead of harmful algae in receiving waters.

In addition to increasing our inventory of wetlands, we must improve their quality by better managing stressors that impair wetlands functions and values. EPA will develop and implement tools to better determine the extent to which our efforts to reduce these stressors result in better habitat, water quality improvement, more species diversity, and enhancement of other critical functions and values.

Still, we recognize that even after meeting our current objective, much work will remain. The projected 25% of waters that will still not support healthy aquatic communities will represent some of the most difficult remaining issues. These waters, impeded by relatively persistent problems -- substantial hydrological modification, channelization, degradation or destruction of riparian buffers, in-place contaminated sediments -- must also be addressed.

We must continue to bolster our programs to address other continuing threats to the overall health of aquatic communities such as nutrients, pathogens, habitat loss, sedimentation, and invasive species. Protecting waters from degradation will involve use of the same types of education and information activities that are currently being used in areas needing restoration.

The research done within this Objective will improve the : (1) understanding of the structure and function of aquatic systems; (2) understanding of fundamental ecosystem characteristics and processes that determine ecosystem sensitivity to stressors (chemical, physical, and biological); (3) evaluation of the exposure to and effects of physical, biological, and chemical stressors--including the exposure and effects of contaminated sediments; (4) development of ecological risk assessment methods and integration of criteria types for the protection of ecosystem integrity including endangered or threatened species; (5) development of new criteria types (biological, habitat and wildlife criteria); and (6) development of cost effective technologies for managing contaminated sediments with an emphasis on identifying innovative in situ solutions.

As a geographic initiative of national importance, the Gulf of Mexico Program's special emphasis is on three critical goals that were identified by the citizens of the Gulf states: (1) Protecting their human health and food supply; (2) Maintaining and enhancing the sustainability of the Gulf's resources on which they depend; and (3) Maintaining and improving the critical habitats that support the richness and abundance of the Gulf's resources. Within these goals, the Gulf Program will focus its performance goals and measures on four priority threats to the ecological and economic health of the Gulf state communities: (1) Gulf hypoxia; (2) Shellfish growing waters contamination of over 57% of the Gulf's growing waters; (3) Critical habitat degradation; and, (4) Introduction of nonindigenous species that threaten the ecology of communities throughout the region. Through strategic planning and assessment, integrated environmental indicator tracking and analysis, and community education, outreach, technology, and strategic community project assistance, the Gulf Program will provide the opportunity to develop state, regional, federal, and non-government activities to implement local solutions and practices whose successes can be transferred to watersheds nationwide.

Annual performance goals for the Chesapeake Bay will help to achieve the overall directive, by working with federal, state, and local partners, as well as private organizations, to implement nutrient and toxic reduction strategies and to improve habitat. All of these goals will be met through working closely with stakeholders on a voluntary basis and will have clear environmental results. These results will include reductions in nutrients from point and nonpoint sources, reduction in toxics through pollution prevention of toxics, and improvement of habitat for fish and shellfish.

Key Performance Measures Verification

Each State, Territory, Interstate Water Commission, the District of Columbia and participating Tribe must, per Clean Water Act Section 305(b), develop a program to monitor water quality of its surface and ground waters and prepare a report describing the status of its water quality. This 305(b) process is the principal means by which EPA, Congress, and the public evaluate whether U.S. waters meet water quality standards, the progress made in maintaining and restoring water quality, and the extent of the remaining problems.

EPA with the assistance of the States, other jurisdictions and participating Tribes prepares guidance to delineate the water quality elements needed as well as guidance to ensure consistency and comparability of the water quality monitoring and assessments. The Water body System (WBS) defines and tracks the data elements at the water body level and summarizes at various scales. The WBS provides coding guides with technical instructions for data users. The numbers of total State waters are obtained using EPA's Reach File

Version 3.0 . The guidance describes annual electronic protocols for submission of the water quality data.

In addition to our Section 305(b) reporting, several of our 1999 performance measures for this objective are based largely on programmatic outputs and activities that can, in the near-term, serve as adequate surrogates for determining the extent to which our programs are moving the Agency toward its environmental goals. As such, verification of the quality of data will be conducted through normal communications among EPA offices and Regions and with states and other partners. For example, the review of the ocean dumping testing requirements will provide numerous opportunities for stakeholders nation-wide to help identify the issues and priorities involved in the review. In addition, the review process and outcome will be guided by a Federal Advisory Committee, assuring high quality, independent advice on the most appropriate revisions to the testing requirements. These measures, in contrast to certain environmental outcome measures planned for the future, typically include annual or other routine reports from state agencies, but also include milestones in established processes where verification can be established through EPA staff involvement.

EPA is a member of an interagency working group that will reconcile wetlands trends data from the Department of Interior's National Wetlands Inventory and the Department of Agriculture's Natural Resources Conservation Service's Natural Resource. In addition, EPA has requested that the Wetlands Subcommittee (Chaired by the Fish and Wildlife Service) of the Federal Geographic Data Committee reconcile differences among agencies in the reporting of wetland acres created or restored that are appropriate for tabulating as increases in the inventory of the nation's wetlands.

The Gulf of Mexico Program's performance evaluation process is supported through the distributed Quality Assurance/Quality Control Plan of the Office and those of the participating federal departments and agencies. Additionally, the Gulf Program has organized a Scientific Review Committee of regional experts (both public and private) that assist in the review and verification of the environmental analyses and performance evaluations administered by the Program.

EPA has several strategies to validate and verify performance measures in the area of environmental science and research. The Agency has implemented a risk-based research planning process to use risk assessment and risk management as principal priority-setting criteria. EPA conducts annual research program reviews to both evaluate the status and accomplishments of its research and determine planning priorities. To better draw upon the expertise of the environmental academic community, EPA created the Science to Achieve Results (STAR) program of peer-reviewed, mission-driven extramural grants; the Agency is also working with the National Research Council to identify emerging environmental issues for which we must begin planning the necessary research.

Chief among the Agency's validation and verification mechanisms is a rigorous peer review process. In a July 1997 memorandum, EPA's Deputy Administrator stated that peer review will be expanded "to include both the major work products provided in the past and...all scientific and technical products supporting Agency decisions..." This expanded and strengthened focus on peer review will help ensure that the performance measures listed here are verified and validated by external organizations. The Agency utilizes peer review throughout the research planning and implementation process, both to ensure that planned research addresses critical knowledge issues within EPA's mission, and to assess the quality of scientific research plans, products, and proposals. This is accomplished through the use of independent entities such as the Science Advisory Board (SAB)and the Board of Scientific Councilors (BOSC). The BOSC, established under the Federal Advisory Committee Act, will even examine the way

the Agency uses peer review, as well as the management of its research and development laboratories.

EPA's external research program undergoes extensive peer review. Proposals from the external scientific community are peer-reviewed and projects are then selected for funding through grants or cooperative agreements. In addition, Requests for Applications (RFAs) under the STAR program are often developed jointly with outside partners such as the National Science Foundation. In this way, EPA has developed a mechanism by which to check the quality and relevance of its research program.

The Office of Research and Development Management Information System (OMIS) will be another accountability tool used to verify and validate performance measures. The recently developed GPRA structure will be incorporated into OMIS to ensure consistent maintenance and reporting, resulting in greater accuracy and consistency of information to users.

Statutory Authority

CWA (33 U.S.C. 1251-1387)

[Other related authorities, directives, obligations: CAA section 309 (42 U.S.C. 7609); TSCA section 6 (15 U.S.C. 2605), ESA (16 U.S.C. 1531-1544), and NEPA (42 U.S.C. 4321-4370d)]

Objective #3: Reduce Loadings and Air Deposition

By 2005, pollutant discharges from key point sources and nonpoint source runoff will be reduced by at least 20 percent from 1992 levels. Air deposition of key pollutants impacting water bodies will be reduced.

Overview

A key element of the Agency's effort to achieve its overarching goal of clean and safe water is the reduction of pollutant discharges from point and nonpoint sources. To reduce pollutant loadings from point and nonpoint sources, the Clean Water Act established requirements for national technology-based effluent limitations and water quality based limitations implemented through standards for point sources. In support of these and other requirements, EPA and the states operate the National Pollutant Discharge Elimination System (NPDES) permitting, Clean Water State Revolving Fund (CWSRF), sediment management, and nonpoint source control programs. Under the NPDES program (which includes NPDES permits, the pretreatment program for non-domestic wastewater discharges into municipal sanitary sewers, and for biosolids management controls), specific limits are set for pollutants discharged from point sources into waters of the United States. These limits are designed to ensure that national technology-based standards (effluent limitations and guidelines) and water quality based requirements are adequate to meet water quality standards throughout the country. Establishing Total Maximum Daily Load (TMDL) levels for specific waterbodies plays an important role in defining the specific objectives for point and nonpoint sources. Financial assistance for many of these activities is provided through the Section 106 grant program included under Objective 2 of the Agency's Clean Water Goal: Conserve and Enhance Nation's Waters. EPA also provides financial assistance through the CWSRF program to states for the construction of wastewater treatment facilities and other water quality management activities. The program is also fostering the use of CWSRF loans to finance the highest priority traditional and nontraditional projects on a watershed or statewide basis including nonpoint source projects.

These base programs have been largely responsible for the substantial progress made to date in reducing water pollution. Providing states with continuing support is essential to achieving this objective and the overall goal of clean and safe water. EPA, in partnership with the states, will continue to ensure that all facilities required to have a permit have one that is effective and includes all conditions needed to ensure water quality protection. The Agency will continue its efforts to streamline and simplify the effluent guidelines rulemaking process and implementation of the NPDES program, and we expect to issue final regulations to streamline the administrative and procedural requirements of the NPDES and pretreatment programs. In addition, both the NPDES and CWSRF programs will continue to reorient to a watershed focus.

States report that pollution from nonpoint sources is now the single largest remaining cause of water pollution, with agriculture as a leading cause of impairment in 25% of the river miles surveyed. In order to meet this objective and restore and maintain water quality, significant loading reductions

from nonpoint (NPS) sources must be achieved. Because EPA has limited direct NPS authority under the Clean Water Act, state NPS programs are critical to our overall success. States will need to make revisions to their existing nonpoint source programs and fully and expeditiously implement all of the nine key program elements agreed to with EPA. In addition, coastal states will need to implement their EPA/NOAA-approved Coastal Zone Management Act Reauthorization Amendments (CZARA) coastal nonpoint source programs. In recognition of the importance of addressing nonpoint sources and the critical role states play in those efforts, a significant investment is proposed in 1999 under the Clean Water Action Plan, which is partially funded as part of the Administration's Clean Water and Watershed Restoration Initiative, for direct grant assistance to states for implementing their nonpoint source programs.

EPA's nonpoint source program provides program, technical, and financial assistance to help states implement programs to control various forms of runoff. Within this objective, $215,524,800 is requested to reduce nonpoint source sediment and nutrient loads, of which $200,000,000 is for direct grant assistance to states. While agricultural sources are the most significant category of nonpoint source runoff, state NPS programs address all categories of NPS runoff with a mix of voluntary and regulatory approaches. These state programs are the primary means for implementing nonpoint source TMDL allocations and for achieving water quality standards. EPA's nonpoint source program works closely with a number of other Federal agencies to help reduce runoff and encourage private sector partnerships to spur voluntary adoption of NPS controls. As the program moves forward, new tools, best management practices, and NPS and contaminated sediment control strategies will need to be developed in cooperation with states, tribes, other Federal agencies and the private sector. State implementation plans for nonpoint sources will be required to provide reasonable assurances that load allocations within an approved TMDL are met for waters impaired solely or primarily from nonpoint sources.

As part of the Clean Water Action Plan, EPA (in coastal areas working with NOAA) will increase our efforts to promote the establishment of authorities by all states, by October of 2000, needed to assure the implementation of nonpoint source controls to achieve water quality standards, with particular emphasis on nutrients and other NPS pollutants of concern in specific priority watersheds. EPA will publish guidance describing existing and potential models of enforceable authority related to polluted runoff and will assist states in this effort. As part of this increased effort, EPA will work with states on upgrading their polluted runoff programs to better ensure NPS implementation; and, EPA (in concert with NOAA) will work to ensure that all states have developed fully-approvable programs to reduce polluted runoff in coastal areas.

Achieving the ambitious targets under this objective will only be possible through a strong continuing partnership between various parts of the National Water Program, states, municipalities, industry, advocacy groups, individual citizens, and other federal agencies. Programs will be increasingly implemented on a watershed basis in support of the Agency's focus on Community Based Environmental Protection (CBEP).

As part of the Clean Water Action Plan, states will be working with public and private sector agencies and organizations and citizens to develop Watershed Restoration Action Strategies for watersheds most in need of attention in the 1999-2000 period. Additional Section 319 grants will be targeted to support implementation of priority NPS and watershed protection activities called for in State Watershed Restoration Strategies, including those implementation actions necessary to support NPS management and controls outlined in TMDLs developed for NPS-impaired priority waters.

Over the next five to ten years, the Agency will place much greater emphasis on controlling wet weather sources of pollution from combined sewer overflows (CSOs), sanitary sewer overflows (SSOs), and storm water and will focus greater attention on the impacts of contaminated sediment. Nationally, urban runoff is a leading cause of impairment in 18 percent of the estuaries, 8 percent of lakes, and 5 percent of rivers surveyed by states. This runoff has significant economic as well as environmental impacts. Implementing cost-effective wet weather programs will pose new challenges for EPA, states, cities, and industry -- both technologically and financially. However, by having these programs in place, we will be able to implement basic wet weather water pollution controls for all major point sources and will achieve a major milestone for the National Water Program. By the end of 1999, the Agency expects to publish final regulations to control storm water from small municipalities and commercial sources, to have all 950 CSO communities covered by NPDES permits and implementing controls based on EPA's CSO policy, and to issue an SSO policy and modification of the NPDES regulations to clarify reporting requirements and prohibition on SSO discharges.

In support of the Clean Water Action Plan, EPA will place emphasis on updating regulatory programs related to animal waste management in order to reduce environmental and public health problems caused by animal feeding operations (AFOs). Agricultural practices in the United States are estimated to contribute to the impairment of over 25 percent of the Nation's surveyed rivers and streams; 19 percent of the Nation's surveyed lakes, ponds, and reservoirs; and 10 percent of the Nation's surveyed estuaries. Intensive animal operations alone, not including the potential runoff from farms using manure as fertilizer, are estimated to adversely impact 20 percent of waters impaired by agricultural practices. The Agency is developing a multi-year strategy to address how it will minimize environmental and public health impacts from AFOs over the next decade and beyond. By the end of 1999, the Agency expects to have in place a national inventory of AFOs with estimates of pollutant loadings. The Agency also plans to analyze the number of AFOs which are currently permitted by EPA and states and the extent to which those permits include manure management requirements.

EPA will work towards delivering decision support tools and alternative, less costly wet weather flow control technologies for use by local decision makers involved in community-based watershed management. Wet weather flow (WWF) discharges pose significant risk to both human health and downstream ecosystems. These discharges have the potential to result in widespread, short-term high exposures to infectious agents which can result in gastrointestinal illness and even death. In addition, there is an increase in chronic, long-term contamination of sediments and the aquatic food chain through the release of persistent, bioaccumulative toxic agents. Effective watershed management strategies and guidance for WWF dischargers is one of the key priority areas remaining to assure clean water and safe drinking water.

Wet weather flow research will develop diagnostic tools to evaluate the exposures to toxic constituents of Wet Weather Flows, and develop and validate effective watershed management strategies for controlling Wet Weather Flows, especially during high volume and toxic Wet Weather Flows. This research will also develop and provide effective beach evaluation tools necessary to make timely and informed decisions on beach advisories and closures.

The Beaches Environmental Assessment, Closure and Health (BEACH) research program will develop and provide the tools necessary to make timely and informed decisions on beach advisories and closures, develop models that can be used to predict when beach closures or warnings are needed, and develop faster, cheaper test methods and indicators for detection and measurement of human pathogenic

microbes. These efforts will complement work being done under Objective 1 of the Clean and Safe Water Goal to ensure that exposure to microbial and other contaminants at beaches is reduced and waters support designated recreational uses.

EPA provides financial assistance through the CWSRF program for the construction of wastewater treatment facilities and implementation of nonpoint source and estuarine management plans. The Agency also provides technical assistance through staff and through other networks and outside associations that come together to support community needs. These efforts include dissemination of information on wastewater technologies, enhancement of community awareness of financing programs, assistance with program development activities, and, with Office of Research and Development (ORD) support, the establishment of a technology testing center. Federal capitalization funds are a critical component of financing for point and nonpoint source programs aimed at reducing pollutant discharge levels. In 1999, the Agency is requesting $1,075,000,000 in capitalization grants to the Clean Water State Revolving Fund. Combined with the Drinking Water SRF 1999 funding (discussed in Objective 1 of this Goal) and outyear capitalization, this level enables both SRFs to meet the Administration's long-term goals for providing $2.5 billion per year in funding assistance to needy communities. The CWSRF is expected to provide about $2 billion of this amount. Also in 1999, the Agency expects that 50 percent of state CWSRF programs will meet or exceed threshold measures for the appropriate pace of program implementation including loan issuance, construction progress, and loan repayments. In addition to the CWSRF program, the Water program is responsible for managing Water Quality Cooperative Agreements and the section 106 grants program which directly support efforts to reduce point source loadings. The Agency continues to manage the construction grants close-out process and expects by the end of 1999 to have closed-out all but 175 projects.

As part of the Clean Water Action plan, the Agency will place special emphasis on activities which will allow us to meet the goal of restoring and protecting America's water resources. These will include a multi-pronged effort to address sources of nutrients and pathogens from animal feeding operations; a mining initiative which will provide a comprehensive and consistent approach to restoring abandoned resources extraction sites; an effort to establish management programs for rural or suburban on-site wastewater treatment systems; and work on outreach and data collection for a proposed revision to the NPDES regulations to remove or modify the current exemption of forest roads from NPDES program requirements. Other high priority activities during 1999 will include implementation of the pulp and paper rule; development of proposed regulations for cooling water intakes (rules currently subject to court order); a revitalization of the Whole Effluent Toxicity program; and support of special activities for Tribes such as training in water quality monitoring and direct implementation assistance for the NPDES program.

Control of atmospheric deposition of pollutants is important because it is a significant source of nonpoint pollution, and traditional land-based water pollution controls alone may not be sufficient to meet the water quality goals for some watersheds. As part of the Clean Water Action Plan, EPA will work with other Federal, State, and local agencies to better quantify the risks associated with atmospheric deposition of nitrogen compounds and other pollutants to water bodies. EPA will also work with States and Tribes to use both Clean Water Act and Clean Air Act authorities to reduce air deposition of nitrogen compounds and other pollutants adversely affecting water quality. To address air deposition, the Agency has established a cross-media team to plan and implement strategies to reduce air deposition. As a result, water quality protection has taken a prominent place in regulatory development under the Clean Air Act, in air

research, and in the focus of partnerships with local communities. Air deposition is being addressed Agency wide as an ecosystem problem with health, environmental, and economic impacts. Increased transportation demands associated with urban sprawl and other land development may increase air deposition loads. In 1999, the Agency will further clarify the mechanisms of and risks from airborne sources of persistent bioaccumulative toxics, nutrients, and other pollutants and link this cross-media effort with existing mercury and toxaphene source reduction programs from the Great Lakes and other Great Water Bodies. Activities will also include issuance of reports on the effects of air deposition of mercury on aquatic ecosystems and on air deposition of nitrogen to watersheds and estuarine systems, along with the initiation of coordinated studies of air deposition to near shore ocean waters and air deposition contributions to drinking water contamination. Resources will also be devoted to incorporating air deposition in existing geographically-based models that states and tribes use to develop TMDLs and calculate permit limits. Within this objective, $831,400 is requested for air deposition activities.

The Agency, through Office of General Counsel activities, supports this objective through legal counseling and advocacy. This may include advice, participation in the development of Agency actions, document review, and the conduct of defensive litigation.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 03 Reduce Loadings and Air Deposition	**$1,469,856.6**	**$1,893,074.1**	**$1,486,519.5**
Environmental Program & Management	$113,023.8	$116,170.9	$127,453.8
Science and Technology	$3,832.8	$4,278.2	$6,065.7
State and Tribal Assistance Grants	$1,353,000.0	$1,772,625.0	$1,353,000.0
Total FTE	847.8	859.8	885.7

1999 Annual Performance Goals

- Another 3.4 million people will receive the benefits of secondary treatment of wastewater, for a total of 183 million.
- More than 220 communities will have local watersheds improved by control on combined sewer overflows and storm water (base of zero).
- All of the current permits for the 950 CSO communities will be based on EPA's 1994 CSO policy.
- All storm water sources associated with industrial activity, construction sites over 5 acres, and designated storm water sources will be covered by current NPDES permits.

- 90% of major point sources discharging toxics will be covered by current NPDES permits.
- An assessment of necessary elements of a comprehensive general permit will be developed to aid Regions and States to issue permits to concentrated animal feeding operations.
- 30 states are funding nonpoint source and estuary projects with their CWSRFs.
- 25 states are using integrated priority setting systems to make CWSRF funding decisions.
- Initiate operations at a total of 5000 CWSRF projects.
- 38 states meet or exceed "pace of the program" measures for loan issuance, pace of construction, and use of repayments, in the CWSRF program.
- All states and Puerto Rico conduct separate annual audits of their CWSRFs and utilize fund management principles
- 30 Colonias projects will have been completed or under construction.
- All but 175 of the remaining construction grants projects will be closed out.
- 50% of biosolids are beneficially reused.
- Take final action on two and propose one effluent guidelines limitations for industrial categories that contribute significantly to pollution of surface waters.
- 20% of pretreatment facilities audited per year.
- Development of a national inventory of AFOs and estimates of pollutant loadings.
- Quantify the number of AFOs which are currently permitted by EPA and states and the extent the permits include manure management requirements.
- In support of the Clean Water Action Plan, 10 additional States will upgrade their nonpoint source programs to ensure that they are implementing dynamic and effective nonpoint source programs that are designated to achieve and maintain beneficial uses of water.
- Issue a report on the use of atmospheric and bioaccumulation models to assess extent of air deposition in estuaries and effectiveness of potential controls.
- By FY 2003, deliver support tools, such as watershed models, enabling water resource planners to select consistent, appropriate watershed management solutions and alternative, less costly wet weather flow control technologies.
- Initiate research into beach contamination from pathogens.

A key goal for the National Water Program in 1999 is to have all of the current NPDES permits for the 950 combined sewer overflow (CSO) communities be based on EPA's 1994 Combined Sewer Overflow Policy. The 1994 Policy addresses

a significant water pollution and public health threat in a flexible, cost effective manner that provides for local discretion and negotiated, site-specific approaches leading to loading reductions and the achievement of water quality standards. CSOs contribute to shellfish bed closures, beach closures, aesthetic problems, and impairment of designated uses. Another key goal for the National Water Program in 1999 is to have local watersheds in more than 220 communities improved by controls on CSOs and storm water. Controlling CSOs will reduce pathogens, biological oxygen demand (BOD), total suspended solids (TSS), and will contribute to the overall reduction in pollutant loadings. The Policy is implemented through NPDES permit issuance, which is reflected by the Annual Performance Goal.

Another 1999 program performance goal is that all storm water sources associated with industrial activity, construction sites over five acres, and other designated storm water sources will be covered by current NPDES permits. Urban runoff, mostly comprised of storm water, has been identified by states as the source of water quality impairment in 46 percent of estuaries, 19 percent of lakes, and 12 percent of rivers assessed by states. By assuring that all storm water sources are covered by credible, effective NPDES permits, EPA starts the process by which facilities prevent pollutants from being introduced into storm water, and thus reduces the overall pollutant loading to surface waters.

The Agency has also established a performance goal that 90 percent of major point sources discharging toxics will be covered by current NPDES permits. By assuring that NPDES permits fully implement controls on toxics required by new pretreatment standards, effluent guidelines and water quality standards, EPA will ensure that facilities reduce the overall pollutant loading to surface waters.

Another key program performance goal is that the necessary elements of a comprehensive general permit will be developed to aid EPA and states to issue permits to concentrated animal feeding operations. States have identified agriculture as a leading source of impairment in 25 percent of rivers and 19 percent of lakes assessed, and have further identified intensive animal operations as the cause of 20 percent of the impairment. By assuring that concentrated (mostly large) animal feeding operations (AFOs) are covered by credible, effective NPDES permits, EPA accelerates the process by which facilities reduce the overall pollutant loading to surface waters. EPA and state experience show that general permits provide the greatest scope of coverage for concentrated animal feeding operations, and thus developing a model comprehensive general permit will facilitate EPA and state issuance of a permit for these sources. In support of these efforts, the Agency will be developing an inventory of AFOs, preparing estimates of pollutant loadings from AFOs, and analyzing the AFO inventory to determine which feeding operations are currently covered by permits and the extent to which permits specifically address manure management requirements.

One of EPA's 1999 goals is to ensure another 3.4 million people will receive the benefits of secondary treatment of wastewater, for a total of 183 million. Additional program performance goals address the Clean Water SRF program's ability to address a state's highest environmental priorities on a watershed basis. The Clean Water Act requires states to establish priority systems for the use of their CWSRF funds, but provides them broad discretion in the priority of making loans. Historically, most states have used their CWSRF funds to support the construction of municipal wastewater facilities. In 1997, the Agency, in close cooperation with the states, developed a funding framework which encourages the States to integrate priority setting for municipal wastewater treatment, nonpoint source management plans, and estuarine management plans on a state-wide or watershed basis. The program has established a 1999 performance goal that 25 states will be using fully integrated priority setting processing

to align their funding decisions with their highest priority needs and that 30 States are funding nonpoint source and estuary projects as well as traditional municipal wastewater treatment facilities.

In the last few years, the Agency has established indicators to measure the pace of the Clean Water SRF program and encouraged the states to exceed threshold levels of loan issuance, construction, and the use of repayments. The 1999 performance goal is that 38 states will meet or exceed these threshold measures for loan issuance, construction progress, and use of loan repayments.

Through June 30, 1997, over $24 billion in CWSRF assistance has been made available for CWSRF loans. By the end of 1999, EPA expects that 5,000 projects funded with CWSRF loans will be in operation and achieving their environmental goals.

EPA has encouraged all states to conduct more detailed audits than required by the Single Audit Act. These audits would include reviews of internal controls of CWSRFs. EPA's goal is that all States will conduct such audits by the end of 1999.

Another performance goal for the National Water Program in 1999 will be the construction of wastewater projects in disadvantaged communities, called *colonias,* on the U.S. side of the U.S./Mexico border. By achieving the 1999 goal of 30 projects completed or under construction, the program will assist *colonias* to achieve basic sanitation needs, reducing occurrences of hepatitis, gastrointestinal illnesses, and other diseases. Projects underway will provide benefits to more than 282,000 people who have been living in the U.S. without modern wastewater facilities.

EPA will also continue to manage the timely and effective completion of the construction grants program to ensure that its high standards of fiduciary responsibility are maintained with a goal of closing out all but 175 grants by the end of 1999. This program was largely responsible for the past advances made in effective pollution control.

The beneficial reuse of biosolids will continue as a program priority. For 1999, the program has established a performance goal that 50% of biosolids will be beneficially reused. Efforts in this area will lead to a reduction in pollutant discharges by effectively managing the residuals of the wastewater treatment process and ensuring that a valuable resource is used effectively.

With respect to evaluating stream system indicator methods, exposure research will be done to develop diagnostic tools to characterize the key sources and stressors in multi-stressed ecosystems. This research will use the data from a variety of biological and biochemical indicators to fully realize their source diagnostic potential. This research will also develop source and stressor signatures using biological stream measurements, including fish and invertebrate assemblage, biological markers, aquatic toxicity data, and habitat information. Exposure research will also be done to develop and provide the tools necessary to make timely and informed decisions on beach advisories and closures. EPA will develop models that can be used to predict when beach closures or warnings are needed. EPA will develop faster, cheaper test methods and indicators for detection and measurement of human pathogenic microbes, as there is growing evidence of the risk of infectious diseases resulting from exposure to microbes in recreational waters.

With respect to improved watershed management and controls, risk management research will be done to develop and validate effective, less costly technologies and approaches to treat high volume and toxic Wet Weather Flow (WWF) discharges.

The focus of this program is to develop alternative, less costly WWF control technologies for use by local decision makers involved in community-based watershed management and pollution control. Risk management research will also be done to develop and validate effective watershed management strategies and guidance for communities to select the most appropriate subset from these to match specific watershed WWF management needs. This research will involve development of decision support tools to evaluate and verify improved watershed management strategies. A truly holistic watershed management approach will include practical interaction with flood and erosion control, reuse and reclamation techniques, and infrastructure demands while protecting the watershed environment including source waters. A major public health emphasis will be placed on WWF management needs. This program is designed to promote "community-based" decisions by developing decision support tools and alternative WWF control technologies and strategies for use by local decision makers involved in community-based watershed management and pollution control.

EPA's research program will invest in a stream of highly trained, postdoctoral scientists who can apply current state-of-the-science to EPA research issues. This investment will introduce highly educated, energetic, and innovative researchers to EPA. Postdoctoral students would work in EPA's National Laboratories and Centers. These students would make a significant contribution to strengthening EPA's in-house research program.

Another performance goal under this objective assures that effluent guidelines limitations will continue to be developed and promulgated for major industrial categories. As states and municipalities implement these guidelines through NPDES permits, further reductions in pollutant loadings will be realized. The Agency estimates that in 1999, the promulgation of the final guidelines for the Centralized Waste Treatment industry will result in an annual reduction of 85 million pounds of toxic and conventional pollutants from these industrial discharges. The promulgation of the final guidelines for Industrial Laundries will result in an annual reduction of 27 million pounds of toxic and nonconventional pollutants. The Agency will support the Clean Water Action Plan goal of reducing nutrient over enrichment by developing effluent guidelines limitations for animal feeding operations. A proposed rule is expected in late 1999. Further, the Agency will support existing technology-based standards by providing implementation guidance documents and supporting appropriate legal defense in instances where the guidelines are challenged.

Working with the states to upgrade their nonpoint source programs to reflect the nine key elements of the Agency's 1997 guidance is a key component in achieving the objective of reducing sediment and nutrient loads. Some of the elements in the guidance are: establishing explicit short and long-term goals, developing objectives and strategies to protect surface and ground water, developing strong working partnerships and collaboration with appropriate stakeholders, maintaining a balanced approach that emphasizes statewide nonpoint source programs and on-the-ground management of individual watersheds where waters are impaired or threatened, identifying waters and watersheds that are impaired or threatened by nonpoint source pollution and a process to address these waters, and developing a feedback loop whereby the state reviews, evaluates and revises its nonpoint source program at least every five years.

In the area of air deposition, the Agency has committed to producing a report on its assessment of atmospheric deposition to estuaries based on modeling efforts. The report will provide crucial data regarding the effects of airborne mercury on aquatic ecosystems. A better understanding of these effects will increase the capacity of all stakeholders to protect aquatic ecosystems from the

effects of air-deposited mercury and other pollutants, and will support attainment of reduction goals for airborne persistent toxics and nitrogen.

The Annual Performance Goals describe a suite of program activities focused on gaining control of the most significant remaining point source problems including wet weather sources (storm water, CSOs, and SSOs), animal feeding operations, and mining activities. Successful completion of the goals will add controls that will result in great progress towards meeting the objective of a 20% reduction in point and nonpoint source loadings by the target date of 2005.

Many of the environmental benefits resulting from achieving the Annual Performance Goals will not be fully realized until 2005. New controls are implemented in NPDES permits as the permits expire, and this occurs over a five year cycle. Facilities require time to install new treatment technology or revise their manufacturing process in order to comply with the new controls in the permits. Typically, facilities require at least three years to comply, although with wet weather sources this may take up to 15 years. Thus, completion of the Annual Performance Goals will not always result in immediate annual loading reductions, but will accelerate the process that, over the following five years, will help achieve the desired 20 percent reduction goal for point and nonpoint sources.

1998 Annual Performance Goals

- 80% of the current permits for the 950 CSO communities will be based on EPA's 1994 CSO policy.
- All 854 phase I communities will be covered by current NPDES permits.
- A targeting approach will be developed to aid Regions and States identify animal feeding operations that alone or in combination with other feeding operations pose a substantial threat to water quality.
- 18 states are funding nonpoint source and estuary projects with their CWSRFs
- 10 states are using integrated priority setting systems to make CWSRF funding decisions
- Initiate operations at a total of 4000 CWSRF projects
- 30 states meet or exceed "pace of the program" measures for loan issuance, pace of construction, and use of repayments, in the SRF program.
- 40 states and Puerto Rico conduct separate annual audits of their CWSRFs and utilize fund management principles
- 20 Colonias projects will have been completed or under construction.
- All but 322 of the remaining construction grants projects will be closed out.
- Take final action on two and propose five effluent guidelines limitations for industrial categories that contribute significantly to pollution of surface waters.
- 20% of pretreatment facilities audited per year.

- 5 States upgrade their NPS programs to reflect the nine key elements from the 1996 EPA-ASIWPCA NPS Guidance. (Base of zero)
- 29 States/territories with approved or conditionally approved CZARA NPS programs. (Base of zero)
- Evaluate effects of air deposition on estuaries.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
03 Obj. Total Change	**$(406,554.6)**	**25.9**
Environmental Program & Management	$11,282.9	23.3
Science and Technology	$1,787.5	2.6
State and Tribal Assistance Grants	$(419,625.0)	

STAG

- (+$95,000,000 STAG) to nearly double nonpoint source grants under the Clean Water Action Plan. Additional funds will be targeted to support implementation of priority NPS and watershed protection activities called for in State Watershed Restoration Action Strategies.
- (+$2,000,000 STAG) for a grant to New Orleans, Louisiana to support planning, design, construction, and other activities related to the unique storm water problems in the city's sewer system.
- (-$275,000,000, STAG) for the Clean Water State Revolving Fund (CWSRF). The President's Budget request supports the Administration's long term goal for annual financial assistance.
- (-$50,000,000 STAG) from the Colonias program to reflect the completion of the Administration's commitment to this effort. The colonias are still eligible to receive funding from the $100 million in Federal financial assistance from the U.S./Mexico border program requested in 1999 (Goal 6).
- (-$191,625,000 STAG) due to Congressional add-on funds received during the 1998 appropriations process, but not included in the 1999 President's request.

EPM

- (+$4,000,000 EPM) By the year 2000, develop a model linking Urban Stormwater Management Models and the Geographic Information System (GIS). to address threats posed by animal feeding operations (AFOs), including development of a national strategy targeted at AFOs addressing both point and nonpoint source contributions. 1999 activities will include development of a national inventory of AFOs and estimates of pollutant

loadings, as well as an effort to determine the number of AFOs which are currently covered by permits and the extent to which manure management requirements are included in those permits.

- (+$4,000,000 EPM) to provide assistance to communities in reducing point source pollution in watershed restoration areas as part of the Clean Water Action Plan.

- (+$1,500,000 EPM) for a mining initiative aimed at characterizing and remediating surface and ground water contamination resulting from mineral extraction activities.

- (+$745,000 EPM) to develop effluent guidelines limitations of which $300,000 will be for animal feeding operations in support of the Clean Water Action Plan goal of reducing nutrient over enrichment and the impacts of polluted runoff.

- (+$750,000 EPM) to assure comprehensive state implementation on nonpoint source controls to achieve water quality standards and development of upgraded state polluted runoff programs.

- (+$500,000 EPM) to support development of regulations for cooling water intakes under Clean Water Act Section 316(b). The rulemaking will establish requirements that address the location, design, construction, and capacity of cooling water intake structures and will reflect the best technology for minimizing adverse environmental impacts. The rule is being developed under court order.

- (+$500,000 EPM) for implementation of the Pulp and Paper Rule. Efforts will focus on assisting permitting authorities with development of water quality based permits for this sector.

- (+$500,000 EPM) to enhance the Whole Effluent Toxicity (WET) program. The investment will focus on developing the staff and laboratory infrastructure necessary to implement the WET program and better integrate program findings into the NPDES permitting program.

- (+$450,000 EPM) for support to Tribes related to water quality monitoring and direct implementation of the NPDES program.

- (+$1,646,700 and +23.3 workyears EPM) to reflect a technical correction to the distribution of Regional Management work years.

- (14.6 workyears EPM) to be redirected from Construction Grants to support the increased workload in the Mexican Border, Alaskan Native Villages and needy cities programs. The proposed redirection will not jeopardize the Agency's ability to achieve its 1999 performance target for construction grant closeouts.

- (+$500,000 EPM) which will support the establishment of management programs for rural or suburban on-site wastewater treatment systems in accordance with the Clean Water Action Plan.

- (+$1,560,000 EPM) to provide cities with tools and information necessary to develop community-based solutions to pressing environmental problems.

- (+$1,000,000 EPM) for the Sustainable Development Challenge Grants Program.

- (+$500,000 EPM) for data collection and outreach to support proposed revisions to remove or modify the current exemption for forest roads from NPDES requirements as part of the Clean Water Action Plan.

- (+$500,000 EPM) for guidance and other tools to support implementation of the Storm Water Phase II regulations.

- (+$247,000 EPM) to promote enhanced CWSRF fund management at the State level and greater use of CWSRFs for nonpoint source projects in support of water quality goals.

- (-$272,000 EPM) from the Corps of Engineers support of the Construction Grants Program which reflects progress toward the completion/close-out of the program.

- (-$85,000 EPM) from the Municipal NPDES and Sludge Permit Application Rule. The proposed reduction reflects promulgation of the final rule in 1998.

- (-$42,700 EPM) from lower priority nonpoint source activities.

- (-$100,000 EPM) from NPDES/Watershed activities which reflect completion of the Biosolids streamlining rule.

- (-$11,989,000 EPM) to reflect Congressional add-ons received during the 1998 appropriations process, but not part of the 1999 President's request.

S&T

- (+$1,800,000 S&T) will be used to fund the new BEACH research program. This program will enable the Agency to develop and provide the tools necessary for local authorities to make timely and informed decisions on beach advisories and closures.

- (+2.3 workyears S&T) for EPA's Postdoctoral research program. This investment will introduce highly educated, energetic, and innovative researchers to EPA's in-house research program.

- (+$29,200 S&T) for increase to ORD S&T payroll costs to reflect increased workforce costs.

Key Performance Measures	**1998**	**1999**
Facilities with current CSO permit	80% Facilities	100% Facilities
Communities with current NPDES permit	854 Phase I	100% Storm water
Major point sources with toxic loadings covered by NPDES		90% Point sources
Completion of Animal Feeding Operations documents	1 Document	1 Document

Inventory of Animal Feeding Operations/estimate loadings		1 Inventory
Quantify AFOs which are permitted		1 List
States funding nonpoint source and estuary projects with CWSRFs	18 States	30 States
States using integrated priority setting systems to make CWSRF funding decisions	10 States	25 States
Number of CWSRF projects where operations are initiated	4,000 Projects	5,000 Projects
States meeting or exceeding CWSRF loan, construction, and repayments measures	30 States	38 States
States that conduct separate annual audits of their CWSRFs, utilize fund mgmt principles	40 States	51 States
Colonias projects completed/under construction	20 Projects	30 Projects
Number of Title II Construction grants closed out	147	83
Effluent guidelines proposed or promulgated	7 Rules	3 Rules
Biosolids beneficially reused by POTWs		50% Biosolids
Pretreatment facilities audited	20% facilities	20% facilities
States that upgrade NPS programs to reflect 9 key elements	5 States	10 States
States/territories with approved CZARA NPS programs	29 States	
Assessment of effects of air deposition on estuaries	1 Report	
Assessment of effects of mercury air deposition on aquatic ecosystems, connections with human health.		1 Report
Complete needs assessment and research plan for beach contamination from pathogens. Conduct peer review and publish peer review comments on the research plans		9/30/99

By the year 2000, develop a model linking Urban Stormwater Management Models and the Geographic Information System (GIS).	9/30/00

Conclusion

Under the Clean Water Act, EPA is required to protect the Nation's water resources and achieve a goal of restoring and maintaining the chemical, physical, and biological integrity of the Nation's waters. Further reducing both point and nonpoint sources of pollution is essential to meeting this goal.

According to EPA's *National Water Quality Inventory 1996 Report to Congress*, over 30 percent of the waters assessed in the U.S. are too polluted to meet their designated uses. The report identifies urban and agricultural runoff, storm sewers, municipal and industrial point sources, and contaminated sediment as leading sources of impairment. Pollutants in coastal waters led to more than 3,600 beach closures in 1996. Further reduction of point and nonpoint source pollution and the development of an effective sediment assessment and remediation program are clearly needed to improve the quality of the Nation's impaired waters and ensure that America's citizens are protected from significant public health risks. In 1999, the National Water Program will focus its efforts on reducing pollutant loadings from some of the most pervasive sources, including wet weather sources, concentrated animal feeding operations, and mineral extraction sites.

The deposition of atmospheric-borne nitrogen and other pollutants, such as mercury, is also a significant contributor to overall loadings in many watersheds. For example, estimates of the atmospheric contribution of nitrogen for the Chesapeake Bay and Albemarle/Pamlico Sounds are 27% and 44%, respectively. Projections for the coming decade estimate that the atmosphere will become a more significant source of nitrogen loadings to coastal watersheds, especially with the anticipated increase in population and land development resulting in more mobile and agricultural sources and increased power generation demands. To achieve sustainable watersheds, atmospheric deposition of nitrogen must be reduced. Building on work already conducted through the National Estuary Program and Great Waters Program, the Agency will continue efforts to characterize the threats posed by airborne pollutants and develop technologies and strategies for control.

In 1999, the Agency's nonpoint source control activities will build on successes to date in working with communities, individuals, businesses, states, tribes, local governments, and other federal agencies to develop and implement effective tools and programs to abate the effects of the greatest remaining water quality threats. By supporting state efforts through increased technical and financial assistance, including support for implementation of the nine key nonpoint source program elements agreed to by EPA and the states, the Agency will continue the establishment of partnerships and programs necessary to achieving our long-term, load reduction target.

Achieving the pollutant loading reductions called for in this objective involves three critical assumptions which, if invalid, jeopardize the program's ability to achieve the objective. First, states and localities are assumed to be able to continue to raise sufficient funds for construction of necessary wastewater treatment facilities, especially in newly regulated sources like storm water and CSOs, and to maintain sufficient programmatic funds to continue to effectively manage point source programs. In this regard, it is also assumed that

CWSRF funding will remain at historical levels. Second, it is assumed that individual effluent limitation guidelines will be promulgated within an acceptable time frame to be incorporated into NPDES permits as they are issued and renewed with sufficient time for facilities to come into compliance. Third, it is assumed that states will effectively strengthen and implement improved nonpoint source programs consistent with their commitments in this area.

The research in this objective will aid local decision makers by: (1) providing new and improved indicator methods to describe the toxic inputs to watersheds from WWFs; (2) developing methods to use condition and diagnostic ecological indicators to evaluate wet weather flow management strategies in preventing degradation of water and sediments quality by contaminated runoff; (3) developing and improving effective watershed management strategies for controlling wet weather flows--emphasizing those that are high volume and toxic; (4) developing and publishing methods for diagnosing multiple stressors in watershed ecosystems; (5) providing evaluation of publicly available water quality simulation models to improve their capability in predicting and analyzing characteristics, impacts, and control technologies for wet weather flows in a watershed; (6) comparing risk associated with various treatment scenarios; and(7) providing effective tools to make timely and informed decisions on beach advisories and closures following wet weather flow events into public beach areas.

Achieving this objective will have a significant impact on the achievement of the other two National Water Program objectives. All of the objectives are closely interrelated and rely on effective point and nonpoint source programs to help EPA and states ensure that watersheds meet designated uses and healthy aquatic communities are in place. Similarly, effective point source controls that incorporate the latest technological and scientific knowledge are essential to ensure that effective drinking water treatment can occur. Effective nonpoint source programs are also critical to the implementation of effective source water programs.

Key Performance Measures Verification

Performance data related to NPDES permits will be tracked largely through the Agency's Permit Compliance System (PCS) database which is managed by the Office of Enforcement and Compliance Assurance (OECA). Data entered into this system by the Regions and states is subjected to data entry QA procedures to verify that the information is consistent with facility-provided information. The system includes additional QA features related to discharge data. Performance data on CWSRF management will be compiled by EPA's Regional offices through interaction with the states.

The Agency's progress toward the goal of clean and safe water can be measured in part by the extent to which point source and nonpoint source (NPS) pollutants are discharged into the Nation's waters. Our longer-term measurement of NPS discharges will involve analyses of current versus baseline loading estimates conducted by the U.S. Geological Survey and the Department of Agriculture. Since states are the primary implementers of NPS programs and policies, the extent to which states have upgraded their nonpoint source programs to reflect recent guidance will serve as an effective surrogate for measuring progress toward our NPS reduction targets. State program upgrades will be measured by evaluating each state's explicit short- and long-term goals and objectives and their associated indicators that demonstrate progress.

Data on the promulgation of effluent guidelines and support for existing technology based standards is collected through internal tracking processes in

the Agency organizations where the work is performed (no outside reporting is involved for these measures).

EPA has several strategies to validate and verify performance measures in the area of environmental science and research. The Agency has implemented a risk-based research planning process to use risk assessment and risk management as principal priority-setting criteria. EPA conducts annual research program reviews to both evaluate the status and accomplishments of its research and determine planning priorities. To better draw upon the expertise of the environmental academic community, EPA created the Science to Achieve Results (STAR) program of peer-reviewed, mission-driven extramural grants; the Agency is also working with the National Research Council to identify emerging environmental issues for which we must begin planning the necessary research.

Chief among the Agency's validation and verification mechanisms is a rigorous peer review process. In a July 1997 memorandum, EPA's Deputy Administrator states that peer review will be expanded "to include both the major work products provided in the past and...all scientific and technical products supporting Agency decisions..." This expanded and strengthened focus on peer review will help ensure that the performance measures listed here are verified and validated by external organizations. The Agency utilizes peer review throughout the research planning and implementation process, both to ensure that planned research addresses critical knowledge issues within EPA's mission, and to assess the quality of scientific research plans, products, and proposals. This is accomplished through the use of independent entities such as the Science Advisory Board (SAB)and the Board of Scientific Councilors (BOSC). The BOSC, established under the Federal Advisory Committee Act, will even examine the way the Agency uses peer review, as well as the management of its research and development laboratories.

EPA's external research program undergoes extensive peer review. Proposals from the external scientific community are peer-reviewed and projects are then selected for funding through grants or cooperative agreements. In addition, Requests for Applications (RFAs) under the STAR program are often developed jointly with outside partners such as the National Science Foundation. In this way, EPA has developed a mechanism by which to check the quality and relevance of its research program.

The Agency's Management Information System (OMIS) will be another accountability tool used to verify and validate performance measures. The recently developed GPRA structure will be incorporated into OMIS to ensure consistent maintenance and reporting, resulting in greater accuracy and consistency of information to users.

Statutory Authority

Safe Drinking Water Act (42 U.S.C. 300f-300j-26)

[Other related authorities, directives, obligations: TSCA sections 4 and 6 (15 U.S.C. 2603 and 2605)]

Goal 3: Safe Food

Goal 3: Safe Food **III-1**
Reduce Agricultural Pesticides Risk III-4
Reduce Use on Food of Pesticides Not Meeting Standards. III-9

Environmental Protection Agency

1999 Annual Plan Request to Congress

Safe Food

Strategic Goal: The foods Americans eat will be free from unsafe pesticide residues. Children especially will be protected from the health threats posed by pesticide residues, because they are among the most vulnerable groups in our society.

Goal Summary
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Safe Food	**$59,764.9**	**$56,459.3**	**$63,552.4**
Obj. 01 Reduce Agricultural Pesticides Risk	$22,952.3	$19,651.3	$24,926.2
Obj. 02 Reduce Use on Food of Pesticides Not Meeting Standards	$36,812.6	$36,808.0	$38,626.2
Goal Total FTE: Safe Food	687.2	681.0	682.3

The abundance, affordability, and wholesomeness of America's food supply depend in part upon the safe use of pesticides during food production, processing, storage, and transportation. Before any pesticide can be used legally, the law requires EPA to conclude that its use will not lead to unreasonable adverse effects, and that any food residues resulting from its use are reasonably certain to cause no harm. EPA recognizes that older pesticides with approved food uses may sometimes lead to residues which could result in adverse health effects. EPA's priority is to minimize dietary exposure to these potentially toxic pesticides, especially to children, by screening the pesticides through the regulatory processes of registration and reregistration/special review, thereby eliminating those pesticides that present a danger to human health and the environment. The Food Quality Protection Act (FQPA) of 1996 mandated a more stringent health standard for EPA's pesticide reviews. Through these processes, pesticides found to be harmful will be removed from the market or restricted in their use to ensure the continued safety of our food supply.

The 1999 President's Budget provides $63,552,400 and 682.3 workyears for the Safe Food goal, an increase of $7,093,100 and 1.3 workyears over 1998. EPA will continue to focus its efforts on implementing FQPA, which amends both of EPA's principal pesticide regulatory authorities, the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Federal Food, Drug, and Cosmetic Act (FFDCA). In 1999, the implementation of FQPA will continue to be a priority for the Agency, with significant efforts going toward tolerance reassessments, periodic

reconsideration of food-use registrations, effective management of minor use pesticides, and expedited registration of reduced-risk pesticides. EPA will ensure that newly registered agricultural pesticides meet the current, more stringent standards mandated in FQPA to ensure reasonable certainty of no harm to human health and the environment. Implementation of FQPA is essential to reducing dietary exposure to potentially toxic pesticides by subjecting them to the new, more stringent health standard.

The resources requested for the Safe Food goal will enable the Agency to meet a number of important performance goals. The most significant of these include:

- Decrease adverse risk from agricultural pesticides from 1995 levels and assure that new pesticides that enter the market are safe for humans and the environment through such actions as registering 17 safer pesticide chemicals and biopesticides, issuing 95 new tolerances and approving 95 new pesticide uses.

- Under pesticide reregistration, EPA will reassess 19% of the existing 9,700 tolerances (cumulative 33%) for pesticide food uses to meet the new statutory standard of "reasonable certainty of no harm."

Highlights:

Reduce Agricultural Pesticides Risk

The 1999 President's Budget requests $24,926,200 and 282.7 workyears to ensure that the risk from agricultural use of pesticides will be reduced. FIFRA and FFDCA authorize EPA to set terms and conditions of pesticide registration, marketing and use. EPA will use these authorities to reduce the use of pesticides with the highest potential to cause adverse effects, including those which pose particular risks to children. Under EPA's Registration program, new food/feed-use pesticides are registered after extensive review and evaluation of human health and ecosystem data. The Registration program includes special registration activities, tolerance setting, and permits for use of pesticides for emergency situations, and experimental use. In 1999, EPA will continue to emphasize addressing children's special sensitivities through registration review.

In 1999, the Agency will decrease the adverse risk from agricultural pesticides from 1995 levels through the regulatory review and approval of safer pesticides (including new biopesticides). The registration of safer pesticides will increase the availability of safer alternatives to the consumer, resulting in a reduction in the use of high risk pesticides. Under the Reduced Risk Initiative, which began in 1993, EPA will continue to provide expedited review of pesticides which meet the criteria of reduced risk i.e., reduce the level of acute toxicity, reduce exposure to humans or non target organisms, and reduce the environmental burden. These expedited pesticide review actions provide the incentive to industry to develop, register, and use lower risk pesticide products

that result in reduced risk to human health and the environment when compared to existing alternatives.

Reduce Use of Pesticides on Food Not Meeting Current Standards

The 1999 President's Budget requests $38,626,200 and 399.6 workyears to ensure that use on food of current pesticides that do not meet the new statutory standard of "reasonable certainty of no harm" will be substantially eliminated. Implementation of FQPA is essential to reducing dietary exposure to potential toxic pesticides by subjecting them to the new, more stringent health standard. This new standard requires the Agency to revise its risk-assessment practices to ensure adequate protection of the health of children and other vulnerable subpopulations and to reconsider some 9,700 tolerances for specific pesticide residues approved before the passage of FQPA. To meet this requirement, the Agency will complete approximately 1,850 tolerance reassessments in 1999.

In 1999, EPA will continue to work on the following additional requirements mandated by FQPA: (1) develop a new program to reconsider registered pesticides on a 15-year cycle, bringing them into compliance with contemporary standards; (2) provide a special emphasis on management of minor use pesticides; and (3) expedite registration of reduced risk pesticides.

In 1999, through the Reregistration program, the Agency will continue to regulate pesticides approved for food use, with particular emphasis on those that have been classified as potential human carcinogens or neurotoxins. The reregistration process for pesticides registered prior to November 1984 is in its final phase which is the issuance of Reregistration Eligibility Decisions (REDs). The issuance of a RED summarizes the findings of the reregistration review of the chemical after examining its health and environmental effects. In 1999, EPA will complete approximately 1,000 product reregistrations, and 42 REDs for active ingredients subject to reregistration.

Pesticide User Fees

EPA is proposing appropriations language to reinstate pesticide registration fees to collect $16,000,000 in 1999. The fee applies to pesticide manufacturers to recover the costs of EPA's review of registration applications. The Agency continues to collect Tolerance and Maintenance Fees at $18,000,000 a year. In 1999, EPA will promulgate the needed rules to increase tolerance fees to ensure that the tolerance setting process will be as self-supporting as possible. EPA expects these rules to take effect in 2000.

Environmental Protection Agency

1999 Annual Plan Request to Congress

Safe Food

Objective #1: Reduce Agricultural Pesticides Risk

By 2005, the risk from agricultural use of pesticides will be reduced by 50 percent from 1995 levels.

Overview

A large number of pesticides currently on the market with approved food uses have been classified as potential human carcinogens, neurotoxins, endocrine disruptors, have other developmental effects, or present risks to children. These pesticides present potentially significant health concerns and require action to minimize dietary exposure.

Protecting public health and the environment from the risks posed by pesticides is challenging and complex. Pesticides, inherently, are risky to humans or the environment because, by design, they are biologically active and have a detrimental effect on living organisms. At the same time, pesticides are beneficial to society because of their ability to kill potential disease-causing organisms, and to control insects, weeds, and other pests. Our challenge is to allow the use of pesticides to increase production, without risking human health or the quality of the environment.

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Federal Food, Drug, and Cosmetic Act (FFDCA) authorize EPA to set terms and conditions of pesticide registration, marketing and use. The Food Quality Protection Act (FQPA) of 1996 dramatically strengthened both FIFRA and FFDCA requiring a new, more stringent safety standard for pesticides used on food with special emphasis on protecting infants and children. The Agency will use these authorities to reduce the use of pesticides with the highest potential to cause adverse effects, including those which pose particular risks to children. Under the Registration Program, new food/feed-use pesticides are registered after extensive review and evaluation of health data by the Agency. A key new component of the registration program is to identify and streamline the process for bringing safer pesticides onto the market faster to replace older riskier products. Existing food/feed use registrations are amended to add new uses and new formulations. The Registration Program also includes special registration activities, tolerance setting, and permits for use of pesticides for emergency situations, and experimental use.

The FIFRA '88 Amendments also require the Agency to review and reregister all pesticides that were registered before November 1984. The Agency has made substantial progress in implementing FIFRA '88 and met several statutorily set deadlines, such as listing active ingredients (Lists A-D), processing of registrants' declarations of intent to pursue reregistration, and issuance of

guidelines for determining the adequacy of previously conducted scientific studies on pesticides. As of August 1997, 155 Reregistration Eligibility Decisions (REDs) have been issued.

The program activities under this objective include:

a) New Pesticide Registrations -- EPA continues to emphasize addressing children's special sensitivities through registration review. Through the registration process, EPA will implement FQPA, which requires the expeditious processing of reduced risk pesticide registration actions and apply the new, more stringent health standard for setting tolerances. Reduced risk pesticides are characterized as those expected to reduce risk to human health or nontarget organisms, groundwater, surface water or other ecological resources.

b) Special Registration Actions -- Prompt action will be taken on petitions for temporary uses of pesticides to meet emergency conditions and for research purposes. These actions consist of issuance of emergency exemptions (FIFRA sec. 18) allowing the use for a limited time of a pesticide not registered for that specific purpose; special local needs (FIFRA sec. 24c) allowing registration of products by states for specific uses not Federally registered; experimental use permits allowing pesticide producers to test new pesticides uses outside the laboratory; amendments to previously approved pesticides (e.g., to reflect label revisions or changed formulations for products already registered); applications for new uses of a pesticide; and additional registrations for new products containing a pesticide already registered.

c) Reregistration of Existing Pesticides -- Reregistering existing pesticides will ensure that older pesticides already in the marketplace either meet the current standards, are taken off the market, or are restricted in their use such that they do not present undue risk. Reregistration includes the reassessment of all existing tolerances to assure that they, too, meet current standards.

d) Special Review Activities -- Through the special review process, the Agency determines whether the use of a pesticide poses unreasonable risk. Pesticides posing concerns are rigorously reviewed and a decision made as to whether future use should be eliminated or restricted.

Major tasks required to achieve this objective include the development of new science policies, the refinement of use and usage information bases, acceleration of regulatory reviews for safer pesticides, and the adoption of effective alternative tools for pest management.

The Agency's efforts in this objective will be supported through legal counseling and advocacy. This may include advice, participation in the development of Agency actions, document review, and the conduct of defensive litigation.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 01 Reduce Agricultural Pesticides Risk	$22,952.3	$19,651.3	$24,926.2
Environmental Program & Management	$20,922.8	$17,893.1	$21,928.0
Science and Technology	$2,029.5	$1,758.2	$2,998.2
Total FTE:	283.2	281.5	282.7

1999 Annual Performance Goals

- Decrease adverse risk from agricultural pesticides from 1995 levels and assure that new pesticides that enter the market are safe for humans and the environment through such actions as registering 17 safer pesticide chemicals and biopesticides, issuing 95 new tolerances and approving 95 new pesticide uses.

In 1999, the Agency will decrease the adverse risk from agricultural pesticides from 1995 levels through the regulatory review and approval of safer pesticides (including new biopesticides). The registration of safer pesticides, thus the availability of safer alternatives to the consumer, will result in a reduction in the use of high risk pesticides. Registration and the elimination of the most hazardous pesticides from the marketplace through reregistration and special review will reduce risk.

Routine core program activities within the Registration and Reregistration programs will continue in 1999 along with the implementation of FQPA.

Reregistration is EPA's primary regulatory tool for furthering use reductions for older riskier pesticides. As such, it is an essential element in pursuing this and other objectives for the Pesticide Programs. To avoid duplication in the "tallying" of REDs, all REDs are listed under Objective 2 in Goal 3, and none are listed under this objective.

Pesticides meeting the criteria for special review will either undergo a thorough scientific review or, through negotiations, be restricted or phased out to ensure that the pesticide does not pose undue risk.

In 1999, under the Reduced Risk Initiative, EPA will continue to provide expedited review of pesticides which meet the reduced risk criteria. Expedited pesticide review actions provide the incentive to industry to develop, register and use lower risk pesticide products that result in reduced risk to human health and the environment when compared to existing alternatives. The Reduced Risk Initiative encompasses applications for initial registration, amendments,

and non-fast track new formulations. The criteria used to determine whether a pesticide enters expedited review include pesticides which provide reduced risk to human health or nontarget organisms; those which demonstrate reduced potential for contamination of groundwater, surface water or other resource; and pesticides which broaden the adoption of integrated pest management (IPM), and other Pesticide Environmental Stewardship Program (PESP)/Design for the Environment (DfE) strategies or make these strategies more available or more effective.

By 2005, the annual number of registrations for safer new chemicals and biopesticides will double and agricultural use of pesticides classified as having the highest potential to cause cancer or neurotoxic effects will be reduced by 50% from 1995 levels. Annual activities contained in this budget, including the re-evaluation of existing pesticides and the registration and availability of safer pesticides alternatives, are essential to accomplishing our long term goal.

1998 Annual Performance Goals

- Decrease adverse risk from agricultural pesticides from the 1995 levels. Assure new pesticides that enter the market are safe for humans and the environment through actions such as registration of new chemicals, biopesticides, amendments, me-toos, new uses, inerts, special registrations and tolerance setting.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
01 Obj. Total Change	$5,274.9	1.2
Environmental Program & Management	$4,034.9	0.2
Science and Technology	$1,240.0	1.0

- (+$1,490,000 ($1,039,900 S&T, $450,100 EPM)) Increased funding for the consolidation of pesticides laboratories at the new Fort Meade, MD Laboratory.
- (+$157,400 EPM) Increased funding for the Working Capital Fund.
- (+$2,269,400 EPM) Increased funding in the Registration and Reregistration programs to produce increased tolerances and product reregistrations.
- (+1,000,000 EPM) Change attributable to increased workforce costs.

Key Performance Measures	1998	1999
Register Safer chemicals & biopesticides	16	17
Register new chemicals	17	17
Amendments	2056	2000
Me-toos	639	600
New Uses	99	95
Inerts	41	45
Special Registrations	366	370
Tolerance Petitions	91	95

The performance measures listed under this objective contribute to the accomplishment of another objective (Goal 4, Objective 1). However, they are listed only under this objective to avoid repetition.

Conclusion

EPA will ensure that newly registered agricultural pesticides meet the current, more stringent standards mandated in FQPA to ensure reasonable certainty of no harm to human health and the environment. Additionally, EPA will continue to encourage reduced agricultural use of older, potentially more hazardous pesticides, through the registration of newer, safer pesticides.

Pesticide risk is complex and depends not only on direct risk posed by a specific pesticide, but also, how, where, and how often the pesticide is used, what happens after application, the level/method/frequency of exposure, and the specific population exposed to it. These variables make the task of measuring risk challenging, however the Agency is committed to working with stakeholders to improve these measures.

Key Performance Measures Verification

Indices of progress will include the number of safer chemicals registered, and the number of REDs issued. Another reference or indirect measure may include the number of environmental partnerships in place or the number of IPM programs in effect. As output measures, these will be readily counted or recorded upon completion.

Statutory Authority

FIFRA (7 U.S.C. 136-136y)

FFDCA (21 U. S. C. 346a)

Environmental Protection Agency

1999 Annual Plan Request to Congress

Safe Food

Objective #2: Reduce Use on Food of Pesticides Not Meeting Standards

By 2005, use on food of current pesticides that do not meet the new statutory standard of "reasonable certainty of no harm" will be substantially eliminated.

Overview:

Many current pesticides approved for food use have been classified as potential human carcinogens or may cause serious adverse health effects at high levels of exposure. Our highest priority is to minimize dietary exposure to these potentially toxic pesticides, especially to children, by screening them through the regulatory processes of registration and reregistration/special review, and eliminating or severely restricting those that present a danger to human health and the environment. Through these processes, pesticides found harmful will be removed from the market or restricted in their use to ensure the continued safety of our food supply.

Under the authorities of Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Federal Food, Drug, and Cosmetic Act (FFDCA), as amended by the Food Quality Protection Act (FQPA) of 1996, the Agency sets terms and conditions for pesticide registration, marketing and use. Amendments to FIFRA in 1988 require EPA to review and reregister all pesticides first approved before November 1984; Reregistration Eligibility Decisions (REDs) have been issued for 155 such pesticides to date, and as reregistration decisions are made for even more of them, further reductions in potential dietary risks will be realized.

FQPA mandates a reassessment of all 9,700 existing tolerances in light of a new, more stringent health standard. Some of these existing tolerances are for pesticides for which a RED has already been issued, some are for pesticides subject to reregistration for which a RED has not yet been issued, and some are for pesticides first registered since 1984. Reassessment of existing tolerances under the FQPA standard began in 1996 and is continuing. Implementation of FQPA is essential to reducing dietary exposure to potentially toxic pesticides by subjecting them to the new, more stringent health standard.

To carry out tolerance reassessment, the Agency must incorporate the new FQPA requirements into its existing procedures. The reevaluation of existing tolerances will be a significant workload for the Program, since the statutory criteria require consideration of new safety standards for children, the potential to disrupt endocrine system functions, cumulative risk from related pesticides, and from all avenues of exposure. Priority for reassessment will be given to those pesticides most likely to pose a dietary risk. This "worst-first" sequence will lead to correction of noncomplying tolerances at a quicker pace.

Beyond tolerance reassessments, FQPA mandates a variety of other reforms to pesticide regulation under FIFRA and FFDCA, all contributing to significantly increased Agency workloads. Among these additional requirements are (1) to streamline review of antimicrobial pesticides; (2) to develop a new program to reconsider registered pesticides on a 15-year cycle, bringing them into compliance with contemporary standards; (3) to provide special emphasis on management of minor use pesticides; (4) to expedite registration of reduced-risk pesticides; and (5) to develop and implement an Endocrine Disruptor Screening and Testing strategy by August 1998 and will implement a screening and testing protocol by August 1999.

The Agency's efforts in this objective will be supported through legal counseling and advocacy. This may include advice, participation in the development of Agency actions, document review, and the conduct of defensive litigation.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 02 Reduce Use on Food of Pesticides Not Meeting Standards	**$36,812.6**	**$36,808.0**	**$38,626.2**
Environmental Program & Management	$36,038.8	$36,109.4	$37,174.4
Science and Technology	$773.8	$698.6	$1,451.8
Rereg. & Exped. Proc. Rev Fund	$0.0	$0.0	$0.0
Total FTE	404.0	399.5	399.6

1999 Annual Performance Goals

- Under pesticide reregistration, EPA will reassess 19% of the existing 9,700 tolerances (cumulative 33%) for pesticide food uses to meet the new statutory standard of "reasonable certainty of no harm."

In 1999, through the Reregistration Program, the Agency will continue to regulate pesticides approved for food use, with particular emphasis to those classified as potential human carcinogens or neurotoxins. A major concern will be to minimize dietary exposure to these potentially toxic pesticides. As we continue tolerance reassessment, revising risk assessment policies will be necessary for the Agency, ensuring that the health of subpopulations, particularly children, will receive adequate protection.

Carrying out of FQPA will continue to be a priority for the Agency, with significant efforts going toward tolerance reassessment, periodic reconsideration

of food-use registrations, effective management of minor use pesticides, and expedited registration of reduced-risk pesticides.

The reregistration process for pesticides registered before November 1984 is now in its final phase, the issuance of REDs. During this phase, EPA reviews all studies that have been submitted for a chemical case. The issuance of a RED summarizes the findings of the reregistration review of the chemical after examining its health and environmental effects. A pesticide is considered eligible for reregistration if its database is complete and it does not cause unreasonable adverse effects on human health or the environment when used according to labeling and restrictions. Many REDs include provisions to reduce risks to pesticide handlers, farmers, children, or the environment. After the RED is issued, reregistration reviews and decisions will continue at the product reregistration level. Products are reregistered only after the last active ingredient in the product is found eligible and product specific data and label revisions are submitted.

As pesticides go through reregistration, they may meet certain criteria that will trigger a special review. These criteria include (a) acute toxicity to humans or domestic animals, (b) potentially chronic or delayed toxic effects in humans, hazards to non-target organisms, (c) risk to threatened or endangered species, (d) risk to critical habitats of threatened or endangered species, and (e) any other unreasonable adverse effects to humans or the environment. This review subjects the pesticide to a more in depth analysis to determine reasonable certainty that no harm will occur when used.

By 2005, active ingredient and product reregistration will be completed for all pesticides subject to reregistration under FIFRA '88. Also, by 2005, 90 per cent of the reassessments of pesticide residue tolerances mandated by FQPA will be completed. Both efforts directly relate and contribute to accomplishing a reasonable certainty of no harm for the pesticides used on food/feed use commodities.

1998 Annual Performance Goals

- Through Reregistration (issuance of REDs, product reregistration, tolerance reassessment), assure no use on food of pesticides that do not meet the new statutory standard of "reasonable certainty of no harm."

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
02 Obj. Total Change	$1,818.2	0.1
Environmental Program & Management	$1,065.0	0.1
Science and Technology	$753.2	0.0

- (+$1,200,000 ($750,000 S&T, $450,000 EPM) Increased funding for the consolidation of pesticide laboratories at the new Fort Meade, MD Laboratory.

- (+$89,000 EPM) Increased funding for the program infrastructure housed in the Working Capital Fund.

Key Performance Measures	1998	1999
REDs	40	42
Product Reregistration	750	1000
Tolerance Reassessments	1450	1850

The performance measures listed under this objective contribute to the accomplishment of other objectives (Goal 3, Objective 1 and Goal 4, Objective 1). However, they are listed only under this objective to avoid repetition.

Conclusion

The foremost objective of EPA programs is to preserve the safety of the food Americans consume. The Agency will ensure, in part, through reregistration and tolerance reassessment, that older agricultural pesticides now on the market, meet the current, more stringent standards to provide reasonable certainty of no harm. Children will be protected using a new standard for safety. Additionally, the Agency will continue to encourage reduced agricultural use of these older, more potentially hazardous pesticides, through replacement by newer, safer chemical pesticides and biopesticides as they become available through the registration process and by using Integrated Pest Management and Environmental Stewardship.

Key Performance Measures Verification

Through the Reregistration Program, EPA will ensure that pesticides and products failing to meet current standards will not remain on the market. Reassessment of current tolerances will ensure that pesticide residues in food do not constitute a health risk.

Primary indices of progress are completions of new REDs for food-use Active Ingredients, completions of product reregistrations for food-use products, and completions of tolerance reassessments. As output measures, these will be readily counted or recorded upon completion.

The registration of safer alternatives, which will encourage reduced use of the potentially more hazardous older conventional chemicals, will be used be an indirect measure.

Statutory Authority

FIFRA (7 U.S.C. 136-136y)

FFDCA Section 408 (21 U.S.C. 346a)

World Trade Organization Agreements

Goal 4: Preventing Pollution

Goal 4: Preventing Pollution and Reducing Risk in Communities, Homes, Workplaces and Ecosystems **IV-1**
Reduce Public and Ecosystems Exposure to Pesticides IV-7
Reduce Lead Poisoning IV-13
Safe Handling and Use of Commercial Chemicals and Microorganisms. IV-19
Healthier Indoor Air. IV-30
Improve Pollution Prevention Strategies, Tools, Approaches. . . IV-38
Decrease Quantity and Toxicity of Waste IV-45
Assess Conditions in Indian Country IV-53

Environmental Protection Agency

1999 Annual Plan Request to Congress

Preventing Pollution and Reducing Risk in Communities, Homes, Workplaces and Ecosystems

Strategic Goal: Pollution prevention and risk management strategies aimed at cost-effectively eliminating, reducing, or minimizing emissions and contamination will result in cleaner and safer environments in which all Americans can reside, work and enjoy life. EPA will safeguard ecosystems and promote the health of natural communities that are integral to the quality of life in this nation.

Goal Summary
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Preventing Pollution and Reducing Risk in Communities, Homes, Workplaces and Ecosystems	**$239,993.1**	**$240,466.0**	**$258,845.0**
Obj. 01 Reduce Public and Ecosystem Exposure to Pesticides	$50,789.4	$47,108.9	$50,626.1
Obj. 02 Reduce Lead Poisoning	$31,078.6	$30,453.7	$30,957.6
Obj. 03 Safe Handling and Use of Commercial Chemicals and Microorganisms	$31,646.7	$41,024.6	$41,272.5
Obj. 04 Healthier Indoor Air	$33,235.0	$30,292.2	$33,219.4
Obj. 05 Improve Pollution Prevention Strategies, Tools, Approaches	$27,074.1	$25,245.9	$26,865.5
Obj. 06 Decrease Quantity and Toxicity of Waste	$22,327.2	$21,783.3	$25,053.2
Obj. 07 Assess Conditions in Indian Country	$43,842.1	$44,557.4	$50,850.7
Goal Total FTE	1,045.8	1,143.6	1,125.5

EPA seeks to manage environmental risks to communities, homes, and workplaces, and to protect the environmental integrity of ecosystems, by a mix of regulatory programs with alternative approaches to achieve results at less

cost and in more innovative, sustainable ways. Rather than "end of pipe" controls, preventing pollution at the source is our strategy of first choice. Where pollution prevention at the source is not a viable alternative, the Agency will employ risk management and remediation strategies in a cost effective manner. These efforts will be directed towards the greatest threats, such as those in our communities, homes, schools, and workplaces that have significant impact on our most sensitive populations: children, the elderly, and individuals with chronic diseases.

The 1999 President's Budget requests $258.8 million and 1,125.5 workyears for this goal, an increase of $18.3 million and decrease of 18.1 workyears over 1998. EPA will focus on pollution prevention and reducing risks by minimizing the exposure from pesticide misuse, lead poisoning, and by targeting persistent, bioaccumulative, and toxic pollutants. The Agency will also enhance hazardous waste minimization projects to reduce wastes at their source.

The resources requested in this budget will enable the Agency to meet a number of important performance goals in 1999. The most significant of these include:

- 850,000 additional people will live in healthier residential indoor environments.

- Reduce by 2% in 1999 (for a cumulative total of 10%) the quantity of TRI pollutants released, treated or combusted for energy recovery, with emphasis on the use of Pollution Prevention practices.

- Divert an additional 1% (for a cumulative 29% or 64 million tons) of RCRA municipal solid waste (MSW) from landfilling and combustion, an increase from the 1990 baseline of 17%.

- Ensure that of the approximately 2,500 new chemicals and micro-organisms submitted by industry each year, those that are introduced in commerce are safe to humans and the environment for their intended uses.

- Complete the building of a lead-based paint abatement certification and training program in 50 states to ensure significant decreases in children's blood lead levels by 2005 through reduced exposure to lead-based paint.

- 15% of Tribal environmental baseline information will be collected and 30 additional tribes (cumulative total of 90) will have tribal/EPA environmental agreements or identified environmental priorities.

- Protect homes, communities, and workplaces from harmful exposures to pesticides and related pollutants through improved cultural practices and enhanced public education, resulting in a reduction of 10% (1995 reporting base) in the incidences of pesticide poisonings reported nationwide.

HIGHLIGHTS:

Reduce Public and Ecosystem Exposure to Pesticides

The 1999 President's Budget requests $50.6 million and 241 workyears to ensure that public and ecosystem risk from pesticides will be reduced through migration to lower risk pesticides and pest-management practices, improving education of the public and at-risk workers, and forming "pesticide environmental stewardship" partnerships with pesticide user groups.

The objective to reduce exposure to pesticides will be achieved through continued application of the Worker Protection Standards (WPS) and certification and training programs. The WPS for agricultural pesticides represents a major strengthening of national efforts to safeguard agricultural workers from occupational exposure to pesticides on farms, in forests, greenhouses and nurseries. Additionally, EPA will continue to protect the nation's ecosystems through the groundwater program, Pesticide Environmental Stewardship Program (PESP), integrated pest management (IPM), and endangered species programs.

One of EPA's concerns in 1999 will be the prevention of accidental or deliberate pesticide misuse in urban and rural environments, particularly in poor communities where significant public health risks to residents, especially children and other sensitive populations, are likely to occur. In 1999, EPA will support a new initiative to prevent misuse and reduce exposure. Pesticide misuse prevention activities will focus on the reduction of risk in residential settings. EPA will work with other Federal, state, and local agencies; the private sector; and communities to identify the critical deficiencies and to carry out effective solutions. Also in 1999, EPA will continue to carry out the Pesticide Groundwater Strategy. This strategy is based on cooperative efforts with the states/tribes and the Regions to develop State Management Plans (SMPs) to prevent groundwater pollution from pesticides.

Reduce Lead Poisoning

The 1999 President's Budget requests $31.0 million and 121 workyears to ensure that the number of young children with high levels of lead in their blood will be significantly reduced from the early 1990s.

Beginning in 1999, EPA will start implementing a training, certification, and accreditation program for lead-based paint professionals in approximately 15 states that do not administer their own programs. Other regulations and public outreach, such as publication of a lead information pamphlets, will ensure that parents have access to information to make an informed decision about lead-based paint in their homes, with a special emphasis on children in low-income, urban areas. Another important effort in 1999 will be a collaborative project with the Centers for Disease Control (CDC) to assist states and local communities in targeting resources by examining 50-75 metropolitan areas to identify the most vulnerable communities where lead poisoning prevention efforts should be targeted. The identification of communities will be followed with a multi-pronged outreach program to ensure awareness of the risk to children and to ensure that steps are taken to provide assistance to the communities at risk. Also in 1999, EPA plans to issue final rules on disposal of lead-based paint

debris and standards for lead-based paint hazards in paint, dust and soil. In addition, EPA plans to issue proposed rules on training, accreditation and certification requirements for renovation and remodeling activities and for lead-based paint activities in buildings and superstructures.

Safe Handling and Use of Commercial Chemicals and Microorganisms

The 1999 President's Budget requests $41.3 million and 344 workyears to ensure that, of the approximately 2,000 chemicals and 40 genetically engineered micro-organisms expected to enter commerce each year, EPA will significantly increase the introduction of safer or "greener" chemicals that will decrease the need for regulatory management.

In 1999, EPA will focus on efforts to implement the Toxics Agenda. An important part of the implementation effort will center on persistent, bioaccumulative, and toxic (PBT) chemicals as part of a coordinated Agency effort. One of the key health issues facing our nation's children today is the threat posed by exposure to PBTs. These chemicals also imperil the health of ecosystems as they accumulate and biomagnify in the food chain for years and decades. To facilitate development of the Agenda, EPA will complete the Chemical Use Inventory (CUI) amendment to the Inventory Update Rule. Promulgation of the CUI rule, by identifying chemical uses of industrial, commercial, and consumer products, will facilitate risk screening, including identifying risks to children. In 1999, the completion of testing actions on new and existing chemicals will result in the development of test data needed to support adequate assessments of chemical risks by government, industry, and the public. Also, EPA's Green Chemistry Program will continue to recognize and promote chemical methods that reduce or eliminate the use or generation of toxic substances during the design, manufacture and use of chemical products and processes and that have broad application in industry.

A crucial element of EPA's approach is chemical information gathering and testing to provide EPA and others, including the public, sufficient data for screening, assessing, and managing the risks. EPA's research program will support this effort by generating scientific information used in improving the test methods used to generate the data. Research seeks to improve our understanding of both the risks to human health and adverse ecological effects. To the extent that this research supports testing guidelines that relate to both toxic substances in general and to pesticides, research under this objective additionally supports EPA's goal to reduce the risks to the nation's food supply and the non-dietary pesticide risks posed to human health and the environment.

Achieving Healthier Indoor Air

The 1999 President's Budget requests $33.2 million and 152 workyears to accomplish its healthy indoor air performance goals.

Indoor air pollution poses high risks to human health, especially in sensitive populations, and has ranked among the top four environmental risks. Radon, for example, is the second leading cause of lung cancer and is responsible for about 14,000 deaths per year.

To help achieve healthier indoor air, EPA's priorities in 1999 include radon testing, radon mitigation, and radon-resistant construction; implementing "Tools for Schools"; increasing awareness of the harmful effects of children's exposure to secondhand smoke; completing the analysis of data from the Building Assessment Survey and Evaluation (BASE); privatizing the radon proficiency program; and focusing on community-based risk reduction. These programs support the 1999 goal of having 850,000 additional people living in healthier residential indoor environments, including 530,000 people living in homes built with radon-resistant features.

EPA's research program will produce the scientific information needed to understand indoor air effects. Research will identify, characterize, and compare the health risks associated with indoor exposures to air pollutants so that risk managers can make informed decisions to protect public health.

Improve Pollution Prevention Strategies, Tools, Approaches

The 1999 President's Budget requests $26.9 million and 80 workyears to ensure that the quantity of toxic pollutants released, disposed of, treated, or combusted for energy recovery will be reduced 10% from 1992 levels. Half of this reduction will be achieved through pollution prevention practices.

Beginning in 1999, EPA will develop innovative, multi-media strategies and tools (through inter-office and regional coordination) to target 12-14 priority persistent, bioaccumulative and toxic pollutants for pollution prevention (P2) at domestic levels. The targeting will be done as a collaborative effort between multiple offices and their regional components. Also, obtaining 2% reductions in reported Toxics Release Inventory (TRI) chemical wastes in 1999 and beyond will be the result of the cumulative efforts of EPA's pollution protection, clean technologies, and green chemicals programs which encourage the use of source reduction and integrated environmental management systems by American industry and businesses.

Decrease the Quantity and Toxicity of Waste

The 1999 President's Budget requests $25.1 million and 133 workyears to support the objective of decreasing pollution in communities, workplaces, and ecosystems by decreasing the quantity and toxicity of wastes.

In 1999, the Agency will emphasize helping generators prioritize and focus their efforts to reduce the volume and toxicity of hazardous wastes. EPA's objective is to reduce the amount of waste generated annually, therefore decreasing pollution or the risk of pollution in communities, workplaces, and ecosystems. EPA will work together with state, tribal, and local governments, business and industries, and non-governmental organizations to: encourage reduced generation of industrial (hazardous and non-hazardous) waste through material substitution and manufacturing process changes; encourage recycling of wastes that must be generated; and assure the safe recycling of any wastes. EPA will also focus on reducing the toxicity of wastes as states and regions begin measuring and reporting reductions of PBTs. To accomplish this, the Agency's waste minimization program will provide tools and assistance to identify

hazardous wastes containing the most PBTs among 900 chemicals in the waste stream.

Assess Conditions in Indian Country

The 1999 President's Budget requests $50.9 million and 55 workyears to continue its efforts to improve environmental conditions in Indian Country in this Goal.

EPA places particular priority on working with Federally recognized Indian tribes on a government-to-government basis to improve environmental conditions in Indian country. This is pursuant to our trust relationship with tribes and the nation's interest in conservation of cultural uses of natural resources. In 1999, the Agency will continue to work with the tribes to establish an environmental presence in Indian country and produce substantial progress towards developing Tribal capacity to implement their own environmental programs. EPA will complete its design and begin initiation of a framework for the baseline assessment of environmental conditions on tribal lands.

EPA will also improve health and environmental conditions in Alaska Native villages through training and education on sampling and assessing environmental quality conditions. This investment will advance these villages capabilities to correct health and environmental problems through the development of Environmental Action Plans.

Environmental Protection Agency

1999 Annual Plan Request to Congress

Preventing Pollution and Reducing Risk in Communities, Homes, Workplaces and Ecosystems

Objective #1: Reduce Public and Ecosystem Exposure to Pesticides

By 2005, public and ecosystem risk from pesticides will be reduced through migration to lower risk pesticides and pest management practices, improving education of the public and at-risk workers, and forming "pesticide environmental stewardship" partnerships with pesticide user groups.

Overview

EPA's mission is to ensure that the use of pesticides results in no unreasonable adverse effects to human health or the environment. In fulfillment of this mission EPA will: (1) register new non-food chemicals, (2) review and reregister existing non-food chemicals; (3) implement our field programs; and (4) promote environmental stewardship/integrated pest management (IPM) strategies. The Agency will continue to work in partnership with Regions, states, territories, tribes, and other stakeholders to accomplish this mission.

This objective covers a wide-range of activities encompassing non-food-use reregistration and registration activities, worker protection, endangered species, environmental stewardship, IPM, groundwater, and certification and training programs.

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Federal Food, Drug, and Cosmetic Act (FFDCA) authorize EPA to set terms and conditions of pesticide registration, marketing and use of non-food-use pesticides and also food/feed-use pesticides. Under the Registration program, new non-food-use pesticides are registered based on data reviewed by the Agency and current non-food-use registrations are amended to add new uses and new formulations. Increased regulatory approval of safer pesticides which may be used as alternatives to older, higher risk chemicals, is essential to achieving this objective.

The cancellation, restriction or denial of registration for dangerous non-food-use pesticides through the regulatory programs will continue to reduce risk. EPA will also continue to encourage industry and pesticide users to seek other risk management approaches, such as developing safer chemicals or implementing pesticide stewardship and IPM strategies. The Pesticide Environmental Stewardship Program (PESP), began in 1994. PESP is a voluntary program that forms partnerships with pesticide users to reduce both health and environmental risks and carry out pollution prevention strategies. These partnership strategies will provide users alternatives to conventional pesticides, by that enhancing EPA's ability to achieve the risk reduction goals and objectives.

The objective to reduce exposure to pesticides will be achieved through continued implementation of the Worker Protection Standards (WPS) and certification and training programs. The WPS for agricultural pesticides represents a major strengthening of national efforts to safeguard agricultural workers. WPS requires agricultural employers to ensure that employees receive basic pesticide safety training and to notify them when they apply pesticides.

Whenever EPA designates some or all uses of a pesticide as "restricted use," the pesticide may only be used by or under the direct supervision of specially trained and certified applicators. All states require commercial applicators to be recertified, generally every three to five years. States, territories, and tribes conduct certification and training programs according to national standards set by EPA.

These programs assure a better educated and therefore safer workforce of pesticide handlers and users who can better protect themselves from pesticide exposure and prevent ecosystem contamination. Additionally EPA protects the nation's ecosystems through the groundwater, PESP, IPM and endangered species programs. In 1996 EPA issued a proposed groundwater protection rule based on the adoption of State Management Plans (SMPs). The SMP approach is based on the notion that states are knowledgeable and equal partners in designing and implementing risk-reduction measures for pesticides in ground water. The PESP, a voluntary program, was launched in December 1994 and is reducing pesticide risk through cooperation with partners and supporters. Another related program, IPM, also contributes to the careful management of risk through the adoption of available alternative pest management options, substituting mechanical, physical, or biological pest controls for chemical controls whenever possible.

The Agency's efforts in this objective will be supported through legal counseling and advocacy. This may include advice, participation in the development of Agency actions, document review, and the conduct of defensive litigation.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 01 Reduce Public and Ecosystem Exposure to Pesticides	**$50,789.4**	**$47,108.9**	**$50,626.1**
Environmental Program & Management	$37,042.1	$33,355.7	$36,647.9
Science and Technology	$632.7	$638.6	$863.6
State and Tribal Assistance Grants	$13,114.6	$13,114.6	$13,114.6
Total FTE	241.3	240.9	241.0

1999 Annual Performance Goals

- Protect homes, communities and workplaces from harmful exposures to pesticides and related pollutants through improved cultural practices and enhanced public education resulting in a reduction of 10% (1995 reporting base) in the incidences of pesticide poisonings reported nationwide.

In 1999, the Agency will continue carrying out the worker protection program that protects the health and safety of agricultural workers from occupational exposure to pesticides on farms, in forests, greenhouses and nurseries. By 2005, the number of workers with adverse health effects caused by acute pesticide poisoning will be reduced by 50% from 1995 levels. EPA will achieve this through the training of employers, workers and handlers, and clear, concise communications to create an environment of credibility and acceptance in the field by those most affected by the program.

By 2005, adequate protection measures against harm from pesticides will be in place for all endangered species. The endangered species program will enlist the support of the agricultural community and other interested groups to protect endangered wildlife and critical habitat from pesticide use. The endangered species program will enlist the support of the agricultural community. A well-directed communications and outreach effort is imperative for the success of this voluntary program. EPA continues to work with the U. S. Department of Agriculture (USDA) to maximize the impact and efficacy of the program.

By 2005, 50% of pesticides with high leaching and persistence potential will be managed to protect the groundwater resource from pesticide contaminations. The protection of our groundwater resources is a concern for both human health and environmental reasons. To this end, the Agency is continuing to carry out the Pesticide Groundwater Strategy. The strategy is based on cooperative efforts with the states and the Regions to develop State Management Plans (SMPs) to prevent pollution of this valuable resource from pesticides. EPA Regions will continue to provide guidance and assistance to the states in safeguarding groundwater resources.

By 2005, consumer and commercial non-agricultural use of pesticides with significant neurotoxic effects will be reduced by 50% from 1995 levels; the use in the U. S. of pesticides with high potential to cause significant acute toxicity to fish or wildlife will be reduced by 50% from 1995 levels; and alternatives will be registered for 80% of the pesticide uses of methyl bromide. These efforts will contribute to the annual goal through the reregistration/special review and registration of pesticides. Through these regulatory programs, pesticides found to cause neurotoxic effects or significant toxicity to fish and wildlife will be eliminated or restricted in their use resulting in reduced exposure.

In 1999, reregistration activities, including issuing Reregistration Eligibility Decisions (REDs) will continue. As pesticides continue through the reregistration process, those meeting the criteria for special review will either undergo this process or, through negotiations, be restricted or phased out to ensure that the pesticide does not pose undue risk. Additionally, through

registration of new pesticides or the use of environmental stewardship/IPM, alternatives for methyl bromide may result.

By 2005, all pesticide handlers and farm workers using pesticides will be adequately trained in the safe handling, use, and disposal of pesticides. The certification and training program provides training, certification and recertification every five years of private and commercial applicators of restricted use pesticides. EPA will continue to provide guidance and technical assistance to the states through the Regions on pesticide issues such as application techniques, toxicity and disposal.

One major concern in 1999, is the prevention of accidental or deliberate misuse of pesticides such as Methyl Parathion in urban and rural environments, particularly in poor communities where significant public health risks to residents, especially children and other sensitive populations are likely to occur. EPA proposes a new initiative to prevent misuse and reduce exposure. EPA will work with the Regions, and other Federal, state, local agencies, the private sector and communities to identify the critical deficiencies and to carry out effective solutions.

Pesticide misuse prevention activities will focus on the reduction of risk in residential settings. EPA will work with product manufacturers and distributors to develop product stewardship programs and work with states to improve their certification and training programs. Other activities will include changes in pesticide product labels, packaging and distribution. EPA will also direct enforcement activities at the sales of agricultural pesticides to urban and rural communities. The Agency will also work to prevent pesticide misuse through a public education campaign. Public education will include working with low income and minority communities in showing safe and effective pest prevention and control.

By 2005, EPA will carry out environmental stewardship strategies through agreements with 80 pesticide user groups to reduce pesticide risk through public-private partnership, regulatory relief, research and demonstration, and education/outreach. The program will continue to enlist partnerships with pesticide users and other interested parties. Additionally, EPA and USDA will continue IPM practices, including the managed use of an array of pest control methods such as biological, cultural, and chemical controls that achieve the best results with the least adverse impact to the environment. PESP and IPM are closely related programs that seek to reduce risk by using safer alternatives to traditional chemical methods of pest control. These programs will continue cooperative efforts between EPA, USDA, FDA and pesticide users to reduce potential pesticide risk.

Antimicrobial sterilants and disinfectants are used to kill microorganisms on surfaces and objects in hospitals, schools, restaurants and homes. EPA will focus on emerging concerns about whether products are appropriately labeled and whether they are effective in protecting the consumer as claimed.

1998 Annual Performance Goals

- Protect homes, communities and workplaces from exposure to pesticides and related pollutants through improved cultural practices and enhanced public education.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
01 Obj. Total Change.	**$3,517.2**	**0.1**
Environmental Program & Management	$3,292.2	0.1
Science and Technology	$225.0	0.0

- (+$1,000,000 EPM) Investment in pesticide misuse reduction.
- (+$100,000 EPM) Investment in working capital fund activities.
- (+$225,000 S&T) Investment in Fort Meade relocation activities.
- (-$100,000 EPM) 1998 Add on for DfE for Farmers.
- The remaining change in resources does not represent a change in the program. The application of 1998 carryover funds to this objective are not included in this table.

Key Performance Measures	1998	1999
Reduce the Number of workers suffering from adverse effects	Reduce by 10% (from 1995 levels)	Reduce by 15% (from 1995 levels)
Train labor population	30% (from 1995 baseline)	40% (from 1995 baseline)
Percentage of pesticides with high leaching and persistence potential that will be managed to protect groundwater resources from contamination	5%	10%
Complete environmental stewardship partnership strategies	21	42

Conclusion

Safer pesticides result in lower risks, so accelerating the pace of review is critical. Additionally, when appropriate, the approval of safer products, and reregistration of existing products, consistent with contemporary standards, will further enhance risk reduction. The reregistration and field programs are the key to addressing issues of worker, community, and environmental safety for pesticides. As we complete the reregistration review for more pesticides, we will reduce the risk to the environment, workers, homeowners, and consumers. Training and outreach activities through our field programs will inform and educate those who use or are exposed to pesticides. Increased regulatory approvals of safer alternatives and encouragement of pesticide stewardship and IPM will also contribute to risk reduction. Finally, full implementation of the WPS means a better educated and therefore safer workforce of pesticide handlers and users.

Key Performance Measures Verification

EPA will measure incidents of adverse effects reported by workers and handlers, early identification of pesticide misuse, completion and implementation of SMPs, lower numbers of poisonings reported through National Pesticides Telecommunications Network (NPTN) and poison control centers, number of improved labels completed, and increased number of endangered species protected.

Statutory Authority

FIFRA (7 U.S.C. 136-136y)

FFDCA (21 U. S. C. 346a)

Endangered Species Act (ESA) (16 U.S.C. 1531-1544)

Environmental Protection Agency

1999 Annual Plan Request to Congress

Preventing Pollution and Reducing Risk in Communities, Homes, Workplaces and Ecosystems

Objective #2: Reduce Lead Poisoning

By 2005, the number of young children with high levels of lead in their blood will be significantly reduced from the early 1990's.

Overview

Childhood lead poisoning is a serious, yet preventable environmental disease. Blood lead levels as low as 10 micrograms per deciliter (μg/dl) are associated with children's learning and behavioral disorders. High blood lead levels (25μg/dl) cause devastating health effects, such as seizures, coma, and death. During past decades, the U.S. has made great progress in combating this disease by addressing a wide range of sources of lead exposures. The Federal government has phased out lead in gasoline, reduced lead in drinking water, and banned or limited lead use in consumer products, including toys, food cans, and residential paint. States and municipalities have set up programs to identify and treat lead poisoned children and to rehabilitate deteriorated housing. Parents, too, greatly helped to reduce lead exposures to their children. The U.S. children's blood lead levels significantly decreased during the 1970's and 1980's. Data released earlier this year by the U.S. Department of Health and Human Services (HHS) show during 1991-1994 average blood lead levels in children dropped to about 3 μg/dl.

Although we have had great success, many areas still need attention. HHS data show that almost one million children under six still have blood lead levels above 10μg/dl, with many of them living in inner cities. Many children also are living in other areas that suffer from lead poisoning. Lead-based paint continues to be the major source of childhood high-dose lead exposure in the U.S. today. A 1991 report issued by the Centers for Disease Control and Prevention (CDC) shows that lead-based paint was used in millions of older homes and housing units in the United States. EPA studies show that leaded paint has a tendency of chipping when used to coat friction or impact surfaces (e.g., windows, window sills, doors). Specifically, children exhibiting pica behavior (a chronic tendency of mouthing or eating non-food objects) would mouth or swallow these chips and be lead poisoned.

EPA, under the 1992 Residential Lead-Based Paint Hazard Reduction Act [Title X], contributes to solving this environmental problem primarily by assisting in, and sometimes guiding, Federal activities aimed at reducing the exposure to children in homes with lead-based paint. Other Federal agencies, such as the Department of Housing and Urban Development (HUD) and the Department of Health and Human Services (HHS) (via the National Institute for Occupational Safety and Health and the Centers for Disease Control and Prevention), also play

important roles. In the past four years, EPA has made great strides in protecting children from lead poisoning, by a combination of rulemaking, education, research, and partnerships. EPA has promulgated regulations to set up a federal infrastructure, including the lead assessment and abatement training and accreditation rule, and the lead real estate notification and disclosure rule (with HUD). The Agency has also issued guidance on identifying hazardous levels of lead in paint, soil, and dust plus how to remodel a home containing lead-based paint safely. The public education programs and tools developed include a national clearinghouse to give the public information on lead; grants to states and tribes to establish training programs; six grants to local communities to train residents of poor, high-risk communities in lead abatement skills to enhance their communities' economic and environmental well-being; and six regional university-based training centers for lead professionals.

In the applied research area, EPA continues to search for more cost-effective ways to reduce lead hazards (such as to investigate the effectiveness of low cost lead repair and maintenance activity) and to set up national criteria for the private sector.

Other uses of lead that may pose risks to the general population have undergone review by EPA. They include: brass/bronze plumbing fittings and fixtures, lead solder used to join water pipes, lead in non-residential paint, lead in batteries, lead fishing sinkers, and lead in ammunition (lead shot).

Overall, EPA will continue to build the educational programs, and add a new dimension by encouraging these efforts at the community level where the messages can most effectively be tailored. The U.S. lead poisoning prevention program is a good example of government and others being poised essentially to eradicate childhood lead poisoning. EPA will also be encouraging state programs to train and accredit lead professionals, because when lead is abated, it must be done safely. EPA will also further investigate and implement programs to reach children at highest risk no matter where they live and play.

In 1999, EPA plans to issue final rules on disposal of lead-based paint debris and standards for lead-based paint hazards in paint, dust and soil. In addition, EPA plans to issue proposed rules on training, accreditation and certification requirements for renovation and remodeling activities and for lead-based paint activities in buildings and superstructures. These regulations, along with the training, accreditation, and certification rulemaking promulgated in August 1996, will enhance the national infrastructure to ensure the safe reduction of lead-based paint hazards. Accompanying this regulatory effort will be assistance to states and localities in identifying the most vulnerable communities to lead-poisoning risks.

The Agency's efforts in this objective will be supported through legal counseling and advocacy. This may include advice, participation in the development of Agency actions, document review, and the conduct of defensive litigation.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 02 Reduce Lead Poisoning	**$31,078.6**	**$30,453.7**	**$30,957.6**
Environmental Program & Management	$17,366.4	$16,741.5	$17,245.4
State and Tribal Assistance Grants	$13,712.2	$13,712.2	$13,712.2
Total FTE	120.2	121.6	121.4

1999 Annual Performance Goals

- Complete the building of a lead-based paint abatement certification and training program in 50 states to ensure significant decreases in children's blood lead levels by 2005 through reduced exposure to lead-based paint.

- Promulgate final rules on disposal of lead-based paint debris and establishment of standards regarding hazardous levels of lead in paint, dust, and soil.

- Issue proposed rules on training, accreditation and certification requirements for renovation and remodeling activities and training, accreditation and certification requirements for lead-based paint activities in buildings and superstructures.

Lead-based paint is the primary source of lead-poisoning in children in the U.S. today. For the past five years, the Agency has been implementing a program to establish a national infrastructure of trained and certified professionals and hazard control methods and standards to ensure that homeowners and others have access to safe, reliable and effective methods to reduce children's exposure to lead-based paint. In 1999, two additional rules will be promulgated to enhance the existing infrastructure. The effects of the promulgation of these rules will not be immediate. Data collected through the HHS's National Center for Health Statistic's (NCHS) National Health and Nutrition and Examination Survey (NHNES), available in 2002 will be used to measure the effectiveness of this program. In 1998, the Agency began a public education grant program aimed at identifying unique methods to educate high risk populations about lead-based paint hazards. In 1999, the public education grant program will continue. This program will help identify additional high risk populations for the development of a program to decrease exposure to these groups in 1999.

In 1999, the Agency will continue to support the implementation of State and Tribal training and certification programs by providing $12.5 million in grants. The Agency also plans to provide approximately $1.2 million to Indian Tribes to support broader lead poisoning prevention activities at the Tribal level.

Another important effort will be a project to assist states and local communities in targeting resources by examining up to 50 - 75 metropolitan areas to identify the most vulnerable communities where lead poisoning prevention efforts should be targeted. This project will be a collaborative effort with the CDC. The identification of communities will be followed with a multi-pronged outreach program to ensure awareness of the risk to children and to ensure that steps are taken to provide assistance to the communities at risk. Other non-regulatory activities will continue to target areas where the HHS data very clearly identifies the risk of lead poisoning to be the greatest - low-income, minority, urban areas. In addition, other specific high risk populations may exist due to other exposure factors. During 1998, the HHS data was examined to identify additional populations at risk of lead poisoning. A program to target public education and risk reduction methods for these additional populations will be developed and implemented in 1999.

1998 Annual Performance Goals

- Achieve significant progress in establishing a lead-based paint national infrastructure to ensure significant decreases in children's blood lead levels by 2005 through reduced exposure to lead-based paint.
- Promulgate renovation information rule and fee rule establishing the fee charged by EPA to accredit training providers and certify lead-based paint professionals.
- Issue proposed rules on disposal of lead-based paint debris and establishment of standards regarding hazardous levels of lead in paint, dust, and soil.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
02 Obj. Total Change	**$503.9**	**(0.2)**
Environmental Program & Management	$503.9	(0.2)

- (+$750,000 EPM) Reflects an increased investment to support EPA/CDC blood lead level screening program.
- (-$400,000 EPM) 1998 Congressional Add-on received.

Key Performance Measures	1998	1999
State programs approved for the training, accreditation and certification of lead-based paint professionals	35	
A Federal training, accreditation and certification program will be established and administered in states which choose not to seek approval from EPA to administer state programs		15
Renovation Information Rule	Promulgated	
Fee Rule	Promulgated	
Debris Disposal Rule	Proposed	Promulgated
Lead Hazard Standards Rule	Proposed	Promulgated
Training, accreditation and certification requirements for (a) renovation and remodeling rule (b) Lead-based paint activities in buildings and superstructures rule		Proposed

Conclusion

By 1999, a national infrastructure will be in place to ensure that homeowners and housing occupants have access to a qualified workforce who is properly trained to reduce lead hazards safely. Beginning in 1999, EPA will start implementing a training, certification, and accreditation program for lead-based paint professionals in States that do not administer their own programs. Other regulations and public outreach will ensure that parents have access to information to make an informed decision about lead-based paint in their home, with a special emphasis on children in low-income, urban areas.

Key Performance Measures Verification

The accomplishment of EPA's lead-based paint program will be verified by realizing a significant reduction of children's blood lead levels in high risk groups compared with average levels. For the past two decades, the NCHS has collected data on the general health of the Nation's population through the NHNES. The collection and laboratory analysis of children's blood for lead has been part of this program since its inception and has become the standard for the estimation of national blood lead averages. It is also the only national survey of children's blood lead levels. NCHS is preparing to begin another survey. The results, scheduled for release in 2002, will be used to measure the success of EPA's lead program. The verification and validation of data from NHNES will be conducted by NCHS through a rigorous quality assurance program to ensure that the sample selected for examination is truly representative of the U.S. population and that laboratory analyses of collected blood samples are of known accuracy and precision (NCHS has more than 20 years experience in conducting this survey and these analyses).

In addition, EPA will evaluate the effectiveness of regulations promulgated over the next two years. Through mechanisms including focus groups and surveys, the Agency will measure the awareness of and any changes in behavior of the regulated community due to these regulations. For example, at the end of 1999, EPA will have established a training, certification, and accreditation program for lead-based paint professionals in states that do not seek approval from the Agency to administer their own program (about fifteen states are not expected to seek authorization). In 2000, following an outreach effort to increase awareness of state residents on EPA's certification program, the Agency will measure the success of this regulation in certifying professionals. The success will be determined by the degree of awareness of the program among professionals who are likely to become certified. Similar evaluations will be developed for other regulations.

Statutory Authority

Toxic Substances Control Act (TSCA) section 6 and TSCA Title IV (15 U.S.C. 2605 and 2681-2692)

Safe Drinking Water Act sections 1412 and 1417 (42 U.S.C. 300g-1, 300g-6).

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. 9601-9675)

Objective #3: Safe Handling and Use of Commercial Chemicals and Microorganisms

By 2005, of the approximately 2,000 chemicals and 40 genetically engineered microorganisms expected to enter commerce each year, we will significantly increase the introduction by industry of safer or "greener" chemicals which will decrease the need for regulatory management by EPA.

Overview

The Toxic Substances Control Act (TSCA) authorizes EPA to review a chemical or microorganism before commercialization to determine whether it can be handled and used safely. If the review shows that an unreasonable risk may be posed to people or the environment, control measures are in place to ensure their safety in the marketplace. Since 1979, EPA has reviewed more than 31,000 premanufacture notices (PMN) and taken actions to control risks for 10% of these chemicals. While the New Chemicals Program has been extremely successful in meeting TSCA goals, the Agency sees tremendous opportunities for increasing the introduction and use of safer or "greener" chemicals. These safer or "greener" chemicals are less toxic, result in lower exposure, are more energy efficient, generate less (or less toxic) waste, or have other similar attributes. The more such chemicals are available to replace those harmful chemicals currently in use, the greater will be the opportunity to achieve safer workplaces and communities.

A crucial element of EPA's approach for promoting industry's introduction of safer chemicals is to fulfill the mandate under TSCA to control the unreasonable risks for the chemicals which are already in commerce. Increased scrutiny on existing chemicals that pose risks in their use or management forces industry to look for new chemical formulations or processes that do not pose these risks. This is done through chemical information gathering and testing to provide EPA and others, including the public, with sufficient data for screening, assessing and managing the risks. In dealing with more than 75,000 chemicals, EPA, in partnership with other Federal agencies, industry, and other customers, has adopted innovative techniques and non-regulatory approaches. Today, risk management controls are already in place or planned for many of chemicals whose risks are well-characterized (e.g., asbestos, polychlorinated biphenyls (PCBs), and many other chemicals through Risk Management Actions). The pace for gathering scientific data needed to support risk assessment is also increasing.

For those chemicals whose significant risks are well established (such as PCBs, asbestos, and dioxin), reductions in use and releases are important to reducing exposure of the general population and also sensitive subpopulations. Risk reduction efforts on these chemicals must continue to meet the mandates

under TSCA and fulfill the commitments made in domestic and international agreements.

While EPA will continue to assess and take action against unsafe chemical usage, additional effort will focus on supporting development and/or use of safer chemicals by industry and improved risk management for all chemicals. The Agency sees several ways to achieve this end:

1) Encourage industry to apply new or alternative ways, in designing and developing new chemicals and manufacturing new and existing chemicals that will either avoid pollution entirely or minimize risks to health and the environment.

2) Switch from an inefficient method of managing chemicals individually to concurrently dealing with all chemicals within a group (i.e., chemical category or use clusters), by streamlining the process for identifying safer substitutes and for managing the collective risk of the group.

3) Remove the regulatory barriers to innovation.

There are ripple effects of these strategies. First, the strategies will drive and consequently bring about improved risk assessment capabilities, both within EPA and its client communities. For example, the "use cluster approach" gives flexibility in applying risk mitigation techniques that will result in a cumulative risk reduction in the use sector for a particular industry. These improved risk assessment methods can also be used for supporting pollution prevention activities, such as Green Chemistry Programs, that will produce safer and greener chemicals. With a higher proportion of safer chemicals being developed, EPA can concentrate on regulating a smaller portion of the new chemical substances that warrant risk management.

Second, EPA will act as an agent for spreading and sharing the new technologies among all parties. This will contribute to better new premanufacture submissions by industry to EPA for review; and to provide the knowledge for better understanding EPA review decisions.

Third, the category and use sector approaches will shift both new and existing chemicals focus toward those areas of the chemical marketplace that would benefit from a comprehensive risk management approach. Overall this shift is expected to result in better targeting of chemicals for risk reductions. Further, this shift in focus will minimize or eliminate regulatory burdens on new chemicals if they replace riskier substances already in the marketplace.

To assess the 75,000 chemicals currently in commerce, the challenge is to provide a streamlined program, while reducing administrative, record keeping, and regulatory burdens on the chemical industry, because it is a vital economic sector that provides important products and services to the American people. The strategy is to move toward a planned, broad screening of the potential risks posed by the 75,000 chemicals in commerce. This systematic approach would identify chemicals believed to be manufactured and used safely as well as those chemicals which may pose risks to humans and the environment and need further

attention. This screening will give the nation a "Toxics Agenda." Chemical risks will be screened and identified using procedures similar to those used in EPA's New Chemicals Program and will result in chemicals being classified by hazard endpoint based on available information. Experience gained in EPA's New Chemicals Program has given the Agency the tools and scientific capability to accomplish the risk screening of all commercial chemicals.

This strategy will lead to both a focused national chemical risk management program and a major increase in the amount of information on chemical exposures, hazards and risks that EPA can provide to the public. This public information can also incorporate innovative approaches, such as chemical classification and labeling systems, to advise users and consumers of chemical hazards and risks. Chemical testing would play a fundamental role in developing data for these purposes, including chemical classification. Information on toxic chemicals will be made available to state and local governments in conducting risk assessment and management activities.

Underlying the success of all these strategies is a critical piece of information -- chemical use. Without use information, we cannot screen out unsafe use accurately, define the chemicals falling into specific "use clusters," assess chemical hazards to reduce exposures, or identify the "universe" of household chemicals. EPA will develop a Chemical Use Inventory (CUI) System (through TSCA sec. 8) as an important tool for carrying out the strategies.

EPA's PCB control efforts will shift from enforcing PCB use standards toward encouraging phaseout of PCB electrical equipment, ensuring proper waste disposal methods and capacity, and fostering PCB site cleanups.

EPA is committed to developing an Agency-wide dioxin strategy that would respond to the new science of the reassessment and address dioxin risk management in a more comprehensive cross-media approach. A draft strategy is now under development and will be released concurrently with the final reassessment.

EPA established the Endocrine Disrupter Screening and Testing Advisory Committee (EDSTAC), to provide advice and counsel to the Agency on a strategy to screen and test chemicals and pesticides that may cause endocrine disruption in humans, fish, and wildlife. EPA must implement the strategy by August 1999 and report to Congress by August 2000. In 1999, EPA will begin testing chemicals in commerce for endocrine disrupting potential. It is expected that by 2005 all high volume chemicals will have been screened for endocrine disrupting potential and the resulting priority chemicals will have been tested or testing initiated, using the approach and test methods developed from recommendations of the EDSTAC.

EPA's research program will support reducing risks posed by toxic substances by generating scientific information used in improving the test methods used to generate the data used to screen and assess individual substances, both alone and in combination. Research seeks to improve our understanding of both the risks to human health and adverse ecological effects. To the extent that this research supports testing guidelines that relate to both toxic substances in general and to pesticides, research under this objective additionally supports EPA's efforts to reduce the risks to the nation's food supply (Goal 3) and the non-dietary pesticide risks posed to human health and the

environment (addressed in Objective 1 of this goal). The efforts described here represent an applied research program that is directly responsive to current regulatory issues.

This research will help the Agency to: 1) up-date existing methods and develop/validate new ones to detect, characterize, and quantify adverse human health effects resulting from exposure to toxic substances, taking into account various combinations of exposures; 2) improve understanding of the underlying mechanisms by which toxic substances adversely affect human health, and, 3) strengthen the foundation for risk assessments, regulations, and test guidelines development. In addition, research seeks to provide state-of-the-science measurements, methods, and models for development of ecological effects, protocols, guidelines, and strategies, providing the scientific basis for credible ecological vulnerability assessments and evaluations of the impacts of environmental stressors. Understanding the effects of exposures to environmental stressors (chemical, biological, and physical) and the uncertainties surrounding risk associated with our current definitions of stressors on our environment is an important long-term research goal. Ecosystem risk issues are being addressed through applied research to develop methods and models to evaluate the magnitude and duration of environmental exposures and their consequences in terms of effects on wildlife and plant species for both individual anthropogenic stressors and combinations of anthropogenic and natural stressors.

In 1999, EPA will focus efforts to implement the Toxics Agenda. An important part of the implementation effort will center on persistent, bioaccumulative, and toxic (PBT) chemicals as part of a coordinated Agency effort. To facilitate development of the Agenda, EPA will complete the CUI amendment to the Inventory Update Rule, by that providing information to improve EPA's understanding of chemical uses and exposures to consumers, workers, and children. The Agency will begin screening high production volume chemicals for safe use and testing needs and will begin testing actions on 50 chemicals. New chemicals review will continue its steady improvement in efficiency and effectiveness with a greater focus on increasing the introduction by industry of safer or greener new chemicals.

The Agency will work towards amending TSCA to eliminate the current statutory cap on PMN fees and recovering the costs of running the program.

The Agency's efforts in this objective will be supported through legal counseling and advocacy. This may include advice, participation in the development of Agency actions, document review, and the conduct of defensive litigation.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 03 Safe Handling and Use of Commercial Chemicals and Microorganisms	**$31,646.7**	**$41,024.6**	**$41,272.5**
Environmental Program & Management	$31,646.7	$30,492.9	$31,939.2
Science and Technology	$0.0	$10,531.7	$9,333.3
Total FTE:	263.2	357.2	343.6

1999 Annual Performance Goals

- Ensure that of the approximately 2,500 new chemicals and microorganisms submitted by industry each year, those that are introduced in commerce are safe to humans and the environment for their intended uses.
- Expand EPA's ability to conduct safety reviews of chemicals already in commerce and implement a strategy for comprehensively screening, testing, classifying and managing the risks posed by commercial chemicals, with an emphasis on high production volume chemicals.
- Reduce the industrial burden and cost of managing the safe disposal of PCBs by implementing the PCB rule.
- Begin testing chemicals in commerce for endocrine distupting potential.
- Continue to stimulate development of new safe ("green") chemicals and safe chemical processes through public recognition for outstanding achievements in this field.
- Improve aquatic risk assessment methods with new population dynamic models that extrapolate biassays to community effects.
- Extend SAR screening capabilities to include a systematic screening of the reactive pesticides and industrial chemicals.
- Improve in vitro hazard identification methods for one-election mechanisms of toxicity among industrial chemicals.

EPA's activities on new and existing chemicals focus on increasing the introduction and use of safer and greener chemicals. Timely completion of new chemical reviews will ensure that all new chemicals are screened before introduction and needed actions taken. New chemical reviews will identify green chemistry approaches and will engage customers in these programs through incentives indicating benefits/gains that might accrue from these pollution

prevention efforts. New and existing chemical programs will be better aligned to remove barriers to innovation of new chemicals and to promote integrated risk management and pollution prevention for new and existing chemicals.

EPA's Green Chemistry Program recognizes and promotes chemical methods that reduce or eliminate the use or generation of toxic substances during the design, manufacture, and use of chemical products and processes and that have broad application in industry. One component of this program is the Green Chemistry Challenge, which supports basic research by providing recognition, through an awards program, for outstanding accomplishments in chemistry that can lead to substantial progress in the development of safer and greener chemicals.

Completion of testing actions on new and existing chemicals will result in the development of test data needed to support adequate assessments of chemical risks by government, industry, and the public. Steps to facilitate enhanced public access to TSCA test data will be initiated, by that beginning a process to meet the right-to-know needs of the public for basic toxicity information on chemicals. Promulgation of the CUI rule, by identifying critically needed industrial, commercial, and consumer products (e.g., household) chemical uses, will facilitate risk screening, including identifying risks to children.

EPA will implement the final rules issued in 1997/1998 which will enable the regulated community to reduce the PCB concentration of their equipment to acceptable levels and clean up contaminated sites under more flexible, self-implementing equipment reclassification, decontamination and remediation options. This should result in less administrative burden and costs for both EPA and the regulated community.

In 1999, research to improve health effects measurements, methods, and models will focus on: 1) development of mechanistically-based predictive models for human health risk assessment, such as structure-activity-relationship models to help determine testing needs under Section 5 of TSCA, which addresses new chemicals, 2) development of methods to evaluate hazard of numerous human health endpoints (e.g., neurological, reproductive, immunological), and 3) development of data on chemical-specific effects, such as for those toxic substances identified as high regulatory priority. Efforts in the area of effects research will include: 1) developing and validating predictive models (e.g., biologically-based dose-response, structure-activity-relationship) to identify and characterize ecological hazard and risk (e.g., improved methods for one-electron mechanisms of toxicity), 2) developing hazard identification techniques for numerous ecological health end points for various wildlife species (e.g., improved aquatic hazard identification and risk characterization methods with new population dynamic models that extrapolate bioassays to community effects), and 3) evaluating data on the direct stressor effects of toxic substances on experimental ecosystems, including wildlife species, and on interactions of such exposures with other anthropogenic and/or natural stressors.

1998 Annual Performance Goals

- Ensure the approximately 2,500 new chemicals and microorganisms considered for markets are safe for their intended uses in commerce.

- Expand EPA's ability to conduct safety reviews of chemicals already in commerce and develop a strategy for comprehensively screening, testing, classifying and managing the risks posed by commercial chemicals, with an emphasis on high production volume chemicals.

- Reduce the industrial burden and cost of managing the safe disposal of PCBs.

- Develop, on a consensus basis with key stakeholders, a strategy for screening and testing chemicals in commerce for endocrine disrupting potential.

- Stimulate development of new safe ("green") chemicals and safe chemical processes through public recognition for outstanding achievements in this field.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
03 Obj. Total Change	**$247.9**	**(13.6)**
Environmental Program & Management	$1,446.3	(0.1)
Science and Technology	$(1,198.4)	(13.5)

- The change in resources does not represent a change in the program. The application of 1998 carryover funds to this objective are not included in this table.

- S&T reductions represent a move away from research on point source pollution effects on plants toward other higher risk areas, such as Global Change and the need to develop ecological indicators for terrestrial ecosystems. Little adverse effect is expected since most of the planned research on the effects of toxic substances to plants will be completed.

Key Performance Measures	1998	1999
Receive and complete safety reviews of 2,500 TSCA PMNs, with no more than 100 of these reviews concluding that regulatory management by EPA is required	2,500 PMN annual reviews	2,500 PMN annual reviews
TSCA Chemical Use Inventory Rule	Proposed	Promulgated

Complete, in 1998, OPPT's Toxics Agenda which will define how EPA proposes comprehensively to screen, test, classify and manage the risks posed by commercial chemicals	Toxics Agenda -- Completed	
Screen high production volume chemicals		400
Test high production volume chemicals		50
PCB Rules	Promulgated	Implemented
Complete, in 1998, a strategy and report to Congress for screening and testing commercial chemicals for endocrine disrupting potential and begin testing chemicals in commerce for endocrine disrupting potential	Endocrine Disruptor Strategy -- Completed	Implement
Receive/review applications for Green Chemistry Challenge Award	50 or more viable applications evaluated	50 or more viable applications evaluated
Peer publication on the in vitro screening methods for one-electron reactions		1 publication
Computerized SAR system for rapid screening of reactive chemical or known metabolites of pesticides and industrial chemicals		1 system
Deliver watershed-scale pollutant and aquatic habit exposure assessment model key for pesticides and toxics		1 model

Conclusion

EPA is committed to provide an enhanced, more efficient, and streamlined program for screening, testing, and managing chemical risks. The chemical industry is a vital economic sector that provides important products and services to the American people, therefore, administrative, record keeping, and regulatory burdens must be kept to a minimum. The New Chemicals Program reviews the potential risks of chemicals before they are commercialized and regulates them if there are significant risks. Experience gained in the New Chemicals Program has given EPA the tools and scientific capability to accomplish the risk screening of all commercial chemicals. This screening will give the nation a "Toxics Agenda." Chemical testing would play a fundamental role in developing data for this screening. In addition, EPA will emphasize the right-to-know ethic by making available to the public, information about chemical hazards and exposures developed during the risk screening and testing programs on both new and existing chemicals.

Achievement of this objective would represent a large advance in the state of knowledge on chemicals in commerce and substantial progress in ensuring that chemical risks are properly managed. The ultimate outcome desired from these efforts is a situation where risks from all chemicals can be adequately characterized and appropriate risk management steps are taken when unacceptable risks are identified.

In the area of health effects methods and models research, ORD will be developing methods to evaluate hazard on noncancer human health endpoints including new/refined test methods for neurotoxicity, immunotoxicity, and reproductive toxicity and developing predictive models to improve the biological basis for human health risk assessment including chemical-specific studies to determine long-term health effects of exposures during development. The Agency will incorporate these test methods into its collection of testing guidelines under which manufacturers will be required to submit data.

The ecological effects research program will provide state-of-the-science methods and model development by developing: (1) ecological hazard identification techniques, and (2) predictive models to identify and characterize ecological hazard and risk. Furthermore, data on direct stressor effects of toxic substances on experimental ecosystems/wildlife and on interactions with anthropogenic/natural stressors will be evaluated. The development of these methods and models to evaluate the consequences of exposures to toxic substances, in terms of effects on wildlife and plant species for both individual anthropogenic stressors and combinations of anthropogenic and anthropogenic and natural stressors will further EPA's ability to conduct a more scientifically sound assessment of ecological risk.

Key Performance Measures Verification

Performance will be measured by counting the number of new chemicals Pre-Manufacture Notice submissions (PMN's) that are determined by EPA to be safe and not to require EPA management controls. PMN's submissions and determinations

are tracked under formal EPA document management and decision-making systems to ensure compliance with statutory deadlines for Agency action. The "greener" the new chemical EPA receives for review, the more success achieved in protecting human health and the environment. Performance will also be measured by how much knowledge we gain in understanding the risks of toxic chemicals to human health and the environment. EPA will gain this knowledge through required and voluntary chemical testing by industry. When EPA identifies specific risks posed by toxic chemicals, performance will be judged by its success to mitigate through actions such as labeling, banning of the chemical or its use in certain products. These counts will be drawn from formal regulatory action tracking systems maintained by EPA that have thorough QA/QC procedures to ensure the integrity of the data maintained therein. Last, success will be judged by lowering risk through preventing pollution and achieving this through voluntary compliance over regulated controls.

EPA has several strategies to validate and verify performance measures in the area of environmental science and research. The Agency has implemented a risk-based research planning process to use risk assessment and risk management as principal priority-setting criteria. EPA conducts annual research program reviews to both evaluate the status and accomplishments of its research and determine planning priorities.

Chief among the Agency's validation and verification mechanisms is a rigorous peer review process. In a July 1997 memorandum, EPA's Deputy Administrator states that peer review will be expanded "to include both the major work products provided in the past and ... all scientific and technical products supporting Agency decisions. This expanded and strengthened focus on peer review will help ensure that the performance measures listed here are verified and validated by external organizations. The Agency utilizes peer review throughout the research planning and implementation process, both to ensure that planned research addresses critical knowledge issues within EPA's mission and to assess the quality of scientific research plans, products, and proposals. This is accomplished through the use of independent entities.

The Office of Research and Development Management Information System (OMIS) will be another accountability tool used to verify and validate performance measures. The recently developed GPRA structure will be incorporated into OMIS to ensure consistent maintenance and reporting, resulting in greater accuracy and consistency of information to users.

Statutory Authority

TSCA section 4 (15 U.S.C. 2603)

TSCA section 5 (15 U.S.C. 2604)

TSCA section 6 (15 U.S.C. 2605)

TSCA section 8 (15 U.S.C. 2607)

TSCA section 12(b) (15 U.S.C. 2611)

TSCA section 13 (15 U.S.C. 2612)

Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) sections 3, 4, 5, 6, 11, 18, 24, and 25 (7 U.S.C. 136a, 136a-1, 136c, 136d, 136i, 136p, 136v, and 136w)

Objective #4: Healthier Indoor Air

By 2005, fifteen million more Americans will live or work in homes, schools, or office buildings with healthier indoor air than in 1994.

Overview

Indoor air pollution poses high risks to human health, especially sensitive populations, and has ranked among the top four environmental risks in relative risk reports. In homes, radon is the second leading cause of lung cancer and is responsible for an estimated 14,000 deaths per year. The Agency recommends that all homes be tested for radon and mitigated if levels are at or above 4 picocuries per liter of air; nearly 1 out of every 15 homes is estimated to have radon concentrations above this action level. Environmental tobacco smoke (ETS) is a "class A" carcinogen and causes about 3,000 lung cancer deaths in nonsmokers annually. A recent study reported in the American Heart Association Journal concluded that constant ETS exposure in the workplace or at home nearly doubles the risk of having a heart attack (between 30,000 and 60,000 excess deaths annually). It is responsible for many childhood respiratory problems including 150,000-300,000 cases of pneumonia and bronchitis each year in children under 18 months of age as well as middle ear fluid build up in children. Asthmatic children are especially at risk since ETS exposure increases the number of episodes and severity of symptoms for up to 1,000,000 asthmatic children.

In schools, the General Accounting Offices estimates that 9.9 million students and 570,000 teachers and school staff suffer illnesses annually due to poor indoor air quality. A World Health Organization Committee has suggested that up to 30% of new and remodeled buildings, including schools, worldwide may be the subject of excessive complaints related to indoor air quality.

Additionally, exposure to organic chemicals and biological contaminants in the indoor environment has been associated with adverse effects on the human immune, neurological and respiratory systems as well as sensory irritation. Recently, studies have also identified a relationship between expos[illegible] biological contaminants and the development or exacerbation of [illegible]

The Environmental Protection Agency (EPA) is cc [illegible] the because scientific studies demonstrate individuals spe [illegible] of their time indoors where air pollutant concentratic [illegible] higher than outdoors. The private sector is concern [illegible] because of the impacts on worker productivity and the combination of these two factors is estimated to cost billions of dollars per year.

EPA has two major strategies to meet its human health objective for indoor air quality. First, EPA raises public awareness of actual and potential indoor air risks so that individuals can take steps to reduce exposure. Second, EPA uses partnerships and technology transfer to improve the way in which all types of buildings, including schools, homes, workplaces and other large buildings are designed, operated, and maintained to bring about healthier environments indoors. To support these voluntary approaches, EPA incorporates the most current science available as the basis for recommended exposure reduction actions.

To reach the objective, EPA focuses its efforts on outreach: an overarching activity supporting efforts to increase awareness about indoor air quality and to promote changes in indoor air quality in homes (with a focus on environmental tobacco smoke), schools, and workplaces. Underpinning EPA's outreach efforts is a strong commitment to environmental justice, community based risk reduction, and customer service.

EPA's outreach activities center around a network of cooperative partnerships with organizations such as the National Association of Counties, the American Lung Association, the Consumer Research Council, the National Council for Negro Women (NCNW), the American Pediatric Association, the National Education Association, and the Real Estate Educators Association. These partnerships position EPA to successfully reach and educate its target audience which includes county and local environmental health officials, susceptible minority and disadvantaged populations, schools, and real estate and building professionals. Through this national partner network of over 25 organizations and their 600 plus local field affiliates, EPA leverages the personnel, expertise, and credibility of these groups and mobilizes hundreds of community-based affiliates at the state and local levels.

EPA also provides essential information to the public and to professional and research communities about radon and other indoor air-related risks and takes steps to reduce them through educational literature, public service announcements, hotlines and clearinghouse operations. These basic information services to the public and to our risk reduction network provide the support necessary for continuing to achieve our bottom line results such as home radon tests completed, home mitigations accomplished, new homes built with radon-resistant features, implementation of the Indoor Air Quality "Tools for Schools" kit, and office buildings managed with good Building Air Quality practices. EPA Regions provide information and assistance to the public, other governmental agencies, and non-governmental organizations to help meet the program's objective and sub-objectives.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 04 Healthier Indoor Air	**$33,235.0**	**$30,292.2**	**$33,219.4**
Environmental Program & Management	$20,849.3	$18,305.7	$20,874.7
Science and Technology	$4,227.7	$3,828.5	$4,186.7
Building and Facilities	$	$	$0.0
State and Tribal Assistance Grants	$8,158.0	$8,158.0	$8,158.0
Total FTE	149.5	150.2	151.8

1999 Annual Performance Goals

In 1999, 850,000 additional people will be living in healthier residential indoor environments, including:

- 530,000 people living in homes built with radon resistant features.
- 195,000 children age 6 and under no longer exposed to ETS in their homes.
- 130,000 people living in radon mitigated homes.
- In 1999, 1,600,000 students, faculty and staff will experience improved indoor air quality in their schools.
- Complete development of baseline information (BASE) on building environmental parameters and occupant health symptoms. This information will be used to assess exposure and devise risk reduction strategies for office buildings.
- Improve understanding of the effects of indoor contaminants on human health.

Each year through 2005, EPA will take incremental steps to reach the indoor air objective with a focus on EPA priorities including: children, indoor air quality, environmental justice, and urban areas. EPA's activities which specifically address Agency priorities are:

- Indoor Air Quality Tools for Schools.
- Asthma Open Airways Effort in cooperation with the American Lung Association.

- Environmental Tobacco Smoke media campaign.

- Environmental Tobacco Smoke Day Care Project in cooperation with the American Academy of Pediatrics.

- Environmental Justice efforts supported through cooperative partnerships with NCNW, AAPCHO, Self-Reliance Foundation, and COSSMHO.

- Tools for Schools pilot with the District of Columbia Public School System.

- Sound Science.

Through achievement of the annual performance goals, in 2005, 15 million more Americans will live or work in homes, schools, and/or office buildings with healthier indoor air than in 1994. Our priorities in 1999 include: 1) radon testing, radon mitigation, and radon resistant construction; implementing "Tools for Schools"; increasing awareness of the harmful effects of children's exposure to secondhand smoke; completing the analysis of data from the Building Assessment Survey and Evaluation (BASE); privatizing the radon proficiency program; and, focussing on community based risk reduction.

EPA's research supports achievement of the objective for healthier indoor air by producing necessary scientific information to understand indoor air effects. Research will further identify, characterize, and compare the health risks associated with indoor exposures to air pollutants so that risk managers can make informed decisions to protect public health.

Effects researchers will focus on controlled clinical studies on biocontaminants (house dust mite and other allergens) and their effects on allergic, asthmatic, and normal healthy children. Researchers will use the animal model for evaluating biologic contaminants to characterize effects and dose-responses of various biocontaminants. (Animal models provide a cost-effective tool for evaluating biocontaminant effects and aid in understanding the extrapolation of immunotoxicologic data from animals to humans.) Researchers will evaluate the health effects associated with exposures to mixtures found indoors, particularly mixtures of biocontaminants like house dust mites and more conventional pollutants (e.g., nitrogen dioxide, ozone, and VOCs). This will augment research on susceptible populations (e.g., asthmatics and those reporting multiple chemical sensitivity symptoms) and improve our ability to extrapolate animal data to humans facilitating the evaluation of the human risks from indoor air pollution.

This research will substantially expand EPA's ability to evaluate the effects of pollutant exposures and their impacts on both normal and sensitive subpopulations by validating risk assessment models developed using animal data.

1998 Annual Performance Goals

- In 1998, 850,000 additional people will be living in healthier residential indoor environments, including:

- 530,000 people living in homes built with radon resistant features.
- 195,000 children age 6 and under no longer exposed to ETS in their homes.
- 130,000 people living in radon mitigated homes.
- In 1998, 960,000 students, faculty and staff will experience improved indoor air quality in their schools.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
04 Obj. Total Change	**$2,927.2**	**1.6**
Environmental Program & Management	$2,569.0	2.5
Science and Technology	$358.2	(0.9)

- (+$1,250,000) In 1999, using investment resources of $1,250,000, EPA will begin a cooperative project with the New York area region to develop and implement an asthma program designed to reduce the health risk to children of indoor contaminants. As a starting point, in 1999, we will implement an outreach campaign based on data from a proposed National Academy of Science (NAS) study "An Assessment of Asthma and Indoor Air Quality." The NAS study will evaluate the science behind the current information on the role and significance of indoor air asthma triggers such as dust mite, cockroach allergens, mold, animal dander, and environmental tobacco smoke.
- (-$1,000,000) In 1999 we also expect to benefit from efficiencies from our efforts to privatize the Radon Proficiency Program and other streamlining efforts in the Indoor Environments Program thereby accounting for a disinvestment of $1,000,000 total contract dollars. This disinvestment has been redirected to higher priority work in the homes and schools programs, specifically radon risk assessment and risk prioritization and the Tools for Schools program.
- (+$929,300) Total payroll costs for this objective will increase by $929,300 total dollars reflecting increased workforce costs.
- (+$167,600) Working Capital Fund (WCF) resources for this objective have been increased by $167,600.

Key Performance Measures	1998	1999
People living in healthier indoor air	850,000 people	850,000 people
People living in radon resistant homes	530,000 people	530,000 people
People living in radon mitigated homes	130,000 people	130,000 people
Children under 6 not exposed to ETS	195,000 children	195,000 children
Students/staff experiencing improved IAQ in schools	960,000 students/staff	1,600,000 students/staff

Conclusion

Each year through 2005, EPA will take incremental steps to reach the indoor environments objective through its annual performance goals. Through its research efforts, EPA will produce technical reports, methods, models, and other scientific information to improve the understanding of the effects of indoor contaminants in micro-environments, their sources, and risk management options to reduce exposure. Health research, focused on biocontaminants, will determine health effects of indoor air pollutants (i.e., eye, nose, and throat irritancy, central nervous system damage, sensory effects); develop and test hypotheses for definition of multiple chemical sensitivity. Research will also develop better methods and models to quantify source emissions; and develop methods to measure biocontaminants.

With a consistent level of resources and program and research prioritization, EPA will be on target to reach its year 2005 environmental outcome. In the future, EPA will also need to focus on emerging indoor environment issues such as carbon monoxide poisoning, the impact of consumer products use/misuse in the home, the risks of volatile organic compounds used indoors, and biological contaminants.

The achievement of the current objective is a bold response to one of the most serious environmental problems facing the public, but it would leave much to be done. EPA's focus in the future will be to address the remaining risks, including such challenges as the millions of Americans yet to test their homes for radon (and fix, if warranted), the 15% of American households who would still expose their children to one of the most potent sources of pollution, environmental tobacco smoke, as well as the additional schools and buildings which have not implemented sound building air quality practices.

Indoor air research supports achievement of the objective by producing necessary scientific information to understand indoor air effects. Specifically, EPA will by 2005, produce technical reports, methods, models, and other

scientific information to improve the understanding of the effects of indoor contaminants in micro-environments.

Health research, focused on biocontaminants, will determine health effects of indoor air pollutants (i.e., eye, nose, and throat irritancy, central nervous system damage, sensory effects); develop and test hypotheses for definition of multiple chemical sensitivity.

Key Performance Measures Verification

In order to determine progress on the number of homes tested for radon, homes fixed if levels are elevated, and the number of children aged 6 and under exposed to ETS in their homes, the program utilizes the biennial survey conducted by the Conference of Radiation Control Program Directors. The National Association of Home Builders (NAHB) conducts an annual survey of home builders which includes questions concerning the extent to which they are employing radon-resistant construction techniques. This information is made available to EPA through an agreement with NAHB. We also determine progress by tracking the number of kits distributed and kits analyzed, by conducting follow up inquiries with partners, and using lab files for evaluations and tracking.

The number of schools that implement the IAQ Tools for Schools kit are tracked through a centralized database where data are provided by program office staff, the Government Printing Office, national cooperative partners, contractor staff, and the EPA regional offices. In addition, we access the National Association of Energy Service Companies database which tracks companies which have performed ventilation work in schools as well as public school student enrollment numbers.

The first measure for large buildings, which involves completing the measurement and characterization of 100 randomly selected large buildings, is performed by the program which is responsible for conducting the BASE study. The second measure is reported on by the International Union of Operating Engineers as a condition of its continuing cooperative agreement with EPA under which it trains building engineers and then assesses the implementation of good IAQ management practices. The Las Vegas laboratory also collects and tracks the number of samples and analyses from buildings where measures are collected.

EPA has several strategies to validate and verify performance measures in the area of environmental science and research. The Agency has implemented a risk-based research planning process to use risk assessment and risk management as principal priority-setting criteria. EPA conducts annual research program reviews to both evaluate the status and accomplishments of its research and determine planning priorities. To better draw upon the expertise of the environmental academic community, EPA created the Science to Achieve Results (STAR) program of peer-reviewed, mission-driven extramural grants; the Agency is also working with the National Research Council to identify emerging environmental issues for which we must begin planning the necessary research.

The Agency utilizes peer review throughout the research planning and implementation process, both to ensure that planned research addresses critical

knowledge issues within EPA's mission, and to assess the quality of scientific research plans, products, and proposals. This is accomplished through the use of independent entities such as the Science Advisory Board (SAB) and the Board of Scientific Councilors (BOSC). The BOSC, established under the Federal Advisory Committee Act, will examine the way the Agency uses peer review, as well as the management of its research and development laboratories.

EPA's external research program undergoes extensive peer review. Proposals from the external scientific community are peer-reviewed and projects are then selected for funding through grants or cooperative agreements. In addition, Requests for Applications (RFAs) under the STAR program are often developed jointly with outside partners such as the National Science Foundation. In this way, EPA has developed a mechanism by which to check the quality and relevance of its research program.

Statutory Authority

"Radon Gas and Indoor Air Quality Research Act" of Title IV of the Superfund Amendments and Reauthorization Act (SARA)

Toxic Substances Control Act (TSCA) section 6 and TSCA Titles II and III (15 U.S.C. 2605 and 2641-2671)

Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)

Clean Air Act (CAA)

Safe Drinking Water Act (SDWA)

Environmental Protection Agency

1999 Annual Plan Request to Congress

Preventing Pollution and Reducing Risk in Communities, Homes, Workplaces and Ecosystems

Objective #5: Improve Pollution Prevention Strategies, Tools, Approaches

By 2005, reduce by 25% (from 1992 level) the quantity of toxic pollutants released, disposed of, treated, or combusted for energy recovery. Half of this reduction will be achieved through pollution prevention practices.

Overview

The goal of "pollution prevention" (P2) is to prevent pollutants from entering into the environment (before the fact) as opposed to "risk management and remediations" that deal with pollutants that already exist in the environment (after the fact). By reducing or eliminating toxic substances in the first place (source reductions), the chances for them escaping into the environment and ecosystems will be avoided. Based on this concept, this objective is aimed to eliminate or reduce the applications of toxic substances from upstream chemical manufacturing processes to downstream chemical use activities; a practice that can only be carried out by industry, businesses and consumers. EPA devises various strategies incorporating market incentives, technological innovation, and direct assistance to facilitate the adoption of the practices. Achievement of this objective will lead to the reduction of toxic pollutants entered into the environment, resulting in a cleaner and safer environment.

Compared with the traditional environmental focus in controlling, treating, or cleaning up pollution, P2 is most effective in reducing health and environmental risks because it: 1) eliminates releases to the environment, 2) avoids the frequent shifts of pollutants from one media (air, water, land) to another, and 3) protects natural resources for future generations by cutting wastes and conserving use.

It is cost-efficient, especially to industry, because it reduces excess raw materials and energy use. It also trims the need for expensive "end-of-pipe" treatment and disposal, cuts potential liability and conforms with quality and continuous improvement incentives already at work within facilities. To EPA, P2 moves away from many of the limitations of conventional, command-and-control regulation; for example, pollution transfers due to single media regulation, long lead time for promulgation, and fast changing technologies and processes.

Under the Pollution Prevention Act of 1990, it is the Federal policy of United States "that pollution should be prevented or reduced at the source whenever feasible," as the nation's preferred approach to environmental protection. To support this principle, current EPA strategies are to institutionalize preventive approaches in EPA's regulatory, operating, and compliance/enforcement programs and facilitate the adoption of P2 techniques by

the states, tribes and private industry. Underpinning these strategies is the recognition by EPA that P2 can be accomplished only after its concept is understood, firmly grounded and put into practice by stakeholders, since P2 represents new ways of doing business. EPA is using various market incentives, environmental management tools and technologies to induce and facilitate P2 actions.

EPA and stakeholders have made much progress in carrying out these strategies, but there is still more work to be done. Internally, many offices within EPA have increasingly become aware of P2 opportunities to play a substantive role in solving media-specific or cross-media pollution. Where state and local governments are the principle focus, mechanisms have been built (such as the Environmental Commissioners of the States (ECOS) and the Forum on State and Tribal Toxics Action (FOSTTA)) to assist in their adoption of P2 programs. EPA sees the fastest growing P2 opportunities in private sector partnerships, by merging EPA's knowledge of P2 principles/techniques with industry-specific expertise in production/process design. This will be the strategy of choice for incorporating P2 into basic business practices.

For the coming five to six years, EPA will achieve the goals of the P2 programs through a coordinated set of initiatives:

(a) Building strong, operating P2 programs in each of the 50 states -- States are the primary sources for businesses seeking assistance in identifying and applying prevention approaches. Building a strong P2 presence among states is vitally important since they are the major conduits for helping educate their communities in P2 methods. Several states have become leaders in P2 efforts and the Agency has provided seed money to help states in promoting innovation and developing state capacity. The National Pollution Prevention Roundtable, FOSTTA, and state P2 and media programs have been able partners in developing training and technical assistance. EPA will also foster technology and information sharing among the states through the existing network of governmental and non-governmental bodies already active in this field.

(b) Institutionalizing P2 in EPA's Core Regulatory and Programmatic Activities -- EPA sees P2 as an important tool for developing multi-media solutions to environmental problems. The Agency will continue to provide information and assistance to EPA media offices (air, water, land) in devising P2 options as they develop common sense regulatory approaches. The value and validity of this approach will be demonstrated in the coordinated efforts among several offices to reduce the serious risks of priority persistent, bioaccumulative and toxic pollutants (PBTs). This initiative will serve as a model for addressing future environmental problems with multi-media hazards. The Agency's PBT initiative is a multi-media approach to bring the full range of EPA's tools, especially prevention-based tools, to bear on priority PBT pollutants, by (1) unifying EPA's priorities for a set of pollutants of greatest concern, and (2) applying all available tools from seven EPA National Program Manager Offices in an orchestrated fashion to achieve greater reductions than are achievable by all seven offices working independently.

(c) Informing Consumers about Environmentally Preferable Products -- EPA is moving ahead with consumer product programs to provide the kinds of

information consumers can use in making environmentally friendly choices. The Agency expects this will improve the breadth of market information that will subsequently influence the supply of products designed with P2 considerations. The Consumer Labeling Initiative (CLI) is a program intended to improve the household product labels to better present environmental, safe use, health and other information that can be easily understood and compared by average Americans. EPA has been working cooperatively with other Federal and state agencies, industry groups and public interest groups to develop more effective consumer product labels, analogous to the new food nutrition labels. Proper labeling is especially important for products used by or around children to help parents prevent the unnecessary dangers of using toxic chemicals.

(d) Leading by Example in the Federal government -- The Agency also has the lead in carrying out Executive Order 12873, Section 503, which requires the Federal government to use its purchasing power to create a demand for products and services that have a reduced impact on the environment, environmentally preferable products. The Agency has developed proposed guidance that includes seven general guiding principles to help executive agencies identify and purchase environmentally preferable products (EPP) and services. The EPP strategy is intended to drive up the demand from public sectors and production capacity for products with less potential threat to public health and environmental damage. There is also a growing movement in state government to establish "take back" legislation that would make certain producers responsible for taking back products at the end of their useful life. This would provide an incentive for product design that minimizes environmental impact.

(e) Reforming Business Practices -- EPA is aggressively pursuing the integration of P2 principles into social choices by focusing on reforming business practices. EPA will play a strong role in promoting business adoption of voluntary Environmental Management Systems (such as ISO 14000) into fundamental business decisions, and in encouraging businesses to modify management accounting systems to account for environmental costs fully and explicitly. These strategies are based on the beliefs that the current business management framework can be enhanced to help companies more easily choose prevention practices. These systems will foster performance and compensation decisions that reflect environmental goals and that will result in less waste, increased profitability, enhanced competitiveness for U.S. businesses and, ultimately, improved protection of public health and the environment.

(f) Promoting Green Product Design -- The Design for the Environment (DfE) approaches are aimed at helping industry make informed decisions about the use of alternative chemicals, processes, and technologies to prevent pollution. Specifically targeted industries will include dry cleaning, printing, electronics, and textiles. Projects to date have shown the

potential for willing partners to demonstrate reduced risk to human health and the environment from using DfE approaches.

Beginning in 1999 and continuing thereafter, EPA will develop innovative, multi-media strategies and tools (through inter-office and Regional coordination) to target priority PBTs for P2 at domestic levels. This initiative will target pollutants of greatest concern to create strong programmatic and compliance

incentives for P2 at several levels -- international, domestic, and regional. The targeting will be done as a collaborative effort between multiple offices and their Regional components. The initially targeted list of PBT's will provide needed focus to the effort, and further joint prioritization activities will reach more deeply into integrating core regulatory and programmatic outcomes on a multi-media basis. Multi-media analysis and P2 tools will be used in a mutually reinforcing manner. Practical solutions may involve a combination of P2, recycling, and, when appropriate, treatment. Operating and programmatic components are being identified, specific industries that use or produce PBT's will be selected for particular focus, and we will take actions to prevent or reduce the release of PBT's into the environment.

The Agency's efforts in this objective will be supported through legal counseling and advocacy. This may include advice, participation in the development of Agency actions, document review, and the conduct of defensive litigation."

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 05 Improve Pollution Prevention Strategies, Tools, Approaches	**$27,074.1**	**$25,245.9**	**$26,865.5**
Environmental Program & Management	$21,074.6	$19,246.4	$20,866.0
State and Tribal Assistance Grants	$5,999.5	$5,999.5	$5,999.5
Total FTE	85.1	79.6	80.2

1999 Annual Performance Goals

- Continue to assure broad-based implementation and reporting of P2 measures by facilities required to submit Toxics Release Inventory (TRI) data.
- Reduce by 2% in 1999 (for a cumulative total of 10%) the quantity of TRI pollutants released, treated or combusted for energy recovery, with emphasis on the use of P2 practices.
- From the 1998 baseline, expand P2 practices in the garment and textile care industries by achieving a 25% increase in the use of safer alternative cleaning technologies.
- Reduce risk to human health and the environment from exposure to PBTs through the elimination or reduction of PBTs produced or through managing PBT use.

These goals will help achieve the objective by (for example) enabling some facilities to drop below reporting thresholds for targeted chemicals, fostering increases in P2 practices as reported on the TRI Form R, etc.

1998 Annual Performance Goals

- Assure broad-based implementation and reporting of P2 measures by facilities required to submit Toxics Release Inventory (TRI) data.
- Reduce by 2% the quantity of TRI pollutants released, treated or combusted for energy recovery, with emphasis on the use of P2 practices.
- From the 1997 baseline, expand P2 practices in the garment and textile care industries by achieving a 20% increase in the use of safer alternative cleaning technologies.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
05 Obj. Total Change	**$1,619.6**	**0.6**
Environmental Program & Management	$1,619.6	0.6

- (+$1,632,000 EPM) Investment in PBT Initiative activity to reduce associated human health and environmental risks.

Key Performance Measures	1998	1999
Number of TRI Form R submissions on which the facility reports having undertaken at least one source reduction activity	109,000 (1996 data, which are reported on Form R's submitted in 1998)	129,000 (1997 data, which are reported on Form R's submitted in 1999)
Cumulative reduction in the quantity of TRI pollutants released, treated or combusted for energy recovery, half of which is attributable to Pollution Prevention	2% additional reduction (8% Cumulative) (half attributable to P2) (Cumulative 1992-1996) (1996 data are reported on Form R's submitted in 1998)	2% additional reduction (half attributable to P2) (1997 data are reported on Form R's submitted in 1999)
Percentage increase in the use of alternative cleaning technologies by the garment care industry	20% (from 1997 end level)	25% (from 1998 end level)

Conclusion

Obtaining reductions in reported TRI chemical wastes in 1999 and beyond will be the result of the cumulative efforts of EPA's pollution prevention, clean technologies, and green chemicals programs to encourage the use of source reduction and integrated environmental management systems by American industry and businesses. The focus of these programs in 1999 will be on specific sectors (e.g., textiles), technologies (e.g., cleaning), and chemicals (e.g., PERC, PBTs) and will broaden in future years. The waste reductions that are the focus of this objective are indicators of improvements in institution practices and the integration of environmental thinking into American industrial and manufacturing systems. Though the extent to which source reduction contributes to the overall reduction in non-recycled wastes will not be known precisely, efforts to develop source reduction quantification techniques in the TRI will contribute to development of this needed information in time for its use in assessing attainment of the long range goals of this objective. In the interim, reliance on cumulative reported use of source reduction techniques by industry will serve as proxy for the impact such use is having on actual waste generation and management.

Key Performance Measures Verification

- A measurement matrix will be established to quantify the changes in TRI releases which are due to source reduction activities.
- The Agency will publish a guidance document providing technical advice on using the measurement matrix.
- Verification and Validation of the Toxic Release Inventory Program.

Statutory Authority

Toxic Substances Control Act (TSCA) sections 4 and 6 and TSCA Titles II, III, and IV (15 U.S.C. 2605 and 2641-2692)

Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) sections 3, 4, 5, 6, 11, 18, 24, and 25 (7 U.S.C. 136a, 136a-1, 136c, 136d, 136i, 136p, 136v, and 136w)

Pollution Prevention Act (PPA) (42 U.S.C. 13101-13109)

Clean Air Act (CAA) section 309 (42 U.S.C. 7609)

Clean Water Act (33 U.S.C. 1251-1387)]

Emergency Planning and Community Right-to-Know Act (EPCRA) (42 U.S.C. 11001-11050)

Resource Conservation and Recovery Act (RCRA) (42 U.S.C. 6901-6992k)

Objective #6: Decrease Quantity and Toxicity of Waste

By 2005, EPA and its partners will increase recycling and decrease the quantity and toxicity of waste generated.

Overview

This objective defines the Agency's efforts to: reduce toxic chemicals in industrial waste streams; reduce the generation of municipal and industrial solid waste; and recycle hazardous and municipal solid waste. Reducing toxic chemicals in industrial waste streams will result in more efficient use of natural resources, and contribute to less human exposure to toxic wastes. Source reduction and recycling of municipal solid waste will divert waste from landfills and combustors, reduce air and water pollution, and reduce generation of global warming gases, while also conserving energy and natural resources.

Congress specifically declared in the Hazardous and Solid Waste Amendments of 1984 that the reduction or elimination of hazardous waste generation at the source should take priority over waste management. In 1990, Congress reaffirmed the key role of pollution prevention in the nation's environmental protection scheme, by passing the Pollution Prevention Act. In the Act, Congress essentially codified the hierarchy of management options that mirror those supported by EPA's waste management programs. In addition to the statutory mandates to prevent pollution, RCRA emphasizes a national policy that focuses on source reduction. For example, the Resource Conservation and Recovery Act (RCRA) calls for national leadership to reduce the amount of waste generated and improve the recovery and conservation of materials through recycling. Revisions of the Definition of Solid Waste which governs hazardous waste recycling, and the Common Sense Initiatives (CSI) remain high priorities for the RCRA program in 1999. Many of the regulatory reforms under CSI will greatly facilitate hazardous waste recycling. The Agency requests $1,432,600 to support the Definition of Solid Waste effort and $1,782,400 for the Common Sense Initiative.

EPA is developing a National Waste Minimization Measurement List which will rank and list chemicals according to four factors: (1) persistence once released into the environment; (2) tendency to accumulate in human and animal tissues (bio-accumulate); (3) potential for toxic effects in humans (e.g., cancer) or other life; and (4) other factors, such as the prevalence of the chemical, or the amount released into the environment. The Agency plans to have developed the list by the end of 1998. This ranking system will allow the Agency to focus its efforts on the reduction of the most hazardous chemicals in industrial waste streams. Reducing the most hazardous chemicals will eliminate some of the risk that occurs when industries mismanage and release waste into the environment. Based upon the results of the Agency's efforts to identify and rank the most hazardous chemicals, EPA will work to reduce by 50 percent the most persistent,

bio-accumulative and toxic chemicals in hazardous waste streams by 2005. $2,098,700 is requested for waste minimization activities.

Further, the Agency is developing a Waste Minimization Prioritization Tool (WMPT) software program, based on the Waste Minimization Measurement List, so that business and industry can have a user-friendly computer application that will reduce the large amount of hazardous waste technical information into a format that is understandable by the general public. Early test versions have been very well received, and the WMPT is scheduled to be completed early in 1999. The Agency will follow up by conducting 2 training sessions for state and regional staff on PBT priority-setting software.

Annual generation of municipal solid waste (MSW) has grown steadily from 88 million to 208 million tons between 1960 and 1995. National efforts to manage MSW have focused on the integrated solid waste management approach. Integrated waste management requires a coordinated mix of strategies including: source reduction (also called waste prevention); recycling; combustion; and land filling. EPA gives priority to strategies that maximize the diversion of waste from disposal facilities, with source reduction (including reuse) as the highest priority, followed by recycling (including composting). The Agency and other stakeholders will work to divert more than 35 percent of MSW from landfills and combustors, and reduce per capita generation to the 1990 baseline of 4.3 pounds per day each year through 2005. The Agency requests $5,253,500 for municipal source reduction activities.

Recycling itself is of local and national economic importance and directly impacts global commodity markets. It provides a stable source of secondary materials for both domestic and foreign markets, reduces dependence on foreign resources, and provides new business and job opportunities at the local level. MSW recycling programs are well established at the local level. The Agency directs its efforts toward national leadership activities and the development of tools, handbooks, case studies, and Internet sites - for local decision-makers. In addition, the RCRA program works to enhance the market for recyclables, through federal and state purchasing guidelines as well as outreach to industry. The Agency requests $5,399,000 for municipal recycling activities.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 06 Decrease Quantity and Toxicity of Waste	**$22,327.2**	**$21,783.3**	**$25,053.2**
Environmental Program & Management	$21,248.4	$20,704.5	$23,974.4
State and Tribal Assistance Grants	$1,078.8	$1,078.8	$1,078.8
Total FTE	131.9	127.5	132.9

1999 Annual Performance Goals

- In 1999, issue final guidance on RCRA persistent, bio-accumulative and toxic (PBT) chemical identification.

- In 1999, develop RCRA hazardous waste recycling training and outreach program.

- Divert an additional 1% (for a cumulative 29% or 64 million tons) of RCRA municipal solid waste (MSW) from landfilling and combustion, an increase from the 1990 baseline of 17%.

- By 1999, reduce per capita generation of RCRA municipal solid waste (MSW) to 4.3 pounds per day.

In 1999, the Agency will emphasize helping generators prioritize and focus their efforts to reduce the volume and toxicity of hazardous wastes. States and regions will begin measuring and reporting reductions of persistent, bio-accumulative, and toxic (PBTs) chemicals. EPA will develop guidance on how to adapt the PBT identification method to the needs of particular businesses or geographical areas. In addition, the waste minimization program will provide tools and assistance to identify wastes containing the most persistent bio-accumulative toxics among 900 chemicals in hazardous waste streams, including a usable and accessible software program based on the Waste Minimization Measurement List. This aspect of the program will also help to bring a multimedia focus to RCRA waste management considerations and opportunities. Efforts in 1999 support training for permit writers and operators of hazardous waste management facilities, improving their ability to conduct site-wide pollution prevention assessments and plans to reduce PBT constituents.

The definition of solid waste represents the regulatory framework for hazardous waste recycling. Currently, both industry and states find these rules complex and difficult to understand. These rules may create disincentives for the safe recycling of hazardous waste. To clarify these rules and eliminate perceived barriers to safe recycling of hazardous wastes, the Agency is revising these regulations to include a focus on regulatory controls on materials that may pose a hazard to human health and the environment; and removing unnecessary disincentives that cause industry to choose disposal over safe recycling.

In 1999, activities will center on characterizing and estimating risks from both regulated and exempt hazardous waste recycling facilities. Several narrower changes to the Definition of Solid Waste are also underway within ongoing rulemakings, for example, recycling is encouraged under the Mineral Processing Wastes rule to be finalized in late 1998, under the Wood-Preserving Wastes exclusion rule, and under the Petroleum Refining Waste Listing. The Agency, through efforts at regulatory reform such as the Common Sense Initiative and Project XL, also is examining other opportunities to eliminate disincentives to safe hazardous waste recycling. In fact, most of the Common Sense Initiative regulatory work that the RCRA program has undertaken focuses on improvements to recycling provisions, for metal finishers, electronics, iron and steel, and the automobile sectors. Other activities support development of training and

outreach to states and regulated industries to encourage safe hazardous waste recycling.

Careful balancing of risk, handling practices, and recycling processes can produce significant savings. In 1999, EPA will implement the universal waste rule to reduce the management burden for selected common wastes, known as "universal wastes." This rule eliminates certain manifest requirements and increases the flexibility of storage standards for these wastes. EPA estimates the new rule will save $70 million a year while still ensuring safe collection, recycling, handling, and treatment of low-risk items.

A major EPA objective in decreasing pollution in communities, workplaces, and ecosystems is a reduction in the amount of waste generated annually. EPA will work together with state, tribal, and local governments; business and industries; and non-governmental organizations to: encourage reduced generation of industrial (hazardous and non-hazardous) waste through material substitution and manufacturing process changes; encourage recycling of wastes that must be generated; and assure the safe recycling of any wastes. For example, Region 5 is a partner in the Great Printers project which is working with the printing industry to promote pollution prevention and waste minimization in that sector. The aim of the project is to make pollution prevention and waste minimization standard operating procedures within the Great Lakes lithographic printing industry by creating a dynamic partnership among business, government and environmental groups. Four Great Lakes States are currently implementing project recommendations through the production of compliance manuals, consolidated reporting systems, and outreach to printers in their states.

Annual generation of municipal solid waste (MSW) will have grown steadily from 88 million tons to an estimated 219 million tons between 1960 and 1999. Source reduction and recycling both reduce the quantity of waste, while providing added benefits of natural resource conservation, energy conservation, reduced greenhouse gas emissions, and reduced environmental impact from raw materials extraction and manufacture. These benefits will result in: (1) reduced human exposure to disease pathways associated with MSW dumped into landfills; and (2) reduced human exposure to environmental emissions associated with raw materials extraction and manufacturing.

The Agency's activities will foster and ease source reduction and composting efforts as well as recycling in business, industry, and local government. The RCRA program's flagship source reduction project, "WasteWi$e," is an innovative voluntary partnership to assist and encourage businesses in taking cost-effective actions to reduce solid waste. Companies joining the WasteWi$e program set and achieve goals in three areas: preventing waste, collecting recyclables, and increasing the purchase or manufacture of recycled products. As of November 1997, WasteWi$e has nearly 641 participants, including "Endorser" organizations that promote the program to their member businesses.

The Agency will support Community-Based Environmental Protection projects and Jobs-Through-Recycling projects. Jobs-Through-Recycling projects expand markets for recyclables, through grants to state, tribal, and multi-state market dependent programs. Recycling provides new business and job opportunities that contribute to their member businesses.

State and local agencies are responsible for the management of MSW and must decide what waste management system or mix of systems is appropriate for their specific needs. However, the cost of obtaining, analyzing, and interpreting key information often exceeds the resources available to many state and local authorities. The Agency will provide the key information and tools that state and local authorities require to decide among MSW management alternatives. In particular, projects undertaken in support of this objective increase the efficiency, cost-effectiveness, and success of recycling initiatives implemented at the state and local levels.

For source reduction and recycling to be successful, all sectors of society must play a part. The Agency will provide information and tools to all sectors of society to encourage actions that, in the aggregate, enhance source reduction on a national level. Initiatives will provide information to the general public that clearly articulate the role of source reduction in both conservation of natural resources and waste management. In addition, FY 1999 resources will be used to interact closely with stakeholders to identify program areas that are essential to advance source reduction and forge new partnerships to address major issues of concern.

The Agency's efforts in this objective will be supported through legal counseling and advocacy. This may include advice, participation in the development of Agency actions, document review, and the conduct of defensive litigation.

1998 Annual Performance Goals

- In 1998, develop draft guidance on RCRA persistent, bioaccumulative and toxic chemical identification.

- By 1998, divert 28% (60 million tons) of RCRA municipal solid waste (MSW) from landfilling and combustion, an increase from the 1990 baseline of 17%.

- By 1998, reduce daily per capita generation of RCRA municipal solid waste (MSW) to 4.3 pounds per day.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
06 Obj. Total Change	**$3,269.9**	**5.4**
Environmental Program & Management	$3,269.9	5.4

- (+$470,000 EPM), and ($377,300, 3.0 FTE EPM) increase and redirection in the RCRA program will support efforts to evaluate and track trends

analysis, implement software tool use, and refine targeting efforts of PBTs.

- ($656,600, 1.0 FTE EPM) redirection to expand support for Common Sense Initiative projects in electronics, metal finishing and auto industry sectors.

- (+$325,700 EPM) will support a survey and data analysis in support of revisions to hazardous waste recycling, reuse, and secondary industries.

- ($405,800, 2.0 FTE EPM) redirection to enhance source reduction activities.

Key Performance Measures	1998	1999
Develop Guidance on PBT Identification	31-Aug-98 (draft)	31-Dec-98 (final)
Develop Hazardous Waste Recycling Training and Outreach Program	N/A	30-Sep-99
Increase Proportion of MSW Recycled to MSW Generated	60 million of 216 million tons (28%)	64 million of 219 million tons (29%)
Reduce daily per capita generation of MSW	4.3 lbs.	4.3 lbs.

Conclusion

By 2005, the Agency and its partners will reduce the most persistent bioaccumulative, and toxic chemicals in hazardous waste streams by 50% as compared with a baseline year of 1991. Focusing on the most persistent, bio-accumulative and toxic chemicals in waste streams allows EPA to develop processes that reduce not only the quantity of industrial hazardous wastes, but also their potential to pollute. The recent "Great Lakes Toxics Strategy with Canada Agreement" underscores the effectiveness and need for this approach as a cornerstone of any prevention effort. Safe recycling of hazardous waste, while applicable to a narrower range of generators, also reduces the amount of waste entering the system. Both methods can engender significant cost savings for industry. Also, an emphasis on chemicals as opposed to the traditional RCRA waste streams focus will help EPA consider multimedia implications associated with waste minimization and waste management efforts. A growing body of evidence indicates that the priorities established by the integrated solid-waste management approach bring about major long-term environmental benefits. For example, waste reduction lessens the need to extract, harvest, and process virgin materials and further decreases energy requirements for manufacturing, thereby avoiding the adverse environmental impacts of these activities. Waste reduction also decreases carbon equivalent emissions, thereby mitigating global warming and contributing to the U.S. commitment under the President's Climate Change Action

Plan. Reuse and recycling also provide new business and job opportunities that contribute to local and national economies. The Agency's WasteWi$e program assists businesses and state and local governments in implementing source reduction programs that are beneficial to the environment and that also reduce their costs of doing business.

Key Performance Measures Verification

The Biennial Reporting System (BRS) is a national database which supports EPA's RCRA program. BRS is a biennial compilation of information supplied by entities which provides data on types and amounts of waste handled. Data is supplied or entered into the data bases by states and EPA regional offices.

The BRS data system has validation/verification controls in place to help ensure that data is complete and accurate. The BRS data entry software includes a series of basic and advanced edits which check for completeness and accuracy. Additionally, while states and regions submit essentially complete BRS databases, Headquarters runs BRS data quality verification reports and then coordinates with states and regions to discuss potential data errors. Analysis also is conducted on significant changes which have occurred since the last biennial report. Prior to issuing the final BRS report, a second set of BRS data quality verification reports are run and follow-on discussions are conducted for those states with significant changes to verify/validate data.

BRS has a suite of user and system documentation which describes the overall administration of the data collection and management activities. The documentation identifies which information, for example, is mandatory versus optional and describes how to enter the data into the system. All information is provided to the appropriate state and regional user of the system. Training on use of the systems is provided on a regular basis, usually annually depending on the nature of system changes and user needs.

The data used for measuring the reduction of PBTs will come from existing data sources or modifications to them, if possible. These include the Toxics Release Inventory, the Biennial Reporting System, the 1986 RCRA Generator Survey, the National Hazardous Waste Constituent Survey (1996), and information submitted through current internal Agency reports. Any additional reporting required by the regions, states or tribes will be developed after discussion with all partners. Data for the reduction of PBTs is available by using the Biennial Reporting System and a "Chemical-Waste Code Crosswalk" developed by the RCRA program, which identifies those waste codes most likely to contain persistent, bioaccumulative, and toxic chemicals.

The Agency will rely primarily on the Biennial Reporting System to track, monitor, and evaluate its efforts to increase safe recycling of hazardous waste by 25% between 1993 and 2005. The Agency has identified several measures that will enable the Agency to track, monitor, and evaluate its effectiveness in achieving a 25% increase in the amount of hazardous waste safely recycled in 2005, relative to 1993. These measures focus on <u>who</u> is recycling (numbers of facilities, by industrial sector and size of firm), <u>what</u> hazardous wastes are being recycled (metals, solvents, acids, etc), <u>how</u> these wastes are being

recycled (reclamation, burning for energy recovery, etc.), how much waste is being recycled as a percentage of waste generated, and where they are being recycled (on-site v. off-site). Most importantly, these measures also focus on changes occurring over time in these areas, as well as changes in waste management behavior; i.e., shifts from treatment and disposal to safe recycling, or vice-versa.

Municipal solid waste is waste from residences, commercial establishments, institutions, and industrial cafeterias and administrative offices. It excludes sewage sludge, construction and demolition waste, incinerator ash, auto bodies, and industrial waste from manufacturing. Recycling percentage is calculated as amount (weight) recycled over amount generated. Per capita generation of municipal solid waste is calculated as amount (weight) generated over number of people generating the waste. The EPA report "Characterization of Municipal Solid Waste in the United States" is the source of the recycling percentage as well as the amount of municipal solid waste generated per capita. The report is produced by EPA and is based on a materials flow methodology; thus, no reporting from outside sources will be required.

Statutory Authority

Pollution Prevention Act (PPA)

Resource Conservation and Recovery Act (RCRA)

Toxic Substances Control Act (TSCA)

Objective #7: Assess Conditions in Indian Country

By 2003, 60% of Indian Country will be assessed for its environmental condition and Tribes and EPA will be implementing plans to address priority issues.

Overview

EPA has a trust relationship with 564 tribal governments and, under Federal environmental statutes, the Agency is responsible for assuring human health and environmental protection in Indian Country. Since 1984, EPA policy has been to work with Tribes on a government-to-government basis and retain responsibility for environmental programs in Indian Country until a Tribe demonstrates the authority and capacity to implement its own environmental programs.

There are over 1.5 million people living in Indian Country, including hundreds of thousands of children. Indian Country represents an area much larger than all of New England--more than 4 percent of the Nation's land area. While we do not have comprehensive information on pollution threats to human health and the environment in Indian Country, we do know that many Tribes lack basic drinking water, wastewater, and solid waste infrastructure; that environmental risks may be much greater in some parts of Indian Country than in other parts of the U.S.; and that our efforts to mitigate these environmental risks are significantly behind our efforts in non-tribal communities.

The American Indian Environmental Office (AIEO) works with all Federally recognized Indian Tribes to help them develop the capacity to protect human health and the environment in Indian Country. AIEO directly administers a program that provides grants to tribal governments under the Indian Environmental General Assistance Program (GAP) Act for developing the capacity to administer multi-media environmental programs. AIEO also strives to ensure that all offices in EPA are working with Indian Tribes on a government-to-government basis to build a strong partnership for environmental protection in Indian country. AIEO facilitates communication between EPA and Indian Tribes and coordinates activities of the EPA Tribal Operations Committee (TOC), composed of 19 tribal representatives and EPA's Senior Leadership Council.

The Agency supports this objective through legal counseling and advocacy. This may include advice, participation in the development of Agency actions, document review, and the conduct of defensive litigation.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 07 Assess Conditions in Indian Country	**$43,842.1**	**$44,557.4**	**$50,850.7**
Environmental Program & Management	$5,256.7	$5,972.0	$8,265.3
State and Tribal Assistance Grants	$38,585.4	$38,585.4	$42,585.4
Total FTE	54.6	66.6	54.6

1999 Annual Performance Goals

- 25 (cumulative total of 162) Tribes will have delegated/approved environmental programs.
- 38 (cumulative total of 259) Tribal environmental media/multi-media programs will be delegated/approved.
- The first 15% of tribal environmental baseline information will be collected, and 30 additional Tribes (cumulative total of 90) will have tribal/EPA environmental agreements or identified environmental priorities.

EPA has made a concerted effort in the last several years to build its partnership with Tribes to improve environmental protection in Indian country. Although much work remains to be done to ensure Tribes and EPA have a strong program for protecting human health and the environment in Indian country, the resources allocated in 1999 and in the last several years will continue to produce substantial progress towards developing tribal capacity to implement environmental programs and in developing Tribal/EPA Environmental Agreements (TEAs) or similar tribal plans for environmental protection which serve to outline commitments by tribal governments, EPA, and other Federal Agencies to resolve environmental and human health problems in Indian Country. Delegation efforts in 1999 will emphasize water and air programs.

AIEO will focus almost all of its 1999 investment on ensuring that Tribes and EPA develop and implement a sound approach for documenting multi-media environmental conditions in Indian country. This assessment of environmental conditions will serve as a baseline for strategic planning through TEAs and similar plans and for tracking progress made to address environmental concerns.

1998 Annual Performance Goals

- 8 (cumulative total of 137) Tribes will have delegated/approved environmental programs.

- 17 (cumulative total of 221) Tribal environmental media/multi-media programs will be delegated/approved.

- Complete the framework for tribal environmental baseline information collection.

- 32 (cumulative total of 60) TEAs or Tribes will have identified environmental priorities.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
07 Obj. Total Change	**$6,293.3**	**(12.0)**
Environmental Program & Management	$2,293.3	(12.0)
State and Tribal Assistance Grants	$4,000.0	

- (+$4,000,000 STAG) Indian General Assistance Program (GAP) grants will allow Tribes to develop baseline data by which future environmental progress can be measured. The additional resources will increase the number of Tribes with TEAs or similar plans for environmental protection in Indian country; increase the number of Tribes with delegated/approved authority to administer environmental programs; and assist Tribes that already have authority to administer at least one environmental program begin implementing additional programs.

- (+$1,600,000 EPM) The increase will allow EPA to initiate a baseline assessment of environmental conditions on tribal lands. In order to assure that Tribes have adequate information with which to make environmental decisions, basic monitoring and assessment capacity for measuring the environmental conditions of water and air resources and potential waste problems should be established for each Tribe. Specific plans, clean up actions and monitoring strategies will be developed based on the analysis of data collected and potential human health risk posed by pollution and pollution sources. These plans, actions and strategies will be incorporated in formal TEAs.

- (+$250,000 EPM) for multi-media and technical assistance. EPA will develop and modify training materials and conduct workshops for Tribes on multi-media programs. Resources will also fund circuit riders who will provide multi-media program and technical assistance to Tribes.

- (+$1,000,000 EPM) for assistance to Alaska Native villages. Resources will be targeted to water quality sampling and monitoring, air quality assessments, development of tribal environmental actions plans, operation and maintenance for drinking water and wastewater facilities, and environmental education.

- (-$960,000 and -12 workyears EPM) from Indian GAP grants management. In the development of the 1999 Operating Plan, EPA will evaluate the restoration of these workyears to ensure the effective use and management of these grants.

Key Performance Measures	1998	1999
Number of Tribes with delegated/approved environmental programs	8 Tribes	25 Tribes
Number of tribal environmental multi-media programs delegated/approved	17 Tribes	38 Tribes
Percent of tribal environmental baseline information collected	1 Baseline Framework	15% Baseline
Number of TEAs or Tribes with identified priorities	32 TEAs/Tribes	30 TEAs/Tribes

Conclusion

EPA will continue to build a sound program for environmental protection in Indian country in a manner consistent with a government-to-government relationship and the Federal trust responsibility to Indian Tribes. A concerted effort to document baseline environmental conditions in Indian country will provide a basis for measuring the environmental outcomes of the tribal/EPA partnership for environmental protection. Continued progress in developing Tribal/EPA Agreements or similar tribal environmental plans will provide a blueprint for future activities to address priority environmental concerns.

Key Performance Measures Verification

Twice each year, EPA updates an internal database on the number of Tribes with delegated/approved environmental programs, the number of tribal environmental programs that EPA has delegated/approved, and the number of Tribal/EPA Environmental Agreements and the number of Tribes that have developed similar plans for environmental protection.

As part of the Agency effort to develop a strategy for conducting a comprehensive environmental assessment of Indian Country, EPA will develop mechanisms for measuring the amount of baseline environmental information collected.

Statutory Authority

Indian Environmental General Assistance Program (GAP) Act as amended (42 U.S.C. 4368b)

Goal 5: Waste Management

Goal 5: Better Waste Management and Restoration of Contaminated Waste Sites **V-1**
Reduce or Control Risks to Human Health V-7
Prevent Releases by Proper Facility Management. V-27
Respond to All Known Emergencies. V-48

Environmental Protection Agency

1999 Annual Plan Request to Congress

Better Waste Management, Restoration of Contaminated Waste Sites, and Emergency Response

Strategic Goal: America's wastes will be stored, treated, and disposed in ways that prevent harm to people and to the natural environment. EPA will work to clean up previously polluted sites, restoring them to uses appropriate for surrounding communities, and respond to and prevent waste-related or industrial accidents.

Goal Summary
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Better Waste Management, Restoration of Contaminated Waste Sites, and Emergency Response	**$2,254,977.3**	**$1,636,785.3**	**$2,251,327.7**
Obj. 01 Reduce or Control Risks to Human Health	$2,096,061.5	$1,491,429.1	$2,091,457.3
Obj. 02 Prevent Releases by Proper Facility Management	$138,141.5	$126,471.5	$139,531.0
Obj. 03 Respond to All Known Emergencies	$20,774.3	$18,884.7	$20,339.4
Goal Total FTE	4,348.1	4,373.6	4,304.1

Improper management of wastes can lead to fires, explosions, and contamination of air, soil, and water. A frequent result of improper hazardous waste disposal is the contamination of groundwater -- the source of drinking water for nearly half of all Americans. At some waste sites, toxic vapors from evaporating liquid wastes or chemical reactions contaminate the air. Pollutants, such as metals, organic solvents, and oil, can damage vegetation, endanger wildlife, and harm the health of people who live in nearby communities. In some cases, toxic and hazardous substances (including radioactive waste) are carried far from their source by air, ground water, and surface water runoff into streams, lakes, and rivers.

EPA's efforts to control and restore releases of waste center on protecting human health and the environment by applying the fastest, most effective waste management and cleanup methods available, while involving affected communities, states, tribal governments, and municipalities in the decision-making process. Different types of waste require different means of treatment and disposal--what

is suitable for one contaminant may be inappropriate for another. Cleaning up abandoned or under-used industrial land demonstrates that economic, environmental and social goals can be integrated so that economic growth can improve, rather than diminish, environmental quality.

EPA will use its statutory authority under the Oil Pollution Act (OPA), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), the Clean Water Act (CWA), Clean Air Act (CAA), and Emergency Planning and Community Right-to-Know Act (EPCRA) to promptly monitor and respond to releases, accidents, or spills. EPA will help ensure that places in America currently contaminated by hazardous waste no longer endanger public health or the environment and are restored to uses desired by surrounding communities. State, local, and other Federal agency efforts will be integrated with EPA activities to reduce cleanup costs and revitalize contaminated and abandoned private property for economic reuse.

In addition, EPA will focus on controlling human exposures and groundwater releases at RCRA facilities designated as high priority for corrective actions. Support for radioactively contaminated Superfund sites will be continued. EPA research provides a technical foundation for decisions made in the environmental cleanup programs. The full spectrum of EPA's cleanup programs will respond to priority sites and releases in a fast and effective manner, while maximizing the participation of potentially responsible parties (PRPs) and other stakeholders in the cleanup efforts.

The 1999 President's Budget provides $2,251,327,700 and 4,304 workyears for this strategic goal, an increase of $614,542,400 and decrease of 70 workyears from 1998. To meet this goal, EPA will continue to regulate existing waste management practices at facilities defined under CERCLA, RCRA, OPA, CAA, CWA, and EPCRA.

The resources requested in this budget will enable the Agency to meet a number of important goals, the most significant of which include:

- Accelerate the pace of Superfund cleanups by completing 136 cleanups in 1999 and achieving 900 construction completions by the end of calendar year 2001.

- Address cost recovery at all NPL and non-NPL sites with a statute of limitations on total past costs equal to or greater than $200,000.

- Obtain PRP commitments for 70% of the work conducted at new construction starts at non-Federal facility sites on the NPL and emphasize fairness in the settlement process.

- Fund brownfield site assessments in 100 additional communities, implement 10 brownfield showcase communities and sign agreements with 100 communities to capitalize revolving loan funds.

- Complete 22,000 Leaking Underground Storage Tank (LUST) cleanups.

- Approve 2,080 hazardous waste management facilities' (62 percent of existing in the nation) controls in place to prevent dangerous releases to air, soil, and groundwater.

- Approve 153 hazardous waste management facilities (to approve a cumulative 62 percent of such existing facilities in the nation) to prevent dangerous releases to air, soil, and groundwater.

- Control human exposure to toxins at 127 RCRA sites (to address a cumulative of 277 RCRA sites), and control groundwater releases at 69 high priority RCRA sites (to address a cumulative of 144 such sites).

- Bring 400 new facilities into compliance with the Spill Prevention, Control and Countermeasure (SPCC) provisions of the oil pollution regulations.

- Demonstrate and verify the performance of 18 innovative technologies by 2001, emphasizing remediation and characterization of groundwater and soils.

- Complete prototype model for assessing cumulative exposure-risk assessment integrating the environmental impact of multiple chemicals through multiple media and pathways.

HIGHLIGHTS:

Reduce or Control Risks to Human Health

The 1999 President's Budget requests $ 2,091,457,300 and 3,494 workyears to reach the Agency's objective of waste management, cleanup, and control of releases. This objective includes the following resources: Superfund, $1,926,599,800; Environmental Program & Management, $56,139,200; Leaking Underground Storage Tanks, $69,122,200; State and Tribal Assistance Grants, $32,700,600; Science and Technology, $5,935,600; and Oil Spills, $959,900.

In 1996, President Clinton announced a national commitment to protect communities from toxic pollution by accelerating toxic waste cleanup. In 1999, the Superfund program will support this initiative by doubling the pace of Superfund cleanups. This effort will achieve 900 construction completions, approximately two-thirds of the National Priorities List (NPL), by the end of calendar year 2001. This initiative not only puts contaminated sites back into productive use but protects our children and our communities from exposure to uncontrolled toxic waste releases. EPA seeks to partner with other Federal agencies, state, local, tribal governments, and the communities to more effectively address and leverage on-going cleanup efforts. Through this investment, the Agency restates its emphasis on risk reduction by addressing the growing backlog of site cleanups and accelerating the pace of Superfund construction completions. The Agency requests a total of $1,630,679,800 for Superfund response.

EPA will pursue violators and responsible parties to maximize PRP participation in site cleanup. Maintaining a PRP participation rate of 70%

preserves fund dollars for sites where there is no viable PRP. At the same time, EPA will promote enforcement fairness, especially for small contributors to sites, will reduce third party transaction costs, and will recover the government's cost for site cleanup. A total of $164,725,500 is requested for Superfund enforcement.

The brownfield pilot program has demonstrated that cleaning up abandoned or under-used contaminated land and supporting new business growth can have significant payoffs. Building on the pilot program, EPA will continue to combine Federal, state, local and private sector efforts to restore contaminated property to economic reuse and reduce cleanup costs. In 1999, EPA will fund brownfield site assessments in 100 additional communities in order to reach the Agency's commitment of 300 communities by the year 2000, support 10 brownfield showcase communities, and sign agreements with 100 communities to capitalize revolving loan funds. In some cases, parties interested in developing such properties are concerned about the presence of contamination and the attendant potential liabilities (including Federal Superfund liability). EPA will address liability barriers in the brownfield program by issuing comfort/status letters or prospective purchaser agreements in appropriate instances which will facilitate sustainable redevelopment of these properties. The Agency is requesting $91,366,200 to fund brownfield activities.

The Agency will assist in the cleanup of 22,000 Leaking Underground Storage Tanks (LUST) in 1999. States have reported that leaking underground storage tanks are the leading source of groundwater pollution, and petroleum is the most prevalent contaminant. Resources provided by EPA support oversight and cleanup of petroleum releases from underground storage tanks when the owner/operator is unknown, unwilling, or unable to perform the cleanup. EPA's goal is to ensure rapid and effective responses to releases from underground storage tanks containing petroleum and to restore contaminated sites to beneficial use. The Agency requests a total of $69,122,200 for the LUST program.

The RCRA Corrective Action Program will take remedial action at operating hazardous waste facilities in the event of an uncontrolled release. The most serious contamination problems occur when releases migrate off-site, contaminating public and private drinking water supplies, wetlands, and other sensitive ecosystems. These sites are the program's highest priority. Efforts to help tribal governments develop hazardous waste management and municipal solid waste programs will expand in 1999. The Agency requests $6,433,600 for RCRA tribal activities. Intergovernmental information and resource sharing will be facilitated through a range of mechanisms including forums, university-level courses, professional training, Internet sites, and circuit riders in partnership with other Federal agencies, states, local communities and of course the tribes themselves.

Preventing Releases by Proper Facility Management

The 1999 President's Budget requests $139,531,000 and 686 workyears to reach its objective for preventing releases by proper facility management.

Dangerous releases to the environment are responsible for causing illnesses to the public, especially to sensitive populations such as children, the elderly

and individuals with chronic diseases. Dangerous releases to the environment are also responsible for polluting soil, air, and groundwater which may lead to costly cleanups and environmental mitigation. In 1999, the RCRA program will focus on reducing risks of exposures to hazardous wastes using a combination of regulations, permits and voluntary standards and programs. EPA will continue to concentrate on minimizing the quantity and toxicity of waste, reducing administrative burdens on states and industry, and preventing accidental releases of hazardous substances.

The Underground Storage Tanks program will continue to focus on promoting and enforcing compliance with regulatory requirements aimed at preventing and detecting UST releases. EPA will also approve additional states to operate their own programs in lieu of the Federal program. Currently 24 states and the District of Columbia have state program approval.

As the Oil Prevention Program implements a comprehensive approach to integrate prevention, preparedness, and response, efforts will be made to reduce the risk of oil spills from facilities which pose human health, ecological, and economic risks. In 1999, the number of facilities brought into compliance with the Spill Prevention, Control, and Countermeasures (SPCC) provisions of the oil prevention regulation will be doubled. Also in 1999, the Agency will increase assistance to Indian Tribes by identifying problems and developing and improving response plans in the event of oil spills.

The Agency will also, using information from facility Risk Management Plans (RMPs), develop a chemical risk information system in coordination with industry to prevent chemical releases into the environment. EPA will also concentrate on implementing the RMP program at the state level. The Agency assists Local Emergency Planning Committees (LEPCs) by facilitating access and use of the RMP information database and provide technical assistance grants to develop accident preparedness and prevention programs.

Responding to Emergencies

The 1999 President's Budget requests $20,339,400 and 124 workyears for promoting effective response to chemical and radiological accidents, terrorist events and oil spills.

Hazardous chemical releases have caused billions of dollars in property damage, serious damage to the environment and hundreds of deaths and injuries during the past 30 years. In 1999, EPA will support efforts to prevent, prepare for and respond to chemical accidents and terrorist events involving chemical releases by providing guidance and assistance to state and local governments and industry; assisting in removing immediate health threats; and providing information on chemical hazards and risks to state and communities. The Agency is currently performing many of its investigative functions concerning chemical accidents. The continuation of these activities is uncertain with the recent establishment of a Chemical Safety and Hazard Investigation Board.

Each year over 12,000 oil spills occur, with well over half of them being in inland waters (EPA's area of responsibility). Working with state and local governments and industry, EPA is ensuring the effective and immediate removal of

discharges (or substantial threat of a discharge) of oil. The Agency will also continue to work with state and local governments on oil spill prevention, preparedness, and enforcement activities. Of particular concern in 1999 is improving the area contingency plans, especially those for environmentally and economically important areas. These plans integrate prevention, preparedness, and response by coordinating regional resources with logistics. The Agency requests $3,820,900 for contingency planning and improving the quantity and quality of data used, resulting in a more effective and efficient response to oil spills.

Environmental Protection Agency

1999 Annual Plan Request to Congress

Better Waste Management, Restoration of Contaminated Waste Sites, and Emergency Response

Objective #1: Reduce or Control Risks to Human Health

By 2005, EPA and its partners will reduce or control the risks to human health and the environment at over 375,000 contaminated Superfund, RCRA, UST, and brownfield sites. (Total comprises 1,200 NPL and 480 non-NPL sites; 2,475 RCRA facilities; 370,000 LUST cleanups initiated or completed; and 1,500 brownfield properties.)

Overview

This objective ensures that all Americans are safe from exposure to hazardous waste, through emergency removal response actions, and fast and effective cleanup of priority sites and releases. The number of sites cleaned up by Superfund response, RCRA corrective action, LUST corrective action, and the brownfield program are added together in the site total for this objective. The Agency requests a total of $2,091,457,300 and 3,494 workyears.

The Superfund Program

Contamination from uncontrolled releases at hazardous waste sites threatens human health, the environment, and the economic vitality of local communities. Sites with contaminated soils and groundwater occur nationally in large numbers, many of them urban areas, where they are often accessible to children or present exposure to disadvantaged populations. Nationwide there are more than 200,000 sites with groundwater releases; some plumes extend thousands of feet in length. There are an estimated 300,000 sites with releases into soils. Once contaminated, groundwater and soils are extremely difficult and costly to clean up, and some sites will require decades to clean up.

To reduce and control these hazards, the Superfund program: (1) assesses sites to determine whether they meet the criteria for Federal Superfund response actions; (2) prevents, minimizes or mitigates significant threats at Superfund sites through removal actions; (3) completes construction at sites (including Federal facilities) listed on the National Priorities List (NPL); (4) maximizes potentially responsible parties (PRP) participation in conducting/funding response actions while promoting fairness in the enforcement process; (5) recovers costs from PRPs when EPA expends funds from the Superfund Trust Fund; (6) generates accurate risk assessment and cost-performance data critical to providing the technical foundation for decisions made in environmental cleanup programs; (7) develops technologies for cost-effective characterization and remediation; (8) works with the surrounding communities to improve their direct involvement in every phase of the cleanup process and their understanding of

potential site risk; and, (9) enhances the role of states and tribes in implementation of the Superfund program.

Priorities for this objective include implementing the President's initiative to accelerate the pace of Superfund construction completions and to identify and reduce barriers to the beneficial reuse of brownfield sites. The Agency's efforts to control Superfund releases begin when states, tribes, citizens, other Federal agencies, or other sources notify EPA of a potential or confirmed hazardous waste site or incident. EPA confirms this information, places sites requiring Federal attention in the Agency's Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) database, and evaluates site data to determine whether sites need immediate removal action and/or placement on the NPL for long-term cleanup. If no further Federal action is appropriate, the Agency removes the site from the inventory and may refer the site to state or tribal environmental authorities for further attention if warranted. In the case of Federal facilities, sites are placed on the Federal Facility Hazardous Waste Docket for assessment. Within this objective, the Agency is requesting a total of $118,038,100 for CERCLA Site Assessment.

Removal authority under CERCLA is used by the Agency to prevent, reduce or mitigate threats posed by releases or potential releases of hazardous pollutants in emergency and non-emergency situations. EPA continues to use removal response actions at: (1) emergency incidents where response is necessary within a matter of hours (e.g., threats of fire or explosion); (2) time-critical removals at NPL sites to make these sites safe from immediate threats while they await remedial action; (3) time-critical removals at non-NPL sites posing major public health and environmental threats; and (4) non-time critical removals at both NPL and non-NPL sites to promote quicker and less costly cleanup. Sites known to pose the greatest potential risk to public health and the environment receive priority. The Agency is requesting a total of $307,694,300 for removal action activities.

Where Federal long-term cleanup response is warranted under CERCLA, EPA ensures that the nature of the problem is understood, that the sites are being addressed, that appropriate cleanup alternatives are considered, and that affected communities and other stakeholders are provided meaningful opportunities for involvement. To aid in understanding the risks posed by groundwater and soil contaminants and the processes that govern contaminant transport and fate, EPA conducts: (1) exposure assessment research to reduce uncertainties associated with sampling and analysis and reduce time and cost associated with site characterization; (2) risk assessment research that will evaluate the magnitude of the risks posed, multiply pathway exposures, the bioavailability of adsorbed contaminants and treatment residual, and toxicological properties of contaminant mixtures; and (3) risk management research to develop and demonstrate more effective and less costly remediation technologies. To help understand air contamination issues, EPA continues to focus on: (1) development of Federal guidance on assessments of human exposure to radiation; (2) unique field and laboratory expertise designed to measure, assess and test models, methodologies, and sources of data; and (3) assessment of existing and proposed technologies which can be used to cleanup sites which contain radioactive waste or mixed

waste. The Agency requests $5,935,600 for science and technology activities within this objective.

Site restoration work begins with site characterization and a feasibility study to review site conditions and proposals for future land use. This forms the foundation for the Record of Decision (ROD) and remedy selection. Public involvement is a key component in selecting the proper remedy at a site. A remedial action is performed upon approval of the remedial design and represents the actual construction or other work necessary to implement the remedy selected. The United States Army Corps of Engineers and the Bureau of Reclamation assist EPA in implementing most high-cost, Trust Fund-financed remedial actions and provide on-site technical expertise. EPA is committed to increasing the number of performance based service contracting pilot programs in the Superfund program.

Many sites have more than one operable unit and each unit goes through the process from study to cleanup. Once the cleanup construction is completed at an operable unit, operation and maintenance activities are maintained to ensure cleanup methods work properly and the site remedy continues to be effective. After construction completion, the final phase in long-term restoration is five-year performance reviews to ensure the continued protectiveness of the remedy. A total of $1,023,163,200 is requested within this objective for long-term remediation work. The various cleanup stages and activities allow the Agency to quickly mitigate immediate threats to public health and the environment, develop and implement effective cleanup decisions, and eventually remove sites from the NPL.

The Agency maximizes potentially responsible party (PRP) participation in conducting/funding clean up actions while promoting fairness in the enforcement process. In addition, EPA addresses cost recovery at 100% of all NPL and non-NPL sites with total past costs equal to or greater than $200,000. Those sites need to be addressed prior to expiration of the statute of limitations, and PRP compliance with orders and consent decrees at Federal and non-Federal facilities must be ensured. Liability concerns are also addressed by the Agency to facilitate the reuse of contaminated properties. Within this objective, the Agency is requesting a total of $79,701,700 for Enforcement Fairness activities.

The Agency is committed to involving citizens in the site cleanup process. Superfund community relation's effort is based on two-way communication designed not only to keep citizens informed about site progress, but also to give them opportunity to input into site decisions. Through outreach efforts, such as holding public meetings, providing communities with financial assistance to hire technical consultants to assist them in understanding the problems and potential solutions to the contamination problems, and distributing site-specific fact sheets, the Agency strives to create a decision-making process to cleanup sites that the communities feel is open and legitimate, and improves the communities' understanding of potential risk at the hazardous waste sites. The Agency is requesting a total of $27,798,000 for community involvement outreach efforts.

States and tribes are key partners in the cleanup of Superfund hazardous waste sites. Under Superfund, EPA can authorize the state or tribe to carry out a Fund-financed response. Or, in some cases, the state or tribe may also operate as a support agency. In this role, they hold some key responsibilities and

perform specific parts of the cleanup, but they do not take on a major portion of the task for the response. To support their involvement, the Agency provides financial support through cooperative agreements to conduct removal, site assessment, remedial, and enforcement projects and core infrastructure activities that are important in administering state and tribal programs. A total of $31,716,500 is requested for assistance activities to states and tribes.

Other Federal agencies (OFAs) contribute to this objective by providing essential services in areas where EPA does not possess the needed Superfund specialized expertise. Contributors include the Agency for Toxic Substances and Disease Registry (ATSDR), the National Institute of Environmental Health Sciences (NIEHS), the Department of Justice (DOJ), the Occupational Safety and Health Administration, the National Oceanic and Atmospheric Administration, the Department of Interior, the United States Coast Guard, and the Federal Emergency Management Agency. Some of the essential services performed by these Federal agencies include the following: (1) ATSDR conducts public health assessments at NPL and non-NPL sites; maintains toxicology databases for chemicals found at sites; and provides health education to health care providers, local and national health organizations, and state and local health departments; (2) NIEHS manages a worker training grants program which trains workers who are, or may be, working with hazardous waste and funds a basic research program which focuses on assessing the impacts of complex chemical mixtures on humans; and (3) DOJ plays a critical role in Superfund's "Enforcement First" strategy and continues to litigate and settle cleanup agreements and cost recovery cases as well as seek civil and criminal penalties if necessary. A total of $150,683,200 is requested for OFA activities.

Implementing the President's brownfields initiative is a top priority under this objective. The Agency encourages assessment, cleanup and reuse of under-used and abandoned properties where expansion or reuse is complicated by real or perceived environmental contamination. Economic changes over several decades have left communities with contaminated properties and abandoned sites. Concerns about environmental cleanup, infrastructure declines and changing development priorities have worsened the situation. The result is the brownfield challenge -- how to reverse these trends and bring properties back into use for the benefit of their communities.

The Agency provides grants of up to $200,000 per community for site assessment, site inventory, site characterization, and planning. The Agency also performs targeted site assessments in communities that are not successful in competing for an assessment pilot. Communities completing their Brownfields pilot assessment activities can seek EPA grants of up to $350,000 each to capitalize revolving loan funds for cleanup activities. These pilots are being used to develop and disseminate information on cleanup strategies and redevelopment. EPA also supports expansion of job training and workforce development activities as well as working with a number of other Federal agencies to form a consolidated approach to brownfields problems and highlight integrated Federal brownfield efforts at showcase communities.

Funding to support the expansion, enhancement and development of State voluntary cleanup programs (VCPs) is an important part of the Superfund program. EPA provides both monetary and technical assistance to states and tribes

developing and enhancing VCPs, which are vital to address the contaminated sites which do not require Federal action but need cleanup. EPA believes that building strong and effective state/tribal programs, such as VCPs, will also complement efforts to address the cleanup of brownfields properties because their properties will generally be cleaned up under state authority. To assist this effort, the brownfields initiative is also providing additional funding for VCPs. The Agency is requesting a total of $91,366,200 for Agency brownfield activities.

The Superfund Federal Facilities Base Realignment and Base Closure (BRAC) program focuses on EPA's ability to facilitate the reuse and redevelopment of property where the Federal government has decided that the property is no longer of use. The end of the cold war reduced the need for military bases and nuclear production facilities; consequently, the Federal government is disposing of property to reduce operation and maintenance expenses while protecting the livelihood of the local communities. The Federal facility program plays a key role in these efforts through its review and concurrence finding that properties are environmentally suitable for transfer, either by deed or lease.

The RCRA Program

Under RCRA, EPA and authorized states are required to clean up environmental contamination at approximately 4,000 sites across the country where hazardous wastes are being stored, treated, or disposed. The scope of contamination varies at these sites, but many are comparable in complexity and environmental threats to Superfund sites on the NPL, and most require extensive remediation activities. Ensuring that releases are assessed and controlled at these sites is critical in protecting human health and the environment. Discretionary cleanup authority under RCRA is being increasingly used to address hazardous waste releases at sites other than traditional RCRA facilities. In addition, EPA strives to ensure public participation in all aspects of waste programs and fosters state implementation of both the solid waste and hazardous waste programs by facilitating review and approval/authorization of state programs.

Basic RCRA cleanup standards, established by EPA, define waste management practices not only at RCRA corrective action sites but also at Superfund cleanups. Controlling contaminant releases and human exposures is central to the ongoing work of the RCRA corrective action program. Efforts to streamline the corrective action program continue through regulatory, policy, and implementation actions. In 1999, the Agency will begin implementing a major program improvement, a contaminated media rule finalized in 1998 which establishes a new regulatory framework for managing remediation wastes generated during hazardous waste cleanups. While actual cost savings will depend on the particular approach taken in the final rule, EPA estimates that the total savings will range from $1.2 billion to $1.5 billion a year. In addition, in 1999, the Agency will finalize the Subpart S rule, streamlining procedures using a performance standard approach. EPA is also identifying impediments within the RCRA program to brownfield cleanups. The Agency is requesting $41,300,000 for controlling risks at high priority facilities.

The LUST Program

By the end of 1999, the Leaking Underground Storage Tank (LUST) program and its partners will have cleaned up a cumulative total of 220,000 contaminated sites. Through the end of September 1997, approximately 178,000 cleanups have been completed. EPA expects approximately 20,000 additional LUST cleanups to be completed in 1998 and approximately 22,000 LUST cleanups will be completed in 1999. Within this objective, the Agency is requesting a total of $69,122,200 for cleaning up UST contamination.

In 1994, states reported (under Section 305(b) of the Clean Water Act) that Underground Storage Tanks (USTs) are the most common source of groundwater contamination and that petroleum is the most common contaminant. Nearly all UST releases involve gasoline, which contains, among other things, a known human carcinogen (benzene) and sometimes contains a possible human carcinogen (MTBE). MTBE is highly soluble and mobile and, based on existing knowledge, apparently does not readily biodegrade. Also, because relatively low levels of MTBE make water unpalatable, MTBE contamination damages drinking water supplies even when it does not pose health risks. Resources provided by the Agency to the states support oversight and cleanup of petroleum releases from USTs when the owner or operator is unknown, unwilling, or unable to perform the cleanup. UST releases sometimes have resulted in fires and explosions and entry of harmful fumes into schools, homes, and other buildings.

Most of the Agency's LUST resources are provided directly to states and Indian tribes primarily to support oversight of cleanups by responsible parties. The Agency uses most of its remaining resources to support state LUST programs with targeted training and technical assistance. The Agency's goal is to ensure rapid and effective responses to releases from underground storage tanks containing petroleum and to restore contaminated sites to beneficial use. The Agency's highest priority in the underground storage tank program over the next several years will be to reduce the backlog of confirmed releases waiting to be cleaned up. To expedite reduction of the backlog and help states make more efficient use of their resources (including state funds that reimburse some UST owners and operators for a portion of their cleanup costs), the Agency will continue efforts to design and implement risk-based corrective action (RBCA) programs. The Agency will, in collaboration with other Agency programs, evaluate the risks and identify techniques for cleanup of MTBE, a gasoline component found with increasing frequency at LUST sites. EPA will continue to promote and investigate alternative site investigation and remediation technologies (e.g., natural attenuation). The Agency will provide guidance on cleaning up releases in difficult remediation scenarios (fractured bedrock, karst) and on determining the maximum extent practicable for removing free product. Responsibility for implementation of the corrective action program on Indian lands remains primarily with the Agency.

The Agency's efforts in this objective will be supported through legal counseling and advocacy by the Office of General Counsel. This may include advice, participation in the development of Agency actions, document review, and the conduct of defensive litigation.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 01 Reduce or Control Risks to Human Health	**$2,096,061.5**	**$1,491,429.1**	**$2,091,457.3**
Environmental Program & Management	$52,257.3	$49,107.3	$56,139.2
Science and Technology	$5,227.1	$5,218.7	$5,935.6
State and Tribal Assistance Grants	$32,700.6	$32,700.6	$32,700.6
Leaking Underground Storage Tanks	$69,156.5	$63,151.3	$69,122.2
Oil Spill Response	$1,015.1	$1,048.0	$959.9
Hazardous Substance Superfund	$1,935,704.9	$1,340,203.2	$1,926,599.8
Total FTE	3,545.3	3,562.0	3,494.2

1999 Annual Performance Goals

- In 1999, 22,000 LUST Cleanups will be completed under the supervision of EPA and its State, Local and Tribal partners.
- In 1999, 127 High Priority RCRA sites will have human exposure to toxins controlled for a cumulative total of 277 (18%).
- In 1999, EPA and its partners will conduct 335 Superfund removal response actions.
- In 1999, EPA and its partners will make final Superfund site assessment decisions on 530 sites.
- In 1999, EPA will complete construction at 136 Superfund NPL sites.
- In 1999, EPA will sign 100 brownfields Site Assessment Co-op agreements.
- In 1999, EPA will sign 100 Cooperative Agreements to Capitalize Revolving Loan funds.
- In 1999, 69 High Priority RCRA sites will have toixc releases to groundwater controlled for a cumulative of 144 (10%).
- In 1999, EPA will survey 25 additional state and tribal communities (for a total of 50 surveys in 1999) to measure the effectiveness of EPA's Superfund community outreach program.

- In 1999, EPA will support 10 brownfields Showcase Communities.

- In 1999, EPA will continue to enhance the role of states and tribes in Superfund. States and tribes will conduct 210 site assessments, select 5 Fund-led remedies, and lead cleanup at 7 NPL sites.

- Obtain PRP commitments for 70% of the work conducted at new construction starts of non-Federal facility sites on the NPL and emphasize fairness in the settlement process.

- Continue to make formerly contaminated parcels of land available for residential, commercial, & industrial reuse by addressing liability concerns through the issuance of comfort letters and prospective purchaser agreements.

- Ensure trust fund stewardship by recovering costs from PRPs when EPA expends trust fund monies.

- By 2001, demonstrate/verify performance of 18 innovative technologies emphasizing those applicable to the remediation and characterization of groundwater, soils, and Brownfields sites.

- By 2005, develop and evaluate risk management options for remediation of sites, including Brownfields contaminated by metals, PAHs, NAPLs and chlorinated solvents.

- By 2002, evaluate applicability of natural attenuation and risk-based management goals to the clean up of contaminated sites.

- By 1999, develop risk assessment methods, models, factors and databases that describe key exposure parameters, human activity patterns, and dose response toxicity relationships.

The overarching goal of EPA's cleanup programs is to protect human health and the environment through fast and effective cleanup of priority sites and releases. EPA tracks a number of measures of progress in providing long-term protection at contaminated Superfund sites including the number of sites cleaned up each year by EPA, state and tribal partners, and PRP participation. These measures will bring early risk reduction to contaminated sites throughout the nation. Because site cleanup activities can take months or years to complete, some 1999 accomplishments were funded, in part or in full, in prior years. In addition some of the activities funded in 1999 will count as accomplishments in future years.

In 1996, President Clinton announced a national commitment to protect communities from toxic pollution through accelerating toxic waste cleanup. In 1999, the Superfund program will meet these aggressive goals by doubling the pace of site cleanup construction. This effort will result in 900 construction completions by the end of calendar year 2001, approximately two-thirds of the sites on the NPL. To accomplish this goal, the Superfund program plans to: (1) assess 530 sites to determine whether they require Superfund cleanup action; (2)

conduct 335 Superfund emergency, time critical, and non-time critical removal response actions at both NPL and non-NPL sites; (3) complete construction at 136 NPL sites in a cost effective and timely manner; (4) continue to measure citizens' perception of whether the cleanup decision-making process is open and legitimate and citizens' understanding of the potential risk associated with the site by administering 50 survey instruments; and (5) continue to enhance the role of states and tribes in the implementation of the Superfund program by encouraging their participation in assessing 210 sites to determine if the sites require Federal Superfund cleanup actions, selecting 5 remedies and assuming lead at 7 operable units at NPL sites.

Community outreach and participation address the need for citizens to be educated and involved in decisions concerning their environment. The Superfund program will continue to hold public meetings; provide communities financial assistance to hire technical consultants who assist them in understanding the problems at the sites and the proposed solutions to the contamination problems; and distribute fact sheets on the sites. The Federal Facilities program will encourage citizen involvement by working with other Federal agencies to establish 100 Restoration Advisory Boards (RABs) and Site Specific Advisory Boards (SSABs) within the Superfund program. Within the RCRA program, public opinion can impact the permitting process of new, renewal and/or modifications to facilities in local communities. Similarly, public involvement and opportunities to comment on potential remediation measures are integral to the corrective action process. Activities include public participation during regional and state RCRA permitting and corrective action activities -public notices, meetings, outreach, handbooks and websites -as well as public participation training and guidance development by EPA.

The Agency will pursue violators and responsible parties to maximize PRP participation in site restoration. Superfund reforms will continue to be implemented to increase fairness, reduce transaction costs (especially to small contributors) and promote economic redevelopment. Cost recovery will be pursued to recoup monies expended from the Trust Fund from viable responsible parties. In addition, EPA will encourage economic redevelopment by bringing contaminated sites into productive use, enhancing the roles of states and Indian tribes, and ensuring environmental justice.

The brownfields pilot program has demonstrated that cleaning up abandoned or under-used contaminated land can have significant payoffs. Building on the pilot program, EPA will continue to partner with other Federal, state, local, and private sector efforts to restore contaminated property to economic reuse. In 1999, EPA will sign 100 site assessment cooperative agreements, provide 30 cities with targeted site assessment, implement 10 showcase communities, and sign 100 cooperative agreements to capitalize revolving loan funds. The Agency will also provide information and tools and develop model practices and policies to be used by local governments, developers and transportation officials in their pursuit to redevelop brownfield properties.

The current base research program focuses on exposure assessment, characterization, risk assessment, and risk management. Under the exposure area, research is needed: to reduce uncertainties associated with ground water/soil sampling and analysis; to develop methods and models of contaminant transport;

and, to reduce the time and cost associated with site characterization and the site remediation activities that it guides. Subsurface characterization of ground water research will focus on the development and evaluation of surface-based, non-invasive, geophysical technologies. In the area of field sampling and screening, analytical methods research will continue to focus on: 1) more effective technologies and approaches that can eventually be used to perform analysis in the field; 2) those that can determine pollutants that are intractable by conventional EPA methods; as well as, 3) those that improve risk assessments by providing specific information on the most hazardous forms of pollutants.

In the risk assessment area, research works toward producing credible and scientifically defensible assessments of risks from contaminated ground water at waste sites. To estimate human exposure and delivered dose for contaminated soils, the Agency will develop methodologies and factors that will enable risk assessors to develop an accurate quantitative estimate of the amount of contaminant found in the soil matrix that is eventually toxicologically available at the site of action to a human receptor.

Risk management research works to develop new methods to extract and/or treat the contaminants in ground water and soil, particularly for hard-to-treat contaminants and contaminated matrices. Increasing effort is focused on low-cost, in situ technologies to reduce exposure to humans and ecosystems. Ground water research is focussed on natural attenuation, active bioremediation technologies, abiotic treatment, and containment. Soils research covers the same range of technologies as ground water, including active and passive biological treatment processes, abiotic treatment, and containment. Additionally, ORD also provides technical support to EPA program offices in many of the aforementioned areas of research.

EPA is required by RCRA and the Indian Environmental General Assistance Program ACT (IEGAPA) to promote the protection of health and the environment by providing technical and financial assistance to states, Federally recognized tribes, and local governments to assure that solid and hazardous waste is properly managed. EPA will enhance the roles of states through authorization of their Subtitle C hazardous waste management programs and approval of their Subtitle D municipal solid waste permit programs. To do so, EPA will: implement recently streamlined procedures for state authorization and continue to explore improvement options as well as present authorization training programs; issue final regulations and updated guidance for approval of state solid waste permit programs; and continue to work with states to develop guidance for the voluntary enhancement of industrial solid waste management programs. Within the STAG appropriation, the Agency is requesting authorization to enter into assistance grants with Federally recognized Indian Tribes for the same purposees as set forth in RCRA Section 3011.

Efforts to help tribal governments develop hazardous waste management and municipal solid waste programs will expand in 1999. Intergovernmental information and resource sharing will be facilitated through a range of mechanisms including forums, university-level courses, professional training, Internet sites, and circuit riders in partnership with other Federal agencies, states, local communities and of course the tribes themselves. Technical and

financial assistance will be provided, including assistance agreements with tribes for the same purposes as set forth in RCRA Section 9003(h)(7). EPA will develop and implement an alternative method of providing flexibility to owners and operators of municipal solid waste landfills in Indian lands similar to the flexibility afforded in states with approved permit programs. The full range of environmental problems is present on tribal lands, from prior use issues such as contaminated soil and water, to current use issues and planning, most prominently solid waste management concerns. Working with tribes offers real tests of the Agency's new community-based, multi-media approach as the program consolidates efforts and works to use limited resources efficiently.

The most serious pollution problems at RCRA facilities occur when releases migrate off-site, contaminating public and private drinking water supplies and, in a number of cases, endangering wetlands and other sensitive ecosystems. Controlled human exposures and groundwater releases are results that can be achieved through interim measures, such as stabilization activities, or through a final remedy. Although these results are important milestones for cleanup programs, achieving these results does not imply that the long-term risks associated with contamination at the facility are controlled or that a facility is cleaned up. Even after achieving these milestones, facilities are required to continue with stabilization and/or remedy implementation until the final cleanup standards have been met. To increase flexibility and assist states in corrective actions, EPA is working with states to promote the use of alternate state authorities (e.g., state Superfund programs) at RCRA facilities, where appropriate.

The Agency's corrective action activities encompass regulation reform, streamlining and reinvention projects that will improve the implementation of the program. The hazardous waste identification rule (HWIR), to be promulgated in 1998, will establish common sense processes for handling the wastes to be removed or treated as part of a cleanup. The Subpart S initiative seeks to streamline the corrective action process to conduct faster, more appropriate cleanups, saving resources for industry, the states, and the Agency. Activities will also include a wide range of Community Based Environmental Projects (CBEP) and technical assistance to the states. Also in 1999, the Corrective Action program will move into the next phase of participation in the Agency's Environmental Monitoring for Public Access and Community Tracking (EMPACT) initiative as a way to demonstrate the environmental progress facilities have made in a user-friendly, but still scientifically valid, manner. In partnership with the State of New Jersey, the program is creating a system of computer-accessible maps displaying corrective action sites, the location of contamination and the extent of cleanup to date.

The Agency's LUST program, through the end of 1997, has reported more than 341,000 releases. Of that number, 292,000 cleanups had been initiated, of which 178,000 had been completed. The Agency expects a cumulative total of 370,000 to be initiated or completed by 2005. Approximately 1,000 releases on Indian lands have been reported and the Agency expects more than 1,000 additional releases will be reported as owners and operators come into compliance with the 1998 requirements. The Agency anticipates, however, that many owners and operators on Indian lands will not have the financial resources to pay for cleanups and additional funding will be needed to pay for cleanups on these lands. Within the

LUST appropriation, the Agency is requesting authorization to enter into assistance agreements with Federally recognized Indian Tribes for the same purposes as set forth in RCRA Section 9003(h)(7).

1998 Annual Performance Goals

- In 1998, 20,000 LUST cleanups will be completed under the supervision of EPA and its State, Local and Tribal partners.
- In 1998, 150 (10%) High Priority RCRA sites will have human exposures to toxins controlled.
- In 1998, EPA and its partners will conduct 300 Superfund removal response actions.
- In 1998, EPA and its partners will make final Superfund site assessment decisions on 630 sites.
- In 1998, EPA will complete construction at 87 Superfund NPL sites.
- In 1998, EPA will sign 100 brownfields Site Assessment Co-op agreements.
- In 1998, EPA will sign 100 Cooperative Agreements to Capitalize Revolving Loan funds.
- In 1998, EPA will support 10 brownfields Showcase Communities.
- In 1998, 75 (5%) High Priority RCRA sites will have toxin releases to groundwater controlled.
- In 1998, EPA will survey 25 state and tribal communities to measure the effectiveness of EPA's Superfund community outreach program.
- Ensure trust fund stewardship by recovering costs from PRPs when EPA expends trust fund monies.
- Obtain PRP commitments for 70% of the work conducted at new construction starts of non-Federal facility sites on the NPL and emphasize fairness in the settlement process.
- Continue to make formerly contaminated parcels of land available for residential, commercial, and industrial reuse by addressing liability concerns through Prospective Purchaser Agreements.
- Establish a baseline for evaluating perspective purchaser agreements and comfort letters.
- By 1998, develop and evaluate innovative characterization, and risk management options for contaminated groundwater and soils under the SITE program.

- By 1998, develop risk assessment methods, factors, and databases as described, and dose response toxicity relationships.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
01 Obj. Total Change	**$600,028.2**	**(67.8)**
Environmental Program & Management	$7,031.9	(5.6)
Science and Technology	$716.9	0.1
Science and Tech. - Reim		(30.0)
Leaking Underground Storage Tanks	$5,970.9	0.0
Oil Spill Response	$(88.1)	0.0
Hazardous Substance Superfund	$586,396.6	(32.3)

- (+$594,051,400 Superfund) Supports the President's commitment to accelerate Superfund cleanups and achieve 900 construction completions by the end of calendar year 2001. This initiative will protect our children and our communities from exposure to uncontrolled toxic waste releases and restore contaminated sites to productive use. The additional resources requested support long-term media restoration, early action to remediate risk, engineering/technical analysis and response management activities. All of these activities are integral and essential to the cleanup of NPL sites.

- (-$10,000,000 Superfund) The Agency's request reflects the 1998 President's budget level for ATSDR and does not sustain the $10,000,000 Congressional add-on in the 1998 enacted budget. This request provides an appropriate level of funding for 1999 given large number of NPL sites that have been completed or are entering the final stages of cleanup construction.

- (-$9,473,300 Superfund) The Agency's request reflects the 1998 President's budget level for NIEHS and does not sustain the $9,473,300 Congressional add-on in the 1998 enacted budget. Given the maturity of the Superfund program, with cleanup decisions and actual cleanup being completed more and more sites, there are fewer sites that can benefit from NIEHS's ongoing basic research activities. This request reflects the Administration's emphasis on completing cleanup construction and provides an appropriate level of funding for NIEHS research activities in 1999.

- The Agency is redirecting $1,100,000 in Superfund programmatic resources from OSWER to OAR to fund lab analysis which OAR performs in support of

the Superfund program. This support is typically provided at mixed waste site and other complex sites where radioactive contaminants are present.

- The Agency is redirecting Superfund resources into two important areas which support our Federal facility activities: (1) implementation of EPA's Munitions Rule and DOD's Range Rule (5 FTE, $1,400,000); and (2) increased efforts to involve Tribes in the environmental restoration process at Federal facilities (5 FTE, $1,400,000). Resources are being redirected from the early stages of the Response pipeline and RI/FS oversight at Federal facilities.

- The Agency is redirecting Superfund resources to OSWER's Technology Innovation Office for two initiatives: (1) $750,000 to establish Technical Support Centers for local community outreach; and (2) $500,000 for the Advanced Monitoring Initiative.

- (-$2,767,800 Superfund) Contracts reduced to support other Agency priorities.

- (+$2,400,600 LUST) To assist tribes implement Leaking Underground Storage Tank (LUST) requirements. The Agency anticipates being able to conduct approximately 50 site assessments, 10 remediations, and provide 10 grants to assist Tribes develop the capability to address leaking underground storage tanks.

- (+$2,400,000 LUST) For direct support to states primarily to oversee cleanups of responsible parties. The Agency anticipates that states will be able to complete approximately 22,000 cleanups and initiate approximately 27,000 cleanups.

- (-$373,000 EPM) RCRA regional decrease in Working Capital Fund support reflects cost savings in this area.

- (+$2,991,600 EPM) Requested for RCRA tribal support. $556,800 and 6.0 FTE will be redirected to augment the RCRA program's efforts to expand RCRA's technical assistance program providing tribal solid waste managers with training and hands-on assistance.

- (-$133,800 EPM) contracts will be reduced from the RCRA Correction action program to support other enforcement priorities.

Key Performance Measures	1998	1999
Human Exposures Controlled at high-priority RCRA sites	150 Facilities	127 Facilities
Groundwater Releases Controlled	75 Facilities	69 Facilities
LUST Cleanup Completions	20000 USTs	22000 USTs
Number of Final Site Assessment Decisions	630 Decisions	530 Decisions

Removal Response Actions	300 Responses	335 Responses
Construction Completions	87 Completions	136 Completions
Citizen Involvement in Superfund	25 Surveys	25 Surveys
State/Tribal Site Assessment	200 Assessments	210 Assessments
State/Tribal Remedy Selections	4 Remedies	5 Remedies
State/Tribal Lead at NPL sites	6 RODs	7 RODs
Coop. Agreements for Site Assessment	100 Agreements	100 Agreements
Showcase Communities	10 Communities	10 Communities
Coop. Agrmnts-Capitalize Rev. Loans	100 Agreements	100 Coop. agrs.
Section 106 Civil Actions	40 Agreements	38 Agreements
Orphan Share Offers	30 Settlements	36 Settlements
De Minimis Settlements	23 Settlements	23 Settlements
Address Cost Recovery at all NPL and NON-NPL sites w/tot. past costs =or> $200K	100% Cases	100% Cases
Eval Liability concerns - Prospective Purchaser Agreement Requests Assessed	100% Requests	100% Requests
Remedial Admin Orders	20 Orders	19 Orders
SITE report to Congress	9/30/98	9/30/99
Protocol for implementing monitored natural attenuation of ground water contaminated by chlorinated solvents.	9/30/98	
Report on landfilled containment system performance.	1 report	
Exposure factors handbook available in three formats (including the Internet).	9/30/98	
Report on side-by-side pilot-scale comparison of nine LNAPL extraction technologies.	1 report	
Environmental research brief on permeable reactive barrier of		9/30/99

groundwater contaminated with chromium and chlorinated solvents.		
Journal article on effectiveness of a range of bioremediation processes.	1 report	
Publish compendium to the exposure factors handbook containing additional peer-reviewed statistical distributions.		9/30/99

Conclusion

Under this objective, EPA ensures that hazardous waste sites are not endangering human health or the natural environment and are being restored to uses desired by surrounding communities. EPA's cleanup programs respond to priority sites and releases in a fast and effective manner, while maximizing the participation of PRPs and other stakeholders in cleanup efforts. In addition, EPA is undertaking major efforts to develop measures of progress using risk reduction as the primary indicator.

The Agency is committed to implementing the President's initiative to protecting communities from toxic pollution. To do so, EPA will accelerate the pace of completing construction cleanup at 900 Superfund NPL sites by the end of calendar year 2001. Meeting this goal coupled with the Agency's progress to date will reduce risks to communities, especially children. The quality of life for more than 27 million Americans, including over 4 million children who live within four miles of a Superfund site will be improved.

The Agency has made significant progress cleaning up Superfund sites and protecting human health and the environment. By the end of 1997, all remedial construction activities were completed at 498 non-Federal and Federal NPL sites. Construction is currently underway at 470 sites. Ninety-five percent of the Superfund sites on the NPL have started a phase of cleanup. From program inception through the end of 1996, site security measures have been implemented at 330 sites on the NPL and 247 removal sites. To protect human health, alternate drinking water supplies have been provided to over 350,000 people at 121 NPL and 43 removal sites and more than 14,000 people have been relocated from 34 NPL and 37 removal sites to ensure their safety.

Approximately 70% of long-term cleanup actions are now financed and conducted by PRPs. The Agency's goal is to encourage a high level of PRP participation by promoting fairness in Superfund cleanup settlements, and by recovering costs from PRPs where EPA has conducted the work.

EPA supports this objective by developing innovative methods and techniques to characterize, monitor, remediate and assess risks related to waste sites. EPA also has implemented a risk-based research planning process to use risk assessment and risk management as principal priority-setting criteria. This research provides decision-makers with the tools and information required to make scientifically sound remedial decisions.

The Agency's Brownfields initiative continues to expand outreach to states, tribes, and public, private and nonprofit entities. Developing strong partnerships that encourage assessment, cleanup and redevelopment of abandoned and under-used properties will be continued by the Brownfield's program. EPA will also develop and provide the tools and technical assistance to a variety of stakeholders such as the National Governors' Association (NGA), the U.S. Conference of Mayors and the National Environmental Justice Advisory Council to facilitate brownfields cleanup and redevelopment, while strongly considering environmental justice issues.

The Agency has had many successes in the Superfund Federal facility response program - the issuance of the final Federal Facilities Environmental Restoration Dialogue Committee report, the signing of a record number of RODs, and the shifting of the program from the study into the cleanup phase. EPA's provision of technical assistance and oversight of response activities at Federally owned or managed hazardous waste sites, as well as review of property transfer documents, is vital to the protection of human health and the environment, and the productive reuse of property no longer needed by the Federal government. To facilitate the reuse process, EPA expects to review and comment or concur on 200 Environmental Baseline Surveys (EBSs), Finding of Suitability to Transfer (FOSTs) or Finding of Suitability to Lease (FOSLs) each year. The Federal facilities enforcement program supports the cleanup of Federal Superfund sites by negotiating, litigating, and overseeing this environmental work.

Like Superfund, the RCRA corrective action program has made significant progress cleaning up sites and protecting human health and the environment. Of the approximately 4,000 sites in the RCRA corrective action workload universe, over 3,200 have been assessed and prioritized for cleanup and over 1,500 are at various stages in the cleanup process. Because there are so many sites, EPA's main emphasis is on stabilizing sites to control potential human and environmental exposure and to prevent further releases.

Facilitating state authorization and implementation of the RCRA hazardous waste (including corrective action) and non-hazardous waste programs will remain a priority. To date, 32 states are authorized to implement RCRA corrective action, including the most heavily populated states. EPA expects that this number will continue to increase in 1999. The municipal program is fully implemented by the states and EPA will work to approve state municipal solid waste landfill permit programs to control existing and new facilities. Extensive public participation is another ongoing goal of the program, and the Agency strives to provide greater opportunities for public participation during corrective action and permit issuance.

Environmental indicators, such as human exposures controlled and groundwater releases controlled, represent new ways of measuring success in the RCRA program. There may be additional indicators such as ecological exposures, non-groundwater releases, and final cleanup standards that need to be achieved. Performance goals concentrate on controlling human exposure at 95% of high priority RCRA sites and controlling groundwater releases at 70% of high priority RCRA sites by 2005. In 1999, the Agency expects to control human exposure at 18%, or 277 of the high priority sites and to control groundwater releases at 10%, or 144 of the high priority sites.

Success of the LUST program is based on two external factors. One is the extent to which states implement risk-based corrective action programs; EPA is actively encouraging States to do so and is working with States and industry to provide the necessary training and implementation support. The other factor--which EPA cannot control--is the relative number of simple cleanups (where only soil is contaminated) vs. complex cleanups (involving groundwater contamination). To the extent that States have been deferring the more complicated cleanups, progress in the LUST program will be affected in the years to come.

Key Performance Measure Verification

EPA is taking steps to ensure that all accountability data are rigorously validated. CERCLIS is the official database used by Superfund to help track and store national site information. CERCLIS was developed in accordance with Agency Life Cycle Guidance which establishes criteria for software development, and it adheres to Agency platform, software and hardware standards.

The Superfund program has defined the various roles and responsibilities of key individuals who are responsible for development, operation and maintenance of CERCLIS. The headquarters sponsor of the data is responsible for (1) identifying the data elements needed, (2) defining the data elements, and (3) informing the appropriate people that the information needs to be collected and loaded into CERCLIS. The regional person who owns the data (e.g., Superfund remedial project manager) is responsible for reviewing, verifying, and validating site data in CERCLIS. The Information Management/Program Measurement Center, under the Office of Emergency and Remedial Response (OERR, responsibility is to ensure: (1) there is a data element with an accurate definition for all data; (2) the data element is accessible to searches and can be retrieved for reports; (3) the source for the data is referenced in the system; (4) the data is accurately entered or converted into the system; (5) data from other sources is considered draft until it has been checked against its source data, and is found acceptable; and (6) data integrity is maintained in all system applications and reports.

To assure data accuracy and control, the following administrative controls are in place: (1) Superfund/Oil Implementation Manual (SPIM) -- This is the program management manual which details what data must be reported; (2) Report Specifications --Report specifications are published for each report detailing how reported data are calculated; (3) Coding Guide --It contains technical instructions to data users such as *regional IMCs,* program personnel, report owners and data input personnel; (4) Quality Assurance (QA) Unit Testing --Unit testing is an extensive QA check made by the report programmer to assure that its product is producing accurate data that conforms to the current specification; (5) QA Third Party Testing --Third party testing is an extensive test made by an independent QA tester to assure that the report produces data in conformance with the report specifications; (6) Regional CERCLIS Data Entry Internal Control Plan -- The data entry internal control plan includes: (a) regional policies and procedures for entering data into CERCLIS; (b) a review process to ensure that all Superfund accomplishments are supported by source documentation; (c) delegation of authorities for approval of data input into CERCLIS; and (d) procedures to ensure that reported accomplishments meet accomplishment definitions.

For enforcement measures, EPA will use the end-of-year frozen CERCLIS database to obtain the data to support these measures, and will conduct a quality assurance audit on a representative sample of the data against actual settlement documents to ensure the accuracy of the data. In addition, EPA will track certain information manually until incorporation into CERCLIS. This data will also be subject to the same quality assurance requirements as the information tracked through the CERCLIS database.

The brownfields pilot program is intended to provide EPA, states, local governments, and Federally Recognized Indian tribes with useful information and new strategies for promoting a unified approach to environmental assessment, cleanup and redevelopment. Funding will provide incentives and seed money for assessments, planning, and inventorying of brownfields properties.

Superfund research supports the GPRA objective of reducing and/or controlling risks to human health and the environment at abandoned sites by developing innovative methods and techniques to characterize, monitor, remediate and assess risks related to waste sites. The research will also provide decision-makers with the tools and information required to make scientifically sound remedial decisions. The research program is consistent with EPA's mission to conduct research and provide technical support, and is consistent with all six goals enumerated in the Strategic Plan: (1) Develop Scientifically Sound Risk Assessment Approaches; (2) Integrate Human and Ecological Assessment Methods; (3) Provide Cost-Effective Risk Prevention/Management Approaches; (4) Provide Credible Methods, Models and Guidance; (5) Exchange reliable technical information; and (6) Provide Environmental Leadership & Develop Partnerships.

EPA has several strategies to validate and verify performance measures in the area of environmental science and research. The Agency has implemented a risk-based research planning process to use risk assessment and risk management as principal priority-setting criteria. EPA conducts annual research program reviews to both evaluate the status and accomplishments of its research and determine planning priorities. To better draw upon the expertise of the environmental academic community, EPA created the Science to Achieve Results (STAR) program of peer-reviewed, mission-driven extramural grants; the Agency is also working with various professional societies to identify research issues.

Chief among the Agency's validation and verification mechanisms is a rigorous peer review process. In a July 1997 memorandum, EPA's Deputy Administrator states that peer review will be expanded "to include both the major work products provided in the past and...all scientific and technical products supporting Agency decisions..." This expanded and strengthened focus on peer review will help ensure that the performance measures listed here are verified and validated by external organizations. The Agency utilizes peer review throughout the research planning and implementation process, both to ensure that planned research addresses critical knowledge issues within EPA's mission, and to assess the quality of scientific research plans, products, and proposals. This is accomplished through the use of independent entities such as the Science Advisory Board (SAB)and the Board of Scientific Councilors (BOSC). The BOSC, established under the Federal Advisory Committee Act, will even examine the way the Agency uses peer review, as well as the management of its research and development laboratories.

EPA's external research program undergoes extensive peer review. Proposals from the external scientific community are peer-reviewed and projects are then selected for funding through grants or cooperative agreements. In addition, Requests for Applications (RFAs) under the STAR program are often developed jointly with outside partners such as the National Science Foundation. In this way, EPA has developed a mechanism by which to check the quality and relevance of its research program.

The Office of Research and Development Management Information System (OMIS) will be another accountability tool used to verify and validate performance measures. The recently developed GPRA structure will be incorporated into OMIS to ensure consistent maintenance and reporting, resulting in greater accuracy and consistency of information to users.

RCRA data verification procedures ensure that the valid data collected at the field or facility level are not corrupted or confused before they are presented, aggregated, and analyzed at the Federal level. Environmental monitoring data (such as measures of combustion facility emissions) will meet standard Quality Assurance/Quality Control (QA/QC) procedures for the RCRA program, as documented in the Office of Solid Waste Quality Assurance Management Plan and the Guidebook for QA/QC Procedure for Submission of Data for the LDR Program. These procedures, in part, define requirements for sampling and analysis to assure data quality. Another common method of verification involves examination of data collected and evaluating the relationship of those data to other data collected under similar circumstances.

The Resource Conservation Recovery Information System (RCRIS) is the national database which supports EPA's RCRA program. RCRIS contains information on entities (generically referred to as "handlers") engaged in hazardous waste generation and management activities regulated under the portion of RCRA that provides for regulation of hazardous waste. RCRIS has several different modules, including a Corrective Action Module which tracks the status of facilities for which potential needs for corrective actions have been identified.

For validation and verification within RCRIS, controls include maintaining a high degree of consistency in data elements over time as well as data screen edits to help ensure that key data is entered for all facilities. States and Regions, who create the databases, manage data quality control. RCRIS has a suite of user and system documentation which describes the overall administration of the data collection and management activities. Training on use of the systems is provided on a regular basis, usually annually depending on the nature of system changes and user needs.

Statutory Authority

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. 9601-9675)

Pollution Prevention Act (PPA) (42 U.S.C. 13101-13109)

Resource Conservation and Recovery Act (RCRA) (42 U.S.C. 6901-6992k)

Objective #2: Prevent Releases by Proper Facility Management

By 2005, over 282,000 facilities defined by RCRA Subtitles C, D, and I, the Oil Pollution Act (OPA), and the Emergency Planning and Community Right to Know Act (EPCRA), and the Clean Air Act, section 112(r), will be managed according to practices that prevent dangerous releases to the environment.

Overview

The prevention of dangerous releases to the environment forms the heart of the waste management programs which address RCRA hazardous and non-hazardous wastes, underground storage tanks, chemical and emergency preparedness, oil spills and radioactive wastes. Avoiding the need for costly cleanups and environmental mitigation, and preventing the health problems that can occur from exposure - ranging from short-term illnesses to permanent nerve, developmental or respiratory damage, especially among children - are fundamental to the Agency's work to protect human health and the environment. Strong partnerships with states, tribes and local governments as well as stakeholder involvement ensure effective and efficient program implementation. The Agency is requesting $139,531,000 and a total of 686 workyears for this objective.

The Agency's Resource, Conservation, and Recovery Act (RCRA) program accounts for about 13,900 of the facilities addressed by this objective. The RCRA program reduces the risk of human exposures to hazardous, industrial non-hazardous, and municipal solid wastes. The amount of hazardous and solid waste is significant: every year, municipalities and industries generate approximately 208 million tons of municipal solid waste, 270 million tons of hazardous waste (including wastewaters), and more than 7.6 billion tons of industrial nonhazardous waste. A combination of regulations, permits, and voluntary standards and programs ensure safe management of the various wastes. Without the RCRA program, new Superfund sites could result from mismanagement of these wastes, threatening communities near waste management facilities. In addition, greater environmental exposures to persistent and bio-accumulative toxic chemicals would occur, endangering the nation's food and water supplies.

In 1999, the focus of the RCRA program will be on risk and efficiency: reducing risk and calibrating risk to regulatory standards, and streamlining and easing implementation. The RCRA program reduces the risk of exposures to dangerous hazardous wastes by establishing a "cradle-to-grave" waste management framework. This framework regulates the handling, transport, treatment, storage, and disposal of hazardous waste, ensuring communities are not exposed to dangerous chemicals through improper management. The main vehicle for hazardous waste program implementation is issuance of RCRA hazardous waste permits. In

1999, the Agency requests $24,013,700 for permitting activities. Today, 47 of 50 states, Guam, and the District of Columbia are authorized to issue permits. In the next several years, EPA and the states will emphasize reducing risks to communities exposed to hazardous waste combustion emissions by updating the permits issued to commercial hazardous waste incinerators, boilers, and industrial furnaces, (e.g., cement kilns) and on-site incinerators. In 1999, efforts to ease implementation will make a notable gain when the Agency issues a final rule standardizing lower-risk storage facility permits. This change will offer efficiencies to industry, and to state and federal implementors alike. In addition, it is expected to speed the pace of permitting. The Agency and the states have now permitted almost all operating landfills and land disposal sites, as well as most commercial incinerators. Storage and treatment facilities comprise the largest remaining workload. Integrating the Community-Based Environmental Protection approach will be a continuing priority in 1999, as will coordination and policy review for RCRA permitting issues in the Common Sense and Project XL initiatives.

The centerpiece of the Agency's efforts to better calibrate risk and regulatory standards is the Hazardous Waste Identification Rule (HWIR). The proposal, will identify lower-risk waste currently regulated under Federal hazardous waste requirements (Subtitle C) that could be regulated under alternative, but protective, state regulatory programs. As part of HWIR, the Agency is developing a new, multi-pathway risk analysis tool that will greatly enhance the ability to evaluate risk and will be useful in other media contexts as well.

For this new HWIR regulatory approach, new research is needed to provide the scientific underpinnings in effects, exposure, risk assessment and risk management. The exposure research area encompasses such efforts as multimedia, multi-pathway exposure modeling, and environmental fate and transport - physical estimation. Risk assessment research will develop provisional toxicity values (reference doses, reference concentrations, cancer slope factors) for waste contaminants which do not currently have values so their risks may be quantitatively assessed for delisting decisions and risk assessment. Risk management research will be conducted to improve ways to manage wastes, focusing on treatment for hazardous waste streams which are either difficult or expensive to treat.

Other recent program improvements will enter the implementation stage in 1999, providing regulatory relief to industry and local governments as well as state and federal programs. For example, the Agency will implement the Mineral Processing rule, finalized in 1998, which establishes protective standards for mineral processing wastes disposed on the land, but also revises the definition of solid waste (which governs hazardous waste recycling) to encourage recycling and recovery of these materials at a cost savings to industry. In addition in 1999, a final rule will remove some of the requirements to use specific sampling methods, removing barriers to adopting new and innovative technologies and providing greater flexibility to industry. The Agency will proceed with streamlining and improving the RCRA manifest system, with the intention of reducing aggregate reporting and record-keeping. The Waste Information Needs (WIN) initiative, conducted jointly with the states, will continue the comprehensive analysis of the data, process, and technology needed to make the

data, supporting the RCRA hazardous waste management program, of higher quality, more usable, and more accessible.

Current regulations for hazardous waste combustors do not fully address potentially significant risks of exposure through the food chain, because the regulations do not reflect important and emerging scientific information on health risks. In addition to developing the science to support regulatory reform, concerns have also been raised about emissions from waste combustion facilities for a number of reasons, including: (1) the large number of waste combustion facilities, (2) the facilities can emit significant amounts of toxic contaminants such as dioxin, furans, mercury, lead, cadmium, and products of incomplete combustion, (3) the emissions become dispersed over large geographic areas that often have large populations or produce important food products (crops, animal, and dairy products), (4) exposure occurs over several pathways and routes, and (5) high levels of contaminants emitted from waste combustion facilities (e.g., mercury) have been measured in environmental media surrounding waste combustion facilities. The combustion research is important for meeting Clean Air Act as well as RCRA mandates, but also is vital to protect children's health because so many of the contaminants - mercury, cadmium, lead - in the emissions are especially harmful to children. To reduce emissions of hazardous air pollutants, EPA is developing two rules. The Phase I Waste Combustion rule or Maximum Achievable Control Technology Standard (MACT) addresses revised standards for hazardous waste incinerators and cement and lightweight aggregate kilns that burn hazardous waste. The Phase II rule will deal with revised standards for industrial boilers and other types of industrial furnaces that burn hazardous waste. The Phase I rule will be finalized early in 1999. Resources in 1999 will support the Phase II rule making that will be finalized and in effect before 2005. In 1999, the Agency requests $12,902,500 for waste combustion activities.

In the nonhazardous waste program, the Agency will continue to develop strong partnerships with states by: (1) jointly developing guidance for safe management of industrial nonhazardous wastes; and (2) helping states attain approval of their municipal landfill permit programs. For municipal solid wastes, states have the lead in permitting landfills under approved state programs.

Industrial nonhazardous wastes, including special wastes created from mining and mineral processing, and oil, gas and fossil-fuel combustion, frequently are generated in large volumes, and include a wide range of chemical constituents. Industrial nonhazardous wastes fall outside the hazardous waste universe yet often cannot be appropriately managed in common municipal solid waste facilities. However, as with both hazardous and municipal wastes, mismanagement poses risks to public health and to local ecologies. EPA and the states are working with industry and environmental groups to establish voluntary guidelines that will be used nationwide. These voluntary guidelines will be implemented starting in 1999. Resources in 1999 will support: (1) outreach and training efforts to ensure that industry and environmental groups are aware of the guidance and have sufficient understanding to properly implement the guidance; and (2) an assessment of how the guidance integrates into other RCRA activities, such as the 5-year surface impoundment study, future listings and the proposed HWIR.

Although municipal solid waste (MSW) management programs are implemented by the states, EPA must determine minimum national standards which all states must meet. EPA also reviews and approves state permit programs. Improper disposal has resulted in fire damage, uncontrolled proliferation of sources of disease transmission, contaminated surface and ground water, and human fatalities. Application of the Agency's standards throughout the states provides the waste management industry with fair competition based on operational efficiencies, not on differential waste-management standards. The Agency will continue to work with the states to complete the approval of all state municipal solid waste permit programs, including those with partial approval. Each year, beginning in 1998, EPA will ask the approved states to identify the total number of facilities in their jurisdictions and the number in compliance with the state's requirements implementing the EPA minimum standards. Also, in the municipal program outreach, technical assistance and capacity building for tribes remain a priorities and the Agency will enhance its efforts in 1999. The Agency will continue to seek innovative and effective ways to support tribal efforts to implement and integrate waste management programs.

Chemical accidents endanger human lives, and harm the environment. EPA recognizes that preventing an accident, as opposed to mitigating its effects, is a more cost-effective approach to saving lives and protecting the environment. EPA strives to work in partnership with industry, states and local communities to prevent chemical accidents. An important part of the Agency's chemical accident preparedness and prevention program is development and implementation of a Risk Management Program. The Risk Management Program is designed to reduce the potential for catastrophic accidental releases and mitigate those accidents that do occur. The Agency is requesting additional resources for this program in 1999 to allow more audits, reviews and sharing of information about industry safety practices, along with more involvement of state and local entities in making use of this information at the local level for risk management, risk reduction, and emergency preparedness.

Section 112(r) of the Clean Air Act (CAA) requires industry to prepare a Risk Management Plan (RMP) for their prevention and response programs. The deadline for facilities to submit an RMP is June 1999. EPA is obligated under the CAA to review and audit the plans in lieu of the states if states have not established a review-and-audit program of their own. EPA's current strategy is for states to implement the RMP program, however in 1999, only a handful of states will be able to implement the entire RMP program. Because it is vital that the RMP program be implemented effectively, the Agency's 1999 budget request includes $5,647,900 additional resources for this program to develop state capabilities and to ensure that states can meet this statutory mandate.

By 1999, the Agency will develop a chemical risk information system in coordination with industry, using information from facilities' Risk Management Plans (RMPs). EPA also will help states, Local Emergency Planning Committees (LEPCs), and Tribal Emergency Planning Committees (TEPCs) by: (1) facilitating access and use of the RMP information database; and (2) providing technical assistance and technical assistance grants to develop accident-prevention and accident-preparedness programs. The Agency estimates that in 1999, five additional states will start a prevention program, and 190 LEPCs will integrate prevention into their preparedness programs. Reducing risk and preventing

chemical accidents are the ultimate goals of EPA's chemical emergency prevention, preparedness, and response program. The Agency requests $950,500 to assist tribes in implementing their Emergency Planning activities.

EPA also supports releases associated with radiation in several ways: 1) the Agency has certification and oversight responsibilities for Department of Energy (DOE) waste disposal activities at the Waste Isolation Pilot Plant (WIPP). When the certification is complete, transuranic waste from weapons' production will be disposed of permanently. The Agency will set standards for disposal of spent nuclear fuel and high-level radioactive waste in the proposed repository at Yucca Mountain; will coordinate with other Federal agencies and states to develop rules for recycling of other industrial materials that have a radioactive component; will develop rules to protect public health from the disposal of low levels of radioactivity; will develop guidance to protect public health from naturally occurring radioactive materials; and, will provide technical assistance and guidance on all Superfund matters relating to radiation.

The Underground Storage Tank program accounts for 264,000 of the facilities addressed by this objective. About 1,000,000 underground storage tanks (USTs), regulated under Subtitle I of RCRA, are in use in the United States. There are USTs in virtually every city and town and many rural areas. Nearly every UST that is not equipped to meet the Agency's technical standards eventually will contaminate soil and/or groundwater, including public and private drinking water supplies. As of September 1997, more than 342,000 UST releases had been confirmed, and by 2005 the Agency expects another 70,000 will be discovered as UST owners and operators comply with EPA's requirements to upgrade, replace or close their tanks by December 1998. The Agency anticipates that approximately 639,000 tanks (about 236,700 UST facilities) will be in compliance by December 1998, and that approximately 655,200 tanks (about 242,700 UST facilities) will be in compliance by December 1999. In 1994, states reported (under Section 305(b) of the Clean Water Act) that USTs are the most common source of groundwater contamination and that petroleum is the most common contaminant. Nearly all UST releases involve gasoline, which contains, among other things, a known human carcinogen (benzene) and a possible human carcinogen (MTBE). MTBE is highly soluble and mobile and, based on existing knowledge, apparently does not readily biodegrade. Also, because relatively low levels of MTBE make water unpalatable, MTBE contamination damages drinking water supplies even when it does not pose health risks. UST releases sometimes result in fires and explosions and, entry of harmful fumes into schools, homes, and other buildings. To prevent or mitigate such occurrences, states have undertaken more than 9,000 emergency actions during the past eight years. The actual impacts of UST releases -- at least in terms of deaths, injuries, and ecological damage -- have been modest in recent years, primarily because of state/EPA regulatory requirements.

States have the primary responsibility for ensuring that UST facilities (except those on Indian lands) are brought into compliance. The Agency's primary role is to provide technical and financial support to state UST programs. Over the next several years, the Agency's highest priorities are to promote and enforce compliance with regulatory requirements aimed at preventing and detecting UST releases and to approve additional states to operate their own UST/LUST programs in lieu of the Federal program. Currently, 24 states and the District

of Columbia have state program approval. In 1999, the Agency requests $17,246,000 for the UST program.

The Agency will provide technical and financial support to state UST/LUST programs to help them promote regulatory compliance and achieve state program approval. Financial support will be provided through UST state grants. EPA and states will work together to promote and enforce compliance with the 1998 deadline, which will fall within the first quarter of 1999. EPA funding will support state UST inspections and enforcement by providing technical materials and training programs to help state inspectors assess compliance with requirements for leak detection, corrosion protection, spill containment, and overfill prevention. EPA funding also will support state-EPA assessments of the validity of third-party evaluations of leak detection methods and state development and start-up of third-party service provider programs to supplement state staff. The Agency will also assist states in overcoming barriers to EPA approval of state programs and in developing formal applications for EPA approval.

The Agency has the primary responsibility for implementation of the UST program on Indian lands. This responsibility requires the Agency's regional offices to educate owners and operators about the UST requirements, conduct inspection and enforcement activities, and maintain a database of information on USTs located on Indian lands. Demonstration grants under RCRA Section 8001, as well as non-demonstration grants (State and Tribal Assistance Grants) under RCRA Section 2007, will continue to help tribes develop the capability to administer UST programs. Within the State and Tribal Assistance Grants appropriation, the Agency is requesting authorization to enter into assistance agreements with Federally recognized Indian tribes to develop and implement the Underground Storage Tank program as set forth in RCRA Section 2007 (f).

The Oil Prevention Program accounts for 4,200 of the facilities addressed by this objective. Each year more than 12,000 oil spills occur, well over half of them within EPA's prevention or response zone. On average, one spill of greater than 100,000 gallons occurs every month, from a total of 440,000 regulated facilities and the entire transportation network. Oil spills contaminate drinking water supplies, cause fires and explosions, and pollute ecosystems and also jeopardize the commercial and recreational uses of water resources. Under the Clean Water Act, the Oil Pollution Act (OPA), and oil pollution prevention regulations, the Agency is responsible for assuring that regulated facilities implement Spill Prevention, Control, and Countermeasure (SPCC) plans. A 1995 SPCC Facilities Survey found a statistically significant difference between the amount of oil spilled by facilities that implement SPCC provisions and those that do not: when facilities comply with SPCC provisions, there are fewer oil spills. Bringing facilities into compliance with SPCC requirements involves a variety of activities, including: (1) site visits; (2) SPCC plan review, (3) working with facilities to demonstrate how SPCC requirements apply specifically to facility design and operations, (4) follow-up checks to maintain compliance; and, (5) enforcing cleanups of spills by responsible parties, when necessary. Facilities must take responsibility to ensure quicker and more effective spill responses to reduce potential impacts to the environment. Each year, starting in 1999 through 2005, the EPA's Oil

Pollution Response and Prevention Center will continue to bring at least 400 additional facilities into compliance with SPCC provisions. The Agency will implement the revisions to the SPCC regulation with a risk-based approach to minimize regulatory burdens while maintaining acceptable environmental protection.

The Agency is required through an OPA mandate to conduct periodic reviews and approvals of facility response plans. Each year through 2005, 200 additional facilities will be adequately prepared to respond to oil spills as measured by the number of approved response plans prepared in compliance with statutory and regulatory requirements, and to the maximum extent practicable.

The Oil Prevention and Response program uses its resources to implement a comprehensive approach to integrate prevention, preparedness, and response as mandated and authorized in Section 311 of the Clean Water Act, and the Oil Pollution Act of 1990. The Agency is requesting $6,062,600 in 1999 for oil preparedness and prevention activities under this objective. These additional resources will double the number of facilities brought into compliance with the SPCC provisions of the oil pollution prevention regulations. An expanded SPCC program will enhance ongoing efforts to reduce the risk of oil spills from facilities which pose a human health risk, ecological risk, and economic risk.

EPA brings administrative actions and referrals against facilities for failure to comply with oil pollution regulations and response plan regulations, and enforces cleanups of spills by responsible parties. EPA's actions promote compliance with Federal requirements designed to protect the environment from the devastating consequences of oil spills. The Agency requests $1,365,000 for enforcement activities within the Oil Program.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 02 Prevent Releases by Proper Facility Management	**$138,141.5**	**$126,471.5**	**$139,531.0**
Environmental Program & Management	$93,840.1	$81,977.1	$93,416.9
Science and Technology	$5,943.4	$6,256.7	$6,589.8
State and Tribal Assistance Grants	$31,826.6	$31,826.6	$31,826.6
Oil Spill Response	$6,531.4	$6,411.1	$7,697.7
Total FTE	679.0	687.7	686.0

1999 Annual Performance Goals

- By 1999, 2,080 (62%) of existing RCRA hazardous waste facilities will have approved controls in place to prevent dangerous releases to air, soil, groundwater, and surface water.

- In 1999, OSW will promulgate the Phase I rule for reducing hazardous waste combustion facility emissions of dioxins, furans and particulate matter under RCRA.

- In 1999, the Agency will conduct outreach/training on guidance, issued in 1998, for management of RCRA-regulated nonhazardous industrial waste.

- By 1999, 2,475 (70%) of existing RCRA municipal solid waste facilities in states will have approved controls in place to prevent dangerous releases to air, soil, groundwater, and surface water.

- In 1999, 33,000 facilities will submit RMPs under the Clean Air Act Section 112(r) program.

- In 1999, 5 additional states will implement the Clean Air Act Section 112(r) chemical RMP-prevention program.

- In 1999, 190 LEPCs will integrate chemical accident prevention into their chemical emergency preparedness programs.

- In 1999, 400 additional facilities will comply with the SPCC provisions of the oil pollution regulations.

- By 1999, 647,800 Underground Storage Tanks (USTs), equivalent to about 240,000 facilities, will meet EPA/state requirements for leak detection and upgrading.

- In 1999, 200 additional facilities will be adequately prepared to respond to oil spills.

- By 1999, refine multiple exposure methodology so uncertainty analyses can be conducted using probabilistic techniques such as Monte Carlo simulations.

- By 2000, produce improved version of HWIR site exposure-risk assessment model, with emphasis on source-sink transformation processes and general, integrated modeling framework formatting and insertion.

- By 2003, complete prototype integrated, multimedia, multichemical, multipathway ecosystem and human health cumulative exposure risk assessment model in framework context, suitable for regional assessments involving waste site and all other contaminant sources.

- By 1999, develop risk assessment methods, models, factors and databases that describe key exposure parameters, human activity patterns and dose response toxicity relationships.

- Facilities will be managed so as to prevent releases into the environment.

The Agency's hazardous waste management goals will be accomplished in part through permitting activities conducted in regions and headquarters, and through grants to states. Significant progress has been made in permitting, with an expected outcome of 95% of controls in place by 2005. The Agency will also work with tribes that have hazardous waste concerns to build capacity and ensure safe management. Ensuring that permits or other approved controls incorporating protective provisions are issued is the main mechanism for controlling releases to the environment. The rulemakings discussed in this objective will provide additional controls for releases.

The Agency is seeking to streamline permitting processes for implementors and for the regulated community. The Agency's RCRA program, in consultation with the states, is targeting the development of Standardized Permits, methods of streamlining Permit Renewals, and an examination of the possibility of Electronic Permitting. A scheduled 1999 rulemaking for Standardized Permits will be applicable to storage and non-thermal treatment facilities that manage waste on-site, and is intended to significantly reduce the burden of a facility applying for a RCRA permit. An improved process for renewals will provide real relief to the states which face a large workload over the next several years in this area. Finally, options analysis for electronic permitting methods will proceed following a compilation of existing efforts at the state or regional level. About 60% of the current Project XL applications involve RCRA requirements. The program will continue to work to ensure the success of these potential improvements to RCRA management standards. Another approach, Community Based Environmental Protection will be used in expanding projects in geographically targeted areas with particular attention to children's issues.

In 1999, the RCRA waste identification program will seek to improve scientific modeling to more accurately assess risk through multiple-pathways, pursue the results of a scoping study to identify gaps in the toxicity characteristics definitions, follow up on an analysis of the need for modifications to the toxicity characteristic for silver, issue several listings, and develop the proposal for the hazardous waste identification rule (HWIR) for process waste which will reduce the management burden for lower risk wastes. Other efforts to improve the Agency's understanding of risk include RCRA's portion of the larger effort to improve the Integrated Risk Information System (IRIS) database, and the development of methods and procedures to evaluate leaching models that may improve testing protocols and reduce barriers to the use of innovative waste treatment processes. The Land Disposal Restrictions program will pursue an exploration of mercury treatment practices and alternatives with an emphasis on identifying possible streamlining revisions, while maintaining protective standards, especially toward children's health which can be heavily impacted by exposure to mercury.

The work accomplished under this objective will lower levels of risk to human health, especially to sensitive populations and fragile ecosystems and improve the quality of life, as well as limit the number of people and areas exposed to releases from hazardous waste combustion facilities. Two rulemakings designed to reduce the emissions of hazardous air pollutants, are being developed

under joint authority of the Clean Air Act, as amended, and the Resource Conservation and Recovery Act, as amended. The Phase I combustion rule will be finalized in 1999, and addresses revised standards for hazardous waste incinerators and cement and lightweight aggregate kilns that burn hazardous waste. The Phase II rule will deal with revised standards for industrial boilers and other types of industrial furnaces that burn hazardous waste and initial work will begin in 1999. It is anticipated that the Phase II rule will be finalized and in effect before 2005. The two rulemakings will include specific controls to reduce dioxins, furans, particulate matter, and acid gases. Since the rules need to be promulgated prior to achieving the target reductions, there are no annualized targets for this objective.

An additional major streamlining effort that will continue in 1999 is the WIN/INFORMED initiative. Working jointly with the states, the Agency will screen and streamline existing and new data elements and identify opportunities to make the data supporting effective implementation of the RCRA hazardous waste management program higher quality, more usable, and more accessible. In addition, the Agency will continue to improve and expand public access as well as internal communication by creating new Internet sites for permit policy, sampling methods, and environmental justice information along with ongoing enhancements to the existing comprehensive RCRA materials available through the Internet.

The universe of industrial non-hazardous waste and special wastes (wastes associated with mining, oil, and gas operations) constitutes a huge mass of materials, managed in an assortment of methods with risks ranging from those similar to hazardous wastes to those from wastes that are mostly inert. A recent scoping study of known and possible non-hazardous industrial waste constituents found that nearly half the total suspect carcinogens identified by the Agency were included in these wastes. In addition, a number of mining sites are on tribal lands, increasing the need for capacity building and technical assistance in this area.

In 1999, the RCRA program will proceed with surveys and sampling to provide data for the statutorily mandated five-year surface impoundment study, which will improve our understanding of risk, exposure and potential ecosystem stressors associated with wastewaters and surface impoundments. An estimated 97% of industrial non-hazardous, or industrial D wastes are managed in surface impoundments, and the five-year study currently underway will provide information on the risks of this large category of waste.

Guidance for the safe management of industrial non-hazardous wastes will be developed and finalized in 1998. The voluntary guidance will address groundwater contamination, run-on/run-off, and air emissions from landfills, waste piles, surface impoundments, and land application units, as well as such topics as corrective action, public participation, and alternatives to waste disposal. Outreach and training efforts scheduled for 1999 will be necessary to ensure effective implementation of the guidance, which will also include simplified, workbook-style information on ways to estimate risk of leachate or emissions without expensive site-specific modeling. Attaining this objective will depend on this joint state/Agency guidance for industries and states to

identify appropriate controls to prevent dangerous releases to air, soil, and groundwater.

Although municipal solid waste (MSW) regulatory programs are implemented by the states, it is the Agency's responsibility to establish minimum national standards with which all facilities must comply. The Agency must review and approve state permit programs. Without proper siting, design, operation, closure, and post-closure care, MSW disposal facilities can endanger public health and the environment and in fact a number of Superfund sites are former municipal landfills. Incorporation of proper controls increases the costs of MSW disposal facilities. In 1999, states will begin to implement a 1998 regulation increasing flexibility for certain types of municipal landfills, lowering management costs for lower risk situations. Recent years have seen the removal of legal, economic, and administrative barriers to long-distance waste hauling, making it more feasible for transport of MSW to distant facilities that charge lower fees. Without the uniform application of minimum safe management standards, waste would flow readily from generators to the least costly facilities (i.e., facilities with fewer or no controls to protect public health and the environment), even if these facilities were distant.

Because states have implementation authority for MSW programs, they know best the extent of compliance within their jurisdictions. To measure progress, the Agency must rely on the ability and willingness of state regulatory programs to share this knowledge. Measuring the number of facilities that have permits or other forms of approval issued to them will provide the results of the annual targets, directly relates to the number of facilities with approved controls in place.

For active waste management facilities, research needs have been identified for each of the four areas of the risk assessment paradigm. Under the exposure area, multimedia, multi pathway exposure modeling is intended to facilitate consistent and scientifically credible assessment of multimedia-based human and ecological exposure to chemical stressors at geographic scales. Environmental fate and transport (physical estimation) will focus on reducing the uncertainty associated with exposure assessment model predictions by providing improved process level models for quantifying pollutant interactions in a variety of natural systems. Waste characterization/sampling provides the new generation of analytical technology/methods needed to characterize wastes, waste streams, and waste contaminated media. It also provides research on sampling/sample design related to compliance with proposed waste exit levels (levels below which a waste or waste stream is excluded from regulation under RCRA Subtitle C) in support of the proposed HWIR. In the risk assessment research area, EPA will focus on developing provisional toxicity values for contaminants. This research will develop provisional toxicity values (reference doses, reference concentrations, cancer slope factors) for waste contaminants which do not currently have values so their risks may be quantitatively assessed for delisting decisions and risk assessments. The primary use will be in support of the proposed HWIR. Under risk management, waste management research will be conducted to improve ways to manage wastes, focusing on treatment for hazardous waste streams which are either hard to treat or expensive to treat.

At the 1999 funding levels, EPA anticipates that the cumulative number of USTs equipped to meet the requirements for leak detection, corrosion protection, spill containment, and overfill prevention will reach 647,800 (240,000 facilities) by the end of 1999 as a direct result of state and EPA efforts to promote and enforce compliance. Government and industry are paying a high price to clean up environmental contamination caused by releases from USTs installed before December 1988. Ensuring that new USTs comply with EPA's technical standards and that pre-1988 USTs are upgraded, replaced, or closed prevents the creation of another generation of leaking USTs. With cleanup costs ranging from $100,000 to more than $1 million where groundwater is contaminated, preventing releases clearly is a cost-effective means of reducing and, ultimately, nearly eliminating the health and environmental risks associated with UST releases. In short, resources invested in attaining this objective are solving a serious environmental problem, not just treating the symptoms.

By 1999, the Agency will have designed and put in place an information system for collecting chemical risk information through facilities' RMPs (which are required to be submitted by June 1999). EPA will analyze the data submitted to determine facilities and/or industrial sectors with significant chemical risks resulting from chemical inventories, industrial processes, and chemical accidents. Through focused outreach efforts to industry (including conferences, workshops, guidance, etc.), EPA will work with industry to reduce those chemical risks. Also by the end of 1999, an information system for analyzing risk information from facilities will be in place and baseline information will be established on the number of RMP facilities and the chemical risks throughout the country. This will make it possible for EPA to take steps to reduce that risk by 2005. Additional resources for this program in 1999 will develop state capabilities to take on this mandate and allow greater audit, review, and sharing of information about industry safety practices. EPA's current strategy is for states to implement the RMP program.

By the end of FY 1999, 400 additional facilities will be brought into compliance with the SPCC provisions of the oil pollution prevention regulation. The Oil Prevention program currently regulates approximately 435,000 facilities nationwide, and significantly enhances ongoing efforts to reduce the risk of oil spills from facilities that pose human health, ecological, and economic risks. This objective documents progress in bringing facilities into compliance with SPCC provisions of the oil pollution prevention regulation. The Clean Water Act (CWA) states that U.S. policy is that no oil shall contaminate U.S. waters, and authorizes the Agency to implement regulations toward that goal; the oil pollution prevention regulation was implemented in 1973. The Oil Pollution Act of 1990 (OPA) was enacted, in part, to expand prevention and preparedness capabilities and to provide an economic incentive to prevent spills through increased penalties and enhanced enforcement. Under CWA, OPA, and the oil pollution prevention regulation, EPA is responsible for assuring that regulated facilities have implemented spill prevention, control and countermeasures (SPCC) plans, which outline procedures for preventing and controlling oil spills. The major SPCC provisions include: (a) a written SPCC Plan, (b) certification of that plan by a registered Professional Engineer, secondary containment structures or drainage; and (c) periodic facility and equipment inspections. A 1995 SPCC Facilities Survey showed statistically that facilities that implement the SPCC provisions of the oil pollution prevention regulation spill less oil than those

that do not. Thus, when facilities comply with those regulatory provisions, there are fewer oil spills.

1998 Annual Performance Goals

- By 1998, a cumulative total of 1,927 facilities (57%) of existing hazardous waste management facilities, using a 1996 baseline, will have approved controls in place to prevent dangerous releases to air, soil, groundwater, and surface water.
- In 1998, issue industrial nonhazardous waste management guidance under RCRA.
- In 1998, conduct 20 outreach and technical assistance workshops to inform and educate industry on the Clean Air Act Section 112(r) RMP program requirements.
- In 1998, 4 states will implement the Clean Air Act Section 112(r) RMP prevention program.
- In 1998, EPA will provide 7 grants to states to assist LEPCs in implementing a prevention program.
- In 1998, EPA will complete draft and analysis for the final RCRA Phase I Waste Combustion Rule.
- In 1998, 200 additional facilities will be adequately prepared to respond to oil spills.
- By 1998, 616,000 underground storage tanks (USTs), equivalent to about 228,000 facilities, will meet EPA/state requirements for leak detection and upgrading.
- In 1998, 200 additional facilities will comply with the Spill Prevention, Control and Countermeasure (SPCC) provisions of the oil pollution prevention regulations.
- Facilities will be managed so as to prevent releases into the environment.
- By 1998, 2,298 (65%) of existing RCRA municipal solid waste disposal facilities in states will have approved controls in place to prevent dangerous releases to air, soil, groundwater and surface water.
- By 1998, complete development of prototype, site (generic) multimedia, multi chemical, mulitpathway cumulative exposure and risk assessment model for human health and ecosystem screening, and apply to HWIR chemicals.
- By 1998, develop a methodology to evaluate multiple exposure pathways for emissions from combustion facilities.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
02 Obj. Total Change	**$13,059.5**	**(1.7)**
Environmental Program & Management	$11,439.8	(1.1)
Science and Technology	$333.1	(0.6)
Oil Spill Response	$1,286.6	0.0

- (+$528,300 and 1.4 workyears EPM) will be redirected in Headquarters to expand RCRA program's efforts to improve children's health issues through a combination of scoping mercury treatment options and expanding outreach materials.

- (+$1,354,700 and 12 workyears EPM) to regional activities that will provide increased support for Geographically Focused Urban and Children's Health projects.

- (+$1,221,552 and 3.2 workyears EPM) will be redirected in Headquarters to improve alignment with risk, and scientific basis for RCRA rules, including an examination of leaching procedures, the surface impoundments study, and analysis of issues raised in regulatory petitions from the regulated community.

- (-$702,440 and -4.0 workyears EPM) from development of new standards and related studies in Land Disposal Restrictions Program, and from other projects that will be completed.

- (-$1,117,400 and -12.1 workyears EPM) from regional permitting activities to other agency priorities within the regions, from regional resources freed up as projects or portions of projects are completed, and from regional RCRA Permitting due to planned joint RCRA/CAA waste combustor permitting.

- (+$250,000 EPM) for program-related enhancements to the Agency's Integrated Risk Information System database.

- (+$131,700 EPM) for Regional scientific and technical equipment needed to support RCRA permitting and corrective action activities.

- +$444,200 redirection from the Private Sector Initiative within the Underground Storage Tank program to promote compliance with the December 1998 deadline for upgrading, replacing, or closing underground storage tanks ($294,700 within STAG, and $149,500 within EPM).

- (+$5,647,900 EPM) for the RMP program. These resources will be used to provide direct financial assistance to the states to develop and implement their own RMP program.

- (+$850,500 STAG) to assist Tribes implement their Emergency Planning and Community Right-to-Know activities.

- (+$562,300 Oil Spill) for doubling the number of facilities brought into compliance with the prevention provisions of the Clean Water Act and the Oil Pollution Act.

- (+$500,000 Oil Spill) to support tribes' preparedness, prevention, and response activities related to oil spills. The Agency will increase its interaction with tribes by assisting in identifying and evaluating oil pollution problems; developing oil pollution prevention schemes; investigating possible remediation options for existing oil contamination; and improving the planning and preparedness for responding to future oil spills.

Key Performance Measures	1998	1999
Number of Final Permit Determinations or Other Approved Controls in Place for Universe of RCRA Facilities	57% or 1,927 of 3,380	62% or 2,080 of 3,380
Promulgation of Phase I Waste Combustion rule	30-Sept-98 (draft)	31-Dec-98
Industrial Nonhazardous Waste Management Guidance Issued; training and outreach on guidance	30-Sep-98	30-Sep-99
Number of Municipal Solid Waste Facilities with Approved Controls	2298	2475
Industry Specific Model RMPs	4 Model RMPs	N/A
Outreach/Technical Assistance Workshops to industry on RMPs	20 Workshops	N/A
States Implementing RMP Programs	4 states	5 states
Grants Issued to States for LEPC Prevention Programs	7 Grants	N/A

LEPCs Implementing Prevention Programs	N/A	190 LEPCs
Facilities Submitting RMPs	N/A	33,000 facilities
SPCC - Compliant Facilities	200 Facilities	400 Facilities
FRP Plans Approved	200 Facility Response Plans	200 Facility Response Plans
USTs Meeting EPA Requirements	616,000 USTs	647,800 USTs
OPA Case referrals and Admin. Enforcement actions	30	30
HWIR screening model (human&eco)		
Beta version model framework for HWIR	9/30/98	
Multiple exposure pathway assessment document	9/30/98	
Support to risk assessors/permit writers	9/30/98	
Analysis of input for multiple exposure methodology		9/30/99
Media-specific assessment of exposure pathway		9/30/99
Uncertainty analysis using Monte Carlo		9/30/99
Technical support to OSW on HWIR		9/30/99
Beta conversion for comprehensive modeling system		9/30/99

Conclusion

The Agency must continue to maintain the appropriate level of human health protection from hazardous and solid wastes, chemical accidents, oil spills, and leaking underground storage tanks. Yet, avoiding over-regulation and

unnecessarily burdensome requirements is also important. Therefore, the Agency is taking several steps to streamline regulations. EPA is working to allow low-risk wastes to be managed as municipal solid waste or as industrial nonhazardous waste, to reduce administrative burdens on states and industry. All RCRA programs advance the Agency's goals for better waste management. These programs: (1) minimize the quantity and toxicity of waste; (2) ensure environmentally sound management of solid and hazardous wastes; and (3) prevent accidental releases of hazardous substances, to protect the air, soil, and water from contamination. The Agency has set longer-term targets for the management of the three waste streams (hazardous, industrial D, and municipal). By 2005, 90% of hazardous waste facilities, and 100% of municipal waste landfills, will have approved controls in place. For newly created Industrial D facilities, the level is set at 90%. For waste combustion a performance-based target to reduce facility emissions of dioxins and furans by 90%, and particulate matter and acid gases by 50%, from levels emitted in 1994, has been established.

The Agency brings administrative actions and referrals against facilities for failure to comply with oil pollution Spill Prevention Control and Countermeasures (SPCC) regulations and response plan regulations, and enforces cleanups of spills by responsible parties. The Agency's actions promote compliance with Federal requirements designed to protect the environment from the devastating consequences of oil spills.

The research described supports the objective of managing facilities to prevent releases into the environment, contained within the Agency's Better Waste Management Goal. This objective calls for, by 2008: (1) providing multimedia, multi pathway exposure and risk models for estimating the risks from wastes, waste streams and waste facilities; (2) developing methods and models for predicting human exposures via indirect or non-inhalation pathways associated with combustion facilities; and (3) providing improved techniques to monitor and to control and prevent emissions from incinerators and industrial systems burning wastes. In the current program, information is lacking regarding the exposures and risks associated with wastes managed under RCRA Subtitle C -- both across media and for multiple pathways of exposure. EPA will continue its effort to develop better cost effective data, ensuring more efficient regulatory decision-making.

The Agency is also requesting additional resources in 1999 to meet the responsibilities under the Clean Air Act to review and audit facilities' Risk Management Plans (RMPs). A successful RMP program, primarily at the state level, will reduce the risks associated with chemical accidents.

Key Performance Measures Verification

CERCLIS is the official database used by Superfund and Oil programs to help track and store national site information. CERCLIS was developed in accordance with Agency Life Cycle Guidance which establishes criteria for software development, and it adheres to Agency platform, software and hardware standards.

The Agency has defined the various roles and responsibilities of key individuals who are responsible for development, operation and maintenance of CERCLIS. The Headquarters sponsor of the data is responsible for (a) identifying the data elements needed, (b) defining the data elements, and (c) informing the appropriate people that the information needs to be collected and loaded into CERCLIS. The regional person who owns the data (e.g., Superfund remedial project manager) is responsible for reviewing, verifying, and validating his/her data in CERCLIS. The Information Management/Program Measurement Center under the Office of Emergency and Remedial Response (OERR) responsibility is to ensure: (a) there is a data element with an accurate definition for all data; (b) the data element is accessible to searches and can be retrieved for reports; (c) the source for the data is referenced in the system; (d) the data is accurately entered or converted into the system; (e) data from other sources is considered draft until it has been checked against its source data, and is found acceptable; and (f) data integrity is maintained in all system applications and reports.

To assure data accuracy and control, the following administrative controls are in place: (1) Superfund/Oil Implementation Manual (SPIM) --This is the program management manual which details what data must be reported; (2) Report Specifications --Report specifications are published for each report detailing how reported data are calculated; (3) Coding Guide --It contains technical instructions to data users such as regional IMCs, program personnel, report owners and data input personnel; (4) Quality Assurance (QA) Unit Testing --Unit testing is an extensive QA check made by the report programmer to assure that its product is producing accurate data that conforms to the current specification; (5) QA Third Party Testing --Third party testing is an extensive test made by an independent QA tester to assure that the report produces data in conformance with the report specifications; (6) Regional CERCLIS Data Entry Internal Control Plan --The data entry internal control plan includes: (a) regional policies and procedures for entering data into CERCLIS; (b) a review process to ensure that all Superfund accomplishments are supported by source documentation; (c) delegation of authorities for approval of data input into CERCLIS; and (d) procedures to ensure that reported accomplishments meet accomplishment definitions.

EPA will measure the validity of our measures by determining the extent to which achievement of those measures is a true indicator of successful accomplishment of our objectives. This involves assessment of the objectivity, consistency, simplicity, accuracy, representativeness, and timeliness of the measures, in comparison with the objectives in our annual plan. Validation steps are therefore more evident in the planning stages than during data collection and aggregation.

Data verification procedures must ensure that the valid data collected at the field or facility level are not corrupted or confused before they are presented, aggregated, and analyzed at the Federal level. To the extent possible, the Agency conducts data verification through comparing results of data collection with similar collections or repetition. Correlation of results is a strong mechanism for data verification.

Environmental monitoring data (such as measures of combustion facility emissions) will meet standard quality assurance/quality control (QA/QC)

procedures for the RCRA program, as documented in the Office of Solid Waste Quality Assurance Management Plan and the Guidebook for QA/QC Procedures for Submission of Data for the Land Disposal Restrictions Program.

Because the RCRA statute provides for delegation of program implementation to the states, the majority of data for the RCRA information system (RCRIS) and the Biennial Reporting System (BRS), originates with and is received from the states. In addition the system architectures provide states with the ability to use software other than the national software managed by EPA for their data management activities provided that they supply the mandatory data to EPA in the required quality and format. The Agency consolidate data from the states which is then used to construct the national databases used for program oversight and public information.

The national RCRA software provides a range of functions to ensure data quality. Both systems employ on-line data validation checks (e.g., range limits, mandatory data entry for required elements before saving of a record) to assure data type integrity as well as batch edits (performed when data is extracted and consolidated) to enforce program rules requiring associated consistency across data components for which on-line edits are impracticable or inappropriate. Beyond the system enforced data quality controls, states and regions who implement the program perform data validation reviews to ensure that the data properly inventories the essential program activities and is programmatically correct. During periodic program reviews, EPA headquarters also confirms the timeliness and accuracy of key data elements which support national program status reporting. Training on use of the systems is provided on a regular basis, usually annually, depending on the nature of system changes and user needs.

Non-hazardous waste management is delegated to the states. Federal guidance is provided, but no actual federal program implementation exists. For this reason, individual states collect and verify data on waste management practices for Industrial D and municipal wastes in accordance with local needs. The Agency receives aggregate data more indirectly than in the case of hazardous waste, through reports, studies, or statistical sampling rather than a national data system.

Facilities will be required to submit information on the chemical risks in their facilities and how they manage those risks (Risk Management Plans) in 1999. This information will be placed into a database accessible to Federal, state, and local officials as well as the public. The information will be verified through regional and state facility audits and reports. LEPCs will be contacted periodically to verify risk reduced in their community. ERNS database will be used to confirm releases reported in RMPs.

States and LEPCs will be surveyed to determine the extension and current status of their chemical emergency preparedness and prevention program. A database will be kept on the status of States which have taken the RMP program. Regions and headquarters will routinely enter information on the status of each states effort to manage the RMP program. Regions will ensure quality of the data through quarterly reviews of the states and random checks of LEPCs.

This research program is consistent with ORD's mission and the enumerated goals to (1) Develop Scientifically Sound Risk Assessment Approaches; (2) Integrate Human and Ecological Assessment Methods; (3) Provide Cost-Effective Risk Prevention/Management Approaches; (4) Provide Credible Methods, Models and Guidance; and (6) Provide Environmental Leadership & Develop Partnerships. The science conducted in this area and will support all programs conducting multimedia, multi pathway exposure and risk assessments and will provide data to assist state and local regulatory officials to make informed decisions on the most effective way to reduce releases from waste generating facilities.

EPA has several strategies to validate and verify performance measures in the area of environmental science and research. The Agency has implemented a risk-based research planning process to use risk assessment and risk management as principal priority-setting criteria. EPA conducts annual research program reviews to both evaluate the status and accomplishments of its research and determine planning priorities. To better draw upon the expertise of the environmental academic community, EPA created the Science to Achieve Results (STAR) program of peer-reviewed, mission-driven extramural grants; the Agency is also working with various professional societies to identify research issues.

Chief among the Agency's validation and verification mechanisms for research is a rigorous peer review process. In a July 1997 memorandum, EPA's Deputy Administrator states that peer review will be expanded Ato include both the major work products provided in the past and...all scientific and technical products supporting Agency decisions...@ This expanded and strengthened focus on peer review will help ensure that the performance measures listed here are verified and validated by external organizations. The Agency utilizes peer review throughout the research planning and implementation process, both to ensure that planned research addresses critical knowledge issues within EPA's mission, and to assess the quality of scientific research plans, products, and proposals. This is accomplished through the use of independent entities such as the Science Advisory Board (SAB)and the Board of Scientific Councillors (BOSC). The BOSC, established under the Federal Advisory Committee Act, will even examine the way the Agency uses peer review, as well as the management of its research and development laboratories.

EPA's external research program undergoes extensive peer review. Proposals from the external scientific community are peer-reviewed and projects are then selected for funding through grants or cooperative agreements. In addition, Requests for Applications (RFAs) under the STAR program are often developed jointly with outside partners such as the National Science Foundation. In this way, EPA has developed a mechanism by which to check the quality and relevance of its research program.

The Office of Research and Development Management Information System (OMIS) will be another accountability tool used to verify and validate performance measures. The recently developed GPRA structure will be incorporated into OMIS to ensure consistent maintenance and reporting, resulting in greater accuracy and consistency of information to users.

Statutory Authority

Clean Water Act (CWA) (33 U.S.C. 1251-1387)

Oil Pollution Act (OPA) (33 U.S.C. 2701-2761)

Clean Air Act

Energy Policy Act of 1992

Waste Isolation Pilot Project

Resource Conservation and Recovery Act (RCRA)

Objective #3: Respond to All Known Emergencies

By 2005, EPA and its partners will have the capability to successfully respond to 100 percent of known emergency actions at facilities defined under the Oil Pollution Act (OPA) and the Emergency Planning and Community Right-to-Know Act (EPCRA), to reduce the risk to human health and the environment.

Overview

The President's Budget requests a total of $20,339,400 and 124 workyears for the activities under this objective. In this objective, the Agency improves Federal and local governments' ability to respond to chemical releases, terrorist acts, radiological emergencies and oil spills. The Agency's Chemical Emergency Preparedness and Prevention program and Oil Spill program are integral components in preventing and responding to environmental and public health emergencies.

Hazardous chemical releases have caused billions of dollars in property damage, serious damage to the environment and hundreds of deaths and injuries during the past 30 years. Thousands of chemical releases are reported to the National Response Center each year, and the Agency estimates nearly 1,000 severely toxic accidents occur annually. The Agency supports nationwide efforts to prevent, prepare for and respond to chemical accidents by: (1) providing leadership and assistance to state and local governments and industry; (2) reducing risks by removing immediate health threats; (3) providing states and communities with information on chemical hazards and risks and information management tools; and (4) developing regulations and guidance to promote public safety and health and environmental protection.

Included among the Agency's priorities has been development of the Chemical Accident Investigation program. Created in 1995 as a National Performance Review initiative, EPA and OSHA have jointly investigated and determined root causes of major chemical accidents and releases. Under an interagency Memorandum of Understanding, our agencies have collaborated on a number of investigations, issued reports and disseminated critical information on accident findings through special alerts to stakeholders to inform them of potential hazards and preventive actions. EPA and OSHA are also considering changing regulations based on information gathered from accident investigations. However, the future of the joint program is uncertain. Language in the 1998 Appropriations Act establishing the Chemical Safety and Hazard Investigation Board will change EPA/OSHA's role and responsibilities. The Agency is currently studying its relationship with the Board and evaluating a range of legal, policy, administrative and technical issues.

EPA's anti-terrorism program is designed to protect public health and the environment from the threats posed by nuclear, biological and chemical materials released during terrorist incidents. The Agency participates with other Federal agencies in crisis and consequence management phases of terrorist incident response exercises; prevents and prepares for deliberate release situations; and coordinates its efforts with those of other Federal agencies to ensure that anti-terrorism programs are integrated with other state and local emergency preparedness and response structures, programs and systems (such as State Emergency Response Commission, Local Emergency Planning Committees, and the National Response System).

The Agency works to improve and enhance national emergency planning and response capabilities at the Federal, state, and local levels. The Agency participates in the government-wide initiative to assist the nation's largest and most vulnerable communities in preparing to respond to terrorist attacks. A total of $7,388,000 is requested for federal response planning and coordination activities.

Under the National Contingency Plan and the Federal Radiological Emergency Response Plan, the Agency assists the regions, states, and other Federal agencies in responding to radiological emergencies; offers field monitoring expertise, mobile radio analysis, and dose assessment; and, develops Protective Action Guidance for use by state/local authorities. EPA also has one of the nation's top radiological labs with the ability to not only do lab analyses, but also provide data analysis in terms of dose and risk to the public. The Agency request within this objective a total of $3,178,400 for radiation-related activities.

Each year more than 12,000 oil spills occur, well over half of them in EPA's prevention or response zone. On average there is one spill of greater than 100,000 gallons per month from a universe of 440,000 regulated facilities and the entire transportation network. Oil spills contaminate drinking water supplies; cause fires and explosions; kill fish, birds, and other wildlife; destroy habitats and ecosystems; and impact the food chain. There are also serious economic consequences of oil spills because of their impact on commercial and recreational uses of water resources.

The Oil Spill program takes a comprehensive approach to integrate prevention, preparedness, and response as mandated and authorized in the Clean Water Act, section 311, and the Oil Pollution Act of 1990. The Agency responds to and monitors oil spills, and improves the quality and quantity of the data provided in Area Contingency Plans, especially concerning environmentally and economically important sensitive areas. This leads directly to improvements in response preparedness. The Agency also develops Geographical Information Systems (GIS) and GIS-generated maps which are vital in the event of an accident.

The area contingency planning process prepares industry and government for oil spill responses, focusing primarily on large-scale spill responses. Area contingency planning also assists facilities in identifying key concerns as the plans are being developed. Area planning includes, among other efforts: gathering data on environmentally sensitive areas and other pertinent locational data (such as locations of oil storage facilities and spill responders);

coordination between Federal, state, and local officials on priorities for planning, considering issues such as highest risk locations and response resources available; and coordination among the same officials on logistics and control issues during response actions. Within this objective, the Agency requests a total of $8,120,500 for the Oil Spill program.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 03 Respond to All Known Emergencies	**$20,774.3**	**$18,884.7**	**$20,339.4**
Environmental Program & Management	$4,575.3	$2,498.1	$2,655.7
Science and Technology	$1,470.5	$1,610.3	$1,613.9
Oil Spill Response	$6,908.5	$6,987.6	$8,120.5
Hazardous Substance Superfund	$7,820.0	$7,788.7	$7,949.3
Total FTE	123.8	123.9	123.9

1999 Annual Performance Goals

- In 1999, EPA will provide anti-terrorism training to 30 communities.
- In 1999, EPA will update 1 Area Contingency Plan, lead 1 area-wide preparedness drill, and participate in 10 Coast Guard-led or industry-led preparedness drills.
- In 1999, EPA will respond to or monitor all significant oil spills in the inland zone. EPA typically responds to 85 oil spills and monitor 139 oil spill cleanups per year.
- In 1999, EPA will complete initial assessments and a plan for anti-terrorism training in 70 more communities.

In 1999, the Agency's annual performance goals focus on activities that increase protection of public health and the environment. These include promoting effective response to chemical and radiological accidents, oil spills and terrorist events. Because the activities under this objective can take months or years to complete, some 1999 accomplishments were funded in prior years. In addition, some of the activities funded in 1999 will count as accomplishments in future years.

The Agency's Chemical Investigations program protects the public from being exposed to dangerous chemicals by helping facilities improve chemical safety. While establishment of the Chemical Safety and Hazard Investigation Board will

affect the responsibilities of EPA's joint investigation program with OSHA, the Agency will take steps to ensure essential work is completed. In 1999, the Agency requests will complete investigations that are currently under development and take actions in response to the findings. We are also in the process of determining how the Agency can assist with the newly established board as necessary during its start-up phase.

In 1999, the Agency's anti-terrorism program will focus on educating our stakeholders on the aspects of preparing for and responding to acts of radiological, biological and chemical acts of terrorism. The Agency will provide appropriate training to response personnel for response to terrorist events. The Agency, in coordination with other Federal partners, will provide Federal, state and local planners and responders training to understand the connections between the National Response System and the National Domestic Preparedness Program for terrorist events, as well as the unique planning and response features associated with nuclear, biological and chemical terrorist events. Agency activities will be conducted as part of the Federal Government's initiative to ensure that state and local emergency officials are adequately trained to effectively respond to a terrorist incident. These activities include: conducting anti-terrorism training, participating in exercises, and assisting communities in upgrading their emergency plans to address anti/counter-terrorism hazards.

The Oil Spill Response Program will in 1999 monitor and respond to oil spills and provide specialized site support through the Environmental Response Team (ERT). The Agency will improve the quantity and quality of the data provided in Area Contingency Plans, especially concerning environmentally and economically sensitive areas. Improved data will lead directly to improvements in response preparedness. Although all inland areas have developed Area Contingency Plans, they are at different levels of completeness and none satisfy all statutory requirements.

A major thrust, in 1999, will be the development of Geographical Information Systems (GIS) generated electronic systems and maps. Data that is collected can be used during the planning process to evaluate and prioritize potential response activities throughout the entire area. Much of this desired data is not available to the Agency in one location or in a usable format. The GIS electronic mapping will provide the vital information needed in the event of an incident and the necessary analysis of that data to support an emergency response and quickly identify sensitive areas impacted. This investment provides significant returns, including reducing risk to human health and the environment; supporting response efforts; and aiding planning and land use development decisions through collection and storage of environmental data and other response-related elements (response contractors, hospitals, emergency lodging, etc.) Also, this system, although mandated by and developed under the authority of the Oil Pollution Act, could be used to support planning and response and for other Agency programs, such as Superfund.

1998 Annual Performance Goals

- In 1998, EPA will provide 27 communities with counter-terrorism training, assessment, and exercises.

- In 1998, EPA will update 1 Area Contingency Plan, lead 1 area-wide preparedness drill, and participate in 10 Coast Guard-led or industry-led preparedness drills.

- In 1998, EPA will respond to or monitor all significant oil spills in the inland zone. EPA typically responds to 85 oil spills and monitors 139 oil spill cleanups per year.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
03 Obj. Total Change	**$1,454.7**	**0.0**
Environmental Program & Management	$157.6	0.0
Science and Technology	$3.6	0.0
Oil Spill Response	$1,132.9	0.0
Hazardous Substance Superfund	$160.6	0.0

- (+$972,000 Oil Spills) For improving the quantity and quality of data used in Area Contingency Planning to meet the detailed and extensive requirements of the program. This increase in planning and coordination will result in faster and more effective responses, thereby reducing the damage caused by oil spills. Resources for this effort are redirected from the Superfund program.

Key Performance Measures	1998	1999
Oil Spills Responded to	85 Spills	85 Spills
Oil Spills Monitored by EPA	139 Spills	139 Spills
Area Contingency Plans Updated/yr.	1 ACP	1 ACP
EPA-led Area-wide Prep. Drills/yr	1 Drill	1 Drill
USGC or Industry-led Prep Drills/yr.	10 Drills	10 Drills
Comm. Recvng. Anti-terrorism Training	27 communities	30 Communities
Comm. Recvng. Initial Assessment and Plans for Anti-terrorism Training	0	70 Communities

Conclusion

Under this objective, the Agency will work with Federal and local partners to protect the public and the environment from chemical accidents, oil spills and terrorist events, including events and accidents involving radiological substances.

Increasing threats and incidents of domestic and international terrorism (such as the Oklahoma City bombing and the Tokyo sarin release), have prompted the Federal Government to strengthen and expand its anti/counter-terrorism programs. As a result, a number of measures have been established to ensure that the United States is prepared to combat terrorism. They include: reducing vulnerabilities to terrorism, deterring and responding to terrorist acts and having capabilities to prevent and manage the consequences of terrorist uses of nuclear, biological and chemical (NBC) weapons. As an Agency with significant responsibility for carrying out crisis and consequence management (threat analysis, monitoring, sampling, hazard reduction, cleanup and restoration) during responses, EPA has an important role to play in implementing this new policy. To meet our obligations, it is essential that we concentrate on revising and upgrading our emergency capabilities to enable us to effectively support a terrorist incident should one occur.

The Oil Pollution Act was enacted in part, to expand prevention and preparedness capabilities and to provide an economic incentive to prevent spills through increased penalties and enhanced enforcement. Under the oil pollution prevention regulations and the National Contingency Plan (NCP), EPA is responsible for: (1) developing Area Contingency Plans to address the removal of a worst case discharge of oil and to mitigate or prevent a substantial threat of such a discharge for facilities in the inland zone, and (2) responding to or monitoring oil spills in the inland zone, as necessary.

Under this objective the Oil program will continue to: (1) publish updates to area contingency plans in each of the 13 originally-designated areas, (2) coordinate with other Agencies participating in the Area Planning Committee for area planning, (3) lead one area wide preparedness drill, (4) participate in ten preparedness drills led by the U.S. Coast Guard or by industry and (5) respond as appropriate to all significant oil spills.

Key Performance Measure Verification

CERCLIS is the official database used by Superfund and the Oil Spill programs to help track and store national site information. CERCLIS was developed in accordance with Agency Life Cycle Guidance which establishes criteria for software development. It adheres to the Agency platform, software and hardware standards.

The Agency has defined the various roles and responsibilities of key individuals who are responsible for development, operation and maintenance of CERCLIS. The Headquarters sponsor of the data is responsible for: (1) identifying the data elements needed, (2) defining the data elements, and (3) informing the

appropriate people that the information needs to be collected and loaded into CERCLIS. The regional person who owns the data (e.g., Superfund remedial project manager) is responsible for reviewing, verifying, and validating his/her data in CERCLIS. The Information Management/Program Measurement Center under the Office of Emergency and Remedial Response (OERR) responsibility is to ensure; (1) there is a data element with an accurate definition for all data; (2) the data element is accessible to searches and can be retrieved for reports; (3) the source for the data is referenced in the system; (4) the data is accurately entered or converted into the system; (5) data from other sources is considered draft until it has been checked against its source data, and is found acceptable; and (6) data integrity is maintained in all system applications and reports.

To assure data accuracy and control, the following administrative controls are in place: (1) Superfund/Oil Implementation Manual (SPIM) --This is the program management manual which details what data must be reported; (2) Report Specifications --Report specifications are published for each report detailing how reported data are calculated; (3) Coding Guide --It contains technical instructions to data users such as regional IMCs, program personnel, report owners and data input personnel; (4) Quality Assurance (QA) Unit Testing --Unit testing is an extensive QA check made by the report programmer to assure that its product is producing accurate data that conforms to the current specification; (5) QA Third Party Testing --Third party testing is an extensive test made by an independent QA tester to assure that the report produces data in conformance with the report specifications; (6) Regional CERCLIS Data Entry Internal Control Plan --The data entry internal control plan includes: (a) regional policies and procedures for entering data into CERCLIS; (b) a review process to ensure that all Superfund accomplishments are supported by source documentation; (c) delegation of authorities for approval of data input into CERCLIS; and (d) procedures to ensure that reported accomplishments meet accomplishment definitions.

Information on incorporation of counter-terrorism planning will be obtained through the survey to LEPCs. In addition, the ORCA database will be reviewed to determine if all hazard plans include a counter-terrorism appendix. Regions will conduct random checks with their LEPCs to verify information. To secure accident investigation information, EPA will conduct follow-up interviews with facilities where accidents have occurred.

Statutory Authority

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. 9601-9675)

Clean Air Act (CAA) (42 U.S.C. 7601-7671q)

Clean Water Act (CWA), Section 311

Emergency Planning and Community Right-to-Know Act (EPCRA) (42 U.S.C. 11001-11050)

Resource Conservation and Recovery Act (RCRA) (42 U.S.C. 6901-6992k)

Oil Pollution Act of 1990

Goal 6: Global and Cross-Border

Goal 6: Reduction of Global and Cross-Border Environmental Risks . . VI-1
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Environmental Protection Agency

1999 Annual Plan Request to Congress

Reduction of Global and Cross-Border Environmental Risks

Strategic Goal: The United States will lead other nations in successful, multilateral efforts to reduce significant risks to human health and ecosystems from climate change, stratospheric ozone depletion, and other hazards of international concern.

Goal Summary
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Reduction of Global and Cross-border Environmental Risks	**$335,952.1**	**$236,144.4**	**$395,960.5**
Obj. 01 Reduce Transboundary Threats: Shared North American Ecosystems	$122,113.7	$99,730.2	$122,172.8
Obj. 02 Climate Change	$175,299.7	$109,218.1	$230,644.0
Obj. 03 Stratospheric Ozone Depletion	$27,381.4	$17,321.8	$26,914.3
Obj. 04 Protect Public Health and Ecosystems From Persistent Toxics	$4,155.0	$4,250.8	$6,873.7
Obj. 05 Prevent Degradation of the Marine and Polar Environments	$1,318.2	$1,307.7	$1,397.5
Obj. 06 Achieve Cleaner and More Cost-Effective Practices	$5,684.1	$4,315.8	$7,958.2
Goal Total FTE	443.3	448.7	527.4

Ecosystems and transboundary pollutants do not respect international boundaries. As a result, unilateral domestic actions of the U.S. are inadequate to achieve some of EPA's most important environmental goals. Reduction of global and cross-border environmental risk is important because of the significant problems that originate in other countries and may significantly impact U.S. investments in environmental protection. Achieving our environmental goals requires us to work with other countries to address external sources of pollution impacting human health and the environment of our nation. Conversely, the U.S. also holds itself responsible for preventing or minimizing the impacts of transboundary pollution originating here.

Efforts under this goal demonstrate EPA's continued leadership to build international cooperation and technical capacity that are essential to prevent harm to the global environment and ecosystems that we share with other nations. A coordinated international response is needed to confront the climate change threat, depletion of the stratospheric ozone layer, transboundary circulation of toxics, and other environmental issues significant to the interests of the United States. Continued leadership by the U.S. and EPA is necessary to successfully address these issues in a manner that provides efficient and sustainable long-term solutions.

The President's Budget requests $ 395,960,500 and 527.4 total workyears for the Reduction of Global and Cross-Border Environmental Risks goal, an increase of $ 159,816,100 and 78.7 workyears over 1998. In order to maintain U.S. leadership role in this area, EPA will increase its activities to address Climate Change by focusing on efforts to achieve stabilization of greenhouse gas concentrations in the atmosphere, as well as focusing on minimizing the global impacts of greenhouse gas emissions originating in the U.S. In addition, EPA's activities will include programs that reduce persistent organic pollutants and selected metals that circulate in the environment at global and regional scales.

The resources requested in this budget will enable the Agency to meet a number of important performance goals in 1999. The most significant of these include:

- Sixteen additional water/wastewater projects along the Mexican border will be certified for design-construction.

- As part of the President's Climate Change Technology Initiative, reduce U.S. greenhouse gas emissions in total by 40 million metric ton carbon equivalent through partnerships with businesses, schools, state and local governments and other organizations.

- Reduce U.S. energy consumption by 45 billion kilowatts.

- Conduct preliminary assessment of consequences of climate change at three geographic locations (mid-Atlantic, Gulf Coast, and Upper Great Lakes).

- Ensure that domestic consumption of class II hydrochlorofluorocarbons (HCFCs) will be restricted to below 208,400 metric tons and domestic exempted production and import of newly produced class I CFCs and halons will be restricted to below 130,000 metric tons.

- Obtain international agreement on criteria for selecting Persistent Organic Pollutants (POPs) to be covered in a new global POPs treaty, and on capacity building activities to support the convention's implementation.

- Deliver 30 international training modules; implement 6 technical assistance or technology dissemination projects; implement 5 cooperative policy development projects; and disseminate information products on U.S. environmental technologies and techniques to 2,500 foreign customers.

HIGHLIGHTS:

Reduce Transboundary Threats: U.S.-Mexico Border

The 1999 President's Budget requests $108,010,400 and 23.1 total workyears, of which $100 million will be direct federal grants, to reduce transboundary threats to human health and shared ecosystems along the U.S.-Mexico border.

Along the 2,000 mile U.S.-Mexico border, communities live side-by-side, sharing the benefits of rapid economic growth and the subsequent environmental problems. Today, there are over 11 million border residents, a population that has doubled in the last 15 years. The effects of urban and industrial growth have contributed to the problems of inadequate environmental infrastructure. In the Mexico border area, programs are designed to 1) improve air quality, 2) provide wastewater and drinking water services to underserved communities, 3) manage chemical accidents, 4) support pollution prevention programs that will over the long term reduce the adverse health and environmental effects of toxic pollution, and 5) reduce and effectively manage hazardous and solid wastes.

The Agency will also continue to cooperate with its Mexican counterpart agencies to implement the provisions of the LaPaz agreement and the Border XXI Framework Document which provides a long term strategy to improve public health and the environmental and essential natural resources in the border.

Climate Change

The 1999 President's Budget requests $230,644,000 and 331.1 total workyears for Climate Change, of which $205,407,600 and 251.6 total workyears are for the Climate Change Technology Initiative.

There is scientific consensus that global change threatens human health and the environment; EPA must address this problem to reduce adverse environmental impacts. In 1997, the framework developed under the Kyoto Protocol established significant targets for greenhouse gas reductions. The agreements reached in Kyoto provide an important opportunity to achieve meaningful reductions in greenhouse gases with an environmentally sound and economically strong strategy. EPA will play an integral role in the President's Plan under the Climate Change Technology Initiative (CCTI). For several years, EPA has been building successful partnerships to reduce greenhouse gas emissions with businesses and other organizations in all sectors of the economy. Many of these programs focus on the deployment of existing, proven technologies that reduce emissions but are underutilized. These partnerships will continue to be the foundation for achieving greenhouse gas reductions beyond 2000.

Under CCTI, EPA will expand its effort in each sector of the economy in order to meet the targeted emissions reductions that protect the environment while promoting economic growth. In 1999, there are key areas where EPA is expanding its effort. These include: 1) Industry Initiatives - EPA will consult with key industries to develop greenhouse gas reduction strategies, promote the deployment of clean technologies, and build a program that credits industry for early action; 2) Transportation Initiatives - EPA will accelerate its efforts under the Partnership for a New Generation of Vehicles (PNGV). PNGV will develop

technology for delivery and long-haul trucks that achieve significant increases in fuel economy, as well as, meeting stringent emission targets; 3) Buildings Initiatives - promote GHG reduction and improve energy performance of facilities by increasing awareness of energy efficient technology that is applicable for both residential and commercial buildings; and 4) Domestic and International Outreach to State and local entities to integrate Climate Change into programs and policies and engage developing countries in the implementation of Climate Change protocols.

Stratospheric Ozone Depletion

The 1999 President's Budget requests $26,914,300 and 34.4 total workyears to work towards recovery of ozone concentrations in the stratosphere.

The United States has signed the Montreal Protocol on Substances that Deplete the Ozone Layer. Through this international treaty, EPA will implement and enforce rules controlling the production and emission of ozone depleting compounds, and identify safer alternatives and promote their use to curtail ozone depletion. In addition, EPA will continue to provide financial support to the Montreal Protocol Multilateral Fund.

EPA will focus on domestic and international production phaseout of five ozone-depleting chemicals and chemical classes, promote more intensive recycling programs in the U.S. and abroad, enhance environmental data development and public outreach aimed at informing the public of risks of overexposure to UV radiation, and encourage earlier voluntary phaseout of CFCs and HCFCs in developing countries.

Protect Public Health and Ecosystems from Persistent Toxics

The 1999 President's Budget requests $6,873,700 and 39.3 total workyears to reduce the risks to U.S. human health and ecosystems from selected toxics that circulate in the environment at global and regional scales, consistent with international obligations.

Selected toxics which can persist, bioaccumulate and move long distances pose serious risks to human health and the ecosystem in the U.S., not to mention in remote regions where the substances may not be produced or used. The actions of individual nations to control the adverse effects of these persistent bioaccumulative toxics (PBTs) often are insufficient because of the long-range transport of such substances. Thus, it takes coordinated international action to reduce the risks posed by PBTs globally, let alone in the U.S.

As part of the Agency-wide, multi-media collaborative effort to reduce risks associated with priority PBTs, the Agency will work to reduce the risks associated with priority PBTs through the Binational Strategy, the Commission for Environmental Cooperation, the Persistent Organic Pollutants international negotiations, and further national prioritization of chemicals for coordinated reduction strategies.

Achieve Cleaner and More Cost-Effective Practices

The 1999 President's Budget requests $ 7,958,200 and 37.6 total workyears to increase the application of cleaner and more cost-effective environmental practices and technologies in the U.S. and abroad through international cooperation.

As part of the Agency's international technology and technical assistance programs, EPA will provide access to microbiologically safe drinking water and the protection of drinking water sources in developing nations. This priority is consistent with the Administrator's interest in improving the environmental health of children, who are most vulnerable to water-borne diseases. In 1999, EPA proposes the "Ensuring Children's Health through Microbiologically Safe Drinking Water and Adequate Sanitation" initiative. The specific focus area in this initiative will be the improvement of children's health in less developed countries through provision of safe drinking water and adequate sanitation. The initiative will include environmental technology transfer and environmental management capacity building components.

Environmental Protection Agency

1999 Annual Plan Request to Congress

Reduction of Global and Cross-Border Environmental Risks

Objective #1: Reduce Transboundary Threats, Shared North American Ecosystems

By 2005, reduce transboundary threats to human health and shared ecosystems in North America consistent with our bilateral and multilateral treaty obligations in these areas, as well as our trust responsibility to tribes.

Overview

EPA's activities under this objective address transboundary environmental threats in the Great Lakes as well as U.S. border areas and in shared North American ecosystems. Activities focus on the Great Lakes Program, the U.S.-Mexico Border, the U.S.-Canada Border and the North American Commission for Environmental Cooperation (NACEC) created under the North American Free Trade Agreement (NAFTA).

Within this objective, the Agency is requesting $100,000,000 for activities along the U.S./Mexico Border. Along the 2,000 mile U.S.-Mexico border, communities live side-by-side, sharing the benefits of rapid economic growth and the subsequent environmental problems. Today, there are more than 11 million border residents, a population that has doubled in the last 15 years. The effects of urban and industrial growth has contributed to the problems of inadequate environmental infrastructure. In the Mexico border area programs are designed to (1) improve air quality, (2) provide wastewater and drinking water services to under served communities, (3) manage chemical accidents, (4) support pollution prevention programs that will over the long term reduce the adverse health and environmental effects of toxic pollution, and (5) reduce and effectively manage hazardous and solid wastes. A significant portion of residents along the U.S.-Mexico border area are without adequate basic services such as potable water and wastewater treatment and the problem has become progressively worse in the last few decades due to expanding urbanization. Identified wastewater infrastructure needs along the U. S./Mexico border are estimated to be $2.8 billion. The Agency has established a goal of 32 total high priority projects to have been certified for design-construction by the end of FY 1999, 16 of which will be certified in 1999. The National Water Program has established a Year 2000 goal to increase by 7 percent the population in the Mexico border area served by adequate drinking water and wastewater treatment and collection systems. This goal will be achieved through the design and construction of water infrastructure. Direct grants are also provided to the Indian Health Service or appropriate tribal organizations to support the construction of drinking water and wastewater treatment infrastructure on Indian reservations and other tribal lands on the U.S. side of the border region. The Agency will cooperate with its Mexican counterpart agencies to implement the provisions of the LaPaz Agreement and the Border XXI Framework Document which provide a long term strategy to improve public health and the environmental and

essential natural resources in the border. Nine binational working groups will address key issues working closely with state and local agencies on both sides of the border. EPA will also work closely with the Border Environment Cooperation Commission (BECC) and the North American Development Bank (NADBank) to support the financing and construction of wastewater treatment and solid waste facilities. EPA is committed in 1999 to supporting in the amount of $1,000,000 the U.S.-Mexico Foundation for Science in cooperation with the programs, activities and projects of the BECC, NADBank, International Boundary and Water Commission and the Mexican Comision Nacional de Agua.

EPA will work with Canadian counterparts and the International Joint Commission to carry out obligations under the GLWQA, the U.S.-Canada Air Quality Agreement and numerous other binational agreements supporting cooperation on transboundary and global issues of concern to the two countries. EPA will also work with Environment Canada and the Mexican Ministry of Environment, Natural Resources and Fisheries within NACEC on important trilateral issues including enforcement, chemical management and protection of critical natural resources. On the U.S.-Canada border, both nations are directing major attention to the long-term restoration of the Great Lakes ecosystem. During next few years particular attention will focus on eliminating toxic pollutant discharges (such as PCBs and mercury) into the lakes. Smaller scale activities will address transboundary watershed issues in areas ranging from the Georgia Bay-Puget Sound to the Gulf of Maine.

At the trilateral level, EPA is working through the North American Commission for Environmental Cooperation to address common environmental problems, especially those relating to NAFTA, among the United States, Canada, and Mexico. In this context, EPA is working with counterparts in Canada and Mexico to develop comparable approaches to air quality and emissions monitoring in North America as well as procedures for transboundary environmental impact assessment. We are also engaged in joint efforts to examine the impact on the environment of trade and the development of trilateral plans for the sound management of chemicals

The significant benefit of the programs supporting this objective is a reduction in environmental risks to the Great Lakes as well as the U.S., Canadian, and Mexican population in our shared border areas. These programs will result in an improved water quality over the long term, expanded system of drinking and wastewater infrastructure, improved air quality, a reduction in improperly managed waste and reduced levels of toxics.

EPA's Great Lakes Program brings together Federal, state, tribal, local, and industry partners in an integrated, ecosystem approach to protect, maintain, and restore the chemical, biological, and physical integrity of the Great Lakes. The Boundary Waters Treaty of 1909 and the 1987 Great Lakes Water Quality Agreement (GLWQA) with Canada provide the basis for our international efforts to manage this shared resource. Additional responsibilities are defined in Section 118 of the Clean Water Act, Section 112 of the Clean Air Act Amendments, and the Great Lakes Critical Programs Act of 1990. The Great Lakes 5-Year Strategy, developed jointly by EPA and its multi-state, multi-Agency partners and built on the foundation of the GLWQA, provides the agenda for Great Lakes ecosystem management: reducing toxic substances; protecting and restoring important

habitats; and protecting human/ecosystem species health. EPA's Great Lakes National Program Office (GLNPO) is the principal U.S. organization for this effort, coordinating not only with U.S. partners, but also with Canadian counterparts. The program monitors Lake ecosystem indicators; manages and provides public access to Great Lakes data, helps communities address contaminated sediments in their harbors; supports local protection and restoration of important habitats, promotes pollution prevention through activities and projects such as the 1997 Canada-U.S. Great Lakes Binational Toxics Strategy (BNS), and provides assistance to implement community-based Remedial Action Plans for Areas of Concern and for development of Lake-wide Management Plans and the reduction of critical pollutants pursuant to those Plans. The Agency's 1999 Persistent Bioaccumulative Toxics initiative will augment GLNPO's BNS resources, allowing new projects addressing toxaphene, mercury, and polychlorinated biphenyls (PCBs.)

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 01 Reduce Transboundary Threats: Shared North American Ecosystems	**$122,113.7**	**$99,730.2**	**$122,172.8**
Environmental Program & Management	$22,113.7	$24,730.2	$22,172.8
State and Tribal Assistance Grants	$100,000.0	$75,000.0	$100,000.0
Total FTE	74.8	74.8	74.8

1999 Annual Performance Goals

- Complete emissions inventories for 5 of the 7 non-attainment areas along the US/Mexican border
- Three of the 14 sister cities will have completed joint chemical accident contingency plans.
- Assess the state of Great Lakes ecosystem components and make current status and trend information available to Great Lakes environmental managers. In addition we will finalize environmental indicators applicable to the entire Great Lakes Basin.
- Initiate projects to demonstrate reduction of persistent, bioaccumulative toxic chemicals and complete BNS reports.
- State/community clean-up of contaminated sediments supported by sediment assessment and characterization (at sites in two new Areas of Concern

(AOCs), thus having visited 27 out of 31 US AOCs) and by sediment cleanup demonstrations.

- Habitat protection and restoration projects will have positive ecological effects on 23% of the Great Lakes Basin's total land area (up from 20% in 1998). Ecological enhancements will occur at the 14 US terrestrial biodiversity investment areas. Biodiversity investment areas will be identified for coastal marshes and coastal aquatic areas.

- 16 additional water/wastewater projects along the Mexican border certified for design-construction

The annual performance goals represent certain steps which must be taken to support a reduction in transboundary threats. In the U.S.-Mexico border area, it is essential that air emissions data be collected, that emissions inventories be developed and air modeling and interpretation be done in order to put air pollution control programs in place. Once such programs are in place, air quality health standards can be met. Similarly, wastewater treatment projects must first be proposed to the BECC and certified before funding is made available and construction can begin. Once construction is completed, usually a few years later, the population served by drinking water and wastewater collection and treatment systems will increase. In 1999, chemical accident contingency plans will be completed for three sister cities moving toward the goal of 10 by the year 2005. Pollution prevention programs will be adopted by an increasing number of maquila plants, a step toward meeting the long term goal of reducing the generation of hazardous wastes by 8% (on a per employee basis) by 2005.

Activities undertaken in 1999 related to the Great Lakes Performance measures focus largely on the assessment of the current status and trends in the Basin's ecosystems. These data will be used to examine long term trends and to target efforts to clean up contaminated sites, to more effectively manage the biological resources of the area, and to plan longer-term toxic reduction strategies. Each of these elements will help in the long term to restore and protect the integrity of the basin's ecosystem.

The Agency will coordinate implementation of the ecosystem approach in the Great Lakes by its Federal, state, tribal, and local partners, fully implementing a "community-based" approach. EPA and its partners will act consistently with goals of the Great Lakes Five Year Strategy and the Agency Strategic Plan.

EPA will lead collaborative efforts for air and water monitoring in all five Great Lakes for toxics and nutrient loadings and biological health. EPA will report results of modeling scenarios from the multi-media initiative for the first-ever intensive monitoring of Lake Michigan air, water, sediments, and biota (the Lake Michigan Mass Balance Study, or "LMMB"), supporting the Great Waters provision of the Clean Air Act and §118 of the Clean Water Act. This will enable the Agency and its partners to determine how to further reduce Great Lakes pollutants. The joint GLNPO/Canadian integrated atmospheric deposition network (including air monitoring stations on each Great Lake) will provide trend and baseline data (with the exception of metals) to support and target remedial efforts and measure environmental progress under Remedial Action Plans (RAPs) and Lake-wide Management Plans (LaMPs). GLNPO, with its Canadian counterparts, will

finalize, and report on, Great Lakes core indicators at the biennial State of the Lakes Ecosystem Conference (SOLEC). SOLEC brings together representatives of the public and private sectors to facilitate decision-making based upon sound environmental information.

EPA will work with Environment Canada and lead domestic partners in implementing the 1997 Great Lakes Binational Toxics Strategy (BNS.) The Strategy, a groundbreaking international toxics reduction effort, targets a common set of persistent, toxic substances for reduction and virtual elimination from the Great Lakes. The Strategy focuses on pollution prevention efforts, using voluntary and regulatory tools to achieve reductions and contains reduction challenges for a targeted set of substances, e.g., mercury, PCBs, dioxins/furans, certain canceled pesticides. The Strategy outlines actions and activities which states, industry, tribes, non-government organizations and other stakeholders may undertake to achieve these reductions. Each targeted substance will be addressed at the appropriate phrase of an analytical framework which consists of information gathering, analysis of current regulations/initiatives. identification of options and implementing reduction actions. Grants to stakeholders (such as the Great Lakes States, Tribes and environmental groups for mercury or PCBs reduction projects, for example) will help to achieve some of the reduction targets. Implementation of the Strategy will be coordinated with and augmented through cross-Agency support and activities relating to its FY 1999 Persistent Bioaccumulative Toxics Initiative.

EPA, with its partners, will complete contaminated sediment cleanups through demonstrations at 2 sites of the 31 U.S. and/or binational Areas of Concern (AOCs) whose contaminated bottom sediments pollute their harbors. In this, GLNPO will use expertise from GLNPO's Congressionally mandated Assessment and Remediation of Contaminated Sediments program. GLNPO will do field work and provide funding for sediment assessments and remedial design to state and local groups at five AOCs. Of these, three are likely to be follow-up assessments at a finer scale to provide communities with sufficient information to address their contaminated sediments. Assessments will thus have been done at 27 of the 31 AOCs since this program began.

The Agency will support the efforts of states, tribes, and local communities to protect and restore important habitats identified in the Great Lakes biodiversity report of The Nature Conservancy (TNC) and SOLEC habitat papers. The program emphasizes habitats important for biodiversity and ecological integrity (such as those necessary for endangered and threatened species). Additional projects will be started in terrestrial biodiversity investment areas. Continuing work begun in 1998 to identify important coastal marshes and aquatic areas, EPA will initiate projects that will positively affect these "aquatic biodiversity investment areas" at strategic locations around the Great Lakes.

EPA, Regions, States, and local communities will strategically target reductions of critical pollutants through Remedial Action Plans for Areas of Concern and through Lake-wide Management Plans for Lakes Ontario, Michigan, Superior, and Erie. The Agency will continue to meet specific requirements for reporting to Congress and the International Joint Commission regarding progress under the Great Lakes Water Quality Agreement.

1998 Annual Performance Goals

- Certify 16 projects for design-construction. Construction will continue at Mexicali, be completed (Phase I) at the International Waste Treatment Plant and commence as seven additional venues already certified.

- Complete emissions inventories for two of the seven non-attainment areas along the US-Mexican border.

- Initiate government-industry partnership program to encourage adoption of pollution prevention/waste minimization techniques by facilities in the U.S.-Mexico border area.

- Assess the state of Great Lakes ecosystem components, and make current status and trend information available to modelers and environmental managers.

- Initiate projects to demonstrate reduction of persistent, bioaccumulative toxic chemicals and complete BNS reports.

- Support State/community clean-up of contaminated sediments by sediment assessment and characterization (at sites in 8 Areas of Concern (AOCs,) thus having visited 25 out of 31 US AOCs since the program's inception) and by sediment cleanup demonstrations.

- Habitat protection and restoration projects will have positive ecological impacts on 20% of the Basin's total land area (up from 15% in 1995). Ecological enhancements will include the 14 US terrestrial biodiversity investment areas. Biodiversity investment areas will be identified for coastal marshes and coastal aquatic areas.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
01 Obj. Total Change	**$22,442.6**	**0.0**
Environmental Program & Management	$(2,557.4)	0.0
State and Tribal Assistance Grants	$25,000.0	

- (+$25,000,000 STAG) This is for high priority water and wastewater treatment facilities along the U.S. Mexican Border.

- (+$290,000 EPM) This is part of the Agency's cross-media 1999 Persistent Bioaccumulative Toxics initiative. The resource increase will fund additional work in support of implementing the 1997 U.S.-Canada Binational Toxics Strategy, such as following up on assessment of pesticide use or release, an alkyl-Lead assessment, and mercury reduction by States.

- (-$215,000 EPM) This reduction from Great Lakes Environmental Indicator Monitoring reflects the progress made to date.

- (-$115,000 EPM) This reduction from Great Lakes Toxics Reduction activities is offset by the Agency's cross-media 1999 Persistent Bioaccumulative Toxics initiative.

- (-$100,000 EPM) This reduction from Great Lakes integrated data management activities reflects the progress made to date.

- The 1999 request is -$2,622,000 below the 1998 Enacted budget level due to Congressional Add-ons received during the appropriations process but not part of the 1999 President's Request.

Key Performance Measures	**1998**	**1999**
Projects certified for design-construction along the Mexico Border	16 projects	16 projects
Completion of Great Lakes assessments of nutrients, toxics and airborne pollutants	100% assessments	100% assessments
Core Great Lakes ecosystem components with indicators		1 set
Lake Michigan mass balance data sets available	30 data sets	
Toxics reduction predictions from Lake Michigan mass balance made available		100% predictions
Great Lakes projects initiated in support of toxics reduction	9 projects	10 projects
Assessments and characterizations at Great Lakes Areas of Concern	8 assessments	6 assessments
Great Lakes sediment cleanup demonstrations completed	1 completion	3 completions
Great Lakes terrestrial acres ecologically enhanced	6,000 acres	6,000 acres
Set of targets for ecological enhancement in Great Lakes aquatic biodiversity areas		1 set of targets

Key Performance Measures	1998	1999
Number of non-attainment areas along the border with emissions inventories	2 inventories	5 inventories
Industry partnership program established	1 program	
US-Canada 1995 PRTR report published	1 report	
NAFTA effects methodology completed	1 project	
Transboundary EIA negotiations completed	negotiation	
Number of sister-cities with joint contingency plans		3 cities
NARAP developed for toxic substance previously selected		1 action plan
Air monitoring projects completed		2 projects
CEC trade and environmental program established		1 program

Conclusion

EPA's cooperative activities under this objective will result in the construction of water and wastewater facilities for residents of colonias and other under served border communities. Over the long term key sister cities should see an improvement in air quality as work is completed and emissions and management plans are implemented. As a result of the government-industry partnership program, maquila operations in the border area will adopt formal pollution prevention/waste minimization programs, resulting in a decrease in the amount of hazardous waste generated . The increased number of sister cities with joint contingency plans will reduce the risk due to chemical accidents in the border area.

Work within the NACEC will strengthen environmental enforcement across North America while chemical management plans on PCBs, DDT, chlordane and mercury will reduce risks these chemicals pose.

The achievement of the 1998 and 1999 goals of certifying 16 water and wastewater projects for design-construction each year will meet the high priority needs of the U. S. Border area population served by inadequate facilities while meeting the intent of the bilateral cooperative agreement. Over the long term key sister cities should see an improvement in air quality as work is completed

and emissions and management plans are implemented. Cooperative activities to reduce air emissions will lead to continued improvements in air quality.

Meeting the objectives outlined requires strong cooperative efforts between the U.S. and Mexico, the U.S. and Canada and among all three countries and the Secretariat within the context of the NACEC. These efforts depend on strong and continuing political commitment as well as the provision of adequate financial and human resources. In addition, success depends on high levels of support from key stakeholders including industry, state and local governments. EPA is but one player among many. Consequently, there are inherent difficulties in meeting transboundary objectives that require action by Canada and Mexico as well as state and local authorities.

The projected accomplishments of the Great Lakes program will significantly advance restoration and maintenance of the Great Lakes ecosystem. GLNPO's monitoring program is providing information on each of the Lakes, particularly Lake Michigan, to enable Great Lakes environmental managers to better understand the magnitude of the environmental problems of the Great Lakes. At the same time, modeling and other tools are giving those managers the ability to appropriately tailor remedial actions to clean up the Lakes. The LMMB is providing an unprecedented picture of the source of pollutant loadings. GLNPO's information management program will make the information accessible.

Because the BNS sets targets and time frames for virtually eliminating targeted persistent toxic substances from the Great Lakes, BNS achievements will be the evidence to identify the Agency's ability to pursue non-traditional and cost-effective solutions to the intractable problems of persistent, bioaccumulative toxics. The analytical framework, and the participation of our partners in the BNS ensures that the projects which GLNPO funds will address the greatest Great Lakes toxics problems.

Contaminated sediments have long been identified as one of the most important Great Lakes environmental problems. Assessments proposed for 1998 and 1999 provide the basis for future cleanup efforts as states and communities do the necessary planning for that work. Concurrent on-the-ground cleanups proceed from earlier assessment work.

Great Lakes program activities in 1998 and 1999 will continue to aid in the protection and restoration of the terrestrial habitats and, for the first time, identify the important aquatic habitats. GLNPO's habitat achievements will position the Great Lakes community with additional tools to protect the most important Great Lakes habitats. The 132 endangered or threatened species in the Great Lakes bear witness to the need to protect these important habitats. Comprehensive efforts had not previously been completed to identify the terrestrial and aquatic habitats most in need of protection. Under GLWQA, eliminating discharges of persistent toxics in the Great Lakes should over the long term improve water quality in the Lakes. Similarly, cooperative activities to reduce air emissions will lead to continued improvements in air quality.

Key Performance Measures Verification

The annual performance goals and measures identified under Objective 1 are the completion of explicit tasks (e.g. air monitoring stations fully functioning, Number of water projects certified for design/construction, number of border states using Haztrak system.) These measures will be verified as completed or, if incomplete, what percentage of the task remains outstanding. Verification of these measures does not involve any pollutant database analysis, but is a straight-forward determination of tasks completed and outstanding.

Performance measures for the Great Lakes program are derived from open lake measurements taken by GLNPO and from annual programmatic analysis of activities pursuant to the Great Lakes Water Quality Agreement (GLWQA), the Binational Toxics Strategy, and the GLNPO programs for information management, sediments, and habitat. Individual projects which generate data are required to comply with the Agency's standards for quality assurance and control (QA/QC.) A QA/QC tracking system is in place to ensure that QA/QC requirements are part of all applicable GLNPO projects. GLNPO uses its annual planning process as a check on performance from indirect performance measures. Under the GLNPO structure, each of the GLNPO programs conducts an end of year review of its progress regarding identified measures and activities, draws conclusions, and makes recommendations to management regarding the subsequent year's activities and measures.

Statutory Authority

Clean Air Act Title VI (42 U.S.C. 7671-7671q)
1987 Montreal Protocol on Ozone Depleting Substances

Clean Water Act sections 112, 118 and 308 (33 U.S.C. 1318)

Toxic Substances Control Act sections 4, 5, and 6 (15 U.S.C. 2603, 2604, and 2605)]

North American Agreement on Environmental Cooperation
Treaties:

- The Boundary Waters Treaty of 1909
- 1987 Great Lakes Water Quality Agreement
- 1997 Canada-U.S. Great Lakes Binational Toxics Strategy

Objective #2: Climate Change

By 2000 and beyond, U.S. greenhouse gas emissions will be reduced to levels consistent with international commitments agreed upon under the Framework Convention on Climate Change, building on initial efforts under the Climate Change Action Plan.

Overview

In October 1997 President Clinton announced a new Climate Change Plan, which responds to the scientific consensus that global climate change threatens human health and the environment. According to the 1996 findings of the Intergovernmental Panel on Climate Change, which included 2,500 leading scientists from the U.S. and around the world, climate change is already happening and it is happening partly because of human activities. If the problem of climate change is not addressed now, the scientists concluded that "climate change is likely to have wide-ranging and mostly adverse impacts on human health, with significant loss of life."

The President's Plan provides a set of actions that will help protect human health and the environment while growing the economy. By working hand-in-hand with partners from the American business community, EPA's Climate Change Technology Initiative (CCTI) will:

- Reduce greenhouse gas emissions and help mitigate the impacts of global climate change.
- Improve U.S. air quality by reducing emissions of nitrogen oxides (NOx), particulate matter, mercury, and other air pollutants.
- Improve U.S. water quality by reducing the deposition of nutrients into water bodies and better managing nutrients applied to soils.
- Preserve habitat by encouraging the sequestration of carbon in forests.
- Enhance economic productivity and reduce the nation's energy bill by removing market barriers that slow the penetration of efficient technologies.

Climate change programs protect the earth from adverse environmental impacts such as increased sea levels, increased frequency and severity of floods and droughts, and heat waves in the U.S. and around the world. Ecosystem and economic losses are thereby reduced or avoided, protecting the environment and promoting the economy. Related human health risks are also reduced, including,

for example, reduced adverse impacts on drinking water quality and quantity, and reduced occurrence and severity of ground-level ozone and its related respiratory problems. Air quality is also improved by reductions in air pollutants from improved energy efficiency, which prevents pollution at the source by reducing the use of fossil fuels.

Under the 1997 Kyoto Protocol, industrialized countries have agreed to make significant greenhouse gas reductions by 2008-2012. The decade preceding the reduction target provides an important opportunity to develop and deploy the technologies that can enhance U.S. competitiveness and productivity. The CCTI is designed to make sure that opportunity is not wasted and will catalyze the deployment of highly efficient technologies throughout the economy as today's equipment is naturally replaced through normal stock turnover. Efficient technologies offer large energy bill savings and can often enhance overall productivity. Without the CCTI, businesses and consumers will continue to invest in less efficient technologies, increasing U.S. emissions and increasing the cost of meeting future targets for emissions reductions. The budget requests $205,407,600 for this initiative, an increase of $115,978,000 over the 1998 enacted levels.

The President's Plan includes several key elements to achieve these benefits. These elements include:

(1) Programs to expand the use of existing energy-efficient technologies in the U.S.
(2) Programs to encourage the development of new technologies that use energy more efficiently and utilize lower-carbon energy sources.
(3) Industry-by-industry consultations to develop plans for reducing greenhouse gas emissions while increasing productivity.
(4) Incentives for early actions to reduce greenhouse gases, based on crediting these actions under future caps on emissions.
(5) Tax credits targeted at key opportunities for reductions of greenhouse gases.
(6) Programs to encourage greenhouse gas reductions by developing countries.
(7) Economics and Science Reviews to improve the information available to policy makers.
(8) Efforts to reduce energy bills and greenhouse gas emissions from Federal facilities.

Agencies throughout the Administration will make significant contributions to the President's Plan. For example, the Department of Energy will pursue actions such as promoting the research, development, and deployment of advanced technologies (for example, renewable energy sources). The Treasury Department will administer newly proposed tax incentives for specific investments that will reduce emissions.

EPA's CCTI will play a key role in the President's Plan. For several years, EPA has been building successful partnerships to reduce greenhouse gas emissions with businesses and other organizations in all sectors of the economy. Many of these programs focus on the deployment of existing, proven technologies that reduce emissions but are underutilized. These partnerships will continue to be the foundation for achieving greenhouse gas reductions beyond 2000.

Administration-wide, the programs launched in the 1993 Climate Change Action Plan have the potential to reduce U.S. greenhouse gas emissions by over 160 million tons of carbon equivalent (MMTCE) annually by the year 2010. EPA's partnerships are expected to reduce the United States' annual energy expenditures by over $25 billion.

Under its CCTI, EPA will expand its efforts in each sector of the economy in order to target the key opportunities for win-win emissions reductions that protect the environment while promoting economic growth. Key areas where EPA is expanding its efforts include the following:

- Industry Initiatives -- In conjunction with the CCTI, the President has invited entire industries to work with the Federal government and develop greenhouse gas plans. In addition to its partnerships with individual companies, EPA will consult with key industries and develop voluntary but aggressive strategies for further greenhouse gas reductions that improve overall productivity. EPA will also work with industries to promote the deployment of clean technologies such as the use of industrial combined heat and power, which can cut the wasted energy from power generation in half. EPA will further work with industry to build a program that credits early action. EPA will seek dialogue with key stakeholders throughout industry and the NGO community.

- Transportation Initiatives -- EPA will accelerate its efforts under the Partnership for a New Generation of Vehicles (PNGV), and will develop enabling technology for production prototypes for delivery and long-haul trucks that would achieve significant increases in fuel economy while meeting stringent emissions targets. The National Academy of Sciences has determined that EPA's renewable fuels application for 4-Stroke Direct Injection (SDI) engines is the lead PNGV candidate technology. When complete, EPA's design will provide the basis for a viable and proven concept vehicle for commercialization. It will also provide a strong technical base from which to initiate additional EPA research into similar technologies for light truck application. EPA will also expand its work with state and local decision-makers to develop and implement transportation improvements that encourage "livable communities" -- compact, walkable and mixed use development -- while reducing the growth in vehicle travel, emissions, and congestion.

- Buildings Initiatives. The Buildings Sector, which includes both homes and commercial buildings, offers a large potential for carbon reductions using technologies that are on the shelf today. However, consumers and businesses continue to invest substantial resources in equipment that is relatively inefficient, resulting in higher energy bills and higher pollution levels. One of the key challenges over the next decade will be to overcome market barriers, such as the lack of reliable information, and improve the market for energy-efficient products. EPA will expand its partnerships with equipment manufacturers and building owners in order to provide reliable, easily understood information to a greater segment of the residential and commercial markets. EPA will also expand its work to support other Federal agencies in improving the energy performance of their facilities.

- Carbon Removal. EPA will encourage the forest products sector to achieve greater reliance on biomass fuels as an energy source and be a supplier of carbon sequestration credits through afforestation and reforestation activities. EPA will accelerate efforts to promote the use of livestock based fertilizer products and more efficient use of nutrients from all sources.

- Engaging Developing Countries. Although industrialized nations currently produce the majority of greenhouse gases, emissions from developing countries are growing rapidly and are projected to exceed those of developed countries within the next fifty years. To be effective, any concerted effort to find a global solution to climate change must involve both developed and developing countries. Recognizing this, the Administration and EPA will work to secure meaningful participation from developing country Parties in the recently negotiated Kyoto Protocol by assisting key developing countries in their efforts to reduce greenhouse gas emissions and address global climate change.

- State and Local Outreach. EPA will expand its work with States, which are key players in efforts to reduce greenhouse gas emissions. EPA will provide support to states to help: (1) create staff positions to integrate energy efficiency, clean air, and climate change into energy planning policies; (2) develop State advisory committees and networks to facilitate the expansion of successful projects and foster information exchange; and (3) implement and expand promising policy options identified by States in the greenhouse gas mitigation plans.

Overview of EPA's Contribution to the U.S. Global Change Research Program

The Global Change Research Program, a component of the U.S. Global Change Research Program (USGCRP), supports the emphasis the U.S. program is placing on a national assessment of the consequences of climate change and climate variability. The goal of the national assessment is to determine the local, regional, national and international implications of climate change and climate variability in the context of other existing and potential environmental, economic and social stresses. Of particular importance is understanding the regional mosaic of what has been and will be occurring as a result of the global-scale changes that are underway and will continue over the coming decades. The EPA research was reorganized in 1998 to reflect the emphasis on the national assessments and the increase requested in 1999 continues to support this emphasis. The 1999 budget requests $20,501,000 for the Global Change Research Program.

Indicators of Change

EPA will enhance research in the development of ecosystem indicators as sentinels of global change. The focus will be on terrestrial, aquatic, and coastal indicators that can detect and quantify the effects of climate change on ecosystems and will include research into indicators that integrate ecosystems with human health. Indicators that diagnose ecotone (the boundary between two

ecosystems) stress will be emphasized. Also, EPA will continue to monitor the UV-B radiation in rural sites as an indicator of global change.

Ecosystem Services

EPA is the lead Agency in the USGCRP for assessing the impacts of global change on ecosystem services. Ecosystem services include a wide range of ecological functions that are highly regarded by society, and yet are often difficult to value economically. This sector includes evaluating the impacts on: storage of water, nitrogen, and other nutrients, including carbon; mitigation of floods; air and water purification; generation and renewal of soil and soil fertility; pollination and seed dispersal; and maintenance of biological diversity. There is little information on the impacts of global change on natural ecosystems and associated services and the economic valuation of these services. This work needs to be advanced to better understand the full economic impacts of lost or diminished ecosystem services.

Assessment of Consequences

The national assessment of the consequences of global change is being organized by the USGCRP to help strengthen two of the five central purposes of the USGCRP; in particular to support state-of-the-science assessments of global environmental change issues; and to analyze the environmental, socio-economic, and health consequences of global change. These activities will complement and build upon the USGCRP efforts to observe and document changes in the earth system, to understand why these changes are occurring, improve predictions of future climate change, and to understand how to adapt to the anticipated consequences of climate change.

The national assessment process will be designed to establish and maintain a continuing, interactive dialogue among government officials, business and industry, planners and managers, non-profit organizations, the scientific research and education communities, and the public. A series of 18 regional workshops will lead to a set of regional scale assessments led by the various USGCRP member agencies. EPA has the lead for three of the regions: Mid-Atlantic, Gulf Coast and the Upper Great Lakes.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 02 Climate Change	**$175,299.7**	**$109,218.1**	**$230,644.0**
Environmental Program & Management	$132,739.8	$77,624.5	$163,237.5
Science and Technology	$42,559.9	$31,593.6	$67,406.5
Total FTE	247.0	252.1	331.1

1999 Annual Performance Goals

- Reduce U.S. greenhouse gas emissions by 40 million metric ton carbon equivalent (MMTCE) per year through partnerships with businesses, schools, state and local governments, and other organizations.

- Improve national air quality through reductions in criteria air pollutants, including annual reductions of over 90,000 tons of nitrogen oxides (NOx), a major contributor to ground-level ozone.

- Reduce U.S. energy consumption by over 45 billion kilowatt hours per year, including annual energy bill savings to consumers and businesses of over $3 billion. Encourage more widespread adoption of low greenhouse gas emitting technologies.

- Work with representatives of companies and industries interested in developing roadmaps of actions in the public and private sectors that can lead to improvements in energy use and reductions in GHG emissions.

- Conduct bilateral dialogues with 10-12 key developing countries to bring them toward meaningful participation under the Kyoto protocol. Reduce greenhouse gas emissions internationally.

- Advance the understanding and communicate the risks of climate change by working with state constituencies to assess economic and environmental impacts, develop strategies for reducing vulnerabilities, build the infrastructure to overcome existing impediments to mitigation, and implement technology-based options.

- Guide the development of the rules and guidelines to operationalize emissions trading, the Clean Development Mechanism, joint implementation, and early reduction credits.

- Assess greenhouse gas implications of major sector-based policies (e.g., utility deregulation, subsidy removal, revenue recycling, land use policy).

- Assess economic and technological advances to evaluate and establish domestic policies and measures to meet U.S. obligations under the Framework Convention on Climate Change and the December 1997 Kyoto Protocol.

- Demonstrate that an American family car can attain over 60 miles per gallon (MPG) on the Federal Test Procedure (FTP) without loss in utility, safely, and emissions control performance.

- Begin process to optimize prototype vehicle and to apply knowledge gained through PNGV program to trucks.

Research

- Develop reports on problem formulation for ecosystem services sector assessment and on the use of climate change indicators.

- Conduct preliminary assessment of regional scale consequences of climate change at three geographic locations (Mid-Atlantic, Gulf Coast, and upper Great Lakes).

- By 2000 and beyond, provide the capability to assess ecological and associated human health consequences of climate change.

1998 Annual Performance Goals

- Reduce U.S. greenhouse gas emissions in total by 19 million metric ton carbon equivalent (MMTCE) per year through partnerships with businesses, schools, state and local governments, and other organizations.

- Improve national air quality through reductions in criteria air pollutants, including annual reductions of over 60,000 tons of nitrogen oxides (NOx), a major contributor to ground-level ozone.

- Reduce U.S. energy consumption by over 30 billion kilowatt hours per year, including annual energy bill savings to consumers and businesses of over $2 billion. Encourage more widespread adoption of energy-efficient technologies.

- Work with representatives of companies and industries interested in developing roadmaps of actions in the public and private sectors that can lead to improvements in energy use and reductions in GHG emissions.

- Conduct bilateral dialogues with 10-12 key developing countries to bring them toward meaningful participation under the Kyoto protocol.

- Advance the understanding and communicate the risks of climate change by: working with state constituencies to assess economic and environmental impacts: developing strategies for reducing vulnerabilities, and building the infrastructure to overcome existing impediments to mitigation, and implement technology-based options.

- Guide the development of the rules and guidelines to operationalize emissions trading, the Clean Development Mechanism, joint implementation, and early reduction credits.

- Assess economic and technological advances to evaluate and establish domestic policies and measures to meet U.S. obligations under the Framework Convention on Climate Change and the December 1997 Kyoto Protocol.

- Develop a research and pilot program with Department of Transportation (DOT) that demonstrates the feasibility of more energy-efficient transportation system investments.

- Carry out PNGV laboratory demonstration of practical four-stroke, direct injection alternative fueled engine.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
02 Obj. Total Change	**$119,815.8**	**79.0**
Environmental Program & Management	$85,613.0	57.3
Science and Technology	$34,202.8	21.7

- (+$115,800,000 EPM and 72.0 workyears) To implement the CCTI, EPA will build partnerships through all sectors of the economy, targeting key opportunities for win-win emissions reductions that protect the environment while enhancing economic growth.

- (+$30,700,000 EPM) Industry Initiatives -- In addition to its partnerships with individual companies, EPA will consult with key industries and develop voluntary but aggressive strategies to achieve further greenhouse gas reductions that improve overall productivity and credit early action. EPA will also work with industries to promote the deployment of clean technologies such as the use of industrial combined heat and power, which can cut the wasted energy from power generation in half.

- (+$37,100,000 EPM) Transportation Initiatives -- Through this increased funding, EPA will accelerate its efforts to reduce greenhouse gas emissions from the transportation sector. This increase will enable EPA to greatly accelerate the Partnership for a New Generation of Vehicles (PNGV) and expand the process to trucks. EPA will accelerate its program to develop an optimized renewable alcohol-fueled engine that can simultaneously achieve high efficiency and low carbon, particulate, and nitrogen oxides levels. EPA also will help initiate and participate in the development of a new generation of heavy truck production vehicles, to transfer PNGV technology to petroleum fuels, and to initiate work to design and build a combined-cycle demonstration engine. EPA will also expand its work with state and local decision-makers to develop and implement transportation improvements that encourage "livable communities" -- compact, walkable and mixed use development -- while reducing the growth in vehicle travel, emissions, and congestion.

- (+$39,300,000 EPM) Buildings Initiatives. EPA will expand its partnerships with equipment manufacturers and building owners in order to provide reliable, easily understood information to a greater segment of the residential and commercial markets. EPA will also expand its work to support other Federal agencies in improving the energy performance of their facilities, and to support state and local governments in their efforts to reduce greenhouse gas emissions.

- (+$3,400,000 EPM) Carbon Removal. Through this investment, EPA will work with the forest products sector to achieve greater reliance on biomass

fuels as an energy source and to be a supplier of carbon sequestration credits through afforestation and reforestation activities.

- (+$5,400,000 EPM) Domestic and International Implementation. Emissions from developing countries are growing rapidly and are projected to exceed those of developed countries within the next fifty years. To be effective, any concerted effort to find a global solution to climate change must involve both developed and developing countries. Recognizing this, EPA will work to secure meaningful participation from developing country Parties in the recently negotiated Kyoto Protocol by assisting key developing countries in their efforts to reduce greenhouse gas emissions and address global climate change. EPA will also expand its work states, which are integral players in efforts to reduce greenhouse gas emissions. To accomplish our expanded implementation efforts, EPA will require this investment.

Research

- (+$900,000 S&T) The Indicators of Change program will be increased to evaluate indicators that integrate ecosystem and human health.

- (+$1,110,100 S&T) Research in ecosystem services will be enhanced to understand the role of ecotones - intersections of different ecosystem types - in providing ecosystem services and how ecotones are impacted by global change.

- (+$4,800,000 S&T) The largest change in 1999 is an increase of $4,800,000 for the assessment program, which will include funding regional scale assessments in the Mid-Atlantic, Gulf Coast and Upper Great Lakes regions of the U.S. Support for the synthesis of the regional scale assessments will also be provided from this increase.

- (-$500,000 S&T) Funding to support the Tarleton State University - Livestock and Pollution Abatement, a Congressional earmark, has been eliminated.

Key Performance Measures	**1998**	**1999**
Green Lights and Energy Star Buildings		
• Annual Greenhouse Gas Reductions	• 2.4 mmtce	• 4.1 mmtce
• Annual Energy Savings	• 12 billion kWh	• 20 billion kWh
Energy Star Products		
• Annual Greenhouse Gas Reductions	• 3.7 mmtce	• 5.2 mmtce
• Annual Energy Savings	• 20 billion kWh	• 27 billion kWh

Methane Programs		
• Annual Greenhouse Gas Reductions	• 5.0 mmtce	• 14.0 mmtce
• Annual Methane Savings.	• 1 Teragram	• 2.5 Teragrams
HFC/PFC Programs		
• Annual Greenhouse Gas Reductions	• 8.0	• 15 mmtce
• Percent of primary aluminum production participating.	• 90%	• 90%
• Percent of HCFC-22 producers participating.	• 100%	• 100%
Climate Wise Programs		
• Annual Greenhouse Gas Reductions	• 2.0 mmtce	• 3.0 mmtce
Transportation Partners		
• Annual Greenhouse Gas Reductions	• 1.1 mmtce	• 1.9 mmtce
Engaging Developing Countries		
• Analytical assistance	• Studies with 6 developing countries to analyze growth targets and quantify co-control benefits.	• Studies with 6 developing countries to analyze growth targets and quantify co-control benefits.
• Cooperation Agreements	• Expand SNAPs and Tech. Cooperation Agreement Program in 5 developing countries.	• Expand SNAPs and Tech. Cooperation Agreement Program in 5 developing countries.
• Project Design	• Design CDM projects in 6 developing countries.	• Design CDM projects in 6 developing countries.

• Procedures and guidelines	• Project monitoring, evaluation, and reporting • Report on GHG reductions • Methodologies and guidelines for emissions trading compliance	• Project monitoring, evaluation, and reporting • Report on GHG reductions • Methodologies and guidelines for emissions trading compliance
• Analyses and assessments	• Technologies and policies that reduce GHG emissions • Transfer of technologies to developing countries	• Technologies and policies that reduce GHG emissions • Transfer of technologies to developing countries • program design and assessment of carbon sequestration
<u>US commitments to the FCCC</u>		
• Negotiations	• Represent US in internat'l negotiations	• Represent US in internat'l negotiations
• GHG Inventory	• Produce/review 1997 US GHG inventory	• Produce/review 1998 US GHG inventory
• Evaluations and analyses	• Evaluation of mitigation options • Position paper on internat'l agreement • Draft guidelines of calculating GHG emissions reductions	• Evaluation of mitigation options • Position paper on internat'l agreement • Contribute 2000 IPCC scientific assessment • Guidelines of calculating GHG emissions reductions

Research

Workshop and report on the identification of indicators that integrate ecosystems and human health.	9/30/98	
Workshop on the identification and prioritization of ecosystem services likely to be impacted by climate change.	9/30/98	
Regional scale workshops at Baton Rouge, LA and Ann Arbor, MI. Problem formulation workshops in the Mid-Atlantic area.	9/30/98	
Award up to seven peer-reviewed Science to Achieve Results (STAR) grants that develop regional assessments that reduce the uncertainties in watershed hydrology as related to climate change.	9/30/98	
Report on problem formulation for ecosystem services sector assessment.		9/30/99
Report on the development and use of climate change indicators.		9/30/99
Preliminary assessment of regional scale consequences of climate change at three geographic locations (Mid-Atlantic, Gulf Coast, and Upper Great Lakes).		9/30/99

Conclusion

As the U.S. and the other Parties to the Framework Convention on Climate Change look beyond 2000 to the important longer-term goals of preventing dangerous interference with the climate system, it is necessary to fully implement win-win approaches to controlling the escalating growth in U.S. greenhouse gas emissions while enhancing economic growth. There is now a clear consensus that the key step to reduce the costs of climate protection is to accelerate the deployment of currently available, cost-effective technology to reduce these emissions. More than 2400 economists (including eight Nobel prize winners) said in a statement this year that:

"...there are many potential policies to reduce greenhouse gas emissions for which the total benefits outweigh the total costs. For the United States in particular, sound economic analysis shows that there are policy options that would slow climate change without harming American living standards, and these measures may in fact improve U.S. productivity in the long run"

-- Economists' Statement on Climate Change, Feb. 13, 1997

EPA CCTI activities contribute to overall reductions of greenhouse gas emissions. Partnership programs are successfully overcoming market barriers and fostering investments in technologies that reduce greenhouse gas concentrations. These programs will disseminate information on the cost-effective opportunities to reduce emissions on the sector level and help protect the environment while reducing the costs of complying with the Kyoto Agreement.

With the development of sensitive and accurate indicators of ecological impacts in response to climate change, difficult policy decisions regarding US actions to address factors affecting climate change will have an improved scientific basis. When coupled with adaptation and mitigation research, development of indicators of change and vulnerability to change will allow managers to classify terrestrial systems according to risk and to focus development and evaluation of adaptation practices to limit the impacts.

Assessments of how climate change will impact other environmental protection strategies in place for problems such as tropospheric ozone and waste water treatment will directly influence future strategies developed by state and local environmental officials to maintain compliance with emission standards. Adaptation assessments conducted in concert with the ecological vulnerability studies will support future decisions by Federal, state, and local environmental officials on how to restore or manage sensitive ecosystems.

Outcomes and outputs are based on a number of key assumptions/external factors:

- Funding levels: Outputs are based upon fully funding the programs at the requested levels.
- International negotiations - Future milestones depend upon progress made and outcomes of continued international negotiations, including the 4th Conference of Parties to be held in November, 1998.
- Emission factors - The primary objective of CCTI is greenhouse gas reductions; however, certain variables outside Agency control effect pollution impact of programs. For example, the pollution prevented by reducing the demand for electricity depends on the type of electricity utility plant that burns less fuel. The utility mix will change over time, especially as the industry is deregulated and other environmental controls are put into place to address other air pollution problems.
- Joint Implementation review - The JI pilot will undergo review by the end of FY 1999, at which time the parties to the FCCC will decide on the future structure or mechanism of joint implementation. The results of this decision will ultimately be reflected in "milestones" section for 2000-2005.

Key Performance Measures Verification

EPA has several strategies to validate and verify performance measures in the area of environmental science and research. These programs monitor and evaluate accomplishments based on extensive information from partnership programs. For example, the Green Lights partners provide detailed information on investments and energy savings from over fourteen thousand completed energy-

efficiency projects (e.g., the annual kilowatt-hour savings from completed lighting upgrades). These standardized reports on energy efficiency projects can be easily translated into annual emission reductions by applying the appropriate emission factor (lbs/kWh) for each pollutant of concern. The voluntary programs continually use the information collected to improve the program's performance and more accurately assess its future potential.

Another measure of progress for the voluntary programs is obtained by using the Voluntary Reporting of Greenhouse Gases Program developed by the Energy Information Agency under the 1992 Energy Policy which reports the results and achievements of individual companies. Through this program, companies submit reports directly to the Energy Information Agency which reviews them for accuracy and to ensure plausibility.

For measures related to miles per gallon, actual measurements are made using set test procedures, the FTP (Federal Test Procedure), which has been the standard test for these types of measurements since the mid-1970s.

The Agency has implemented a risk-based research planning process to use risk assessment and risk management as principal priority-setting criteria. EPA conducts annual research program reviews to both evaluate the status and accomplishments of its research and determine planning priorities. To better draw upon the expertise of the environmental academic community, EPA created the Science to Achieve Results (STAR) program of peer-reviewed, mission-driven extramural grants; the Agency is also working with various professional societies on research issues.

Chief among the Agency's validation and verification mechanisms for research and development is a rigorous peer review process. In a July 1997 memorandum, EPA's Deputy Administrator states that peer review will be expanded "to include both the major work products provided in the past and...all scientific and technical products supporting Agency decisions..." This expanded and strengthened focus on peer review will help ensure that the performance measures listed here are verified and validated by external organizations. The Agency utilizes peer review throughout the research planning and implementation process, both to ensure that planned research addresses critical knowledge issues within EPA's mission, and to assess the quality of scientific research plans, products, and proposals. This is accomplished through the use of independent entities such as the Science Advisory Board (SAB) and the Board of Scientific Councilors (BOSC). The BOSC, established under the Federal Advisory Committee Act, will even examine the way the Agency uses peer review, as well as the management of its research and development laboratories.

EPA's external research program undergoes extensive peer review. Proposals from the external scientific community are peer-reviewed and projects are then selected for funding through grants or cooperative agreements. In addition, Requests for Applications (RFAs) under the STAR program are often developed jointly with outside partners such as the National Science Foundation. In this way, EPA has developed a mechanism by which to check the quality and relevance of its research program.

The Office of Research and Development Management Information System (OMIS) will be another accountability tool used to verify and validate performance measures. The recently developed GPRA structure will be incorporated into OMIS to ensure consistent maintenance and reporting, resulting in greater accuracy and consistency of information to users.

Statutory Authority

Clean Air Act

Pollution Prevention Act of 1990

Framework Convention on Climate Change

Global Climate Protection Act of 1987

Climate Change Research and Development Act of 1990

Objective #3: Stratospheric Ozone Depletion

By 2005, ozone concentrations in the stratosphere will have stopped declining and slowly begun the process of recovery.

Overview

The ozone layer protects people and other living things from harmful ultraviolet rays. As the ozone layer depletes, people become more susceptible to the damaging effects of ultraviolet (UV) radiation from the sun. The increased levels of UV radiation due to ozone depletion are linked to higher incidences of skin cancer, eye disorders, and other illnesses. Skin cancers of the most dangerous type, malignant melanomas, have increased 1800% since the 1930s, and some of this increase is related to increased UV radiation exposure due to stratospheric ozone depletion. Restoring the stratospheric ozone layer will reduce the incidence of certain health effects, including skin cancers of all types, such as basal and squamous cell carcinomas, not only the much rarer and often-fatal malignant melanomas. Ozone layer protection will also reduce the incidence of cataracts, a leading cause of blindness worldwide, and will reduce UV-linked immune suppression. Since the American Academy of Dermatology now estimates that one American dies *every hour* from skin cancer, public health benefits likely to accrue from reduced incidence of this disease are high. In addition, increases in UV radiation from ozone depletion are linked to damage to the ocean's phytoplankton and other parts of the ocean's food web, as well as damage to the production of certain types of crops.

The United States has signed the Montreal Protocol on Substances that Deplete the Ozone Layer. The Administration has repeatedly affirmed its commitment to honoring this international treaty and to demonstrating world leadership by phasing out U.S. ozone depleting chemicals as well as helping other countries find suitable alternatives. As a signatory to the Montreal Protocol, the United States has a positive obligation to domestically regulate to enforce its terms. In accordance with this international treaty, EPA implements and enforces rules controlling the production and emission of ozone depleting compounds, and rules requiring EPA to identify safer alternatives and promote their use to curtail ozone depletion under the authority of Title VI of the Clean Air Act Amendments of 1990.

Even after program goals are met, the public in the U.S. will be exposed to higher levels of radiation than existed prior to the use and emission of ozone depleting chemicals, since the process of ozone layer recovery is expected to take about 50 years, according to current atmospheric research. Recognizing this, we are informing the public about the dangers of overexposure to UV

radiation, so that we may further reduce risks attributable to ozone depletion during the period of recovery of the stratospheric ozone layer.

EPA's approach to achieving this objective focuses on six areas:

- domestic and international production phaseout of five ozone depleting chemicals and chemical classes: chlorofluorocarbons (CFCs), halons, methyl chloroform, carbon tetrachloride and hydrobromofluorocarbons (HBFCs), as well as controls on their import;
- implementation of limitations on two other ozone depleters, hydrochlorofluorocarbons (HCFCs) and methyl bromide;
- identification and information dissemination related to safe alternatives for compounds being phased out;
- more intensive recycling programs in the U.S. and abroad;
- environmental data development and public outreach aimed at informing the public of risks of overexposure to UV radiation; and,
- earlier voluntary phase-out of CFCs and HCFCs in developing countries.

In addition, EPA continues to provide support to the Montreal Protocol Multilateral Fund. Because the ozone layer will never be healed unless all nations act, under the Montreal Protocol, the U.S. and other industrial countries support the efforts of developing countries to convert to alternatives to ozone-depleting chemicals. This is done primarily through programs supported by the Protocol's Multilateral Fund. When fully implemented, the activities will annually prevent emissions of over 90,000 metric tons of ozone depleting substances. This is about one-third of developing country use of these chemicals.

Our programmatic approach emphasizes pollution prevention. For example, our National Emission Reduction Program requires recycling of ozone depleting chemicals, primarily in the air-conditioning and refrigeration sectors. In addition, hydrofluorocarbons (HFCs) will be recycled due to their global warming potential, as required under the Clean Air Act. The Significant New Alternatives Policy (SNAP) program will oversee developing alternatives, reviewing the health and environmental effects of alternatives, including their global warming potential, and restrict those that, on an overall basis, are more risky than other alternatives for the same end-use. The SNAP program will increasingly review substitutes and alternatives for the HCFCs and methyl bromide.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 03 Stratospheric Ozone Depletion	**$27,381.4**	**$17,321.8**	**$26,914.3**
Environmental Program & Management	$27,381.4	$17,321.8	$26,914.3
Total FTE	33.8	33.8	34.4

1999 Annual Performance Goals

- Through our contribution to the Multilateral Fund, assistance will be provided to at least 35 countries working toward achieving the requirements of the Montreal Protocol.

- Restrict domestic exempted production and import of newly produced class I CFCs and halons below 130,000 MTs.

- Provide assistance to at least 30 developing countries working toward achieving the requirements of the Montreal Protocol.

- Restrict domestic exempted production and import of newly produced class I CFCs and halons below 130,000 MTs.

- Restrict domestic consumption of methyl bromide by 25% over baseline levels.

Achieving these performance goals will lead to the attainment of our programmatic objectives by assuring that U.S. HCFC consumption does not exceed the cap set by international agreement through the Montreal Protocol and by assuring that U.S. CFC, halon, methyl chloroform, carbon tetrachloride and HBFC production and import includes only that agreed to by the Parties as essential for domestic use, or is under the 15% allowable cap for export production to satisfy demand in developing countries. It will also bring the U.S. into consistency with the agreed-upon 25% phasedown of methyl bromide consumption during 1999. This will lower the chlorine loading (Clx) and bromine loading in the stratosphere, and encourage ozone levels to rise. In addition, achieving these goals will lead to our environmental objective that by 2005, at least 75 developing countries comply with their obligation under the Montreal Protocol to achieve a 50% reduction in their production and consumption of CFCs.

The Stratospheric Protection Program will use several indicators to measure progress toward its environmental goal of returning ozone concentrations to levels found prior to the advent of the Antarctic ozone hole. The most important environmental indicator will be the trend in stratospheric ozone concentration as measured by National Oceanic and Atmospheric Agency (NOAA), the National Aeronautics and Space Administration (NASA) and the World Meteorological Organization. Under the auspices of United Nations Environmental Programme (UNEP) and the Montreal Protocol, atmospheric scientists and institutes throughout the world monitor global concentrations of ozone. Assuming U.S. and worldwide control measures are enacted, maintained, and enforced, models predict the rate of ozone depletion will slow at the turn of the century and begin a process of recovery, with complete restoration of the ozone layer around the year 2050.

The Stratospheric Protection Program will monitor other environmental indicators to determine progress in meeting its goal. Measurements of atmospheric concentrations of ozone depleting chemicals (as well as their reactive chlorine and bromine derivatives) will help to determine the success of the program. Decreasing atmospheric concentrations of these chemicals indicate the effectiveness of national programs throughout the world and will allow

stratospheric ozone concentrations to increase. Lastly, the total production of ozone depleting chemicals, both in the U.S. and the world, will also serve as an environmental indicator.

1998 Annual Performance Goals

- Provide assistance to at least 35 developing countries working toward achieving the requirements of the Montreal Protocol.

- Restrict domestic exempted production and import of newly produced class I CFCs and halons below 130,000 Mts.

- Restrict domestic consumption of class II HCFCs below 208,400 Mts.

- Restrict domestic exempted production and import of newly produced class I CFCs and halons below 130,000 MTs.

- We expect one major change in the domestic program between 1998 and 1999. The next major milestone in the accomplishment of the program's goals comes in 1999, when the U.S. must come into compliance with the newly negotiated 25% stepdown for methyl bromide consumption and production. Following this milestone, the program will again act to control methyl bromide in 2001, when under the Clean Air Act, the U.S. will phase out production of methyl bromide, the widely used ozone-depleting agricultural fumigant. To recognize this change, the program's emphasis is shifting toward methyl bromide alternatives and control measures. Key areas of programmatic change are listed below:

    - Acceleration of case study development and small grants funding, working with the United States Department of Agriculture (USDA), state and university agricultural institutions to help identify promising substitutes, both chemical and not-in-kind, for methyl bromide.

    - Increased outreach to the farm community, particularly in the critical production areas of California strawberries and Florida tomatoes, so that technology transfer is facilitated and problem areas identified and addressed.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
03 Obj. Total Change	$9,592.5	0.6
Environmental Program & Management	$9,592.5	0.6

- (+ $9,000,000 EPM) Full funding for the Multilateral Fund is requested at $21,000,000, an increase of $9,000,000.

Key Performance Measures	1998	1999
Domestic consumption of class II HCFCs.	Below 208,400 Mts.	Below 208,400 Mts.
Domestic consumption of methyl bromide.	Below 25,600 Mts.	Below 19,200 Mts.
Domestic exempted production and import of newly produced class I CFCs and halons.	Below 130,000 Mts.	Below 130,000 Mts.
Assistance to developing countries working under Montreal Protocol.	30 Countries	50 Countries

Conclusion

Accomplishing the Stratospheric Protection objective depends upon the process of continuing international negotiation under the Montreal Protocol, as well as the status of the Clean Air Act. While the U.S. plays a key role in international negotiations, and EPA plays a key role in developing environmental statutes, neither are within the exclusive control of EPA's Stratospheric Protection program.

Despite this caveat, restoring the stratospheric ozone layer will reduce the incidence of skin cancers, which are now considered by the American Academy of Dermatology to be in epidemic proportions in the U.S. population. Over one million new cases of skin cancer are expected to be diagnosed in the United States during this year, and one in five Americans can now expect to get skin cancer during their lifetime. Restoring the ozone layer will also reduce the incidence of cataracts, a leading cause of blindness worldwide, and reduce UV-promoted suppression of the human immune system.

A report released by the United Nations Environment Program in September 1994 found that the rate of build-up in the atmosphere of human-made compounds that deplete the ozone layer (chlorofluorocarbons) and halons have slowed in recent years. More recent work by the National Center for Atmospheric Research (NCAR), an agency of NOAA, confirms that measured concentrations of these compounds in the stratosphere are declining, confirming the value of the Montreal Protocol controls and their domestic implementation through the stratospheric protection program in the U.S.

The Montreal Protocol Multilateral Fund (Fund) is supported by annual contributions from 34 donor countries totaling over $155 million per year. The U.S. makes approximately 25% of the total annual contributions. The Multilateral Fund promotes international compliance with the Montreal Protocol by financing the incremental cost of converting existing industries in developing countries to cost-effective ozone friendly technology.

Through 1997, the Fund has approved approximately 2,000 activities in 95 countries. These projects have helped over 80 countries prepare detailed plans to enable them to meet or significantly exceed the reduction requirements of the Protocol. When fully implemented, the projects supported by the Fund will eliminate over 90,000 annual metric tons of emissions of ozone depleting substances, or about one-third of developing country consumption. This environmental benefit accrues not only to the country in which the project is undertaken, but to the U.S. as well, since use of ODS in developing countries depletes the world's ozone layer, affecting U.S. citizens.

The Fund has helped facilitate the universal participation that is essential to protecting the ozone layer. Since the creation of the Fund in 1990, the number of developing countries ratifying the Montreal Protocol has grown from about 20 to over 100. The Fund has helped to ensure ozone layer protection, the protection of public health, and protection of the investment made by U.S. industry to comply with the Protocol. In the absence of the Fund, the unconstrained growth in developing country use of ozone depleting substances would cause significant ozone depletion and related health and environmental problems. This expanding use would, over time, negate the significant investments made by U.S. industry to protect the ozone layer.

Key Performance Measures Verification

The restriction of domestic exempted production and importation of newly produced class I CFCs, halons, methyl chloroform, carbon tetrachloride and HBFCs will be measured using atmospheric models and data provided by NASA, NOAA, the World Meteorological Organization, and the UNEP where available. Actual measurements of stratospheric ozone will be made by NASA's Upper Atmospheric Research Satellite and the Total Ozone Mapping Spectrometer, and also by the Solar Backscatter Ultraviolet Spectrometer(SBUV)-2 and Operational Vertical Sounder instruments on the NOAA Polar Orbiting Environmental Satellite and subsequent National Polar-orbiting Operational Environmental Satellite. Progress on the restriction of domestic consumption of methyl bromide and class II HCFCs will be tracked by monitoring industry reports of compliance with EPA's phaseout

regulations. The Allowance Tracking System results are compiled and published in annual UNEP reports.

The progress of international implementation goals will be measured by tracking the number of countries receiving assistance, dollars allocated to each, and the expected reduction in ozone-depleting substances in assisted countries.

Statutory Authority

CAA Title I, Parts A and D (42 U.S.C. 7401-7431, 7501-7515)

Pollution Prevention Act (PPA) (42 U.S.C. 13101-13109)

Resource Conservation and Recovery Act (RCRA) sections 3001-3006 and 3017 (42 U.S.C. 6921-6926, 6938)

The Montreal Protocol on Substances that Deplete the Ozone Layer

Environmental Protection Agency

1999 Annual Plan Request to Congress

Reduction of Global and Cross-border Environmental Risks

Objective #4: Protect Public Health and Ecosystems From Persistent Toxics

By 2005, reduce the risks to U.S. human health and ecosystems from selected toxics that circulate in the environment at global and regional scales, consistent with international obligations.

Overview

With a request of $6,873,700 and 39.3 total workyears, EPA's activities under this objective address selected toxics which can persist, bioaccumulate and move long distances, thereby posing serious risks to human health and the ecosystem in the U.S., not to mention in remote regions where the substances may not be produced or used. The actions of individual nations to control the adverse effects of these persistent bioaccumulative toxics (PBTs) often are insufficient because of the long-range transport of such substances. Thus, it takes coordinated international action to reduce the risks posed by PBTs globally, let alone in the U.S.

Reducing pollution around the world brings benefits back to the U.S., and as a result, EPA is committed to reducing pollution globally. Many human health and environmental risks to the American public originate outside our borders. Ecosystems and transboundary pollutants transgress international boundaries. The U.S. can aggressively limit PBTs domestically but without international cooperation the problem will remain unsolved.

EPA's international efforts in managing pesticides which are PBTs include ensuring the safety of our food supply and enhancing the protection of public health and the environment from the risks resulting from pesticide use, both in the U.S. and throughout the world. Outside the U.S., EPA has accomplished this through cooperation and information exchange with other nations and international organizations.

The major benefits of the programs supporting this objective are to: (1) reduce the release and particularly transboundary movement of PBTs of greatest concern (e.g., PCBs, dioxins/furans, DDT, mercury, lead); (2) reduce the levels of exposure to, and adverse effects resulting from these PBTs, particularly with respect to highly vulnerable populations (e.g., children exposed to lead in gasoline, coastal populations with diets heavy in fish or marine mammals which may contain mercury, wildlife which consume and biomagnify PCBs, DDT or other harmful PBTs); (3) increase the number of countries around the world which can monitor domestic environmental releases and effects of PBTs, as well as more soundly manage their own use of PBTs; and (4) increase confidence among domestic stakeholders (especially industry) that they will be subject to consistent PBT obligations as negotiated by the EPA and U.S. government.

One emerging initiative proposed for 1999 in support of this objective is an orchestrated, Agency-*wide*, multi-media collaboration to reduce risks associated with priority PBTs. The initiative will have an important international component, in recognition of the transboundary movement of many PBTs. This will assist the Agency in pursuing the strategies and major steps outlined immediately above, while minimizing the overall resource burden on the Agency.

As part of the Agency's efforts to carry out this work, EPA will: (1) support and lead to a successful conclusion a number of regional and global negotiations (e.g., U.S.-Mexico, U.S.-Canada, North American Commission for Environmental Cooperation (NACEC), United Nations Economic Commission for Europe (UNECE), United Nations Environment Program (UNEP)) of voluntary and legally binding obligations to control and more safely produce, use, store and dispose of selected PBTs; and (2) expand ongoing programs to build the capacity of other countries to reduce risks associated with PBTs, consistent with the obligations of the international agreements already in place or now under negotiation. Key near-term milestones include: (1) the conclusion of a protocol on selected persistent organic pollutants (POPs, a subset of PBTs) to the UNECE Convention on Long-Range Transboundary Air Pollution (LRTAP), the completion of a legally binding convention on Prior Informed Consent (PIC) outlining requirements for the export and import of banned or severely restricted chemicals among countries, and the commencement of negotiations on a global POPs convention under UNEP auspices; and (2) in 1999 the conclusion of a LRTAP protocol on selected heavy metals, and the initiation of a North American mercury deposition monitoring network.

To reach the agreement on POPs and PIC, EPA first must be involved with other Federal agencies, and external stakeholders, such as Congressional staff, industry, and environmental groups, to convey our concerns and develop the U.S. negotiating approach. EPA needs to ensure that the initial list of chemicals and the criteria and process for evaluating future chemicals are based on sound science.

Pollutant Release and Transfer Registries (PRTRs) is the international term for emissions inventories. The Toxic Release Inventory (TRI) is the United States' version of a PRTR. International attention focused on PRTRs in 1992 when the Earth Summit encouraged all nations to establish these systems as an integral role in the sound management of chemicals. All three North American Free Trade Agreement (NAFTA) nations, Canada, the United States, and Mexico, have established emissions inventories. There are currently eight nations with PRTRs, and many more that are in the process of developing them. Still, more countries have expressed an interest in developing such an inventory. Providing technical assistance to other countries who want to establish pollutant registries can help reduce pollution generated in these countries, just as it has in the United States.

EPA remains involved at all levels of the PRTR effort. This involvement includes country-to-country talks and active participation in international meetings and workshops. EPA works actively with the Organization for Economic Cooperation and Development (OECD), United Nations Institute for Training and Research (UNITAR), and the PRTR Coordination Workgroup on ways to facilitate the

public's right-to-know and the importance of collecting data on air, water, land, and off-site transfers. As the OECD takes steps to integrate PRTR data with risk assessment and risk management activities, EPA will participate to ensure that the resulting decisions meet Agency objectives. To help foster the public's right-to-know around the world, EPA will help nations develop PRTRs, providing financial or technical assistance.

The goals of international harmonization of test guidelines are to expand the universe of available test facilities for chemicals for which needed testing increase consistency and information sharing between nations, and reduce requirements for repeated testing by chemical companies to meet varying national requirements. For test guideline harmonization, EPA will continue to cooperate closely with other Federal agencies and OECD in harmonizing its testing guidelines. Test guidelines are a collection of methods for testing chemicals and chemical preparations, such as pesticides and pharmaceuticals. The purpose of the testing is to assess hazard or toxicity. Each test guideline provides instructions on how a specific type of test should be performed. EPA serves as a major source of scientific expertise and review in updating guidelines with OECD.

The U.S. is working with other OECD member countries to implement the International Screening Information Data Set (SIDS) Program, a voluntary international cooperative testing program started in 1990. The program's focus is on developing base level test information (including data on basic chemistry, environmental fate, environmental effects and health effects) for international high production volume chemicals. SIDS data will be used to screen chemicals and to set priorities for further testing and/or assessment. The Agency will review testing needs for 50 SIDS chemicals in 1999.

The Agency's efforts in this objective will be supported through legal counseling and advocacy. This may include advice, participation in the development of Agency actions, document review, and the conduct of defensive litigation.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 04 Protect Public Health and Ecosystems From Persistent Toxics	**$4,155.0**	**$4,250.8**	**$6,873.7**
Environmental Program & Management	$4,155.0	$4,250.8	$6,873.7
Total FTE	36.2	36.5	39.3

1999 Annual Performance Goals

- Obtain international agreement on criteria for selecting Persistent Organic Pollutants (POPs) to be covered in a new global POPs treaty, and on capacity building activities to support the convention's implementation.

- Evaluate the domestic suitability of international consensus testing decisions made in the OECD SIDS program and obtain needed testing as required.

The annual performance goals outlined for 1999 represent incremental steps which support the fulfillment of the larger policy objective stated above. The 1999 performance goals will initiate long-term improvements in domestic and international capacity to safely manage and reduce the risks of selected PBTs.

The fact that the policy objective has a time horizon of 2005 means that most of the benefits expected from the 1999 performance goals and related activities will not be realized until a future fiscal year. To illustrate, if the U.S. can win international agreement in 1999 to our proposal for how the global POPs convention would select additional substances for control, we would have secured a fundamentally important element (from both a risk and economics perspective) of the convention. But the fact that the convention will not be concluded until the year 2000 means that actual implementation of the selection process, not to mention of the control obligations for selected substances, will not commence until a later time.

EPA has published 97 guidelines in the areas of physical chemistry, ecotoxicity, environmental fate, and human health. OECD has published 77 guidelines in the same four areas. In the Pesticides Program a total of 170 test guidelines have been published which include guidelines for the above four areas and for other specific requirements for the evaluation of pesticides (e.g., product identity, composition, application exposure).

Presently, all of the physical/chemical properties and environmental fate guidelines, 30 health effects guidelines, and six ecotoxicity test guidelines have been harmonized between EPA and OECD. Ten health effects guidelines and 13 ecotoxicity guidelines have been harmonized between EPA's Toxics and Pesticides Programs. Some of these test guidelines incorporate recent and significant advances in the scientific knowledge and methodologies compared with older existing OECD guidelines, particularly in the areas of neurotoxicity, developmental neurotoxicity, and developmental and reproductive biology. EPA is currently leading the effort to harmonize these improved guidelines with OECD.

1998 Annual Performance Goals

- Evaluate the domestic suitability of international consensus testing decisions made in the OECD SIDS program, harmonize test guidelines, and obtain needed testing as required.

- Three CEE/NIS countries and two Latin American countries make national commitments to phase out Pb gasoline use and make progress in reducing global Pb use to 1993 levels or below.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
04 Obj. Total Change	**$2,622.9**	**2.8**
Environmental Program & Management	$2,622.9	2.8

- (+$2,418,000 EPM) The increase will support the new Agency initiative on targeting PBTs. Under this initiative the Agency will 1) facilitate the fulfillment of obligations under the Canada-U.S. Binational Strategy, 2) develop Agency and U.S. government positions for the intergovernmental negotiating conference on POPs, 3) implement the Regional Action Plans, developed through NACEC, for DDT, chlordane, PCB's, and mercury; and 4) provide technical assistance to developing countries to eliminate lead exposure pathways.

Key Performance Measures	1998	1999
Complete the review of testing needs for chemicals processed through the OECD sponsored SIDS program	Testing needs Reviewed for 25 SIDS chemicals	Testing needs reviewed for 50 additional SIDS chemicals
Complete harmonization with OECD of ten additional test guidelines	ten guidelines	ten additional guidelines
Agreed USG policy on UNEP selection criteria	1 policy agreement	
Number of commitments to Pb phaseout	5 countries	4 countries
Agreement on USG selection criteria proposal		1 negotiations

Conclusion

Environmental loadings of PBTs and the resultant health and environmental risks they pose in the U.S. and other countries will increase over time with the expanded production, trade, and use of these substances unless controls are put

in place internationally. Yet many countries currently are unwilling or unable to commit to such controls-as demonstrated by the continued need for DDT and the absence of suitable and affordable substitutes as a vector control in tropical nations. Thus, without the cooperation of their neighbors, the U.S. and other countries which aggressively deal with PBTs domestically will not be able to control transboundary flows of these toxics.

The regional LRTAP POPs protocol may result in banning or restricting manufacture and/or use of approximately 15 industrial chemicals and pesticides. Also under discussion are export and import restrictions/controls and emission release restrictions, micro contaminant issues, and waste management issues. Non-pesticide chemicals under consideration include: PCBs, Polyaromatic hydrocarbons (PAHs), Short-chained chlorinated paraffins (SCCP). The global POPs list initially covers some 12 chemicals and pesticides, and is almost identical to those in the LRTAP POPs protocol. Once these agreements are completed, the U.S. hopes to sign and ratify them.

In this context, it is clear that the accomplishments in 1999 will help the U.S. to lay the foundation for achieving – but not constitute in themselves – the needed international risk reductions associated with selected PBTs. The successful accomplishment of this objective is based on several key assumptions and external factors. Domestically, (1) all key EPA program offices must engage in negotiations and capacity building programs; (2) all relevant U.S. government agencies must cooperate with EPA in this work; (3) key U.S. stakeholders (especially industry and the agricultural sector) must support the development and implementation of international agreements and risk reduction efforts; and (4) the U.S. demonstrates leadership in negotiating, complying with, and facilitating the implementation of international agreements. Internationally, (1) we reach agreement on the scientific basis for determining which PBTs must be controlled; (2) key foreign countries which produce, export and/or use certain PBTs (e.g., DDT) agree to global bans and/or severe use restrictions; (3) substitutes for key pesticides and industrial chemicals are introduced and widely used; (4) improved industrial processes and integrated pest management practices are widely used; and (5) monitoring and reporting regimes are established and utilized.

The achievement of this objective will lead to simplified testing requirements for the regulated industry, with unified guidelines that are acceptable to a wide spectrum of Federal agencies and countries. This will in turn result in less confusion regarding testing requirements among regulated industries, increased efficiency in collecting test data and in assessing risk, avoidance of duplication of effort, reduce use of animals in testing, and reduced expense.

By 2005, EPA expects that all OECD countries will not only have developed PRTRs, but that these inventories will be fully operational. Besides being used for community right-to-know purposes, as they are currently used in this country, these registries will be used to monitor the progress countries make in complying with international agreements, such as the Montreal Protocol (CFC production) and Basel (waste transfer agreements).

Key Performance Measures Verification

The annual performance goals and measures identified under this objective are expressed as the completion of explicit tasks (e.g. degree of implementation of trilateral action plans on DDT, PCBs, and chlordane; national inventories of obsolete chemicals initiated, delivery of technical assistance, success in negotiating strategy). These measures will require assessment by program staff and management. Verification of these measures does not involve any pollutant database analysis, but will require objective assessment of tasks completed and the satisfaction of U.S. environmental negotiating objectives.

Statutory Authority

Pollution Prevention Act (PPA) (42 U.S.C. 13101-13109)

Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) sections 3,4,5,6,10,11,18,20,23,24,25,30 and 31 (7 U.S.C. 136a, 126a-1, 126c, 136d, 136h, 136i, 136p, 136r, 136u, 136v, 136w, 136w-5 and 136w-6)

Emergency Planning and Community Right-to-Know Act (EPCRA) section 313 (42 U.S.C. 11023)

Toxic Substances Control Act (TSCA) sections 4, 5, 6, 12, and 13 (15 U.S.C. 2603, 2604, 2605, 2611, 2612)

Clean Water Act (CWA) (33 U.S.C. 1251-1387)]

Clean Air Act (CAA)

Resource Conservation and Recovery Act (RCRA)

North American Agreement on Environmental Cooperation (NAAEC)

1996 Habitat Agenda, paragraph 43bb

U.S./Canada Agreements on Arctic Cooperation

1989 US/USSR Agreement on Pollution

1991 U.S./Canada Air Quality Agreement

1978 U.S./Canada Great Lakes Water Quality Agreement

1909 Boundary Waters Agreement

World Trade Organization Agreements

North American Free Trade Agreement

Environmental Protection Agency

1999 Annual Plan Request to Congress

Reduction of Global and Cross-Border Environmental Risks

Objective #5: Prevent Degradation of the Marine and Polar Environments

By 2005, the United States will prevent significant degradation of the marine and polar environments, consistent with U.S. obligations under relevant international agreements.

Overview

With a request of $1,397,500 and 10.2 total workyears, this objective captures those international involvements of the Agency that seek to protect the marine and polar environments. In 1999, efforts will focus on five areas: 1) progress in multilateral negotiations at the International Maritime Organization (IMO) addressing vessel-based pollution and ocean dumping, 2) regional multilateral efforts in the Wider Caribbean (inclusive of the Gulf of Mexico and Straights of Florida) to address land-based marine pollution, 3) continued efforts to slow the loss of coral reef ecosystems, 4) project specific work in northwest Russia to remove high-level sources of radioactivity that threaten the Arctic environment, and 5)new initiatives in the Arctic Council and the Arctic Monitoring and Assessment Program (AMAP) to identify priority pollutants and associated risks to the Arctic ecosystem. We also continue to work as needed to provide technical and policy support for environmental issues under the Antarctic Treaty System.

The most significant macro-scale benefit of programs in this objective is the protection of Arctic populations, and resources in marine and polar environments that are important to the United States and other countries. More specifically, the 1999 programs will reduce environmental damages associated with tributlytin, ballast water discharges, ocean dumping, and improper storage of radioactive wastes. In addition, on-going efforts to address land-based sources of marine pollution in the Wider Caribbean should result in improvements in regional water quality and marine habitats that include economic benefits to significant commercial interests in the Region.

Our interests in protecting the oceans and polar environments cannot be achieved through unilateral or domestic actions alone. Consequently, EPA's international efforts in this area are centered on a strategy that focuses on selected multilateral negotiations that: 1) set explicit international standards for specific marine pollution problems, and 2) establish cooperative mechanisms for identifying, prioritizing, and mitigating/preventing international sources of Arctic contamination. Our negotiating efforts are focused on global standard setting and regional water bodies that the U.S. shares with other nations (e.g. the Wider Caribbean and Arctic seas). Other efforts are project specific, addressing significant source problems or establishing programs to be replicated on a larger scale.

Significant steps taken in 1999, leading to accomplishment of the objective include concluding a regional treaty on land-based marine pollution in the Wider Caribbean, global agreement on a phase-out of tributyltin use on ships, completion of prototype containment systems for high-level sources of radioactivity in the Arctic, and enabling Russia to formally accept the amended London Convention banning ocean disposal for all radioactive materials.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 05 Prevent Degradation of the Marine and Polar Environments	**$1,318.2**	**$1,307.7**	**$1,397.5**
Environmental Program & Management	$1,318.2	$1,307.7	$1,397.5
Total FTE	9.9	9.9	10.2

1999 Annual Performance Goals

- Conclude regional treaty on land-based marine pollution including 2 source-specific annexes (domestic wastewater & agricultural run-off)

- Complete construction of prototype for transportable containment system for spent & damaged nuclear fuel from decommissioned Russian submarines; and initiate design feasibility and siting studies for dedicated storage.

The 1999 performance goals address distinct activities relating to long-term achievement of the objective. The first pertains to the conclusion of negotiations on a regional agreement addressing land-based marine pollution and the second pertains to completion of site specific projects in the Arctic. The combination of these 1999 performance goals represent incremental components in seeking to prevent significant degradation of the marine and polar environments over the long-term. Completion of the regional protocol on land-based marine pollution will provide the first instrument in the Wider Caribbean for establishing international norms for specific contaminants and effluents. Attaining our 1999 performance goals for programs in the Arctic will complete important design and engineering steps necessary for us to achieve risk reductions between 2000 and 2005.

1998 Annual Performance Goals

- Complete design of prototype for transportable containment system for spent & damaged nuclear fuel from decommissioned Russian submarines.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
05 Obj. Total Change	**$89.8**	**0.3**
Environmental Program & Management	$89.8	0.3

- (+$89,800 EPM) Total payroll costs for this objective will increase to reflect increased workforce costs.

Key Performance Measures	1998	1999
Design prototype completed for containment system	September 30, 1998	
Number and types of source-specific annexes completed		2 annexes completed

Conclusion

Preventing significant degradation of the oceans and polar environments over the long-term is important since the environmental health and socio-economic well-being of these resources are critical to the United States and other nations. Accomplishment of our 1998 and 1999 goals will put us in a position to better protect these resources in future years. Risks reduced will be specific to those contaminants targeted for international action. Risks reduced may be reductions in environmental risks that are currently resulting in known damages or may be reductions in potential risks associated with foreseeable, but preventable releases to the environment.

Achieving the Arctic environmental goals in 1998 and 1999 will result in proper disposal of high-level radioactive waste sources, significant reduction in future risk from these sources, and establishment of monitoring and assessment stations for priority pollutants to distinguish regional from long-range sources of transport.

Achieving 1999 performance goal will establish definitive international legal standards for significant marine pollutants that are applicable to numerous nations through global or regional agreements. Some reduction in risk may occur in the near-term, but most significant reductions in environmental risk will occur only in later years due to the sequential nature of multi-year objectives and the lag between agreement finalization and entry-into-force of the relevant international agreements.

To effectively achieve our performance goals, EPA must assume that other U.S. departments and Agencies as well as affected stakeholders, international organizations, and foreign states work cooperatively to advance our collective

interests in this area. Specific countries and international organizations, most notably the International Maritime Organization, the United Nations Environment Program, and the Arctic and Barrents Councils must be able to adequately support the relevant negotiations if we are to be successful in achieving the stated goals.

Key Performance Measures Verification

The annual performance goals and measures identified are expressed as the degree of completion of explicit tasks (e.g. completion of legal agreement, and complete testing and construction of a radioactive waste prototype containment system) and the satisfaction of U.S. negotiation objectives. These measures may be verified as tasks completed or, in some cases (such a treaty negotiation) will require assessment by program staff and management. Verification of these measures does not involve any pollutant database analysis, but will require objective assessment of tasks completed and the satisfaction of U.S. environmental negotiating objectives.

Statutory Authority

Resource Conservation and Recovery Act (RCRA) sections 3002-3005 (42 U.S.C. 6922-6925)

Toxic Substance Control Act (TSCA) sections 5 and 6 (15 U.S.C. 2604 and 2605)

Pollution Prevention Act (PPA) (42 U.S.C. 13101-13109)

North American Agreement on Environmental Cooperation (NAAEC)
1996 Habitat Agenda, paragraph 43bb

Marine Protection, Research and Sanctuaries Act of 1972 as amended

[other possible authorities, directives, obligations--Clean Water Act (33 U.S.C. 1251-1387)]

Environmental Protection Agency

1999 Annual Plan Request to Congress

Reduction of Global and Cross-Border Environmental Risks

Objective #6: Achieve Cleaner and More Cost-Effective Practices

By 2005, increase the application of cleaner and more cost-effective environmental practices and technologies in the U.S. and abroad through international cooperation.

Overview

With a request of $7,958,200 and 37.6 total workyears, EPA's activities under this objective will: (1) protect human health and global, regional and local ecosystems through enhanced environmental management capabilities in other countries; (2) reduce costs of environmental protection in the U.S. through international sharing of information and costs in environmental policy and research programs; (3) promote environmentally sound trade worldwide through participation in multilateral environmental agreements, including trade regimes, and the strengthening of global environmental institutions; and (4) advance U.S. foreign policy, economic, national security, humanitarian and other interests abroad.

The most important benefits of the programs supporting this objective include protection of our national environmental investments by ensuring that trade policies do not undermine our ability to protect the environment, increased cost-effectiveness of U.S. environmental programs, enhancement of U.S. environmental security and foreign policy requiring environmental technical assistance, and support of U.S. environmental goals that require capacity building in key countries.

The Agency will employ the following strategies in carrying out its work under this objective: (1) cooperation through the World Trade Organization (WTO) and other multilateral fora to ensure that domestic and international environmental laws, policies and priorities are recognized and, where appropriate, promoted within the multilateral trading system; (2) cooperation with other Federal agencies, states, business and environmental Non Government Organizations (NGOs) to ensure an appropriate balance between the promotion of trade in U.S. goods and the need to protect the U.S. domestic environment and achieve global environmental policy goals; (3) cooperation with other Federal agencies, states, local groups, and the business community in promoting the worldwide dissemination of environmental technologies and services; (4) implementation of bilateral agreements with key countries facilitating scientific, technical and other forms of environmental cooperation; (5) multilateral collaboration in coordinating policies and in implementing cooperative research and development programs; (6) international technical assistance, training, information exchange and other capacity-building programs; (7) implementation of the Memorandum of Agreement with the Department of Defense

and the Department of Energy on "environmental security"; and (8) implementation of EPA's international visitors program.

Providing access to microbiologically safe drinking water and the protection of drinking water sources in developing nations is one of the Agency's priorities. These goals have been further underscored by the Administration's interest in improving the environmental health of children, who are most vulnerable to water-borne diseases. Ongoing and new initiatives in the water sector include projects in Latin America, Asia, Central and Eastern Europe, Russia, and the Newly Independent States of the former Soviet Union. The Agency will be working in cooperation with the Pan American Health Organization, the U.S. Peace Corps, the Water and Environment Federation, UNICEF, and many other domestic and international partners to improve drinking water treatment techniques, waste water collection and treatment, watershed management, and the operation, maintenance, and financing of water distribution systems.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 06 Achieve Cleaner and More Cost-Effective Practices	**$5,684.1**	**$4,315.8**	**$7,958.2**
Environmental Program & Management	$5,684.1	$4,315.8	$7,958.2
Total FTE	41.6	41.6	37.6

1999 Annual Performance Goals

- During FY 1999, deliver 30 international training modules; implement 6 technical assistance or technology dissemination projects; implement 5 cooperative policy development projects; and disseminate information products to 2,500 foreign customers. The purpose of these programs will be to reduce air, water, and waste problems in at least 6 environmentally and geopolitically significant countries and to improve the cost-effectiveness of U.S. domestic programs.

- Develop a training module for improving the performance of existing drinking water treatment facilities without major capital investments.

- Initiate two pilot projects to demonstrate how communities can protect and improve their drinking water sources with low-cost measures.

The annual performance goals outlined for 1999 represent incremental steps to address larger policy objectives that will require many years to realize. In many cases, such as in trade and the environment, the policy objectives are on-going in character, requiring continuous participation in selected policy fora. Success in these venues can be best characterized as success in maintaining U.S.

flexibility in our authority to require necessary levels of environmental quality. In 1999, annual goals for our technical assistance programs represent step-wise programs targeted to specific environmental issues and sectors that are critical to protection of the U.S. and global environment.

1998 Annual Performance Goals

- During FY 1998, deliver 25 international training modules; implement 5 technical assistance or technology dissemination projects; implement 4 cooperative policy development projects; and disseminate information products to 2,000 foreign customers. The purpose of these programs will be to reduce air, water, and waste problems in at least 6 environmentally and geopolitically significant countries and to improve the cost-effectiveness of U.S. domestic programs.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
06 Obj. Total Change	**$3,642.4**	**(4.0)**
Environmental Program & Management	$3,642.4	(4.0)

- (+$2,900,000 EPM) for the International Safe Drinking Water Program to support the new Agency initiative *Ensuring Children's Health through Microbiologically Safe Drinking Water and Adequate Sanitation.* This Initiative would result in significant and measurable risk reduction from exposure to water-borne diseases in targeted developing countries. It includes components on environmental technology transfer and environmental capacity-building.

- The additional change in resources does not represent a change in the program. The application of 1998 carryover funds to this objective are not included in this table.

Key Performance Measures	1998	1999
Number of training modules delivered	25 modules	5 modules
Number of technical assistance or technical dissemination projects carried out	5 projects	6 projects

Number of information products disseminated to foreign customers	2,000 products	2,500 products
Development of microbiological SDW training module		1 module
Number of pilot projects conducted in targeted countries		2 pilot projects

Conclusion

EPA's activities under this objective will help move U.S. and international environmental policies and programs toward the desired "end state" in which: (1) proven and cost-effective environmental technologies and services are readily available to those who need them, (2) countries possess the environmental management and enforcement capabilities necessary to reduce environmental risk, and (3) countries, including the United States, benefit economically and environmentally from scientific or technological advances achieved in another country.

Key Performance Measures Verification

The annual performance goals and measures identified under Objective 6 are expressed as the degree of completion of explicit tasks (e.g. completion of environmental security action plans for priority areas, delivery and successful application of information and training materials, trade initiatives that do not compromise domestic environmental standard). These measures may be verified as tasks completed or, in some cases (such a treaty negotiation) will require assessment by program staff and management. Verification of these measures does not involve any pollutant database analysis, but will require objective assessment of tasks completed and the satisfaction of U.S. environmental negotiating objectives.

Statutory Authority

Emergency Planning and Community Right-to-Know Act (section 313 (42 U.S.C. 11023)

Pollution Prevention Act (42 U.S.C. 13101-13109)

World Trade Organization Agreements

North American Free Trade Agreement

Goal 7: Right to Know

Goal 7: Expansion of Americans' Right to Know About Their Environment VII-1
Increase Quality/Quantity of Education, Outreach,
Data Availability. VII-6
Improve Public's Ability to Reduce Exposure. VII-18
Enhance Ability to Protect Human Health. VII-27

Environmental Protection Agency

1999 Annual Plan Request to Congress

Expansion of Americans' Right to Know About Their Environment

Strategic Goal: Easy access to a wealth of information about the state of their local environment will expand citizen involvement and give people tools to protect their families and their communities as they see fit. Increased information exchange between scientists, public health officials, businesses, citizens, and all levels of government will foster greater knowledge about the environment and what can be done to protect it.

Goal Summary
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Expansion of Americans' Right to Know About their Environment	**$156,730.7**	**$140,371.4**	**$159,087.8**
Obj. 01 Increase Quality/Quantity of Education, Outreach, Data Availability	$76,246.5	$72,202.0	$75,343.7
Obj. 02 Improve Public's Ability to Reduce Exposure	$51,493.5	$47,120.6	$51,875.5
Obj. 03 Enhance Ability to Protect Public Health	$28,990.7	$21,048.8	$31,868.6
Goal Total FTE	774.4	771.7	757.0

Providing all Americans with access to sound environmental information and informing and involving the public in our work are essential parts of a comprehensive approach to protecting the environment. All U.S. citizens have a "right to know" about the pollutants in their environment - including the condition of the air they breathe and the water they drink, as well as the health effects of the chemicals used in the food and products they buy. Increased information is especially valuable for minority, low-income, and Native American communities that suffer a disproportionate burden of health consequences from poor environmental conditions. As U.S. citizens, they need to receive adequate knowledge of and representation in public policy and environmental decision-making.

Access to environmental information enables American citizens to be involved and informed environmental decision makers. Through the dissemination of information, citizens are given the ability to create and promote lasting solutions to environmental problems. The relative severity of environmental risks, the opportunities for preventing pollution, and the uncertainties and complex trade-offs that underlie many environmental decisions need to be understood and addressed. Public awareness is critical to developing sustainable solutions that all stakeholders -- industry, agriculture, government, and the public will support and carry out.

The 1999 President's Budget requests $159,087,800 and 757.0 total workyears for this goal, an increase of $18,716,400 and a decrease of 14.7 workyears over 1998 Enacted. The Agency will use a variety of strategies to accomplish this goal. Critical to the success of these strategies will be cooperation and collaboration with all potential partners, including Federal, state, tribal and local governments, education institutions, nonprofit organizations, and businesses. In 1999, the Agency will expand Americans' "right to know" by improving the quality and increasing the quantity of general environmental education outreach and data availability programs, and improving electronic access to information.

The resources requested in this budget will enable the Agency to meet a number of important performance goals in 1999. The most significant of these include:

- Add 10 state participants to the One-Stop Reporting Program (Total=30).
- Provide over 100 grants to assist communities with understanding and addressing Environmental Justice issues.
- Increase compliance with right to know reporting requirements by conducting 1300 inspections and undertaking 200 enforcement actions.
- 3,300 large and very large community water systems (serving approximately 185 million Americans) will issue annual consumer confidence reports containing information about the systems' source water and the level of contaminants in the drinking water.
- Process 110,000 facility chemical release reports, publish the TRI Data Release Report and provide improved information to the public about TRI chemicals, enhancing community right to know and efficiently processing information from industry.
- By 1999, EPA will complete 5-7 monitoring pilot projects in EMPACT cities, and implement timely and high quality environmental monitoring technology in 5-7 EMPACT cities.

HIGHLIGHTS:

Expanding Communities' Right-to-Know

The 1999 President's Budget requests $51,875,500 and 255.1 total workyears, an increase of $4,754,900 over 1998 Enacted, to improve the public's ability to reduce exposure. Under the Emergency Planning and Community Right-to-Know Act (EPCRA), EPA is required to provide the public with valuable chemical release data through the Toxic Release Inventory (TRI). EPA has recently expanded the TRI by adding seven new industry sectors and by nearly doubling the number of reportable chemicals. The goal of these actions is to provide a broader picture of industrial releases and transfers so the public will have more information about potential risks.

In 1999, EPA will perform quality analyses of at least two additional industries reporting to TRI and process 110,000 TRI Form R's as part of the operation. EPA will finalize the persistent, bioaccumulative, and toxics (PBT) rule to add more chemicals to the TRI. To ensure that the public has information on chemicals that may be highly toxic but are manufactured, processed, or used in lower volumes, the Agency will lower the thresholds for reporting PBTs. The Agency has expanded the TRI effort and will propose a chemical use reporting

rule. Finally, to ensure the efficacy of this information, five focus groups will be conducted to determine how to better serve those who would use TRI information.

The Agency aggressively seeks to integrate all relevant sources of data and information to support comprehensive approaches to environmental protection that include community-based environmental protection (CBEP) and ecosystem protection. This information is to be coordinated and integrated across the Agency to provide comprehensive views of environmental data based on increased availability and accuracy of locational and spatial data, the establishment of the central structure required to support data standards, and a registry of environmental data.

Increasing Public Access

The 1999 President's Budget requests $67,487,300 and 302.9 total workyears, a $3,150,200 increase over 1998 Enacted, to enhance American's access to environmental information. In 1999, the Agency will provide environmental information through a variety of initiatives.

The Agency's One Stop Reporting Initiative will provide one-stop access to and reporting of environmental information. This initiative focuses on streamlining reporting by regulators and improving the availability of environmental performance data for the public and the educational community. Information such as databases, press releases, phone numbers, fact sheets, and regulations will be made available on the World-Wide Web.

In 1999, the Agency's Public Access Strategic Initiatives will provide the necessary infrastructure to integrate EPA data electronically so that the public has access to information on environmental requirements and regulations, and is provided an opportunity to comment. Under the Enforcement and Compliance Information (ECI) initiative, the Agency will provide the public access to user-friendly information on enforcement and compliance data policies, guidance and interpretations. This initiative will improve citizens' and small businesses' access to, and their understanding of, compliance and enforcement information.

Lessons learned from the Regulatory Information Inventory and Team Evaluation Project (RIITE) will be made available nationally, providing a toolbox of successful approaches, establishing a web site of forms, and testing the use of web sites for submission of compliance data. Collection, analysis, and use of data are at the heart of effective environmental management. Electronic reporting for many of the Agency's core compliance reports will be available; e.g., municipal water system laboratory reports, some transactions involving the hazardous waste manifest, and reporting of annual emissions inventories in some delegated states. Additionally, EPA is now developing a "second generation" approach on Internet/Web-based forms, which will be much more appropriate for small companies and for individuals.

The Agency will ensure that small business and other small entities are full participants in Agency regulatory activities, especially regulatory development and compliance assistance. Under the requirements of the Small Business Regulatory Enforcement Fairness Act of 1996, the Agency provides small entities the opportunity to participate in the development of proposed rules subject to the Regulatory Flexibility Act. One of the Agency keys for successful small business participation in the environmental decision making process is a well informed and educated small business community. A focal point of the Agency's small business information activities is EPA's Office of Small Business Ombudsman (SBO). This office coordinates over 12,000 small business inquiries each year, supports an Internet Web page for small business, and coordinates

agency regional small business activities. In addition, the SBO provides oversight for and reports to Congress on small business compliance activities under §507 of the Clean Air Act. Through this process the Agency and the small business community stay abreast of each other's needs and concerns.

The creation of the Center for Environmental Information and Statistics (CEIS) will play a crucial role in our efforts to improve delivery of environmental information to the public and ensure a cooperative and collaborative approach to environmental decision making. The CEIS will provide a "Master Atlas" that integrates various mapping software and provides multimedia data on environmental quality, status and trends. CEIS will also have a web site for visitors to identify and contact Agency representatives so that they may discuss the environmental data used and the Agency's interpretation. The CEIS will also serve as the Agency's source of internal information on environmental quality, status and trends - informing individuals, communities, businesses and the public of environmental information which will be easily accessible, objective, and reliable.

Ensuring Environmental Justice

The 1999 President's Budget requests $7,856,400 and 45.7 total workyears to support environmental justice. In 1999, the Agency will work to ensure that minority, low-income, and Native American communities will be able to meaningfully participate in environmental decision-making and protect themselves from undue risks. The Agency will hold National Environmental Justice Advisory Council meetings to advise the Administrator on Environmental Justice concerns.

The Agency will continue to develop the Environmental Justice program to ensure that all people, regardless of race, national origin, or income, are protected from a disproportionate impact of environmental hazards. Environmental programs do not always equally benefit all communities or all populations. To remedy this problem, the Agency will raise the awareness and understanding of environmental issues affecting high risk communities by holding at least one Enforcement Roundtable in an affected community. To facilitate community involvement, EPA will provide grants to minority and low income communities to address Environmental Justice issues.

Through the Interagency Workgroup meetings and joint projects, EPA will work to ensure that all Federal agencies comply with the Executive Order on Environmental Justice and incorporate environmental justice concerns into program planning and implementation. EPA will also integrate Environmental Justice into its own program operations, Regional Memoranda of Agreement, and state Performance Partnership Agreements.

Tools for Enhancing the Ability to Protect Human Health

The 1999 President's Budget requests $31,868,600 and 153.3 total workyears, an increase of $10,819,800 over 1998 Enacted, to enhance American's ability to protect human health. In pursuing this objective, the Agency ensures that all Americans have easy access to sound environmental information. Providing this information will allow citizens to expand their involvement in protecting the environment.

The President's Environmental Monitoring for Public Access and Community Tracking (EMPACT) initiative is a cross-agency program established to provide the public with information regarding local environmental conditions (e.g. toxic pollutants, water and air quality). This program will continue to report and provide access to selected communities throughout the nation. EMPACT will provide at least 75 of the largest U.S. metropolitan areas with access to

information regarding the quality of their local environments, and relevant scientific and technical tools to interpret and evaluate potential impacts and risks to these environments. The Agency will expand EMPACT's effectiveness by improving technological approaches to data management and communications and by improving its discourse with the public regarding environmental risks.

Citizen involvement in protecting the environment will also be expanded through the Integrated Risk Information System (IRIS). IRIS is an EPA database of Agency consensus health information on environmental contaminants which is used extensively by EPA Program Offices and Regions where consistent, reliable toxicity information is needed for credible risk assessments. Each of the 535 IRIS "files" contains chemical-specific information on cancer and noncancer health effects. Each IRIS file summarizes a more detailed health assessment or support document. IRIS is heavily used for risk assessments and other health evaluations across the Agency. The most frequent users are Regional and State risk assessors, but use has grown to include all levels of government, as well as the public and private sectors, both nationally and internationally.

Environmental Protection Agency

1999 Annual Plan Request to Congress

Expansion of American's Right to Know About Their Environment

Objective 1: Increase Quality/Quantity of Education, Outreach, Data Availability

By 2005, EPA will improve the ability of the American public to participate in the protection of human health and the environment by increasing the quality and quantity of general environmental education, outreach and data availability programs, especially in disproportionally impacted and disadvantaged communities.

Overview

This objective supports EPA's efforts to provide an increasing quantity of information to the public so that the public is able to make informed and educated decisions on environmental issues affecting their communities. Information will be made available to educators, academic institutions, scholars, industry, state and local governments, non-profit organizations, the public, and NAFTA partners. Resources within this objective also help support the President's Environmental Monitoring for Public Access and Community Tracking (EMPACT)initiative. EPA's role in EMPACT is to develop approaches to 1) integrate monitoring measurement technologies with effective data management and communications solutions and 2) to research to facilitate effective communication to the public regarding environmental risk. Major program benefits include fair and equal protection under environmental laws for those communities disproportionately affected by toxic releases and hazards, a better informed public, increased involvement of citizens in adversely impacted communities in environmental decisions affecting them, and pollutant reductions in high risk communities.

In support of this objective, EPA will continue to increase the amount and quality of publicly available information on environmental programs. This includes one-stop access to and reporting of program information. The Agency's One-Stop Reporting Initiative will focus on streamlining reporting by regulated entities and ultimately improve the availability of environmental performance data to the public. A central component of the One-Stop Reporting Initiative is establishing a standard facility identifier for regulated entities. EPA will also provide an Agency-level framework to ensure an overall coordinated approach to information collection, integration, and access. EPA will manage and support Internet activities such as managing website content and organization. The website activity provides world-wide electronic access to Agency information such as databases, press releases, locator tools, fact sheets, regulations, policies and guidance, and other Agency information. In addition, the Agency will provide the Envirofacts data warehouse to state and local communities and Tribal governments. Envirofacts allows the Agency to develop new software tools for conducting permit reviews, assessing compliance status and trends, and conducting environmental assessments. EPA will also work to develop and improve existing tools to identify communities most disproportionately affected by toxic releases and hazards. This objective also involves collaboration and coordination of the efforts outlined to address environmental justice issues within EPA and with other Federal agencies.

Multimedia resources serve to educate students, individuals, tribes and communities about environmental and public health protection. EPA will use various media resources to aid and increase public understanding of public health and environmental protection issues. Equally important is advising appropriate program offices in EPA on the various outreach tools available. This will increase the public's awareness of environmental issues and their technological and scientific solutions, as well as apply standardized cross-media tools to identify communities at risk of potential environmental contamination. This objective supports educational and training programs that encourage replication of model environmental education curricula programs and materials for educators and teachers. It also supports youth programs such as the President's Environmental Youth Awards and the Vice President's GLOBE initiative - which will be used to convene workshops and meetings to involve scientists and educators in selecting appropriate environmental observations that will be used to coordinate the work of students, teachers, and scientists to study and understand the environment.

An integral component of this objective is the environmental justice program. The goal of the environmental justice program is to ensure that all people, regardless of race, national origin, or income, are protected from disproportionate impacts of environmental hazards and that the most affected communities have adequate opportunities to participate in environmental decision making. EPA is the lead agency for Executive Order 12898, which requires each Federal agency to integrate environmental justice a part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health and environmental effects of its own programs, policies and activities on minority populations and low-income populations. Through Interagency Workgroup meetings and joint projects, EPA will work to ensure that all Federal agencies are aware of and incorporate environmental justice concerns into program planning and implementation. EPA will also continue to hold National Environmental Justice Advisory Council meetings to advise the Administrator on environmental justice concerns. The Agency will also integrate issues into program operations, Regional Memoranda of Agreement, and state Performance Partnership Agreements.

EPA is particularly interested in making sure that minority, low-income and Native American communities receive adequate information and representation in public policy and environmental decision-making processes. Although significant progress has been made in achieving healthier, sustainable environments, environmental programs have not always equally benefitted all communities or all populations within a community. In particular, environmental programs do not always address the disproportionate exposures to pesticides, lead, or other toxic chemicals suffered by certain communities at home or at work. To raise awareness and understanding of environmental issues affecting these high risk communities, at least one Enforcement Roundtable will be held in such a community. To facilitate community involvement, EPA will provide grants to minority and/or low income communities to address environmental justice issues.

Citizens also need access to information to stay informed about environmental issues and participate effectively in decisions affecting their communities. The maze of statutory and regulatory authorities and policy interpretations is daunting, and the public needs clear information on the regulatory requirements and contacts to answer questions and resolve concerns. EPA will provide the necessary infrastructure to integrate EPA data electronically so that the public has access to information on environmental requirements. The Agency will provide public access to user friendly information on enforcement and compliance policies, guidance, site-specific interpretations and other information relating to the Agency's enforcement and

compliance assurance program. This will allow the public to better understand the environmental conditions in their local area as well as the broader accomplishments of EPA. EPA will make information available to the public through the Agency's Public Access Strategic Initiatives. Activities and projects associated with this initiative include: making Agency regulations, policies and guidance available to the public and allowing the public to comment electronically; making key enforcement interpretations available, as recommended by the Enhanced Public Access Task Force; managing and organizing Agency records in electronic formats to enhance both internal and public access; measuring citizen satisfaction with the information and access, thus allowing continuous improvement in services; and enhancing design and organization of EPA's Homepage and upper-level web pages. To support these activities, the Agency requests $5,831,000.

EPA offices will use electronic communications such as the Enforcement and Compliance Information (ECI) initiative which will reengineer enforcement data systems to improve the Agency's, states', and the public's access to and understanding of compliance and enforcement information. ECI will also relate these data to risk and other relevant information for decision making. The Index of Watershed Indicators (IWI) is another example which contains more environmental and health information than EPA has presented before - combining 15 indicators of aquatic resource health to characterize the condition and vulnerability of 2,111 watersheds in the continental United States. Several Federal, state and nongovernmental organizations contributed to this Index. These same agencies share in our past water quality successes and will continue to be involved in overcoming the problems IWI brings to light. The IWI will also enable managers and community residents to understand and take action to protect the watershed where they live. The watershed information provided by IWI can also lead to more specific information about their water, how they compare to similar watersheds, and what may be causing problems.

Lessons learned from the Regulatory Information Inventory and Team Evaluation Project (RIITE) will be made available nationally, providing a toolbox of successful approaches, establishing a website of forms, and testing the use of websites for submission of compliance data. Collection, analysis and use of data are at the heart of effective environmental management. Electronic reporting for many of the Agency's core compliance reports will be available (e.g., municipal water system laboratory reports, some transactions involving the hazardous waste manifest, and annual emissions inventories in some delegated states). Additionally, EPA is now developing a "second generation" approach based on Internet/Web-based forms, which will be much more appropriate for small companies and individuals.

Creation of the Center for Environmental Information and Statistics (CEIS) will play a crucial role in efforts to improve delivery of environmental information to the public and ensure a cooperative and collaborative approach to environmental decision making. The CEIS will provide a "Master Atlas" that integrates the capabilities of EPA's various mapping software offerings and provides multimedia data on environmental quality, status and trends as well as an electronic network that allows website visitors easy identification and contact with Agency data experts to discuss questions of data use and interpretation. The CEIS will also serve as the Agency's point of internal focus and convenient point of external public access for integrated, multi-media information on environmental quality, status and trends -- informing individuals, communities, businesses and the public of environmental information that is easily accessible, objective, and reliable. For example, small entity outreach and education will be augmented by making information on training and technical assistance available through the Small Entity homepage. The CEIS will be customer-oriented, meeting the needs of the many audiences for environmental

information. For CEIS, the Agency is requesting a total of $4,355,300 and 33 workyears.

In 1999, EPA will identify and promote the development of new policies and innovative approaches to environmental management through cooperative partnerships with organizations and institutions outside of EPA. EPA will accomplish this through the National Advisory Council for Environmental Policy and Technology (NACEPT) and its standing committees, and statutorily-mandated advisory committees dealing with North American Free Trade Agreement (NAFTA) implementation and U.S./Mexico border issues. The committees are: the National Advisory Committee/Governmental Advisory Committee and the Good Neighbor Environmental Board.

Providing public access to information is also a statutory requirement under the Freedom of Information Act (FOIA). The Office of Executive Secretariat controls an ever increasing quantity of correspondence, and routes, logs, and tracks Agency FOIA requests. This office develops FOIA policy; coordinates Agency FOIA and correspondence policies; guides and trains Agency personnel in FOIA and correspondence activities; prepares a yearly FOIA report to Congress; provides policy and program oversight on FOIA; and manages and tracks executive correspondence. To support this process, the Agency requests $2,268,400 and 29 workyears.

The regulatory development process ensures compliance with various statutes governing rulemaking, and promotes an improved and streamlined regulatory process including increased public information. EPA has been a leader in the Federal government in the use of consensus building techniques and will continue to develop negotiated rulemaking, policy dialogues and other consensus based stakeholder involvement techniques at the national, regional, local and international levels. Involvement of stakeholders in crafting the programs and rules by which they will abide promotes innovative, effective and cost effective solutions and fosters earlier, more complete compliance with environmental protection measures.

The Small Business Regulatory Enforcement Fairness Act (SBREFA) requires EPA to establish formal mechanisms for outreach to small entities for certain significant regulations. EPA is committed to the advancement of outreach and public participation in the rulemaking process for all stakeholders and especially for small entities. The Small Business Ombudsman was created by the Administrator to assist small businesses in understanding and complying with new legislative initiatives. The Ombudsman identifies and evaluates small business problems and recommends practices as they relate to small businesses. The Ombudsman provides outreach to small business in a multitude of ways-through distribution of information, the small business homepage, hotline, training, conferences, etc.-and is continually looking for ways to improve outreach and involve the small business community directly in the regulatory development process. The Agency requests a total of $987,100 and 3 workyears for this objective.

This objective will be supported through legal counseling and advocacy. This may include advice, participation in the development of Agency actions, document review, and the conduct of defensive litigation.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 01 Increase Quality/Quantity of Education, Outreach, Data Availability	**$76,246.5**	**$72,202.0**	**$75,343.7**
Environmental Program & Management	$75,489.1	$69,791.8	$72,915.2
Hazardous Substance Superfund	$757.4	$2,410.2	$2,428.5
Total FTE	385.5	381.1	348.6

1999 Annual Performance Goals

- Continue to advise the Administrator on Environmental Justice issues.
- Continue to ensure that all Federal agencies comply with the Executive Order on Environmental justice, review performance measure, and conduct Environmental Justice project in coordination with other Federal agencies.
- Continue to make Enviro$sense more user friendly and continue electronic conversion of appropriate enforcement documents and data to provide for enhanced public access.
- Continue to improve public access to compliance and enforcement data, particularly to high risk communities, through multimedia data integration projects and other studies, analyses and communication/outreach activities.
- Continue to develop tools for data management programs integrating EPA data.
- Increase availability and usage of environmental information on the EPA Website.
- Make 60% of the Agency's interpretive Guidance available on the Internet.
- Add 10 State participants to the One-Stop Reporting Program (for a total of 30).
- Make Electronic Data Interchange/Electronic Commerce (EDI/EC) available for Agency reports.
- Make 5% of data reported to EPA available through EDI/EC.
- Establish a National Facility ID file with accurate information for 95% of the facilities.
- Continually improve processes to involve affected parties in environmental decision-making to forma more collaborative and cooperative partnership.

- Index of Watershed Indicators (IWI) report is updated.

- Improve the consistency of Federal/State and other reporting requirements through technological advances n information generation combined with new approaches in environmental management.

The Agency's goal is to ensure that all people receive equal protection and access to a healthy and sound environment. The Agency will ensure that the President's Executive Order on Environmental Justice is implemented in Federal and non-Federal areas. The Agency will provide everyone with access to user friendly information on enforcement and compliance policies, guidance, interpretations and other information relating to the Agency's enforcement and compliance assurance program. EPA will also continue to hold public NACEPT and NAFTA Federal Advisory Committee Act (FACA) meetings to review current issues, identify emerging issues, establish priorities, and develop near- and long-term recommendations on environmental issues. The meetings will culminate in the issuance of six to ten reports that will inform the Administrator, the President, and Congress of these independent committees' recommendations on various environmental issues. These recommendations will empower the Agency, the President, and Congress to make better informed decisions on important environmental issues.

The Agency also estimates that it will receive and respond to approximately 140,000 pieces of executive correspondence and 30,000 FOIA requests in 1999. By responding to these public inquiries, the Agency empowers the American public with information that enables them to make informed decisions on environmental issues in their communities. In 1999, the Office of Executive Secretariat will fully implement the Electronic Freedom of Information Act (E-FOIA) by expanding and enhancing availability of databases to the public through a user friendly indexing system and an electronic "reading room."

The first phase of the IWI has been completed. Updates and refinements are planned in 1999 that will extend its use as both an analytic and an outreach tool. This will include data to show environmental change over more recent time intervals, and prototypes of the use of data in innovative ways for Internet presentations at finer scales of resolution in selected states. Work will begin to portray program response (a new category of data) in the IWI format.

The Agency will continue to manage and improve the regulatory development process so that our informational databases provide program managers, the Administration, Congress, and external stakeholders with timely and accurate information on the status and history of individual EPA rulemakings and their compliance with statutory mandates. Continued use of consensus building techniques will be used to improve environmental rulemaking decisions, enhanced guidance and training will be provided, and improved databases which provide information on regulatory development and identify facilitators and mediators will be available. EPA will expand efforts to reduce reporting burden and streamline reporting. Key activities include electronic reporting for pretreatment program and Spill Prevention, Control and Countermeasure (SPCC) plans, full-scale Internet-based EDI for Hazardous Waste Manifest, updated Agency policy on EDI and final report to OMB on information streamlining plan.

EPA will continue outreach to small business, establishing formal mechanisms and building partnerships to advocate small business involvement in Agency rulemakings. EPA will complete Regulatory Flexibility analyses for all of its rulemaking that may have significant impacts on a substantial number of small entities, initiate a small communities outreach program to gather information on impacts of EPA rules on small communities, augment Small Entities Homepage with specific information on rules for 20% of the sectors identified

by the Agency, and improve small entity outreach through training and technical assistance to Agency managers and staff.

EPA will play a crucial role in efforts to improve delivery of environmental information through the CEIS. The CEIS will serve as the Agency's point of internal focus and convenient point of external public access for integrated, multi-media information on environmental quality, status and trends -- informing individuals, communities, businesses and the public of environmental information that is easily accessible, objective, and reliable. The CEIS will be customer-oriented, meeting the needs of the many audiences for environmental information, and will also serve as an effective tool in the Agency's planning and budgeting processes

1998 Annual Performance Goals

- Advise the Administrator on Environmental Justice Issues.
- Continue to ensure that all Federal agencies comply with the Executive Order on Environmental justice, review performance measure, and conduct Environmental Justice project in coordination with other Federal agencies.
- Make Enviro$sense more user friendly and continue electronic conversion of appropriate enforcement documents and data to provide for enhanced public access.
- Improve public access to compliance and enforcement data, particularly to high risk communities, through multimedia data integration projects and other studies, analyses and communication/outreach activities.
- Make environmental data/information available to the public in a user-friendly manner.
- Develop tools for data management programs integrating EPA data.
- Make 30% of the Agency's Interpretive Guidance available on the Internet.
- Add 7 state participants to the One-Stop Reporting Program for a total of 20 states.
- Provide 1 Agency report on EDI/EC available.
- Complete the design for a National Facility Identifier System.
- Make Phase II Index of Watershed Indicators (IWI) data and analyses on a watershed basis via Internet.
- Implement priority data quality improvements form partnerships to promote understanding and use of information.
- Continually improve processes to involve affected parties in environmental decision making to form a more collaborative and cooperative partnership.
- Improve the consistency of Federal/State and other reporting requirements through technological advances in information generation combined with new approaches in environmental management.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
01 Obj. Total Change	**$3,141.7**	**(32.5)**
Environmental Program & Management	$3,123.4	(32.5)
Hazardous Substance Superfund	$18.3	0.0

- ($2,439,200 EPM; 33 FTE) An investment will be redirected from OPPE regional resources to the Office of the Chief Financial Officer to support GPRA and accountability.
- ($500,000 EPM) An investment will be redirected to support economic analysis and sustainable industry small business initiatives.
- ($-200,000 EPM) A disinvestment in the level of National Environmental Education Act resources distributed from Headquarters, including funding for the Environmental Education and Training Foundation.
- ($-650,000 EPM) A disinvestment to reflect completion of certain Regional projects under the EMPACT/Right-to-Know Initiative.
- ($-1,300,000 EPM) A disinvestment due to a 1998 Congressional Add-on for the Environmental Justice Community/University Grant program.
- ($+3,340,000 EPM) An investment to support, under EMPACT, enhancements of Surf Your Watershed and to the Index of Watershed Indicators (IWI).
- ($+3,750,000 EPM) Investment will provide for increased use of the EMPACT home page by the public, building increased local capacity in access to the information, a technology architectural plan for the EMPACT program, and a data standards program for EMPACT.
- ($+496,000 EPM) An investment to support the Small Business Ombudsman and SBREFA.
- ($+947,700 EPM) An investment for increasing the management, integration, and volume of data/information offered on the EPA Website.

Key Performance Measures	1998	1999
Environmental Justice Grants	100 Grants	100 Grants
CERCLA Environmental Justice Grants	27 Grants	27 Grants
Documents included in Enviroense	4,200 Documents	4,200 Documents
Hits to several Websites	67,400 Documents	67,400 Documents
Specialized assistance and training	100 Courses	100 Courses
Increase Usage on EPA Internet	140,000,000 Hits	180,000,000 Hits
Increase data/information on EPA Website	25 Percent	10 Percent

Add new data system to Envirofacts	3 Types	2 Types
Interpretive Guidance on Internet	30 Percent	60 Percent
Number of States with One-Stop Reporting	20 States	30 States
Availability of EDI/EC	1 Report	4 Reports
EDI/EC Data Reported		5 Percent
Facility ID file accuracy		95 Percent
Design facility ID system	100 Percent	
Completion of analysis of Phase II IWI with underlying data publicly available on watershed basis via Internet	1 Analysis	
Updated IWI Report		1 Report
Small entity outreach and education	Hold 2 conferences	Hold 2 conferences
Improve Federal/State collaboration efforts	10 Meetings	10 Meetings

Under the provisions of the Executive Order on Environmental Justice, EPA provides grant funding to universities and communities to help raise awareness of environmental and public health issues in disproportionately exposed and low income communities. Open dialogue on Environmental Justice concerns will ensure that Environmental Justice is integrated into the Agency's inspection, enforcement, and compliance assurance efforts.

The public and regulated community will also have access to accurate, timely, and comprehensive information about regulatory requirements. The Federal Facilities Program will conduct environmental equity profiles, Federal Facility environmental justice meetings/conferences, and post relevant policies and guidance on Enviroene. The enhancement of the Agency's web sites and uploading of material will enable all stakeholders, including the public and the regulated community, to have access to the major policies, documents and interpretative guidance used to implement the enforcement and compliance program. The web sites also provide additional information (e.g., pollution prevention opportunities) that enable the public to develop community-based environmental protection programs and strategies and the regulated community with opportunities to enhance their economic efficiency and their compliance record. The project will integrate data from several data sources into a single system allowing both facility-level and sector analysis.

Conclusion

The Agency is committed to improving Americans' knowledge and understanding of environmental issues so that they will be able to make informed and educated decisions about environmental issues affecting their communities. To that end, the Agency is making a determined effort to

increase the quality and quantity of its general environmental education, outreach and data availability programs, especially in disproportionately impacted and disadvantaged communities. EPA's efforts will directly support the President's "Right-To-Know" goal by providing up-to-date, accurate pictures of the conditions and stressors in their communities.

Accomplishments under this objective provide key milestones for ensuring the collection of environmental information in a manner that reduces burden while promoting integrity, accuracy, and supporting timely access for communities, regulators, and scientists to the data they need to make sound decisions about human health and the environment. EPA is committed to the overall effort of connecting the American people more effectively with the decision making structures of all levels of government and to establishing a more cooperative and collaborative approach to environmental decision making. To this end, EPA will increase efforts to involve stakeholders and provide information, guidance, technical assistance and evaluation with a focus on small entities. Small entity outreach programs represent EPA's continuing commitment to involve affected parties in a collaborative environmental decision-making process. These partnerships will result in better, more cost effective, more implementable, more creative solutions to environmental problems. Furthermore, when the public and EPA's partners are empowered with information, they can act in ways beneficial to the environment. As a result, EPA seeks to get information to the parties that need it in the most efficient manner possible.

EPA provides the public with information which enables Americans to participate in the protection of public health and the environment. The Agency's approach involves expanding the content of EPA's data holdings, improving the quality and useability of the data, and ensuring that these data are widely available. The dramatically increasing availability of public access to electronic media offers unprecedented opportunities for EPA to provide citizens with the information necessary to effect substantial environmental improvements. EPA's emphasis on electronic records management will enhance public access to EPA records. EPA will also focus on electronic rule-making to support the right of citizens to be knowledgeable of, and to participate in, decisions affecting the environment. Additional efforts involve EPA's attempts to incorporate state participation in the voluntary One-Stop Reporting Program and continued commercial development of the Internet in a manner that continues to support public outreach and access to the Agency's information.

EPA will also work to develop and improve existing tools to identify communities most disproportionately affected by toxic releases and hazards; reduce such releases and hazards by targeting enforcement activities and other specific activities to reduce exposure and promote cleanup; continue collaboration and coordination on environmental justice issues within EPA and with other Federal agencies covered by the Executive Order; integrate environmental justice issues into program operations, Regional Memoranda of Agreement, and state Performance Partnership Agreements; and, enhance community participation in environmental programs by increasing and improving education, technical assistance and financial support to high risk communities.

The dramatically increasing availability of public access to electronic media offers unprecedented opportunities for EPA to provide citizens with the information necessary to effect substantial environmental improvements. Our watershed-based electronic outreach

efforts, including Surf Your Watershed and the Index of Watershed Indicators, will directly support the Agency's efforts to implement the President's "Right To Know" goal by providing up-to-date, accurate pictures of the conditions and stressors in their communities.

Improving the ability of the American public to participate in the protection of human health and the environment will be facilitated through continued improvements to the regulatory development process, electronic systems, burden reduction, electronic data reporting and the use of public advisory committees. Public participation will also be improved by expanding outreach to small businesses, and through development of the CEIS. The CEIS will improve the quality and integration of environmental information, improve electronic access to information, and meet the needs of stakeholders to determine their internal and external requirements for environmental information. The CEIS will also provide an easily accessible central point which consolidates and reports information that the Agency or others hold on environmental conditions and trends. The CEIS will enhance Agency efforts to protect the environment -- providing tools for more fact-based decision making and providing customers with information that is useful to them.

Efforts to reinvent reporting practices track with changes in information technology that are taking place in the commercial and industrial sectors, where there has been a phenomenal growth in electronic commerce in recent years. Some industries report large savings from the use of EDI - partly due to a 40-50% reduction in general data error rate compared to paper documents. Based on anecdotal evidence, EPA estimates that EDI can be expected to reduce burden by 15% on average across EPA programs.

Key Performance Measures Verification

The Agency maintains a FOIA tracking system that will be used to determine the number of FOIA requests completed each year.

Staff within the Office of Cooperative Environmental Management are responsible for publishing the NACEPT and NAFTA reports. At the end of the year, they will identify the number of reports issued by the NACEPT and NAFTA FACA committees.

The Agency has attempted to develop measures which adequately reflect program goals and objectives. These measures emphasize quantifiable aspects of program processes, incorporating realistic program outputs and outcomes. The Agency recognizes the importance of verifying the validity of performance measures and indicators. Consequently, efforts are planned and currently underway to ensure that measures accurately reflect and support our assumptions. An important first step in this process has been the undertaking of a Customer Service survey to measure customer satisfaction. The results of this survey will provide us with a framework by which to validate and revise many of our assumptions. As the process evolves, the program output and outcome data provided will allow us to refine both our measures and our supporting information management system.

While the planned performance measure for this objective is output-oriented, the availability of refinements to the Index of Watershed Indicators will provide the Agency and the public significant opportunities to better understand the extent of the health of the

nation's ecosystems. Working with a broad array of inter-governmental partners, we can assure the validity of the data presented in our comprehensive assessments by continually refining data layers that undergo frequent change and by ensuring that the entire system is updated and refreshed on a periodic basis. This will enable the establishment of a firm analytical footing for measuring progress in the future.

The success in improving the regulatory development process will be visible through the number of stakeholders participating in the development of Agency rulemaking through a variety of consensus-based forums (i.e., negotiated rulemakings and public advisory committees). Success in outreach to small business will be measured by identifying the number of these entities participating in regulatory development, using compliance guides, and requesting information and clarification of Agency rules, through the Small Business Ombudsman Homepage. Verification of CEIS performance will be determined by the integration of multi-media information and the quality of products available. Surveys will measure the user satisfaction with these activities.

Statutory Authority

Clean Air Act (CAA) (42 U.S.C. 7601-7671q)

Clean Water Act (CWA)(33 U.S.C. 1251- 1387)

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. 9601-9675)

Emergency Planning and Community Right-to-Know Act (EPCRA) section 313 (42 U.S.C. 110001-11050)

Environmental Education Act

Federal Advisory Committee Act (FACA) (5 U.S.C. App.)

Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) (7 U.S.C. 136-136y)

Freedom of Information Act (FOIA) (5 U.S.C. 552)

Paperwork Reduction Act Amendment of 1995 (44 U.S.C. 3501-3520)

Pollution Prevention Act (PPA) (42 U.S.C. 13101-13109)

Resource Conservation and Recovery Act (RCRA) (42 U.S.C. 6901-6992k)

Safe Drinking Water Act (SDWA) section 1445 (42 U.S.C. 300f-300j-26)

Toxic Substances Control Act (TSCA) section 14 (15 U.S.C. 2601-2692)

North American Agreement on Environmental Cooperation

Environmental Protection Agency

1999 Annual Plan Request to Congress

Expansion of Americans' Right to Know About Their Environment

Objective #2: Improve Public's Ability to Reduce Exposure

By 2005, EPA will improve the ability of the public to reduce exposure to specific environmental and human health risks by making current, accurate substance-specific information widely and easily accessible.

Overview

The full and active participation of the American public in environmental priority setting, risk reduction and remediation and both short and long term environmental planning is an essential part of a comprehensive national approach to environmental protection. In many cases, especially those that are focused in a specific geographic location, informed citizens in their community setting can better assess the relative severity of environmental risks, the opportunities for prevention or remediation, and the tradeoffs and uncertainties that underlie many environmental decisions. Communities that have access to the information and data, which characterize potential risks from pesticide use and industrial facilities within their boundaries, are in a position to make effective decisions about their day-to-day activities.

To be successful in assuring that communities can protect the environment for themselves and their families, they need to have rapid and convenient access to environmental information that is local, relevant, and comprehensive. For relevance, the Agency must identify the customers' information needs and tailor the data collection, presentation and dissemination accordingly. For comprehensiveness, a goal for EPA is to continue to identify information gaps that reduce the ability of the public to make sound environmental decisions. Gaps could be associated with specific pesticides and chemicals; drinking water contaminants; specific industrial sectors or specific data elements and reference sources.

The Consumer Labeling Initiative (CLI) is an ongoing voluntary partnership with representatives of the cleaning products and pesticides industries, key federal agencies, public interest groups and other organizations. EPA and its partners make labels easier to read and more useful to consumers. The Pesticide Consumer Brochure will inform the public of risks and benefits from using pesticides on food, particularly risks to children, and tips to reduce exposure. The brochure will be available in the local grocery stores by August 1998.

The 1996 Amendments to the Safe Drinking Water Act also emphasizes the importance of providing better information to consumers on the quality and safety of their drinking water. Under this statute, EPA is required to promulgate a regulation on the issuance of annual right-to-know reports to all customers of public water systems. These consumer confidence reports, which will be published by public water systems, must contain information on the source of the water system's supply, the level of

detected contaminants, data on the health effects of contaminants found above the drinking water standard, as well as information on unregulated contaminants in the water supply. Furthermore, EPA is required to have a Safe Drinking Water Hotline to provide consumers with more information on drinking water contaminants and potential health effects, especially in emergency situations.

Under the Emergency Planning and Community Right-To-Know Act (EPCRA), EPA has provided the public with valuable chemical release data through the Toxic Release Inventory (TRI). This data can be used as a pollution prevention measure and a risk reduction tool. EPA can also incorporate this information into enforcement case settlement, and local authorities can prepare more effective emergency response plans, training programs and notification procedures to protect human health and the environment.

EPA has recently expanded TRI by adding seven new industry sectors and by nearly doubling the number of reportable chemicals. The goal of these actions is to provide an expanded picture of industrial releases and transfers so the public is more informed about potential risks.

EPA is aggressively seeking to integrate all relevant sources of data and information to support comprehensive approaches to environmental protection that include community-based environmental protection (CBEP) and ecosystem protection on a facility and location specific basis. This information is to be coordinated and integrated across the Agency to provide comprehensive views of environmental data based on increased availability and accuracy of locational and spatial data, the establishment of the central structure required to support data standards and a registry of environmental data.

EPA is working toward streamlining the operations for data reporting, integration, processing, and dissemination by taking advantage of advanced information technologies and other nonelectronic means so that quality data are provided in a timely manner. EPA's Internet site and data warehouse, Envirofacts, have begun to increase access to an ever broader user community.

EPA will inspect and take enforcement actions against those in the regulated community who are not in compliance with the nation's TRI reporting requirements. EPA is targeting inspections and enforcement actions against companies with data quality and data reporting violations, focusing on those chemicals which present the highest risks. The Agency is also conducting compliance inspections to identify companies that have failed to report releases.

Providing information and data is just one component of an effective strategy to expand the public's right-to-know about their environment. EPA will assure that training and education materials and programs keep pace with the information and data that the Agency provides to the public. Communities will be given not only data but the tools, training, and assistance to use that data in a way that helps every citizen make informed environmental decisions. For example, EPA is developing a catalogue of tools, resources, and programs that relate to its extensive base of information on the characteristics and effects of pesticides and industrial chemicals. These "tools" include databases, access to information hot lines, and descriptions of programs and initiatives that may affect local environments. The catalogue will be available in at least two formats: a printed manual and as a resource on the Internet.

These formats will be linked to other EPA information sites. EPA has data-gathering authorities available in its statutes -- the Toxic Substances Control Act (TSCA), the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), and EPCRA, among others -- and the catalogue can make the public aware of the data and its availability. Along with information on data, the catalogue will describe analytical tools, technical guidelines, and program information that can assist communities in learning about potential risks, which can, in turn, help them improve the local environment.

EPA will support and encourage the interdisciplinary environmental education programs of state and local governments, schools and universities, and nonprofit organizations through grants, teacher training, internships, and national recognition of outstanding efforts and model programs. EPA will build stronger partnerships with other governmental organizations and with the private sector to improve public understanding of the role of science in environmental decision-making.

The successful implementation of the TRI program, building on the concept of right-to-know, has greatly expanded the availability of chemical release information to the public. The program has encouraged citizens and communities to become active participants in environmental decision-making. Besides the national data collection and dissemination, EPA will emphasize the application of TRI data for local environmental situations. For example, EPA is currently implementing a pilot in Baltimore, where TRI data are used in conjunction with other EPA, state, and local information, to establish priorities among the multitude of environmental challenges the community faces. Factors such as volume of local releases of specific chemicals and location of such releases (proximity to schools, etc.) play a significant role in the discussions among the community's stakeholders. EPA will conduct surveys among users including the EPA Regional Offices, states, industry, environmental groups, community decision-makers, and the general public to evaluate whether EPA is meeting their information needs and how they are using the data. In communities, the national Environmental Monitoring for Public Access and Community Tracking (EMPACT) initiative will drastically change the focus for EPA in disseminating information. It sets a framework for EPA to assess community usage of TRI information and at the same time, speeds up the process for the Agency to gather community needs on other chemical-specific information. EPA will help communities identify the needed information currently not available within the Agency and devise methods to collect the data at the community level. EPA will incorporate other chemical data and health effects information into the TRI Public Data Release reports and through the Web Envirofacts Warehouse database.

EPA will take additional steps to expand the scope and depth of information available from TRI. Examples include initiatives to review chemicals based on risk that presently are not on the TRI list, to assess the need to include additional industrial sectors and to evaluate the need for more in-depth chemical use data. Specifically, in 1999, EPA will promulgate a rule lowering the reporting threshold for certain chemicals, such as persistent bioaccumulative toxics (PBTs), to assure that the public has information on chemicals that may be highly toxic but are manufactured, processed, or used in lower volumes. These refinements to TRI will assure the public has more comprehensive information.

A key component of improving public access is the consolidation of information provided to EPA under a variety of statutory and regulatory authorities. EPA's one-stop access Envirofacts Warehouse and one-stop

reporting initiative strives to fashion an unambiguous way to identify facilities; to consolidate EPA information collection on environmental uses and releases, transfers, and emissions; and to otherwise re-engineer reporting. For example, under the Enforcement and Compliance Information (ECI) initiative, EPA will re-engineer its multimedia compliance and enforcement data to increase public access and understanding and enhanced data quality. EPA will ensure that enforcement and compliance data is consistent across the Agency and that the public is able to link such data to demographic risk information. EPA will construct a warehouse of key enforcement and compliance data with consistent, user friendly interfaces.

EPA will build partnerships with state, tribal, and local governments and nongovernmental organizations to ensure that environmental information is widely available. EPA will upgrade the electronic distribution of environmental information by significantly expanding the type and amount of information on the Internet, and by providing easy access to data.

In 1999, EPA will issue the TRI Public Data Release for 1997, process 110,000 TRI Form R's, and finalize the PBT rule to add more chemicals to the TRI and lower the thresholds for reporting PBTs.

EPA will work to improve the public's access and use of TRI and other information. EPA will have completed documents which the public can use to understand the TRI data and how that data may affect them. EPA also will work to improve Internet access, including identifying opportunities to improve the user-friendliness of the on-line TRI data.

The Agency's efforts in this objective will be supported through legal counseling and advocacy. This may include advice, participation in the development of Agency actions, document review, and the conduct of defensive litigation.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 02 Improve Public's Ability to Reduce Exposure	**$51,493.5**	**$47,120.6**	**$51,875.5**
Environmental Program & Management	$51,493.5	$47,120.6	$51,875.5
Total FTE:	247.2	244.7	255.1

1999 Annual Performance Goals

- Process 110,000 facility chemical release reports, publish the TRI Data Release Report and provide improved information to the public about TRI chemicals, enhancing community right to know and efficiently processing information from industry.

- Increase compliance with right to know reporting requirements by conducting 1,300 inspections and undertaking 200 enforcement actions.

- Continue to improve the public's ability to reduce exposure to specific environmental and public health risks by improving public accessibility to current and accurate information on pesticide related issues.

- Continue to inform the public about the health and environmental risks of PBTs and PBT releases in their communities.

- Have 1 million locational values (an increase of 500,000 from 1998) of known documentation in the locational database with the Envirofacts Warehouse.

- Develop, document and communicate key data standards using an Environmental Data Registry.

- Continue to provide outreach to inspect and use appropriate enforcement tools to increase compliance with the chemical hazardous inventory and accident release notification requirements under EPCRA and CERCLA.

- 3,300 large and very large community water systems (serving 77% of the 240 million Americans who receive water from these systems) will issue annual consumer confidence reports.

EPA activities related to TRI focus on how to increase the public's access to and use of the data. Documents which help the public understand TRI, and steps to facilitate access to the data also are integral to the goal of right-to-know. Expanding TRI, whether through lower thresholds, new chemicals or new industry sectors, will provide more comprehensive information to the public.

EPA will continue to work on the base TRI program, processing forms, and providing the data to the public. This basic work provides an important foundation for the public's ability to understand and reduce risks in their communities. EPA will perform inspections and take enforcement actions against those in the regulated community who are not in compliance with the nations TRI reporting requirements. EPA will propose expanding the information available to the public on PBTs, and will monitor the usefulness of materials provided to the public. While EPA has accomplished much in the area of right-to-know, we believe it is important to have a clearer understanding of what types of information are most useful and what manner of presentation is most effective.

EPA will provide consumers of public water supplies their first annual confidence report by September 1999. These reports will contain information on the source of the drinking water, information on the quality of that source, information on any detected contaminants in the drinking water, and a plain language explanation of the health effects of these contaminants. Customers will be able to find out information on the occurrence of contaminants, as EPA's National Occurrence Database and part of the Envirofacts Warehouse becomes operational by August 1999. States will be conducting source water assessments of drinking water supplies, the results of which will be available to the public.

1998 Annual Performance Goals

- Provide improved information to the public about TRI chemicals, enhancing community right to know and efficiently processing information from industry.
- Improve the public's ability to reduce exposure to specific environmental and public health risks by improving public accessibility to current and accurate information on pesticide related issues.
- Inform the public about the health and environmental risks of PBTs and PBT releases in their communities.
- Have 500,000 locational values of known documentation in the locational database in the Envirofacts Warehouse.
- Provide outreach to inspect and use appropriate enforcement tools to increase compliance with the chemical hazardous inventory and accident release notification requirements under EPCRA and CERCLA.
- Propose a regulation and promulgate a final rule for drinking water consumer confidence reports.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
02 Obj. Total Change	**$4,754.9**	**10.4**
Environmental Program & Management	$4,754.9	10.4

- (+$4,000,000 EPM) for the Environmental Monitoring for Public Access and Community Tracking (EMPACT) initiative.
- (+$488,900 EPM) An investment in the ECI activity under the ESC for IRM.
- (+$106,000 EPM) to assist public water systems in issuing consumer confidence reports.

Key Performance Measures	1998	1999
Public Data Release available via the internet and CD ROM	1996 Report	1997 Report
Form R's processed	110,000	110,000

PBT rule to add more chemicals and lower the threshold for reporting PBTs	Proposed	Finalized
Update, Publish and distribute to grocers, the annual consumer brochure on the health effects of pesticides.	1	1
Section 313 Inspections	600	600
EPCRA Civil Referrals	10	10
EPCRA APO Complaints	200	200
EPCRA Compl. Orders	3	3
Other EPCRA Inspections	700	700
Availability of proposed rule and final regulation for drinking water confidence reports	1 Rule	
Community water systems that will comply with the regulation to publish consumer confidence reports		3,300 Lg. CWS
Locational values with known accuracy		1,000,000
Complete the design of ECI		100%
Implement key data standards using EDR		100%
Locational values within the 25 meter goal	50,000	

Conclusion

EPA is committed to providing understandable, accessible, and complete information on chemical risks to the broadest audience possible. EPA believes that an informed public is better able to make responsible decisions about protecting itself and the environment. By providing the public with the necessary information, the greatest environmental benefit will be achieved at the least cost and without resorting to expensive control regulations.

The President and Administrator have made commitments through a variety of initiatives to give the public access to the information and

education necessary to develop an understanding of, and make knowledgeable decisions about their environment. Information disseminated to the public may be used by individuals or local groups to make choices that could help reduce environmental risks for themselves and their communities. By using EPA information, individuals would be better prepared to identify opportunities to prevent pollution and minimize environmental releases, and to identify potential exposures and the means needed to reduce or avoid them.

The accomplishments in 1999 will move EPA further toward providing the necessary comprehensive chemical risk information to the public by improving and increasing education opportunities, identifying customer information needs, increasing environmental information, and improving access to information. Under EPCRA, the Agency will focus on providing compliance assistance to facilities using, manufacturing, or processing potentially harmful chemicals. EPA will focus on newly regulated facilities, monitoring the compliance of regulated facilities with both community right-to-know and emergency planning requirements, and using appropriate enforcement tools to promote increased compliance with EPCRA requirements. Through consumer confidence reports, public water systems will provide important information on the source of their water system's supply, the level of detected contaminants, information on the health effects of contaminants found above standard, and information on unregulated contaminants. Each of these efforts will contribute to the ability of the public to reduce exposure to specific environmental and public health risks by providing information and tools necessary to make informed decisions about environmental and health risk priorities.

Key Performance Measures Verification

Verification and validation continue to be important parts of the right-to-know program. Verification procedures are built into the data entry process both at the facility level and when the data are entered into the national database. Procedures internal to the reporting form check whether data entered are internally consistent. If this is not the case, an error message is generated. Once data are entered into the national database, data are compared to those previously submitted by a facility to determine whether large increases or decreases at the largest TRI facilities have occurred. In cases where there are large changes relative to previous reports submitted, facilities are called by staff engineers to verify the information.

Verification of progress for the right-to-know programs will include the development of pesticide information, dissemination of such information, the appearance on the Internet of pesticide-specific risk information, and development of maintenance tools and quality standards for all Internet-resident pesticide data.

TRI, the right-to-know program, generates data so that individuals will be informed about what occurs in their communities. Data collected and disseminated as part of TRI has been assembled and used by a wide variety of parties, including other Federal agencies, state and local governments, environmental, labor and community groups, and academics. In order to facilitate appropriate usage of the data, EPA publishes various analyses as part of the annual data release.

The Agency is enhancing the quality and presentation of enforcement and compliance assurance data on the Agency's Envirofacts Warehouse

Database which is located on the World Wide Web. EPA is providing core enforcement program data - along with enhanced report capabilities - to assure greater access by the public.

EPA will be developing and implementing detailed system specific Quality Management Plans for all systems we directly manage. These plans will include development of Data Quality Objectives (establishing measurable criteria for data quality); Quality Assurance Project Plans (determine how QA activities will be implemented through the system life cycle), and Standard Operating Procedures (to provide a consistent and routine process for assessing data quality measurements).

Central to the ECI project is the development and adoption of data standards for compliance and enforcement information. The ECI plan includes developing and formalizing these data definitions through the EDR and making these standards available to encourage widespread adoption.

EPA's Enforcement and Compliance Information Initiative will re-engineer the Agency's multimedia compliance and enforcement data to increase public access and understanding and enhanced data quality to support EPA's mission. EPA will ensure that data is consistent across the Agency and give the public comprehensive compliance and enforcement data linked to demographic and risk information. EPA will construct a warehouse of key enforcement and compliance data with consistent, user-friendly interfaces.

Each of the key measures is verifiable through quantitative means. The measures are output oriented and actual outputs or products will be counted or verified.

Performance data regarding preparation of consumer confidence reports will be provided to EPA by the states through existing national databases or other means. States will collect the data from public water systems and will have chief responsibility for validating the information.

Statutory Authority

Federal Insecticide Fungicide and Rodenticide Act

Toxic Substances Control Act

Safe Drinking Water Act

Emergency Planning and Community Right-to-Know Act

Pollution Prevention Act

Federal Food, Drug, and Cosmetic Act

Objective #3: Enhance Ability to Protect Public Health

By 2005, EPA will meet or exceed the Agency's customer service standards in providing sound environmental information to federal, state, local, and tribal partners to enhance their ability to protect human health and the environment.

Overview

The President's Environmental Monitoring for Public Access and Community Tracking (EMPACT) initiative is a cross-agency program established to work with communities to improve their capabilities and capacity to provide the public with timely information regarding local environmental conditions. This new program, beginning in FY 1998, will provide near-real-time measurement, reporting and access to selected communities throughout the nation. EMPACT will provide at least 75 U.S. largest metropolitan areas with access to information regarding conditions in their local environment and relevant tools and guidance to interpret and evaluate potential impacts and risks. EPA will play a major role in two related research and development activities pivotal to the success of EMPACT: (1) development of approaches to integrate monitoring measurement technologies with effective data management and communications solutions, and (2) research to facilitate effective communication to the public regarding environmental risk.

Another effort under this objective is the Integrated Risk Information System (IRIS), with a request of $2,724,500, that supports EPA's community-based environmental research. IRIS is an EPA database of Agency consensus health information on environmental contaminants which is used extensively by EPA program offices and Regions where consistent, reliable toxicity information is needed for credible risk assessments.

Each of the 535 IRIS "files" contains chemical-specific information on cancer and noncancer health effects. Each IRIS file summarizes a more detailed health assessment or support document. IRIS is heavily used for risk assessments and other health evaluations across the Agency. The most frequent users are Regional and state risk assessors, but use has grown to include all levels of government, as well as the public and private sectors, both nationally and internationally.

Also under this objective, guidance and support will be provided to risk assessors through the provision of risk assessment guidelines, expert consultation and support, and risk assessment training. Included in this effort is support for the Agency's Risk Assessment Forum. The Forum is a standing committee of senior EPA scientists which was established to promote Agency-wide consensus on difficult and controversial risk assessment issues and to ensure that this consensus is incorporated into appropriate Agency risk assessment guidance.

Improvements in health and environmental risk assessment have little or no benefit without an ability to communicate such information to the public. Few states have environmental risk assessment capability, and most are solely dependent on the U.S. EPA in this regard. Stakeholders, including the public at large, have a right to know the results of Federal environmental research and assessments, since such information can have enormous impacts on their lives and well being. It is necessary to provide the public with adequate access to timely and credible risk assessment information. Therefore, EPA research in this area will:

- Apply new and upgraded technology that will incorporate a systematic approach to automated sampling, real-time analysis and communication of environmental data.

- Provide timely, reliable and consistent environmental information in a meaningful format that is easily accessible by the public.

The Agency includes comparative risk projects to advance the goal of providing more information about the environment. It enhances the ability of stakeholders to articulate risks, determine priorities, and develop environmental management systems that balance flexibility and accountability. Comparative risk projects support risk characterization and development of risk management strategies for environmental challenges facing states, communities, and tribes. Use of comparative risk is critical as the Agency continues to implement the National Environmental Performance Partnership Systems (NEPPS), Community Based Environmental Protection (CBEP), and its government-to-government trust responsibility with Federally recognized tribes. Agency expertise in the area of comparative risk, indicators, statistics and consensus building will help communities use environmental information in making choices about their environment. Comparative risk projects assist state, local and tribal governments in putting together environmental and cultural information in a way that helps build environmental programs and address the needs and priorities of these governments.

In 1998, the Office of the Administrator underwent a reorganization. As a part of the reorganization, functions from the old Office of Congressional and Legislative Affairs and the state and local relations functions from the old Office of Regional Operations and State/Local Relations were joined to create the new Office of Congressional and Intergovernmental Relations (OCIR). In 1999, OCIR and its regional counterparts, with a request of $6,963,500, respond to congressional requests for information, written and oral testimony, briefings, and briefing materials. It ensures that Congress receives the information needed to make decisions on environmental and public health issues. In addition to working with Congress, OCIR works closely with the Agency's program offices to keep them informed of current activities that affect their particular subject areas. OCIR develops legislative strategies on behalf of the program offices and coordinates Agency appearances before congressional committees, as well as responses to congressional transcripts and questions and answers.

OCIR also responds to local government and national associations' requests for information, issue resolution, and/or assistance. It ensures that these groups receive the information needed to make decisions on environmental and public health issues, and have an appropriate level EPA person available to participate in meetings or assemblies. OCIR works closely with the Agency's program offices to keep them informed of current activities at the local level and of any policies the local governments

and national associations may be advocating that affect a particular program office's subject area. Support is also provided to the Local Government Advisory Committee and the Small Town Advisory Subcommittee.

OCIR provides regular, timely communication by preparing the Agency's leadership to effectively address priority issues and develop appropriate responses. It designs and manages meetings and conference calls for Regional managers, and works with states and state associations to ensure that state concerns are considered in Agency policies, guidance, and regulations. OCIR will implement policies, rules and procedures that will enhance the execution of NEPPS, PPAs, and PPGs. Additionally, OCIR functions as the lead for negotiating with state issues relating to the National Environmental Performance Partnership System (NEPPS).

The Agency's Office of Small and Disadvantaged Business Utilization (OSDBU), with a request of $2,149,400, provides technical assistance to both Headquarters and Regional program office personnel to ensure that small, minority and women-owned businesses receive a "fair share" of Agency procurement dollars. This "fair share" may be received either directly or indirectly through EPA grants, contracts, cooperative agreements, or interagency agreements. Pursuant to P.L. No. 102-389, the Agency has a national goal of 8% utilization of minority and women-owned businesses in the total value of prime contracts and subcontracts awarded. This activity enhances the ability of small, minority and women-owned businesses to participate in the Agency's objective to protect public health.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 03 Enhance Ability to Protect Public Health	**$28,990.7**	**$21,048.8**	**$31,868.6**
Environmental Program & Management	$12,008.2	$11,650.8	$12,834.5
Science and Technology	$16,716.4	$9,133.7	$18,648.3
Hazardous Substance Superfund	$266.1	$264.3	$385.8
Total FTE	141.7	145.9	153.3

The following Annual Performance Goals will contribute to the achievement of the ends listed above, ultimately leading to accomplishment of the long-term objective.

1999 Annual Performance Goals

- By 1999, EPA will complete 5-7 monitoring pilot projects in EMPACT cities, implement timely and high quality environmental monitoring technology in 5-7 EMPACT cities.

- By 2000, develop monitoring technologies and tools to interpret environmental data, and risk communication methods to provide time relevant environmental information to the public under EMPACT.

- Publish Guidelines for Carcinogenic Risk Assessment, Neurotoxicity Risk Assessment, and a technical report on the health risk assessment of chemical mixtures.

- Add or update 28 summaries of the potential adverse health effects of specific chemical substances to the Integrated Risk Information System.

- Develop documents and workshops to transfer what has been learned from completed comparative risk projects to EPA Regions and communities.

- Respond to congressional requests for information.

- Identify measure of success for the PPG program.

- Pursue the Agency's 8% minority/disadvantaged business utilization goal.

- Negotiate annual Performance Partnership core performance measures agreement with states.

The EMPACT program will evaluate and modify existing risk assessment tools for use by local stakeholders, and deliver these tools into the hands of the users. Data necessary for accurate and timely risk assessments will also be delivered. Thus, EMPACT will enhance the capability of local stakeholders to perform risk assessments. In addition, EMPACT will: 1) evaluate the efficiency and cost-effectiveness of various systematic approaches to delivering environmental information to the public; and 2) evaluate, modify, and deliver risk assessment and characterization tools to the public in readily usable formats.

Existing, new, and improved measurement, monitoring, and communication solutions will play an important role in the EMPACT program. EPA will support the program through participation in the comparative analysis that will be conducted as part of the EMPACT program. The program will determine and demonstrate the efficiency and cost-effectiveness of chosen measurement, monitoring, and communication and delivery technologies.

In addition to the important functions listed above, EMPACT research will support the program to:

- Develop state-of-the-art techniques for viewing environmental information and evaluate their utility for communicating information to a range of customers including the scientific community, regulators, and the public;

- Develop evaluation and assessment methods to convey time-relevant critical information to the public about their environment;

- Develop time relevant communication methods that will explain to the public what the specific environmental information means;

- Develop mechanisms to deliver information in a timely and easily accessible format (e.g., through the Internet, over radio and television, in the newspaper, etc.);

- Develop and validate time relevant multi-media, integrated models for predicting environmental effects; and

- Support the work of the Agency through legal counseling and advocacy.

The human health effects information in IRIS is widely used for risk assessments and other health evaluations at all levels of government, as well as in the public and private sectors. Up to date and credible health effects information is critical for credible risk assessments. As more risk-based decision-making takes place at the state and local levels, access to credible health effects information is essential, but difficult for individuals to find or generate. Risk assessors everywhere look to EPA to provide this information.

IRIS values represent Agency consensus positions on health effects of hundreds of environmental contaminants and, as such, are used throughout the Agency as the scientific basis for addressing various mandates, including the establishment of air and drinking water standards and thresholds for waste site investigation and remediation. EPA made IRIS more easily and widely accessible via EPA's home page on the World Wide Web in March, 1997. This greatly improved accessibility and empowerment to users at the state and local levels.

The 1999 investment will focus on:

- Producing, updating, and maintaining health assessments on IRIS;

- Ensuring appropriate external peer review of IRIS summaries and support documents;

- Facilitating Agency consensus and resolving issues in a timely manner;

- Maintaining a widely-accessible Internet version of IRIS, available at the local level to support community-based environmental protection and;

- Active outreach and communication with users.

These efforts will assure that this widely used, highly visible Agency product will be adequately maintained and will serve its customers with the most up-to-date information available.

The Agency's Risk Assessment Forum will develop a number of products to assist risk assessors, including risk assessment guidelines, technical panel reports on special risk assessment issues, and peer consultation and peer review workshops addressing controversial risk assessment topics. The Forum focuses on generic issues fundamental to the risk assessment process and related science policy issues. In 1999, the Forum will focus activities on completion of risk assessment guidelines on carcinogenic risk, neurotoxicity risk, and chemical mixtures.

Technical assistance on comparative risk, environmental planning, environmental indicators and statistics, and consensus building will be

made available to states, local governments, and tribes, enhancing their ability to use environmental information as they make decisions that affect the environment. Comparative risk projects will be completed in several states, local communities and tribes and new projects will be initiated. A pilot project will be underway to demonstrate how issues management can be used to help communities look at the long-term economic and environmental impacts of various community decisions.

Development of documents and workshops will begin to transfer what has been learned from completed comparative risk projects to EPA Regions and communities. Transfer of tools is crucial to results-based planning and evaluation, an important objective of the Agency, particularly as articulated in GPRA, NEPPS and CBEP.

In 1999, the Agency will continue providing information to Congress in a timely and efficient manner. OCIR will be the Agency's day-to-day liaison with Congress and exceed the Agency's customer service standards in responding to congressional requests. Additionally, OCIR will support legislative activities within the Agency for several environmental statutes that are ripe for congressional reauthorization. These activities will assist Congress in making good decisions to protect human health and the environment for all Americans.

In 1999, the Agency will manage five Federal Advisory Committee Act (FACA) meetings for the Local Government Advisory Committee and its Small Town Subcommittee. In addition, it will design and manage quarterly meetings of the Agency's ten Regional Administrators.

The Agency will enhance OSDBU's outreach to communicate with, and educate, its customers. An increase in customer knowledge, education, and satisfaction will result in greater use of small, minority, and women-owned businesses in prime contracts, subcontracts, and grants awarded by the Agency. In 1999, the Agency proposes an increase in its efforts in this area. As a result, this segment of the population will be better able to participate in the Agency's objective to protect public health.

1998 Annual Performance Goals

- Conduct a pilot project to demonstrate how environmental management can be used to help communities look at the long-term economic and environmental impacts of various decisions.
- Respond to Congressional requests for information.
- Develop measure of success for the PPG program.
- Pursue the Agency's 8% minority/disadvantaged business utilization goal.
- Negotiate annual Performance Partnership core performance measures agreement with states.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
03 Obj. Total Change	**$10,819.8**	**7.4**
Environmental Program & Management	$1,183.7	3.0
Science and Technology	$9,514.6	3.2
Hazardous Substance Superfund	$121.5	1.2

- (+$1,307,200 S&T and 4.0 workyears, $1,000,000 EPM, and $94,000 SF and 1.0 workyears) The investment in IRIS will significantly upgrade the content of the IRIS data base, improve its accessibility, and provide better outreach to users. It includes an integrated program of developing and updating health assessments, facilitating a strong program of peer review and internal consensus review, and making the Agency's consensus health information available to communities and other stakeholders in environmental health protection.

- (+$8,326,100 EPM) The increased investment in EMPACT will advance research to improve the capabilities of selected environmental models to incorporate real-time data streams, to run in real time and to provide visualization capabilities that are also updated in real time. The increased investment will also support the development of risk communication methods that are linked to the models and can provide communities with relevant and timely information.

- (+$800,000 EPM and 3.0 total workyears) An increase for the Office of Small and Disadvantaged business Utilization will enhance the delivery of service to small, minority and women-owned businesses. The additional resources will provide contractor assistance to the Regions in performing audits and various socio-economic studies to assist them in meeting the changes in the Agency's guidance document.

Key Performance Measures	1998	1999
Comparative risk projects	17 projects cumulative	21 projects cumulative
Respond to Congressional Inquiries	100 percent	100 percent
PPG report or program	1 report	1 measure
Add or update to IRIS 28 summaries of the potential adverse health effects of specific chemical substances.		28 Assessments

Add/update the following assessments to IRIS: Arsenic, Bentazon, Beryllium, Chlordane, Methyl Methacrylate, Diphenylmenthane Dissocyanate, Napthalene, Vinyl Chloride.	8 assessments	
Award 2-10 Internal EPA projects to develop monitoring technologies, data interpretation tools, and risk communication methods in support of EMPACT.	2-10 grants annually	2-10 grants annually
Award 5-7 grants to EMPACT cities to implement timely and high quality environmental monitoring technologies.	5-7 grants	12-16 grants
Revision of guidelines for carcinogen risk assessment, neurotoxicity risk assessment, and technical report on health risk assessment on chemical mixtures.		2 guidelines 1 tech report

Conclusion

The Agency's long-term objective is to meet or exceed its customer service standards by the Year 2000 in providing sound environmental information to the American public. Information provided by the Agency may enhance the public's ability to protect human health and the environment.

Through the EMPACT program, EPA will apply new and upgraded technology that will incorporate a systematic approach to automated sampling, real-time analysis and communication of environmental data. Research in this area will provide timely, reliable and consistent environmental information in a meaningful format that can be easily accessed by the public. EPA will coordinate the development of approaches to integrate monitoring measurement technologies with effective data management and communications solutions, and facilitate effective communications with the public regarding environmental risk. A fundamental concept underlying the EMPACT program is the building of partnerships with local communities. EPA will coordinate efforts across Federal agencies and work closely with local stakeholders in determining what environmental data and tools are needed.

The 28 new revised IRIS health assessments per year will result in significant improvements to risk assessments, because the currency and reliability of IRIS health effects information is critical for credible risk assessments at all levels of government, as well as in the public and private sectors. Further, the Agency will have a stronger scientific basis for addressing various mandates, including the establishment of air and drinking water standards and thresholds for waste site investigation and remediation. Finally, IRIS users will have easier access to more health effects information via an expanded delivery system.

EPA will complete the development of important risk assessment guidelines for use by risk assessors in the program offices and the regions as well as the general public. This will include risk assessment guidelines on carcinogenic risk, neurotoxicity risk, and a technical report on the health assessment of chemical mixtures.

Risk ranking is used as the key component in setting the Agency's environmental agenda. This has proven to be a valuable tool in these times of limited resources. In some states, comparative risk has been instrumental in developing consensus around environmental legislation and environmental strategic plans. The comparative risk tool, as well as indicators, will help states and EPA set environmental performance measures and, thereby, help meet the objective to provide sound environmental information to our state, local and tribal partners, enhancing their ability to protect the environment. EPA focuses on environmental risk assessment and comparative risk as a planning and priority setting tool. Risk is used to determine the importance of an environmental problem and set environmental priorities. All EPA Regional offices have completed comparative risk projects or assessed risks in their Regions relative to one another. Most state, local and tribal governments currently are not able to fully use the tools of comparative risk, environmental indicators and statistics, and consensus building in their environmental planning. A comparative risk project involves gathering available information on a broad range of environmental problems facing the state, local or tribal government, and developing methods for characterizing and analyzing human health, ecology, and quality of life risks associated with each problem area. The next step constructs a public involvement process which includes diverse representation of government, special interests, and the general public.

The Local Government Advisory Committee and its Small Town Subcommittee meetings will serve to empower local governments and the Regions with information to make decisions regarding local environmental issues. EPA will set up and manage five FACA meetings. Liaison among the Regional Administrators will be facilitated via quarterly meetings, as well as frequent conference calls and other meetings for Regional managers.

The Agency has been very successful in providing information to its congressional constituents. However, we have been less successful in providing information to others, such as small, minority and women-owned businesses. During the next two years, the Agency will place an increased emphasis on improving services to these segments of the population so they will be in a better position to become active participants in the Agency's efforts to protect human health and the environment.

Key Performance Measures Verification

Performance will be judged by the number of comparative risk projects completed and the number of environmental actions taken by state, local and tribal governments as a result of EPA's assistance.

EPA has several strategies to validate and verify performance measures in the area of environmental science and research. The Agency has implemented a risk-based research planning process to use risk assessment and risk management as principal priority-setting criteria. EPA conducts annual research program reviews to both evaluate the status and accomplishments of its research and determine planning priorities.

To better draw upon the expertise of the environmental academic community, EPA created the Science to Achieve Results (STAR) program of peer-reviewed, mission-driven extramural grants; the Agency is also working with the National Research Council to identify emerging environmental issues for which we must begin planning the necessary research.

Chief among the Agency's validation and verification mechanisms is a rigorous peer review process. In a July 1997 memorandum, EPA's Deputy Administrator stated that peer review will be expanded "to include both the major work products provided in the past and...all scientific and technical products supporting Agency decisions" This expanded and strengthened focus on peer review will help ensure that the performance measures listed here are verified and validated by external organizations. The Agency utilizes peer review throughout the research planning and implementation process, both to ensure that planned research addresses critical knowledge issues within EPA's mission, and to assess the quality of scientific research plans, products, and proposals. This is accomplished through the use of independent entities such as the Science Advisory Board (SAB) and the Board of Scientific Councilors (BOSC). The BOSC, established under the Federal Advisory Committee Act, will even examine the way the Agency uses peer review, as well as the management of its research and development laboratories.

EPA's external research program undergoes extensive peer review. Proposals from the external scientific community are peer-reviewed and projects are then selected for funding through grants or cooperative agreements. In addition, Requests for Applications (RFAs) under the STAR program are often developed jointly with outside partners such as the National Science Foundation. In this way, EPA has developed a mechanism by which to check the quality and relevance of its research program.

The Office of Research and Development Management Information System (OMIS) will be another accountability tool used to verify and validate performance measures. The recently developed GPRA structure will be incorporated into OMIS to ensure consistent maintenance and reporting, resulting in greater accuracy and consistency of information to users.

Statutory Authority

Resource Conservation and Recovery Act (RCRA) sections 3007, 3013, and 7003 (42 U.S.C. 6927, 6934, 6973)

Comprehensive Environmental Response, Compensation, and Liability Act sections 104 and 106 (42 U.S.C. 6904 and 6906)

TSCA section 14 (915 U.S.C. 2613)

CWA section 308 (33 U.S.C. 1318)

SDWA section 1445 (42 U.S.C. 300j-4)

EPCRA sections 313, 325, and 326 (42 U.S.C. 11023, 11045, 11046)

PPA (42 U.S.C. 13101-13109)

Federal Insecticide, Fungicide, and Rodenticide Act sections 3 and 10 (7 U.S.C. 136a and 136h)

FOIA (5 U.S.C. 552)

Federal Advisory Committee Act

Goal 8: Sound Science

Goal 8: Sound Science, Improved Understanding of Environmental Risks, and Greater Innovation to Address Environmental Problems **VIII-1**
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Environmental Protection Agency

1999 Annual Plan Request to Congress

Sound Science, Improved Understanding of Environmental Risk, and Greater Innovation to Address Environmental Problems

Strategic Goal: An important aspect of the Agency's mission is to ensure a strong scientific foundation for the process of identifying public health and environmental issues and the approaches taken to address them. EPA's 1999 request continues to support this commitment. The programs proposed will allow EPA to develop and apply the best available science for addressing current and future environmental hazards, as well as new approaches toward improving environmental protection.

Goal Summary
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Sound Science, Improved Understanding of Env. Risk and Greater Innovation to Address Env. Problems	**$403,644.3**	**$404,721.2**	**$366,867.6**
Obj. 01 Research for Ecosystem Assessment and Restoration	$85,172.3	$100,712.5	$85,505.6
Obj. 02 Research for Human Health Risk Assessment	$52,631.1	$49,006.9	$47,618.5
Obj. 03 Emerging Risk Issues	$56,414.1	$47,744.4	$55,387.0
Obj. 04 Pollution Prevention and New Technology	$51,435.0	$69,919.2	$46,387.8
Obj. 05 Enable Research on Innovative Approaches to Current and Future Environmental Problems	$120,875.0	$86,927.7	$88,745.5
Obj. 06 Increase Use of Integrated, Holistic, Partnership Approaches	$18,049.3	$19,386.3	$16,810.5
Obj. 07 Increase Opportunities for Sector Based Approaches	$10,342.7	$16,478.4	$11,496.8
Obj. 08 Regional Enhancement of Ability to Quantify Environmental Outcomes	$6,306.5	$5,969.0	$7,995.1
Obj. 09 Science Advisory Board Peer Review	$2,418.3	$2,415.8	$2,586.7

Obj. 10 Incorporate Innovative Approaches to Environmental Management	$0.0	$6,161.0	$4,334.1
Goal Total FTE	1,384.3	1,165.0	1,256.3

Among EPA's highest research priorities is our Assessing Health Risks to Children research program to expand information on exposure, effects and risk assessment to address children's risk. This program will provide the data to strengthen Agency risk assessments for children, both in the near and long term. Two important efforts will produce much of this data, the Children's Health Risk Centers, and EPA's participation in studies in the National Health and Nutrition Examination Survey (NHANES) being conducted by the National Center for Health Statistics (NCHS).

We will increase our efforts in the Advanced Measurement Initiative (AMI). The focus of this program is to facilitate the application of technologies to enhance individual monitoring and measurement technologies, as well as to improve coordination of existing monitoring research and programs such as the mapping of waste sites, the development of ground water and surface water transport models and the characterization of soils and surface water vegetation quality and land use. AMI will develop working partnerships between technology developers, environmental policy makers, and environmental managers to ensure that advanced measurement technologies will meet the needs of EPA, the regulated community, and the public.

Additionally, we will strengthen our intramural research program through the allocation of additional workyears to recruit post-doctoral students to work at EPA laboratories.

The Agency has requested resources to support research within Goal 8, Sound Science, as well as Goals 1,2,4,5,6 and 7. The research program areas requested and described under Goal 8 represent research support that cuts across multiple goals.

The 1999 President's Budget requests $366,867,600 and 1,256.3 workyears for this goal, a change of -$37,853,600 and +91.3 FTE from 1998.

The resources requested in this goal will enable the Agency to meet a number of performance goals in 1999. The most significant of these include:

- In 2001, complete and evaluate a multi-tiered ecological monitoring system for the Mid-Atlantic region and provide select land cover and aquatic indicators for measuring status and trends.

- In 1999, analyze existing monitoring data for acid deposition and UVB and implement a multiple site UVB monitoring system for measuring status and trends.

- In 1999, provide ecological risk assessment case studies for two watersheds, final guidelines for reporting ecological risk assessment and ecological risk assessment guidance and support.

- By 2008, develop and verify innovative methods and models for assessing the susceptibilities of populations to environmental agents, aimed at enhancing risk assessment and management strategies and guidance.

- By 1999, a total of 50 Project XL projects will be in development or implementation, an increase of 15 over 1998.

- In 1999, produce first generation exposure models describing residential exposure to pesticides.

- In 1999, initiate Field Exposure Study of children to two endocrine disruptor chemicals.

- In 1999, complete and submit external review draft of the Air Quality Criteria Document for carbon monoxide.

- By 1999, improve computational efficiency of fine particulate model by 25%.

HIGHLIGHTS:

Ecosystem Protection Research

The President's Budget requests $85,505,600 and 378 workyears to support Ecosystems Protection research. The Environmental Monitoring and Assessment Program (EMAP) is one of the areas of investment in this objective.

The EMAP Program monitors the condition of the nation's ecological resources to evaluate the cumulative success of current policies and programs and to identify emerging problems before they become widespread or irreversible. Policies and programs that promote the sustainable use of resources and the preservation of ecosystem integrity must be based upon our scientific knowledge of the environment. EMAP seeks to improve the quality of that knowledge and to fill in any gaps in that knowledge through research in two primary areas: developing a better understanding of the mechanisms that control ecosystem structure and function and assessing the role of human actions in altering them; and, monitoring ecosystem characteristics and the human influences that change them over time.

Research to Improve Human Health Risk Assessment

The President's Budget requests $47,618,500 and 224 workyears to support Human Health Risk Assessment research. One key focus under this objective is in the area of Susceptible Subpopulations research.

Research activities are designed and implemented to provide insights into subpopulations that experience higher than normal exposures or have underlying biological factors that place them at greater risk. Research on susceptible

populations assumes that certain segments of the population may not be afforded adequate consideration in current risk assessment practices and/or sufficient protection under ensuing risk management decisions. Efforts associated with this research activity will evaluate the adequacy of current approaches to identify, characterize and explain the increased susceptibility of various subpopulations. This evaluation will subsequently direct the evolution of improved tools and approaches to assess risk to these populations. A unique dimension of these efforts will be the incorporation of risk management research as these key parameters and populations are defined (exposure or biologic) so that appropriate intervention strategies can be developed and applied in parallel.

Emerging Risk Issues

The President's Budget requests $55,387,000 and 185 workyears to support Emerging Risk Issues research. The Endocrine Disruptors (ED) research program and the One Atmospheric research program are two key areas of investment within this objective.

The ED research program was established in response to growing scientific concern and public awareness regarding potential effects of environmental exposure to chemicals that interact with the endocrine system, causing adverse reproductive and other health and ecological effects. Research on endocrine disruptors is being conducted according to priorities described in the Endocrine Disruptors Research Strategy, which is targeted at addressing the major uncertainties in this important area. In 1999, the ED research program will include integrated toxicology and exposure studies in ecological systems or human populations with suspected contamination or exposure to ED chemicals.

In 1999, the One Atmospheric research program is intended to assess and prevent risks from air pollution present in mixtures, the way people and ecosystems commonly experience it. EPA's focus will be on understanding the health and ecological effects associated with exposures to air pollutants in combination, without emphasis on a particular constituent, as well as the interplay of source emissions transformation, transport and fate, and the impacts of multi-pollutant controls to achieve balance in pollution control and avoid unnecessary costs. EPA will look at multiple scales and at all environments, thereby, focusing on the fact that all air pollution merges in one atmosphere.

Pollution Prevention and New Technologies

The President's Budget requests $46,387,800 and 188 workyears for pollution prevention and new technologies. Research on Advanced Measurement Initiative (AMI) and Environmental Technology Verification (ETV) are among the focus areas for this objective.

The purpose of AMI is to identify, evaluate, adapt, and apply new and emerging measurement and monitoring technologies to facilitate effective environmental risk management. Through AMI, EPA seeks to meet current environmental measurement requirements more effectively, to permit the collection of important environmental data that is not available using conventional monitoring methods, and to create opportunities for entirely new and innovative approaches to environmental measurement needs.

ETV was created to substantially accelerate the introduction of new environmental technologies into the domestic and international marketplace. This will be done by verifying the environmental performance characteristics of commercial-ready technology through the evaluation of objective and quality assured data, so that potential purchasers and permitters are provided with an independent and credible assessment of what they are buying and permitting. EPA's ETV research program began with a three to five year pilot phase to test a wide range of partner and procedural alternatives in various pilot areas, as well as the true market demand for the response to such a program. In 1999, the ETV program will transition from a pilot phase to establishment of the particular verification areas.

Enable Research on Innovative Approaches to Current and Future Environmental Problems

The President's Budget requests $88,745,500 and 97 workyears to Enable Research on Innovative Approaches to Current and Future Environmental Problems.

Resources requested in this objective provide the support required to accomplish the science and technology program at EPA. The effectiveness of the support provided in this objective is integral to the achievement of numerous Agency goals, including Goals 1,2,4,5,6,7,and 8. The implementation of a strong science and engineering program requires necessary infrastructure support, operating expenses and other operational resources. The staff support activities include program review, health and safety, resource planning and execution, administrative and financial contract and grant management, equipment and facilities maintenance, and automated data processing.

Sound Science, Improved Understanding of Environmental Risk, and Greater Innovation to Address Environmental Problems

Objective #1: Research for Ecosystem Assessment and Restoration

By 2008, provide the scientific understanding to measure, model, maintain and/or restore, at multiple scales, the integrity and sustainability of highly-valued ecosystems, now, and in the future.

Overview

Most environmental laws require that EPA not only ensure that the air is safe to breathe, water is safe to drink, and food is safe to eat, but also that it protect the environment. But because of direct and indirect effects of human activity, ecosystems that provide valuable renewable resources and services such as food, fiber, flood control, and cleansing the air, water, and soil are disappearing or changing in ways that concern us: forest decline, fish kills in estuaries, reproductive failure of wildlife, deformed amphibians, and the reappearance of vector-borne epidemic disease.

Because our understanding of the natural environment is still in its infancy compared to our understanding of human health, opportunities for significant advancements in this research area are enormous. With considerable debate about where to target limited resources when investing in environmental protection, the focus of this objective is on research that will better inform public decisions about how to best protect ecosystems from irreversible harm, and to avoid measures that are unnecessary or insufficient.

To make cost effective management decisions on the protection of ecological resources, we must be able to answer the following questions:

- What is the current condition of the environment, and what stressors most significantly affect the condition?
- What are the biological, chemical, and physical processes affecting the exposure and response of ecosystems to multiple stressors, both chemical and non-chemical?
- What is the relative risk posed by these stressors, alone and in combination, now and in the future? and,
- What options are available to manage the risk to, or restore, degraded ecosystems and at what costs?

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 01 Research for Ecosystem Assessment and Restoration	**$85,172.3**	**$100,712.5**	**$85,505.6**
Science and Technology	$84,821.2	$100,363.0	$84,537.2
Hazardous Substance Superfund	$351.1	$349.5	$968.4
Total FTE	315.1	354.4	377.9

1999 Annual Performance Goals

- By 1999 analyze existing monitoring data for acid deposition and UVB and implement a multiple site UVB monitoring system for measuring status and trends.
- In FY 1999, provide ecological risk assessment case studies for two watersheds, final guidelines for reporting ecological risk assessment and ecological risk assessment guidance and support.
- In 2001, complete and evaluate a multi-tiered ecological monitoring system for the Mid-Atlantic region and provide select land cover and aquatic indicators for measuring status and trends.
- By 2002, develop a prototype multimedia, effects and modeling framework for evaluating the impact of watershed management practices, at multiple scales, on stream and estuarine condition.
- In 2003, provide guidance for development of watershed scale and other ecological risk assessments.
- By 2002, develop and evaluate cost-effective and reliable approaches for restoring riparian zones within watershed.
- By 2004, develop protocols, information, and tools for stakeholders and decision makers to select ecosystem risk management actions.
- By 2008, develop models to understand, predict, and assess the exposure and response of ecosystems to multiple stressors at multiple scales.

Discussion

EPA will develop and improve upon indicators and emerging methods and technologies, monitoring systems and designs for measuring the exposure and condition of ecosystems to multiple stressors at local, regional and national scales.

This work continues research already underway. Emphasis will be increased on the development and evaluation of indicators at multiple geographic scales and levels of biological organization. This work will lead to more rapid identification of the extent and magnitude of hazards, more definitive identification of causes, better measures of success and the addition of landscape factors in determining the condition of the environment and their response to alternative management strategies. Significant activities are listed below.

The President's Budget request includes a total of 50 work years to be used for 3-year term appointments of postdoctoral candidates to work at ORD laboratories.

In 1999, effects research will focus on:

- Indicator Development: Indicators of ecological effects of anthropogenic stresses are needed to monitor the condition of the environment and track the cumulative effectiveness of our management and policy actions. This research is critical to determine the ecological effects of these anthropogenic stresses and their regional extent. Therefore, a significant research effort will be to develop indicators of effects/condition at multiple scales and multiple levels of biological organization in aquatic and terrestrial ecosystems.

- Geographic, Regional Initiatives: Indicators of ecological effects/condition of anthropogenic stresses will be developed to monitor the condition of the environment and track the cumulative effectiveness of our management and policy actions. Geographical initiatives will result in a suite of indicators of ecological effects to assess regional scale problems. The research will test the utility of these indicators in selected geographic regions and demonstrate the efficacy of monitoring designs on large geographic scales that to date have been too costly and complex to be undertaken. Research will be primarily conducted in the Mid-Atlantic and Pacific Northwest Regions.

- R-EMAP: Monitoring designs that provide defensible answers to regional scale questions are critical to the decision maker. This project will demonstrate the application and transfer of monitoring technology to facilitate regional comparative assessments to those who must make environmental management decisions; in this instance the Regional Offices. It will provide alternative monitoring designs in different parts of the country.

- Determination of the wetland structure and function: Wetlands serve an important role within the landscape. This research includes detailed studies of individual wetlands or complexes to evaluate the major categories of wetland functions: water quality improvement, habitat, and hydrologic functions. Research will be conducted in a number of strategically chosen wetland types throughout the U.S., including prairie basin wetlands, bottom land hardwood forest communities, freshwater emergent marshes, Great Lakes coastal wetlands and coastal seagrass communities.

- Pfiesteria: Harmful algal blooms occur when certain species of algae multiply quickly and aggregate in a given coastal area. Most microscopic algae are not harmful, but a few species produce toxins that can be transferred through the food chain, affecting and even killing zooplankton, shellfish, fish, birds, and mammals, including humans. Pfiesteria is a colorless species that is believed to cause sores and nervous system damage to humans. Outbreaks of pfiesteria are believed to be responsible for recent fish kills, as well as lesions and nervous system problems such as memory loss among researchers, fishermen, and fish and wildlife workers who came into contact with contaminated water in the coastal waters of North Carolina and the eastern shore of the Chesapeake Bay. EPA will continue in 1999 to conduct research to better understand the causes of Pfiesteria blooms, the effects of nutrients and pollutants on the organism, and their effects on different types of nutrients, as well as for improving upon techniques for detecting the organism in the environment.

In 1999, EXPOSURE research will focus on:

- Exposure Indicators: A set of indicators is needed to document the relative magnitude of environmental stresses in producing ecological effects at multiple geographic scales. The research needs focus primarily on improved indicators of chemical exposure, indicators of habitat degradation, and indicators of landscape quality. It is a direct counterpart to the effects research listed above. Further, the success of ecological risk assessments depends upon robust methods for characterization of the exposure of ecological receptors to particular stressors (e.g., sensitive aquatic species to toxicants, nutrient enrichment, or habitat alteration). This research will, therefore, also focus on the development of indicator methods to measure environmental exposures for aquatic systems.

- Geographic Initiatives: Monitoring designs for tracking regional status and trends in ecological resources are needed as well as approaches for using indicators in weight-of-evidence diagnosis. This project is will demonstrate that the monitoring designs can be used to assess ecological condition within a region, and track the cumulative effectiveness of our management and policy. This work is an essential counterpart to the preceding effects project.

- R-EMAP: A set of indicators is needed to document the relative magnitude of environmental stresses in producing ecological effects. Research needs in exposure focus primarily on: improved indicators of chemical exposure, indicators of habitat degradation, and indicators of landscape quality to provide proof of their soundness in different parts of the country.

- Index Sites: Research is needed to determine the geographic variation in the extent of these atmospheric stresses. This research is critical to the design of a national network. It is research to determine how best to monitor the magnitude and geographic variation in the extent of key chemical contaminants introduced via atmospheric processes.

- Multi-Resolution Landscape Characterization (MRLC): Data are needed to document landcover change on a five year basis. This research will

significantly improve EPA ecological monitoring and ecological assessments, and ecological risk management decisions, reduce uncertainty in other high priority ORD research programs and thus would have broad applicability and a large user community. The MRLC is a multi-agency effort with NOAA, USGS, FWS, and others.

- Characterizing and Monitoring Wetlands Exposures: Biological measures of wetlands must include both structural and functional measures. Of critical concern is the relative stability of wetlands as functional units within the landscape; wetlands are unstable when either structure or function deviate from their expected ranges.

- R-EMAP and Geographic Initiatives: Assessing condition and the importance of stresses from environmental monitoring data is not simple. Approaches for conducting assessments of this sort and the expertise to do so are of great concern to the Regions and Program Offices. This project will demonstrate the application of monitoring designs for hazard identification and trends assessments for large scale comparative risk analyses. It will serve as case studies for the further development of ecological risk assessment guidelines.

In 1999, ORD's Environmental Monitoring Management Council (EMMC) support staff facilitates the efforts of an Agency-wide council of senior managers who are responsible for developing sound monitoring policy designed to reduce the cost and improve the quality of environmental data. Specific initiatives being addressed include: reducing barriers to the use of innovative approaches to monitoring through implementation of a performance based measurement system (PBMS); developing a national environmental laboratory accreditation program in partnership with the states; and developing a system for tracking the Agency's measurement needs and communicating those needs within the EPA measurement community and to the private sector technology innovation community.

EPA will develop models to understand, predict and assess the exposure and response of ecosystems to multiple stressors.

This research serves as the foundation for the ecological research program. It will focus on developing more realistic diagnostic and predictive models relating to exposure and effects, and developing a user friendly architecture for integrating multimedia exposure models with effects models at multiple scales. The intent is to develop a `one-system' model that accounts for the true interactions in the environment so it will benefit all Program Offices. By significantly improving stakeholders' ability to analyze, assess and predict the outcome of alternative management strategies before acting, EPA hopes to provide a more reliable foundation for cost/benefit analyses prior to final decision making. Significant activities are listed below.

In 1999, effects research will focus on:

- Ecosystem sustainability: This research will focus on understanding the habitat requirements for aquatic ecosystems. Research on the sustainability of ecosystems will include evaluations of the exchange of materials and energy within and among ecosystems in watersheds. Research will also be conducted to study these relationships and the degree to which

landscape patterns and usage affect the sustainability of aquatic ecosystems, including a study of the nature of cumulative impacts at the watershed and regional scale. Results from this research will improve the scientific understanding of habitat requirements and ecosystem sustainability leading to the development of ecological and biological criteria and diagnostic methods for determining ecosystem health. In addition, this area of research will assist in the development of biological criteria and lead to the development of methods to diagnose causes of ecosystem impairment.

- Index Sites: Index sites will be used as field laboratories to determine and monitor the ecological effects of key chemical contaminants including endocrine disruptors, nutrient loadings, and pesticides, and their interactions with UVB. This research will determine the ecological effects of these stresses.

- Landscape Interactions: This growing research effort will evaluate the role of wetlands in the landscape (e.g., impacts on water quality, habitat, and hydrologic functions) and the effects of multiple stressors and landscape factors (e.g., regional hydrology, geomorphology) on wetland functions at the scale of watersheds and ecoregions. Studies on selected wetland types will test hypotheses regarding the function of wetlands in the landscape, develop and field evaluate models of landscape processes, and evaluate various indicators of wetland function. This research will provide tools and data for biocriteria development and for prioritizing sites for wetland management activities.

- Predictive Effects Modeling for Chemicals: This continuing research program will develop and validate models (BBDR, SAR) to identify and characterize ecological hazard and risk. The research will be applied to determine which chemicals pose the greatest threat to the environment, which effects are of greatest concern, and which mechanisms are responsible for observed toxicity. Models developed in this research area will help decision makers prioritize testing requirements, interpret data obtained from manufacturers, and determine the extent of needed regulation and remediation.

In 1999, exposure research will focus on:

- Index Sites: This research is a counterpart to the effects research aimed at improving our understanding of exposure processes including dry deposition, factors affecting UVB exposures, and transport and fate processes for chemicals.

- Watershed Exposure Models: Research will include refinement of models which characterize the impact parameters and combinations of parameters (e.g. soil type, temperature, plant type, surface permeability) have on watershed water quality. These models can be used to assist with landscape planning, such as, identifying the appropriate building density to maintain water quality or identifying wetland restoration sites.

- MultiMedia Modeling: Development of multi-scale, multi-pathway, multimedia cumulative exposure assessment models. Modeling technology has been media-

and problem-focused in the past but increasing concern is being seen for multi-pathway exposure. Tools and technologies developed in this research area will address the exposure of ecosystems to multiple stressors (chemical, biological, physical) through multiple pathways (atmospheric deposition, nonpoint and point sources in water, soil contamination, biomagnification) across media boundaries. These techniques are critically needed to evaluate the significant interactions among stressors in larger systems and develop priorities for addressing the most vulnerable ecosystems.

- Ecosystem Screening Models: Develop screening risk assessment methodologies that take existing information on exposure and effects and determine whether a chemical is a candidate for a more thorough assessment. The primary focus will be on terrestrial systems.

EPA will develop and apply assessment methods, indices and guidelines for quantifying risk to the sustainability and vulnerability of ecosystems from multiple stressors at multiple scales.

This research is a continuation of current research and is the essential synthesis element of the program, ultimately aimed at properly targeting limited funds. The research will be refocused from individual chemical assessments to developing methods and indices for evaluating the comparative risk associated with multiple stressors at larger scales (Place Based) to ensure stakeholders/decision makers at all levels have the tools to make the most cost effective and environmentally sound management decisions. ORD will directly benefit because the assessments conducted will ensure that research is directed to the highest priority problems where uncertainty is greatest. Significant activities are listed below.

In 1999, risk assessment research will focus on:

- Guidance on Ecological Risk Assessment. In-depth analyses of particular issues, these reports supplement general guidance documents. They assist in the analytical process of risk assessment by providing a ready source of background material and examples of the application of relevant information. They will provide state-of-the-science considerations used at the beginning of the assessment process.

- Ecological Risk Assessment in practice. The practical application of the EPA's ecological risk assessment framework will establish its general utility and illuminate its shortcomings. This will be done through completion of a variety of assessments, including problem formulations for shrimp virus in coastal waters, specific watersheds located around the United States, and the initial phases of the longer term Mid-Atlantic Integrated Assessment. In addition, a special analysis of dioxin impacts on aquatic life and associated wildlife will be completed from published information. Creating useful data sorting and cataloguing will provide more efficient access to scientific information used in support of environmental risk evaluation and regulation.

- Ecological Risk Assessment in the Federal Government. This is a report to the CENR on the use of ecological risk assessment in the Federal government. A synthesis of the applications of ecological assessment, this report will illustrate common principles and identify the range and disparity of parameters used across Federal agencies. This may be used as a focal point for harmonizing approaches across agencies and to determine research needs and their priority for future work.

- Ecological Assessment Methods. A variety of new methods that facilitate ecological risk assessment are being developed. These include an Environmental Information Management System, which will provide electronic access to a large array of data and information useful in environmental modeling and assessment. As a model for other community based initiatives, it will serve as a measuring stick for the integration of complex data and information across multiple ecological resources and geographic scales. New analytical tools for large-scale ecological risk assessment (a model for the Columbia River Basin) will be developed in cooperation with other parts of EPA and outside agencies. These innovative methods for monitoring and evaluating ecosystem condition will be useful for conducting state of the science assessments and making informed management decisions.

- Effects Assessment Tools: Systematic and high quality databases for aquatic life, wildlife and terrestrial plants are also needed to develop and validate chemical effect, toxicokinetic, dose-response and species extrapolation models. Use of these knowledge bases in coordination with modeling exercises will assist in identifying significant knowledge gaps for future research. ECOTOX will provide the means to cost-effectively collect standardized and critically needed effects data for a wide variety of ecological risk assessments.

- Regional Vulnerability Exposure Assessments: This research will develop computer models that juxtapose current and projected future physical, chemical, and biological stressor patterns, the geographic distribution of vulnerable receptors, and mathematical functions that link the resulting exposures to direct and indirect effects on critical ecosystem structure and function. In 1999, this will be accomplished by utilizing existing data on stressor sources and ambient concentrations and on the geographic distributions of potentially susceptible receptors and their associated ecosystems. Transport, transformation and fate models or statistical models then are used to simulate the resulting ecological exposures (the occurrence of a stressor and receptor in space and time) at time and space scales appropriate to available models that link exposures to effects in the Mid-Atlantic.

- Probabilistic Methods: New research in risk characterization will develop probabilistic methods for risk assessment of ecosystem risks beginning with pesticides and toxics as the primary focal point.

EPA will develop prevention, management, adaptation, and remediation technologies to manage, restore, or rehabilitate ecosystems to achieve local, regional, and national goals.

The focus will be on demonstrating reliable and cost-effective treatment or containment of contaminated sediments, restoration of riparian habitats and other critical watershed ecosystems, and guidelines for watershed and larger scale adaptation and mitigation technologies. This research will provide tools and technologies that may lead to improved capabilities to achieve desired results from actions taken, and at lower costs. Significant activities are listed below.

In 1999, Risk Management research will focus on:

- Ecological Risk Assessment/Restoration (ERA/R) technologies: This research will develop restoration technologies and tools for ecosystem managers focused on three broad approaches. These are: (1) reconstruction of, to the extent possible, the physical structure of the ecosystem, (e.g., creating a riparian zone); (2) reduction of the perceived stressor(s), (e.g., cleaning up contaminated sediments); and (3) allowing the natural restorative capacity of the system to bring about the needed change. This research will incorporate the knowledge developed from research on restoration technologies, the appropriateness of their use for a specific situation, and tools for measuring the effectiveness of restoration technologies into decision support systems to be used in planning and implementing ecosystem restoration. This approach will also minimize the potential for unanticipated consequences such as introduced species and water quality degradation.

- ERA/R restoration assessment technologies: This research will develop assessment tools to measure the progress and effectiveness, as well as the cost, of candidate restoration technologies. The emphasis will be on tools that can be used while restoration activities are in progress, rather than steady state or long term measures of ecosystem health. In many cases these are expected to be indirect measurements that can be made quickly and at low cost. An important part of the effort will be to develop methods for evaluating negative or unexpected impacts of the restoration efforts. These assessment technologies will measure the effectiveness of ecosystem restoration (e.g., cost/benefit tools, stressor reduction tools). These capabilities will help quantify the improvements that are realized by applying scientific and systematic approaches to restore damaged ecosystems.

In 1999, the Regional Methods program will emphasize the development of high priority monitoring methods needed by EPA Regions and states to establish permit conditions that are better tailored to site-specific situations (i.e., reduce both over and under regulation) as well as to more cost effectively assess compliance with permit conditions.

1998 Annual Performance Goals

- Develop reliable, scientifically defensible indicators for measuring change, specifically indicators for measuring change of ecosystem stability or integrity, and methodologies for multi-scale regional assessments.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
01 Obj. Total Change	$(15,206.9)	23.5
Science and Technology	$(15,825.8)	23.5
Hazardous Substance Superfund	$618.9	0.0

- (+11.8 workyears) This request includes 11.8 work years for postdoctoral scientists and engineers to enhance the intramural research program. These 3-year term appointments will provide a constant stream of highly-trained postdoctoral candidates who can apply state-of-the-science training to EPA research issues.

- (-$1,500,000) Resources will be shifted out of research on EMAP due to the conclusion of funding for ecosystem risk assessment research associated with the Pacific Northwest Ecosystem Management Research Consortium.

- (-$2,000,000) Resources will be shifted out of EMAP, which could impact the number of index sites that will be included in the monitoring network. However, data collected from fewer sites could be extrapolated to other regions not directly monitored.

- (+$435,000 and +6.3 workyears) Resources will be shifted into research to determine ecosystem sustainability. Efforts will be shifted from research to characterize the ecotoxicity of chemical stressors to research for developing methods and models for determining the environmental factors that influence the sustainability of aquatic ecosystems. The increase reflects a growing emphasis on understanding factors influencing ecosystems and the need to incorporate a watershed perspective in approaches to ecosystem health. Methods and models that are developed will help improve the scientific understanding of the factors influencing ecosystem sustainability leading to the development of watershed level criteria for protection of ecosystems and diagnostic methods for determining ecosystem health.

- (-$1,500,000 and +1 workyear) Resources are being shifted out of ecological risk assessment and management. $1,300,000 of this will be redirected into more basic research on how to conduct modeling efforts on multimedia stressors.

- (-$2,900,000) Funding to support the National Decentralized Water Resources Capacity Project, a Congressional earmark, has been eliminated.

- (-$2,900,000) Funding to support the Water Environment Research Foundation, a Congressional earmark, has been eliminated.

- (-$5,800,000) Funding to support Salton Sea Research, a Congressional earmark, has been eliminated.

- (-$975,000) Funding to support Center for Estuarine/Coastal Ocean Environment, a congressional earmark, has been eliminated.

- (+$209,000) Increased resources will be directed to EPA's participation in the National Environmental Laboratory Accreditation Conference (NELAC), a state-EPA partnership with the goal of achieving a uniform national program for accrediting environmental testing laboratories. This national program provides baseline quality assurance oversight in all environmental monitoring conducted for EPA programs, and the basis for promoting reciprocity among existing state programs.

Key Performance Measures	**1998**	**1999**
Develop new analytical tools for large-scale ecological risk assessment: A model for the Columbia River Basin.	09/30/98	
In partnership with NOAA, NSF, ONR, USDA, and NASA, award up to six peer-reviewed STAR research grants emphasizing Pfiesteria, particularly factors which influence the induction of toxic forms.	09/30/98	
Award up to 3 peer-reviewed STAR research grants to develop ecological assessment techniques for regional scale analysis and assessment.	09/30/98	
Award up to 12 peer-reviewed STAR research grants that focus on indicators of sustainability that integrate among resource types and address multiple spatial scales.	09/30/98	

Publish a landscape atlas for the Mid-Atlantic Region.	09/30/98	
Provide a draft analytical protocol for chemical screening at Index sites in multiple media for review.	09/30/98	
Complete installation of UV radiation monitors at 10 National Index Sites.	09/30/98	
Report out a suite of watershed models that integrate ecological, physical, and social sciences.		09/30/99
Report to CENR on use of Ecological Risk Assessment in the Federal Government.		09/30/99
Develop final guidelines for Ecological Risk Assessment (specific issue report).	09/30/98	09/30/99
Development and use of ecological information management system.	09/30/98	
Publish an evaluation of the applicability of estuarine indicators as indicators of the condition of estuaries.		09/30/99
Publish Mid-Atlantic region stressor profiles for ozone, acid deposition, pesticides, nitrogen and other stressors.		09/30/99
Provide baseline landscape indicators for the Mid-Atlantic Region.		09/30/99
Complete simulations for multiple years and 5 stressors in the Mid-Atlantic.		09/30/99

Develop a GIS-based modeling platform for landscape ecology and regional biodiversity.	09/30/99
Report on use of ecological risk assessment framework for shrimp virus assessment.	09/30/99
Develop a problem formulation statement for the Mid-Atlantic Integrated Assessment.	09/30/99
Assess dioxin impacts on aquatic life and associated wildlife.	09/30/99
Initial data and modeling results from a paired watershed study of hydrogeologic, geochemical, and geomorphic processes determining reparian zone controls on subsurface nitrate transport into Chesapeake Bay.	09/30/99

Conclusion

The EPA has restructured its strategy for protecting and restoring the nation's ecological resources to use a new "integrated ecosystem management" approach. Rather than focusing solely on regulatory command and control based on individual legislative mandates, the new strategy recognizes the need to adequately accommodate the interactive nature of ecological systems by replacing approaches involving single species and single stressors to approaches based on systems-level management.

The end result of this research and incrementally all along the way, will lead the Agency to an increasingly better understanding of our environment, the options available for protecting it, and the tools to do both, including:

- Better measures of the success or failure of regulatory and management policies--more definitive, more responsive, more diagnostic, and less costly,
- Improved models to predict the response of ecosystems to alternative risk management strategies--more realistic, more flexible, more useable, and more accurate,
- More techniques for restoring degraded systems when protection has failed,
- Rigorous risk assessments to make decisions on where to invest limited resources for maximizing protection.

Performance Measure Verification and Validation

EPA has several strategies to validate and verify performance measures in the area of environmental science and research. The Agency has implemented a risk-based research planning process to use risk assessment and risk management as principal priority-setting criteria. EPA conducts annual research program reviews to both evaluate the status and accomplishments of its research and determine planning priorities. To better draw upon the expertise of the environmental academic community, EPA created the Science to Achieve Results (STAR) program of peer-reviewed, mission-driven extramural grants; the Agency is also working with a number of professional societies and scientific organizations to identify emerging environmental issues for which we must begin planning the necessary research.

Chief among the Agency's validation and verification mechanisms is a rigorous peer review process. In a July 1997 memorandum, EPA's Deputy Administrator states that peer review will be expanded "to include both the major work products provided in the past and...all scientific and technical products supporting Agency decisions..." This expanded and strengthened focus on peer review will help ensure that the performance measures listed here are verified and validated by external organizations. The Agency utilizes peer review throughout the research planning and implementation process, both to ensure that planned research addresses critical knowledge issues within EPA's mission, and to assess the quality of scientific research plans, products, and proposals. This is accomplished through the use of independent entities such as the Science Advisory Board (SAB) and the Board of Scientific Councilors (BOSC). The BOSC, established under the Federal Advisory Committee Act, will even examine the way the Agency uses peer review, as well as the management of its research and development laboratories.

EPA's external research program undergoes extensive peer review. Proposals from the external scientific community are peer-reviewed and projects are then selected for funding through grants or cooperative agreements. In addition, Requests for Applications (RFAs) under the STAR program are often developed jointly with outside partners such as the National Science Foundation. In this way, EPA has developed a mechanism by which to check the quality and relevance of its research program.

The Office of Research and Development Management Information System (OMIS) will be another accountability tool used to verify and validate performance measures. The recently developed GPRA structure will be incorporated into OMIS to ensure consistent maintenance and reporting, resulting in greater accuracy and consistency of information to users.

Statutory Authority

Toxic Substances Control Act (TSCA) section 4 and 5 (15 U.S.C. 2603 and 2604)

Pollution Prevention Act (PPA) (42 U.S.C. 13101-13109)

Clean Water Act (CWA) Title I (33 U.S.C. 1251-1271)

Sound Science, Improved Understanding of Environmental Risk, and Greater Innovation to Address Environmental Problems

Objective #2: Research for Human Health Risk Assessment

By 2008, improve the scientific basis to identify, characterize, assess, and manage environmental exposures that pose the greatest health risks to the American public by developing models and methodologies to integrate information about exposures and effects from multiple pathways.

Overview

During much of its history, EPA has focused its risk management decisions and regulations on single environmental pathways and individual contaminants. Often, this approach has been mandated by environmental legislation. In recent years, advances in the state of environmental science have illustrated that new risk assessment methods are needed to investigate complex environmental and human health issues that were not contemplated by early environmental legislation. Perhaps of equal importance, these advances illustrate the significance of new risk management options for EPA -- replacing, where appropriate, the "one-size-fits-all" approach to risk management with a more population/geographic-specific approach where risk management options can be developed for the general population, specific age groups (e.g., infants and children), or other susceptible subpopulations.

Today, the practice of risk assessment and risk management helps to identify scientific issues that cut across the elements of the risk assessment paradigm (exposure, dose response, effects, risk assessment). Risk assessment plays an essential role in guiding and focusing human exposure and health research in an interactive and iterative process to improve the prevention, mitigation, or management of environmental health risks. Creating a strong scientific foundation for risk assessment and for subsequent risk management decisions requires research to reduce significant areas of scientific uncertainty and to develop the methods, models, and data needed to support EPA's scientific and regulatory programs. In recent years, a number of national scientific advisory groups have developed specific recommendations to assist in strengthening this foundation.

In consideration of those recommendations and the needs of EPA's regulatory programs and Regional Offices, EPA has identified three major areas of uncertainty as the focus for its 1999 Human Health Risk Assessment Research Program: 1) reducing uncertainties in exposure measurements and measurement-derived models, 2) applying mechanistic-based methods and models and data in hazard identification/characterization and dose-response assessment, and 3) characterizing and assessing variation in human exposure and susceptibility to disease. Because substantial uncertainties are associated with these areas, resolution will greatly advance the science of human health risk assessment.

A number of projects are anticipated in pursuing these efforts. Efforts to improve human exposure assessment will include: 1) development and evaluation of methods for measuring total human exposure, 2) incorporation of those methods into ongoing efforts to establish/validate multi-pollutant, multi pathway surveillance protocols that will contribute to human exposure data bases and model development, and 3) development and application of measurement-based models that include time-activity patterns and represent prospective and retrospective source-pathway-exposure-dose relationships.

Given the challenges raised to current approaches to estimating cancer (e.g., linear extrapolation) and noncancer (application of uncertainty factors) risks, greater emphasis will be given to obtaining fundamental pharmacokinetic and mechanistic data and tools for their application in deriving more biologically defensible risk assessments. The pharmacokinetic data and models will serve as the lynchpin for linking exposure and effects and include research to address route-to-route and cross-species extrapolation and validation of dose biomarkers to serve as actual indices of exposure. The mechanistic data will allow for clarification of the relevance of animal models (e.g., for hazard identification methods, cross-species extrapolation) and the validation of biomarkers of toxic effects that may serve as disease surrogates and be used as the basis for low dose extrapolation. Special attention will be given to quantifying near and long-term risks associated with less-than-lifetime exposures.

The exposure and effects research activities will be designed and implemented to provide insights into subpopulations which experience higher exposures or have underlying biological factors (e.g., genetic predisposition, children, elderly, pre-existing disease, etc.) that place them at greater risk. Research on susceptible populations assumes that certain segments of the populations may not be afforded adequate consideration in current risk assessment practices and/or sufficient protection under ensuing risk management decisions. Efforts associated with this research activity will evaluate the adequacy of current approaches to identify, characterize and explain the increased susceptibility of various subpopulations. This evaluation will direct subsequently the evolution of improved tools and approaches to assess risk to these populations. A unique dimension of these efforts will be the incorporation of risk management research as these key parameters and populations are defined (exposure or biologic) so that appropriate intervention strategies can be developed and applied in parallel.

In addition to supporting the GPRA goal of conducting sound science, the work here will also support efforts to reduce the use of pesticides on food that do not meet the new Food Quality Protection Act statutory standard of "reasonable certainty of no harm" (GPRA Goal 3) by developing improved risk assessment methods to provide state-of-the-science guidance for addressing susceptibility, variability, aggregate exposure, exposure to mixtures, and how these sources of variability can be factored into risk assessments. Also supported will be efforts to improve pollution prevention strategies, tools, and approaches needed to protect human health from unreasonable adverse effects of pesticides and toxic chemicals (GPRA Goal 4) by the production of first generation exposure models for assessing residential exposure to pesticides. The new improved data, methods, models, and guidance resulting from efforts under the Sound Science Objective will support more effective Agency implementation of a variety of legislative

mandates, particularly the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), the Toxic Substance Control Act (TSCA), the Federal Food, Drug, and Cosmetic Act (FFDCA), and the Food Quality Protection Act (FQPA) of 1996.

The Agency supports this objective through legal counseling and advocacy. This may include advice, participation in the development of Agency actions, document review, and the conduct of defensive litigation.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 02 Research for Human Health Risk Assessment	**$52,631.1**	**$49,006.9**	**$47,618.5**
Environmental Program & Management	$18.8	$17.5	$18.8
Science and Technology	$52,261.1	$48,639.7	$47,556.1
Hazardous Substance Superfund	$351.2	$349.7	$43.6
Total FTE	216.8	207.0	224.1

1999 Annual Performance Goals

- By 1999, produce first generation exposure models describing residential exposure to pesticides.
- FY 2000: Generation of mechanistic data to strengthen the biologic basis for low dose and species extrapolation in building quantitative health risk assessment models.
- FY 2001: Providing methodologies suitable for quantifying exposures and effects for targeted subpopulations, especially children.
- By 2008, develop and verify innovative methods and models for assessing the susceptibilities of populations to environmental agents, aimed at enhancing risk assessment and management strategies and guidance.
- Define and identify factors and conditions that place various subpopulations at high risk.

As stated earlier, this objective calls for improving the scientific basis to identify, characterize, assess, and manage environmental exposures that pose the greatest health risks to the American public by developing models and methodologies to integrate information about exposures and effects from multiple pathways. In pursuit of this objective, research is supported: 1) to develop multimedia/multipathway exposure models, 2) to develop biologically defensible health risk assessments, and 3) to develop improved approaches to assess the health risks of sensitive subpopulations.

Research on Multimedia/Multipathway Exposure Modeling

By 2007, EPA is committed to demonstrating a model to assess, predict, and diagnose the population distribution of multi-media, multi-pathway exposures to major classes of environmental agents. A number of exposure related activities will be undertaken in achieving this objective. They have been chosen to address substantial uncertainties that exist in human health risk assessment and thereby improve the scientific basis for assessing and managing risks. They include: 1) research to develop/improve methods for measuring total exposure; 2) measurement research to develop/improve surveillance and measurement protocols and provide input into the development and validation of models; 3) development of measurement-based source-pathway-exposure-dose models; and 4) research to improve risk assessment techniques, databases, and models. This research seeks to improve the core science in this area and will do so by focusing on multimedia, multipathway exposures to pesticides and other consumer products and major exposure venues, including residential.

Methods and indicators research will develop and demonstrate methods for measuring total human exposure: immunoassay methods; dermal, oral, and dietary methods; and phase-distributed semivolatile organic compounds and aerosols. Of these, methods for measuring the low levels of pesticides and toxics in foods are especially needed to perform measurement studies in support of the Food Quality Protection Act.

Surveillance, measurement and epidemiologic research will focus on developing, demonstrating, and evaluating human exposure measurement and surveillance/assessment protocols through evaluation of the National Human Exposure Assessment Survey (NHEXAS) program, research under the Border XXI program, and improving protocols to communicate exposure risk and exposure mitigation data at community to regional scales. The latter will include extension of pollution prevention options driven by the surveillance and assessment data. Part of this effort will involve collaboration with local, state and federal agencies to identify, prioritize and address environmental health-risk problems in communities along the U.S.-Mexico Border.

Exposure models research will focus on developing, demonstrating, and evaluating measurement-based models that represent exposure-biomarker-dose relationships and the physical and chemical factors that affect doses to the target, and developing, demonstrating, and evaluating measurement-based models that represent prospective and retrospective source-pathway-exposure-dose relationships. For example, if unacceptable exposures are detected, it is important to be able to identify the source to enable effective mitigation. Also, it is essential to be able to predict whether a regulatory-induced change in a source would likely have the desired outcome of actually reducing human exposure. This area of research will also develop and demonstrate statistical techniques for investigating exposures and time-activity patterns.

Research to improve risk assessment techniques, data bases, and models will 1) analyze exposure information developed by the NHEXAS survey, and 2) analyze data and develop risk assessment approaches to address variation in human susceptibility to pollutants caused by various factors (e.g., gender, age, ethnicity, genetic polymorphism, activity patterns, concentration-time relationships).

Biologically Defensible Health Assessments

By FY 2008, EPA is committed to reducing reliance on current methodologies that rely on default assumptions by providing mechanistically-based data, tools and approaches for more quantitative and biologically defensible human health risk assessments. EPA will achieve this objective through research in areas that collectively represent a focused program to reduce significant uncertainties in EPA's ability to 1) identify and characterize health hazards and 2) subsequently quantify, model and assess exposure-dose-response relationships.

Hazard identification/characterization research will develop and validate tests for hazard identification and characterization that have a stronger mechanistic foundation with a special emphasis on noncancer end points. Advances in molecular biology and in vitro cell culture techniques will be used to establish laboratory models for examining selective biological events that may serve as the substrates for specific, adverse health outcomes. Other approaches, such as computational chemistry and structure-activity relationships (SAR) will improve the ability to conduct screening on a large number of agents for which there is little or no health effects information. The computational chemistry and SAR approaches will complement ongoing experimental studies involving hazard identification and mechanisms-of-action for important pollutant classes. ORD will use this research information to support the process of guideline development, especially for emerging areas of health risk assessment (e.g., health risks associated with short-term exposures and complex mixtures). Moreover, validation of these "cutting edge" approaches will provide the agency with a new generation of test methods that are more accurate and cost-effective and greatly reduce the time required currently for most testing regimes.

Although benchmark dose and other empirical approaches are seen as improvements over traditional noncancer risk assessment approaches through the use of more of the dose-response data, these approaches do not fully incorporate mechanism-of-action data. The continued development of biologically-based dose-response models is needed to support extrapolation of laboratory data to humans. Research on dose-response models will include elucidating underlying mechanisms of pollutant toxicity and the repair or adaptation of damaged tissues using animal models and human studies. Special attention will be placed on elucidating the role of receptor-mediated events in the expression of toxicity, especially as applied to deriving the dose-response of related toxic chemicals and mixtures. Research will include evaluating the utility of the toxic equivalency factor (TEF) technology to predict biochemical and toxicologic responses for mixtures in animal models. The receptor-mediated approach will also be applied in human studies to delineate the contribution of genetic background and age in the expression of adverse health effects. The research in this area will also shift the focus from risks associated with chronic exposures to addressing less-than-life-time exposures; a paradigm that is especially appropriate for many noncancer health effects. Data from these methodologies will contribute to the development and demonstration of more biologically defensible models that represent more accurately the exposure-dose-effect relationships upon which risk assessments are based.

Research on Susceptible Subpopulations

By 2008, EPA is committed under the Government Performance and Results Act (GPRA) to developing and verifying innovative methods and models for assessing the susceptibilities of populations to environmental agents, aimed at enhancing current risk assessment and management strategies and guidance. The research described below is essential to successfully meeting this GPRA commitment.

Research on susceptible subpopulations, particularly infants and children, has strong support from national scientific advisory organizations, the Administration, and Congress. In 1993, the National Academy of Science (NAS) issued its report, *Pesticides in the Diets of Infants and Children,* which drew attention to health effects and exposure research needed to improve our understanding of the impact of pesticides on children's development and overall health. In 1996, Congress enacted the Food Quality Protection Act (FQPA). Among its many provisions the Act mandates a single, health-based standard for all pesticides in all foods and provides special protections for infants and children. Also in 1996, the Administrator issued a report entitled *Environmental Health Threats to Children* and established a Children's Agenda for EPA, calling for consideration of children's risks in all Agency actions and a greater emphasis on research to support children's risk assessments. In 1997, the President issued an Executive Order addressing protection of children from environmental health risks.

In response to the heightened awareness and concern over children's health risks and the provisions of the new legislation on food safety, EPA established the Children's Health Research Program and a research program to support implementation of FQPA.

Children's Health Research Program

Much of the effort under the Children's program is based on the Risks to Children Research Strategy, which provides the framework for working toward a risk assessment methodology for children that will address age-related exposures, physiology, and biological responses that result in increased risks, and provides a framework for improved risk characterization and identification of opportunities for risk management and reduction. In FY 1999, Children's Health Research will continue providing the data to strengthen Agency risk assessments for children, both in the near and long term. The program will emphasize:

1) child-centered research applicable to a broad range of programs that will contribute to the development of more accurate risk assessments throughout all EPA Program Offices and Regions;

2) development of methods for assessing and characterizing children's risks that can be used as a framework for coordinating risk assessment research both in the Children's risk program and in other ORD research programs with the objective of providing consistent methods for EPA risk assessors, and developing data and methods for risk assessment with wide application in Agency Program Offices and Regions;

3) development of improved testing guidelines for predicting the effects of pre- and perinatal exposures on development in infants and children;

4) investigation of not only how children are different from adults, but also why they are different, including studies of mechanisms of action for effects in children and quantification of biological and physiological characteristics of different age groups, investigation of activity patterns and pathways of exposure specific to children, and identification of sources of exposure that are of particular concern for children;

5) development of exposure, physiologically-based pharmacokinetic (PBPK) and biologically-based dose response (BBDR) models for quantitative risk assessment with the objective of developing improved risk assessments methods for application on a routine basis in EPA programs;

6) aggregate exposure and cumulative risks for children experiencing multiple chemical and multiple pathway exposures;

7) variability within an age group because of differences in exposures and susceptibilities compared to differences between age groups;

8) better communication of risk assessment information to stakeholders, including parents, schools, medical personnel and other members of the community; and

9) identification, development, and communication of risk reduction and risk prevention measures.

In collaboration with the National Institute for Environmental Health Sciences (NIEHS), EPA will continue to support specialized academic centers of research in pediatric environmental health. These centers emphasize coordinated programs that incorporate exposure assessment and health effects research with development and validation of risk management and outreach, prevention, and intervention strategies. EPA will also continue to participate in the National Health and Nutrition Examination Survey (NHANES-4). This study, conducted by the National Center for Health Statistics, involves collecting information on health, nutrition, and exposure, in a nationally representative sample, in which certain groups and age ranges of children are oversampled. EPA is supporting studies to obtain blood and urine levels representative of age ranges in the national population for selected pesticides, endocrine disrupting chemicals, and metals, and in the results of accompanying questionnaire items aimed at potential sources of exposure. These data will be used to characterize and quantify national exposure levels in children, to supplement and interpret the special exposure studies ORD is currently conducting, and to provide information on trends in exposures.

FQPA Implementation

As previously noted, Congress enacted the Food Quality Protection Act (FQPA) in 1996, mandating a single, health-based standard for all pesticides in all

foods and providing special protections for sensitive subpopulations, particularly infants and children. Titles III and IV of the Act identify clear science needs consistent with evaluation of all potential routes and pathways of exposures and effects to pesticides, inclusive of aggregate exposures to pesticides, and the need to review more complex factors (e.g., cumulative effects and exposures). Uncertainties associated with our ability to assess risks from aggregate/cumulative exposure to mixtures of chemicals can be articulated in such scientific questions as: What are the human health effects associated with multiple, short-term exposures to pesticides and other toxic chemicals that differ from those resulting from chronic exposures? What are the human health effects associated with exposures to mixtures of pesticides and other toxic chemicals with similar modes of action that differ from those associated with the individual chemicals? What cumulative exposures result from multiple, short-term exposures from various sources? What are the characteristics of toxic chemical mixtures in the environment that are important for assessing risks to humans? What are the dose-response characteristics of low-concentrations of mixtures found in the environment? Will a Toxicity Equivalency Factor (TEF) approach be applicable? How can unreasonable risks associated with multiple, short-term exposures and multiple chemical exposures (mixtures) be effectively managed?

To address these and other issues of cumulative risk, research in 1999 will focus on: 1) development of methods to evaluate the human health effects of cumulative exposure to pesticides and other toxic substances including multiple acute exposures, mixtures of chemicals with similar modes of action from the same source, mixtures of chemicals with similar modes of action from different sources; and 2) development of methods to enable measurement of pesticides and toxics in food, the conduct of targeted field studies, and models to evaluate and assess cumulative/aggregate exposures to pesticides and toxic chemicals including multiple acute exposures, mixtures and multiple chemicals from common and different sources.

The major uncertainties in the area of sensitive subpopulations (such as infants and children and the elderly) relate to the degree to which current risk assessment practices provide them adequate protection. Estimates of variability in human susceptibility to cancer range from a factor of 36 to a factor of 50,000 (Hattis, 1986 and Finkel, 1987). This wide range introduces a great deal of uncertainty in our risk assessments, making it very difficult for risk assessors to establish susceptibility factors for subpopulations such as children, the elderly, and persons with pre-existing disease.

To address risks to sensitive subpopulations under FQPA, research in 1999 will focus on: 1) improved and validated methods and measurements to detect/characterize/quantify pesticide exposures in infants and children (including age-related differences and activity patterns/behavior unique to children) and other susceptible subpopulations (elderly, predisposition to disease, and high-end exposure groups; 2) development of exposure models for children that include all relevant pathways and media (especially those related to child behaviors and activity patterns) and are capable of source-pathway-exposure-dose modeling in a predictive and diagnostic way; and 3) using existing exposure, effects, dose-response, and physiological data to assess exposures, doses, and risks to infants and children, including developing risk assessment tools and communication of children's risk that will directly support implementation of FQPA.

The President's Budget Request includes a total of 50 work years to be used for 3-year term appointments of postdoctoral candidates to work at ORD laboratories.

1998 Annual Performance Goals

- Research to assess the susceptibilities of populations to environmental agents by developing methods and models to enhance risk assessment and management strategies.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
02 Obj. Total Change	**$(1,388.4)**	**17.1**
Environmental Program & Management	$1.3	0.0
Science and Technology	$(1,083.6)	17.1
Hazardous Substance Superfund	$(306.1)	0.0

- (-$1,777,300) Research priorities under the Human Health Objective are based on the objectives of the Human Health Risk Assessment Research Strategy and decisions resulting from ORD's annual risk-based planning process. Within the overall dollar reduction, research on multimedia/multipathway exposure modeling will decrease by $1,777,300 in total dollars. Part of this reduction (-$750,000) results from a scaling back of efforts under the U.S. Mexico Border Program (a.k.a. NAFTA), reducing our efforts in exposure surveillance, measurement, and epidemiologic research in Border communities, such as the ability to conduct concurrently research in more than one community or support multiple border institutions in implementing education and training activities. Resources will remain to continue support for most of the Agency's primary NAFTA research needs. Another part of the reduction to the multimedia/multipathway exposure modeling research (-$1,042,500 extramural) will impact work on exposure methods and indicators designed to develop models and protocols for reducing uncertainty in determining total human exposure. While this will have some impact on our ability to develop improved methods for ascertaining routes of total exposure, the Agency will continue to support a strong program of human exposure research in closely related areas, such as cumulative exposure.

  The pilot ORD portion of the Agriculture-Health Study, which focuses on measuring and evaluating exposures of farm families to pesticides, will be completed in FY 1998. However, ORD will continue the main epidemiological portion (under National Cancer Institute and National Institute for Environmental Health Sciences).

- (+$750,000) ORD will provide increased support to investigator-initiated research, focusing on priority issues in human exposure as determined

through the Agency's risk-based planning process, such as exposure to complex chemical mixtures.

- (+13.7 workyears) The increase in workyears includes a request for 13.7 workyears for postdoctoral scientists and engineers to enhance the intramural research program. These 3-year term appointments will provide a constant stream of highly-trained postdoctoral candidates who can apply state-of-the-science training to EPA research issues.

Key Performance Measures	1998	1999
Award up to 10 peer reviewed STAR research grants that support studies to quantify the exposure of children to organophoss, trazines and pyrethroids that treat children as unique and sensitive subpopulations.	09/30/98	09/30/99
In partnership with NIEHS, award up to five peer reviewed STAR research grants to centers that will study the causes and mechanisms of children's disorders having an environmental etilogy.	09/30/98	
Development of a pharmacokinetic model for VOC's alone and in combination.		09/30/99
Complete preliminary analysis of pilot scale multipathway NHEXAS studies.		09/30/99
Develop first generation multi-route human exposure-dose models.		09/30/00
Develop First Generation Residential Exposure Models.		09/30/99
Develop pharmacokinetic model for dioxin that can cross species, sex, and address C x T.		09/30/99

Conclusion

During much of its history, EPA has focused its risk assessments, risk management decisions, and regulations on individual pollutants and single environmental pathways. In recent years, increasingly complex environmental and human health issues have challenged EPA to pursue a more relevant, multi-pollutant, multi pathway approach and to develop more sophisticated tools and

scientifically defensible models for human health risk assessment. Recent changes in EPA's national regulatory agenda -- from the historic "one size fits all" command and control approach to population-specific approaches wherein risk assessments may be needed for the general populations as well as susceptible subpopulations -- have also underscored the need for such research.

Successfully accomplishing the research described in this plan will produce products that will dramatically alter the way in which the Agency conducts human health risk assessments. As part of this undertaking, it is anticipated that the data, methods and modeling approaches from these efforts will be fed into either "prototypic" risk assessment exercises on pollutants of broad Agency interest, or ongoing program-specific risk assessments. As such, the efforts under this objective will advance the overall science of human risk assessment and contribute to high priority risk assessment activities of client offices. The feedback from those efforts will serve to guide future directions.

Key Performance Measures Verification

EPA has several strategies to validate and verify performance measures in the area of environmental science and research. The Agency has implemented a risk-based research planning process to use risk assessment and risk management as principal priority-setting criteria. EPA conducts annual research program reviews to both evaluate the status and accomplishments of its research and determine planning priorities. To better draw upon the expertise of the environmental academic community, EPA created the Science to Achieve Results (STAR) program of peer-reviewed, mission-driven extramural grants; the Agency is also working with the National Research Council to identify emerging environmental issues for which we must begin planning the necessary research.

Chief among the Agency's validation and verification mechanisms is a rigorous peer review process. In a July 1997 memorandum, EPA's Deputy Administrator states that peer review will be expanded "to include both the major work products provided in the past and...all scientific and technical products supporting Agency decisions..." This expanded and strengthened focus on peer review will help ensure that the performance measures listed here are verified and validated by external organizations. The Agency utilizes peer review throughout the research planning and implementation process, both to ensure that planned research addresses critical knowledge issues within EPA's mission, and to assess the quality of scientific research plans, products, and proposals. This is accomplished through the use of independent entities such as the Science Advisory Board (SAB) and the Board of Scientific Councilors (BOSC). The BOSC, established under the Federal Advisory Committee Act, will even examine the way the Agency uses peer review, as well as the management of its research and development laboratories.

EPA's external research program undergoes extensive peer review. Proposals from the external scientific community are peer-reviewed and projects are then selected for funding through grants or cooperative agreements. In addition, Requests for Applications (RFAs) under the STAR program are often developed jointly with outside partners such as the National Science Foundation. In this way, EPA has developed a mechanism by which to check the quality and relevance of its research program.

The Office of Research and Development Management Information System (OMIS) will be another accountability tool used to verify and validate performance measures. The recently developed GPRA structure will be incorporated into OMIS to ensure consistent maintenance and reporting, resulting in greater accuracy and consistency of information to users.

Statutory Authority

CWA Title I (33 U.S.C. 1251-1271)

Sound Science, Improved Understanding of Environmental Risk, and Greater Innovation to Address Environmental Problems

Objective #3: Research to Detect Emerging Risk Issues

By 2008, establish capability and mechanisms within EPA to anticipate and identify environmental or other changes that may portend future risk, integrate futures planning into ongoing programs, and promote coordinated preparation for and response to change.

Overview

A clear vision of future environmental risk will enable EPA to manage strategically for tomorrow and tactically for today. Benefits will include an improved framework for decision-making, increased ability to anticipate and perhaps deter serious environmental risks, and enhanced communication with the public and other stakeholders. This objective responds directly to recommendations of numerous external advisory panels, including the Committee on Research Opportunities and Priorities for EPA under the National Research Council, the Carnegie Commission, the National Academy of Public Administration, and EPA's Science Advisory Board, that EPA improve its capacity to identify emerging environmental risks, the respective long-term trends that would shape such environmental risks, and major planning and policy issues related to associated research, monitoring, and intervention. This objective provides the basis to:

- stretch existing institutional capacity by using current work on a number of complex, multi-pathway problems to learn how to identify and assess risks across species, time, and space. Lessons from these efforts will have broad and significant impacts on the conduct of risk assessments in all media and in all EPA programs, as well as inform our understanding of potential future risks;

- enhance the Agency's capacity to report on the economic costs and benefits of environmental policies and effectively communicate the economic implications of regulatory programs. Economic analyses will become a regular component of the Agency's efforts to fully describe the consequences of changes in human as well as ecological risks attributable to programs. Economic information will be one of the several risk management inputs used to identify priorities, assess programs, and evaluate the efficiency of Agency and social resources devoted to the protection of the environment. Economic tools will themselves be assessed and continuously improved, so as to enable the Agency to provide the best available information on economic questions that arise within the regulatory, legislative and other policy development processes that involve Agency concerns.

Once established, the mechanisms to identify and respond to changes that indicate future environmental risk must be maintained and used. This objective is not one that will be "achieved" in the sense that there is no residual risk remaining to address. The entire objective is early identification of unknown areas requiring attention. To benefit, EPA will need to retain this future-oriented capacity as the future continues to unfold.

Risk reduction is also facilitated by expanding the limited information on cumulative exposures of multiple pollutants from multiple sources to different demographic groups. There is a need to use existing data and methods to estimate a national distribution of cumulative exposures across communities and demographic groups for air, food and drinking water exposure. The end product of such activities will enable EPA to consider other important factors in development of policy issues, including: 1) strategies to target environmental policies at populations experiencing the greatest exposures; 2) national distribution of cumulative exposures and data to support community-based environmental protection; and 3) go a step beyond previous analyses of pollution and demographics by incorporating more sources and more pollutants. The specific sensitive populations that will be addressed are children, minorities and low income populations. The Science Advisory Board (SAB) has indicated that the conceptual framework for the Agency's efforts on cumulative exposure is scientifically sound and provides a strong basis for a more integrated assessment of population exposures to toxic pollutants, the underlying contributors to exposure and ultimately a basis for comparisons of exposures across geographic and demographic groups.

The Agency's efforts in this objective will be supported through legal counseling and advocacy. This may include advice, participation in the development of Agency actions, document review, and the conduct of defensive litigation.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 03 Emerging Risk Issues	**$56,414.1**	**$47,744.4**	**$55,387.0**
Environmental Program & Management	$5,854.5	$5,299.6	$5,760.9
Science and Technology	$50,559.6	$42,444.8	$49,591.1
Hazardous Substance Superfund	$	$	$35.0
Total FTE	128.5	143.5	184.7

1999 Annual Performance Goals

- By 1999, initiate field exposure study of children to 2 Endocrine Disruptor Chemicals (EDCs).

- By 1999 and beyond produce data, models, technical information which can be used by Federal, state and local air pollution regulatory officials to understand the processes which lead to the formation of organic and metal compounds in combustion systems and to quantitatively evaluate the viability (cost and performance) of various technologies to control or prevent these emissions.

- By 2005, provide a strong scientific basis for understanding the health effects of air pollutant mixtures.

- In 2000, complete the carbon monoxide Air Quality Criteria Document (AQCD) as the basis for the OAR carbon monoxide staff paper risk assessment which supports the carbon monoxide NAAQS.

- Integrate air toxics modeling into Air Office programs. Complete update of air toxics modeling to take into account changes in emissions since 1990.

- In 1999, complete and submit external review draft of the Air Quality Criteria Document for carbon monoxide.

This objective contributes to EPA's capability to identify and address emerging environmental issues. Tasks related specifically to capacity-building and mechanism-development are contained in this objective. Substantial capability to discern "early warnings" and patterns of change will be developed through work undertaken on endocrine disruptors and the investigation of the effects of multiple pollutants in the atmosphere. This new understanding will help to develop a process for identifying and conveying recommendations concerning potential risks in the future.

The President's Budget Request includes a total of 50 workyears to be used for three-year term appointments of postdoctoral candidates to work at the Office of Research and Development laboratories.

A blue ribbon panel of the Science Advisory Board recommended that EPA enhance its environmental education programs for training the next generation of scientists and engineers (Fellowships/Environmental Education. The graduate fellowship program ($10,076,800 and 1 total workyear) was initiated in 1995 for that purpose. This graduate fellowship program, competitive and peer-reviewed, is designed to attract some of the brightest and most dedicated students in the Nation to take advanced training in scientific and engineering disciplines relevant to protection of public health and the environment and, ultimately to careers in environmental science and engineering -- not only for EPA, but for states, localities, and industry. Thus, by providing support for masters and doctoral students in environmental sciences and engineering, EPA helps to develop the Nation's environmental and technology base for addressing the environmental concerns into the next century.

Beyond developing young minds for future needs, fellowship studies bring fresh ideas to bear on EPA science issues. Also, the work done under the fellowship program helps resolve uncertainties associated with particular environmental problems and focuses graduate research on priority research areas.

Fellowships are announced nationally, allowing many opportunities for applicants to apply. The applicants are judged by external peer reviewers, and are selected according to specific criteria: 1) evaluation of the applicant's demonstrated dedication to their career goals; 2) evaluation of the student's organizational, analytical, and written skills; 3) evaluation of the proposed course of study or curriculum; and 4) how the proposed research can be applied to technical environmental problems. The spread of awards is calculated carefully by EPA to students of various graduate experience. In 1999, the Agency expects to support fellowships across multiple disciplines, including the biological and physical sciences, mathematics and computer science, and engineering.

In 1999, the Exploratory Grants research program ($14,674,200 and 3 total workyears) will generate new ideas and produce new scientific information by encouraging creativity and innovation in scientific research. Through publication of an annual general solicitation, the program defines general areas in which there exist significant gaps in scientific knowledge and understanding, and allows individual investigators from the academic research community to conceive, define, and propose research projects. Topics from a broad variety of areas, such as environmental chemistry and physics, health and ecological effects of pollution can receive attention under the Exploratory Grants program.

Proposals are competitively reviewed by peer panels of predominantly outside Agency researchers, with only the most scientifically sound proposals ultimately receiving support. The major program outputs are scientific articles published in the peer literature. The scientific information shared through such publications is intended to broaden and enhance scientific knowledge and understanding and to be used as inputs into more targeted, more applied environmental research programs.

Research on endocrine disruptors chemicals (EDCs) ($14,336,600 and 70.8 total workyears in 1999) is being conducted according to priorities described in the Endocrine Disruptors Research Strategy, which is targeted at addressing the major uncertainties in this important area. The Agency is committed to identifying and evaluating strategies to manage risks from exposure to endocrine disrupting chemicals capable of inducing adverse reproductive and other effects in humans and wildlife.

In moving toward fulfilling this commitment, for 1999, developing screening and testing protocols, research needs have been identified for each of the four areas of the risk assessment paradigm (i.e., effects, exposure, risk assessment, and risk management). Research in the area of effects is needed to determine the nature and extent to which environmentally relevant exposures to chemicals are producing adverse effects in humans and wildlife species. Efforts will focus on: 1) conducting integrated toxicology and exposure studies in ecological systems or human populations with suspected contamination or exposure to EDCs (joint effort with exposure); 2) assessing the effects of EDC exposure on neuroendocrine, immunological, and reproductive function in developing and adult animals in support of pharmacokinetic and biologically based dose-response models, with emphasis on animal models of EDC-induced diseases in wildlife and humans; and 3) translating results from measurement end points at lower levels of biological organization to impacts on populations and communities through the use of microcosms and mesocosms.

Exposure research is needed to identify and understand major exposure routes and processes and develop predictive models for estimating the extent and magnitude of exposures of humans and ecosystems to endocrine disruptors. Research will focus on developing new methods, and refining existing ones (e.g., analytical chemistry, sample extraction, biomarkers) to acquire data for compartmental models, with emphasis on the transport and transformation in sediments and tools for assessing exposure in individuals. (A joint effort with risk assessment researchers).

Risk assessment research will develop an analytical framework for evaluating impacts of reported endocrine disruptors phenomena from a risk assessment perspective. Research is needed to construct a framework to identify, characterize, and prioritize potential exposure to EDCs and provide a database for preliminary risk characterization (joint effort with exposure).

As specific EDCs are clearly identified and their potential environmental and human health consequences are quantified, research will be needed to identify major sources of EDCs entering the environment; and to develop tools for risk management such as biodegradation processes or pollution prevention strategies. The development of new and improved methods and models to assess exposure and effects will lay the groundwork for effective and reliable risk assessment and risk management decisions. In support of finding solutions to identified EDC problems, risk management research will also begin to examine technologies and approaches to prevent, control, and, if appropriate, remediate EDCs.

Regulators and scientists are realizing that preventing risks from air pollution using a one-pollutant-at-a-time approach is inefficient and raises frequent questions on effects of mixtures and co-pollutant control impacts which cannot be answered. For example, we cannot characterize the synergistic or additive (or antagonistic) health effects of hazardous air pollutants in combination with ozone, nor can we compare the benefits of reducing nitrogen oxide emissions to meet both tropospheric ozone and PM goals. To date, EPA has been successful in protecting public health and the environment from the most serious risks of air pollution by focusing on individual pollutants, e.g., ozone, sulfur dioxide, particulates, and a limited number of toxic chemicals. While there is still a lot of work to be done to solve these problems, as proposed under their research plans, even more must be done to cost-effectively achieve current air quality goals and to be sure they are sufficiently protective in the future. Three concerns in particular need to be addressed in addition to ongoing work: (1) the health and ecological effects of air pollutants mixtures, (2) integrated modeling and measurement of exposure, air quality characterization, and fate-transport-and-transformation of pollutants, and (3) optimization of multi-pollutant risk management approaches.

To assess and prevent risks from air pollution present in mixtures, the way people and ecosystems commonly experience it, we must look beyond single pollutants. We must understand the health and ecological effects associated with exposures to air pollutants in combination, without emphasis on a particular constituent. We must look at multiple scales and at all environments combined, outdoors and indoors, in cities and industrial areas, and over sensitive forests and watersheds. To achieve balance in pollution control, and avoid costs that are unnecessary, we must understand the interplay of source emissions transformation, transport and fate, and the impacts of multi-pollutant controls.

The research in this initiative will focus on what scientists and regulators are truly attempting to deal with - the fact that all air pollution merges in "one atmosphere". Specifically, in 1999, EPA will initiate the following research to support the One Atmosphere Research Program ($5,470,000; 47.7 total workyears).

Researchers will initiate clinical and animal studies to determine the health effects of exposure to combinations of pollutants, especially those common to urban environments (e.g. PM exposure simultaneously with ozone, volatile organic compounds simultaneously with particulate and ozone). This research will allow for a better understanding of the carcinogenic and non-carcinogenic effects of combined exposures to air pollutants. The data will help risk assessors to better assess the effects observed in epidemiological studies. The results from this research will be very helpful in providing an understanding of the mechanisms by which mixtures of priority air pollutants produce adverse health effects. Since lack of understanding of biological mechanisms has been a critical uncertainty with respect to the current PM review, this work will help address these uncertainties and be highly complementary to the ongoing work specific to PM.

Health endpoints, such as respiratory toxicity, immunotoxicity, neurotoxicity and reproductive toxicity, will be evaluated, as well as chronic mortality and morbidity. Risks to potential sensitive sub-populations will be evaluated to determine if urban mixtures induce or exacerbate sensitivity. The biological processes underlying the health effects of combined exposures and the dependance of these effects on exposure dynamics, such as timing, frequency, and magnitude, will be studied. Since epidemiological research, by its nature, must consider important co-pollutants, this research will allow for coherent evaluation of the combined influence of criteria and air pollutants on human health. The results of this research may provide an improved understanding of the observations that air pollution is associated with increased illness and death in humans.

Integrated air quality assessments, specialized field studies, and review of measurement improvements will determine the capability of current monitoring approaches to fully characterize ambient constituents, transformation products and precursor species on all scales of importance. Understanding of the relationship between environmental monitors and actual human exposure, especially for mixtures (e.g., urban toxics in the presence of criteria pollutants) and the spatial relationships (e.g. indoor-outdoor, inner city-suburban-rural) of susceptible sub-populations will be increased. Continuous multi-pollutant in-stack monitoring and multi-pollutant source modeling will be developed for use by the regulatory community in allowance and trading programs.

The Risk Assessment Guidelines will be updated for air pollutant mixtures. Regression models will be used to study the interaction of PM and other pollutants with regard to mortality and morbidity. Comprehensive environmental impact assessment approaches will be developed and applied to incomplete combustion products from incinerators. AQCDs to support the development of other NAAQS (SO2, CO, and NOx) will be completed as required by the appropriate 5-year NAAQS cycle. In 1999, the Agency will support the development of other AQCDs other than PM and ozone (e.g., SO2, CO, and NOx), but completion will not be realized until future years.

Integrated control and pollution prevention approaches will be developed for source categories (e.g. utilities, chemical manufacturing facilities, various industrial production processes, waste combustors and industrial boilers) which are having the greatest impact on air quality. All the technologies chosen for investigation will have the potential to simultaneously reduce multiple air pollutants. Examples of technologies include new coating processes which simultaneously reduce ozone precursors and toxic air pollutants and sorbents which can simultaneously capture criteria air pollutants and toxic compounds emitted from combustion systems. The ultimate goal of this research is to ensure future air pollution emission reduction systems used to comply with EPA regulations provide the maximum risk reduction possible while minimizing compliance costs and multi-media impacts. This research directly supports efforts by EPA, state and local regulatory officials and industry to develop integrated strategies to comply with the PM and ozone NAAQS. In addition, outputs from this research would support EPA efforts to develop strategies which will reduce the risks posed by the multitude of air pollutants present in many urban areas across the U.S.

Empirical analyses of the costs and benefits of regulatory programs will be conducted, and advancements in economic benefit and cost assessment methods across the Agency will be supported. Research on benefit-cost techniques and analyses on the benefits and costs of proposed environmental legislation and regulations, with emphasis placed on assessing cumulative sets of regulations or total programs, will assist in planning for ongoing programs. The Agency will support economic analyses on the effects of environmental regulations on the size, structure, and performance of domestic and international economic markets. Projects will be conducted to measure the influence of environmental costs on individual plant and industrial sector performance, and develop national and regional economic models to measure the relationships between economic and environmental policies on economic performance measures. The research and analyses will advance the state of knowledge in benefit estimation and valuation, and aid in the cost-effective use of Agency and societal resources. The analytic capacity of program offices will be augmented by focusing on applied research, information provision and technical assistance. Centralizing the management of economic analyses will achieve economies of scale. The Agency will act as a clearinghouse and technical assistance service, including assistance in the coordination and adoption of technical peer reviews of social science products.

The cumulative exposure project will continue previous work on estimating cumulative exposures from air, food and drinking water. The project will finalize the exposure estimates for each pathway for the baseline year of 1990, provide a public release of the data, and focus on integrating exposures from food and drinking water. Following peer-review of these products, the exposure estimates will be updated to include exposure estimates for the years 1990-2000, and protocols for annualized updates and public release of data will be established. Results of the cumulative exposure project will further the objective to establish the capability and mechanisms within EPA to anticipate and identify environmental changes that may pose future risks, and provide solutions for change.

1998 Annual Performance Goals

- Investigate molecular and genetic methods as part of a new screening battery to detect compounds that interact with the endocrine system.

- Improve consistency and quality of technical analyses and policy guidance on economic benefits and costs of EPA programs.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
03 Obj. Total Change	**$7,642.6**	**41.2**
Environmental Program & Management	$461.3	0.0
Science and Technology	$7,146.3	40.9
Hazardous Substance Superfund	$35.0	0.3

- This request includes 0.7 total workyears for postdoctoral scientists and engineers to enhance the intramural research program. These three-year term appointments will provide a constant stream of highly-trained postdoctoral candidates who can apply state-of-the-science training to EPA research issues.

- Increasing resources ($2,222,800) in the Exploratory Grants program will focus on producing new scientific information by encouraging creativity and innovation in scientific research.

- Research priorities under the Endocrine Disruptors (ED) program, such as assessing the effects of exposure on immune and reproductive functions in developing and adult animals, are based on the Federal Research Strategy on Endocrine Disruptors, and decisions resulting from ORD's annual planning process, in which ORD has developed a high priority program for FY 1999 based on human health and ecological risk. Additional efforts will be enhanced slightly to identify, characterize, and evaluate risks from exposure to endocrine disrupting chemicals capable of inducing adverse effects in humans.

- There are also some significant shifts for FY 1999 ($5,127,640 and 32.3 workyears), reflecting a combination of planned coordination between the effects and exposure components of the program and completed work. Ongoing effects research focuses on the development of hazard identification and characterization methods will be integrated with efforts to develop exposure methods and models. This proposed shift ($977,560 and 3.7 workyears) will meld these projects, resulting in more valuable outputs and outcomes, and is consistent with the guidance provided in the Endocrine Disruptors Research Strategy.

- Another part of the proposed shift ($4,150,080 and 28.6 workyears) represents a progression of research that reflects the success of the initial research to enhance existing test methods. In accordance with the Endocrine Disruptors Research Strategy, more emphasis will now be given to the effects of EDCs on adult and developing animals. As a planned follow-up to an initial evaluation of available methods to detect and assess activity of endocrine disruptors, this research will focus on the evaluation of specific endpoints of toxicity and the relationship between physical maturation of the exposed organism and magnitude of effect.

- Another shift ($3,119,500 and 26.7 workyears) will initiate the One Atmosphere research program, which will initially focus on integrated systems for controlling multiple air pollutants and studies to determine the effects of air pollutant mixtures.

- A total of $408,600 and 4.0 workyears under the One Atmosphere Research program will augment EPA's ability to meet the statutory mandate in the Clean Air Act that requires periodic revision (every five years) of the National Ambient Air Quality Standards. The Office of Research and Development will prepare and have peer reviewed Carbon Monoxide Air Quality Criteria Document.

Key Performance Measures	**1998**	**1999**
Provide information on integrated technologies which have the capability to control multiple air pollutants from combustion systems (industrial and utility).		9/30/99
By 1999, produce a report defining research approaches needed to define the effects of combined air pollution exposures on human health.		1 Report
Submit carbon monoxide AQCD external review draft to CASAC.		9/30/99
Integrate methodologies into Agency practices	- complete work with OAR to integrate air modeling into performance evaluation for air toxics. - initiate collaborations with the OW and OPPTS.	

Conclusion

The programs under this objective contribute to EPA's capability to identify and address emerging environmental issues. We expect that substantial capability to discern "early warnings" and patterns of change will be developed through work undertaken on endocrine disruptors and the investigation of the effects of multiple pollutants in the atmosphere. This new understanding will help to develop a process for identifying and conveying recommendations concerning potential risks in the future.

The various Science Quality and Infrastructure programs within this Objective allow for science to be done in order to better anticipate various changes that portend future risk. For example, Fellowships and Exploratory Grants seek to perform both basic and applied science to various unknown issues in order to identify environmental problems posing risks to both humans and the environment.

Evidence is accumulating in relation to the hypothesis that humans may experience adverse health and reproductive consequences from exposure to environmental chemicals that interact with the endocrine system. Research is needed to determine the nature and extent to which environmentally-relevant exposures to chemicals may produce adverse effects in humans and animal species, to identify and understand major exposure routes and processes and to develop predictive models for estimating the extent and magnitude of human and ecosystem exposures, to develop an analytical framework for evaluating the impacts of endocrine disruptors from a risk assessment perspective, to understand the synergistic effects of EDCs when exposure to multiple chemicals occurs, to understand the shape of the dose-response curve in the low-dose region, and to identify effective risk management strategies.

Research under the One Atmosphere program supports the Agency's goal of providing sound science to improve our understanding of environmental risk and develop and implement innovative approaches for current and future environmental problems. Under this goal, multi-pollutant air research supports the objective of establishing capability and mechanisms within EPA to anticipate and identify environmental or other changes that may portend future risk, integrating futures planning into ongoing programs, and promoting coordinated preparation for and response to change.

The research supports achievement of this objective by setting up a program to assess and prevent risk from air pollutants present in mixtures - the way people and ecosystems experience it. Specifically, this program calls for EPA, by 2005, to provide a strong scientific basis for understanding of the health and ecological effects of air pollutant mixtures, and develop measurement, modeling, source emissions, and control information to guide integrated risk management options for multipollutants regulated under the CAAA.

The health and ecological effects research will evaluate the degree to which synergistic, additive and separable health and ecological effects occur for air pollutants taken in combinations typical of total urban and rural exposures. For example, results of studies continue to identify air pollution as a significant factor in mortality and morbidity in this country and suggest that

the cause and effect circumstances are more complex than those associated with exposures to single pollutants. Advances in toxicology, epidemiology, and computational power have made it possible to develop new methods that can enable EPA to address air pollution problems in an integrated, multi-pollutant manner. Ecological effects research will address uncertainties such as interaction of the harm due to elevated ozone exposures to trees and nutrient effects from nitrogen deposition to soils.

Risk assessment research will work to develop AQCDs to support revision of other NAAQS (e.g., SO2, CO, NOx).

Exposure, modeling, and risk management research will work to develop measurement and observation approaches to characterize urban and rural atmospheres and exposures to air pollutant mixtures. Emission inventory and modeling approaches will be developed to tie observed mixture levels to their contributing sources and allow the projection of changes in exposures to mixtures resulting from source controls. Risk management research will also work to address the need for cost-effective emission reduction approaches that are demonstrated for multiple pollutants. Addressing such uncertainties is important at multiple scales, from national to regional to urban area to an individual source. Pollutant control optimization is currently limited by the demonstration of cost-effect multi-pollutant approaches and the availability of multi-pollutant in-stack emissions monitors.

The ability to anticipate, identify, and propose solutions for possible environmental risks is facilitated by the Agency's capacity to provide credible reports on the costs and benefits of environmental policies. At present, most economic analyses produced by EPA exhibit a mixed degree of consistency in content and format of presentation. To achieve a greater degree of consistency in format and effectiveness of presentation, OPPE will be more involved in the development of Agency economic work products. Important motivating factors behind this action include requirements and policies to submit more materials to a wider and more sophisticated review of economic information used to support Agency decisions. Failure to attain an acceptable degree of consistency will subject EPA regulatory actions to critical negative challenges in legal and public spheres, either of which may constrain EPA's ability to achieve its environmental goals and objectives. The use of economic tools in the design and assessment of management solutions to environmental issues will aid in the cost-effective use of Agency and societal resources. The cumulative exposure project will provide the first national estimates of cumulative exposures from air, food and drinking water. In addition, this will be the first comprehensive information on cumulative exposures to different demographic groups, including children and minorities.

Key Performance Measures Verification

EPA has several strategies to validate and verify performance measures in the area of environmental science and research. The Agency has implemented a risk-based research planning process to use risk assessment and risk management as principal priority-setting criteria. EPA conducts annual research program reviews to both evaluate the status and accomplishments of its research and determine planning priorities. To better draw upon the expertise of the

environmental academic community, EPA created the Science to Achieve Results (STAR) program of peer-reviewed, mission-driven extramural grants. The Agency is also working with various professional societies on research issues.

Chief among the Agency's validation and verification mechanisms is a rigorous peer review process. In a July 1997 memorandum, EPA's Deputy Administrator states that peer review will be expanded "to include both the major work products provided in the past and...all scientific and technical products supporting Agency decisions..." This expanded and strengthened focus on peer review will help ensure that the performance measures listed here are verified and validated by external organizations. The Agency utilizes peer review throughout the research planning and implementation process, both to ensure that planned research addresses critical knowledge issues within EPA's mission, and to assess the quality of scientific research plans, products, and proposals. This is accomplished through the use of independent entities such as the Science Advisory Board (SAB) and the Board of Scientific Councilors (BOSC). The BOSC, established under the Federal Advisory Committee Act, will even examine the way the Agency uses peer review, as well as the management of its research and development laboratories.

EPA's external research program undergoes extensive peer review. Proposals from the external scientific community are peer-reviewed and projects are then selected for funding through grants or cooperative agreements. In addition, Requests for Applications (RFAs) under the STAR program are often developed jointly with outside partners such as the National Science Foundation. In this way, EPA has developed a mechanism by which to check the quality and relevance of its research program.

The Office of Research and Development Management Information System (OMIS) will be another accountability tool used to verify and validate performance measures. The recently developed Government Performance Results Act (GPRA) structure will be incorporated into OMIS to ensure consistent maintenance and reporting, resulting in greater accuracy and consistency of information to users.

Performance will also be verified by identifying customer usage of economic resources within OPPE and by surveying customers to determine their satisfaction with and the adequacy of economic information available and provided; the number of economic issue papers produced; economic analysis assisting the regulatory development process; improved economic models, analytic methods, and databases; completion of paper outlining 5-year social science research agenda; and development of new methods to assess demographic distribution of exposures.

Statutory Authority

TSCA sections 4, 5, and 6 (15 U.S.C. 2603, 2604, and 2605)

CWA sections 304 and 308 (33 U.S.C. 1314, 1318)

Safe Drinking Water Act (SDWA) section 1412 (42 U.S.C. 300g-1)

PPA (42 U.S.C. 13101-13109)

Federal Technology Transfer Act

Patent Statute

Sound Science, Improved Understanding of Environmental Risk, and Greater Innovation to Address Environmental Problems

Objective #4: Pollution Prevention and New Technology for Environmental Protection

By 2006, develop and verify improved tools, methodologies, and technologies for modeling, measuring, characterizing, preventing, controlling, and cleaning up contaminants associated with high priority human health and environmental problems.

Overview

Pollution prevention has been widely recognized (by EPA, Congress, and the Science Advisory Board (SAB) as the preferred option for reducing risk. In a preventive approach to protecting both human and ecosystem health, it is critical to detect, describe, evaluate, and mitigate or eliminate stressors before damage occurs. For pollution prevention to be a success, EPA must address three key areas.

First, adequate systems must be in place for gathering and managing necessary monitoring and modeling information, particularly on large temporal and spatial scales, to deliver critical data for risk assessment and risk management in real time or near-real time. In addressing this area, EPA research will work to: 1) improve capacity and technology for broad scale monitoring and modeling of stressors and effects, both temporally and geographically; 2) manage and use multimedia, multipollutant information and models to improve risk characterization and emergency response capabilities; and 3) improve results of risk management actions by enhancing our ability to measure changes in the environment and make information widely available.

Second, all stakeholders must have access to scientifically sound pollution prevention technologies and approaches. Also, credible techniques must be available to measure and objectively evaluate the viability and comparative environmental performance of these technologies and approaches. Currently there is a need for proven pollution prevention technologies and approaches to prevent pollution from many pollutant sources in a number of economic sectors. There is also a need for user-friendly tools and methods to assess and design pollution prevent ion solutions as alternatives to end-of-pipe treatment. Research must be undertaken to address fundamental knowledge gaps in both of the above areas.

Third, EPA must facilitate the development of independent, credible performance data, which is a major impediment to the development and use of innovative environmental technologies. Without credible performance data, the producers of innovative environmental technologies find it difficult to enter into and compete in the environmental marketplace. If these data and competitive opportunities are not provided, the U.S. runs the risk of missed opportunities for advancing environmental protection. Evaluation of environmental technologies is needed to determine the effectiveness of their performance in monitoring, preventing, controlling, and cleaning up pollution. Similarly, objective,

authoritative information on the cost-effectiveness of prevention, control, mitigation, and remediation methods is needed to determine preferred choices for risk management options.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 04 Pollution Prevention and New Technology	**$51,435.0**	**$69,919.2**	**$46,387.8**
Environmental Program & Management	$373.6	$847.9	$374.2
Science and Technology	$49,749.5	$65,682.1	$44,657.0
Hazardous Substance Superfund	$1,311.9	$3,389.2	$1,356.6
Total FTE	132.3	185.1	187.8

Although pollution prevention is now recognized as a logical response to high-risk human health and environmental problems, its adoption and implementation have reached a point where the next advances will represent fundamental changes in lifestyle, industrial process design, consumer products, and land uses. A new generation of tools and technologies that are more quantitative in nature and easier to use need to be developed to provide stakeholders with the information they need to make decisions about the cost and variability of future pollution prevention options. Therefore, EPA research in the area of Pollution Prevention and New Technology for Environmental Protection will:

- Enable decision makers to incorporate risk and pollution avoidance as quantifiable, measurable components of alternative management scenarios.
- Develop, test, and demonstrate technologies and approaches applicable across economic sectors, especially those involving chemical science and engineering or characterized by high TRI releases or low regulatory compliance.
- Develop measurement, computing, modeling, and data management technologies, and integrate them into an effective system for real-time delivery of multi-media, multi-scale, multi-parameter information on environmental status and risk.
- Provide a comprehensive assessment of 12 environmental technology verification projects and make recommendations for institutionalizing a long-term public-private capacity for technology performance and cost verification.
- Develop and apply engineering economic principles to guide research investments in technology and to improve public and private sector decisions on prevention, control, and remediation technologies and approaches.

The following Annual Performance Goals will allow the Agency to achieve the ends listed above, ultimately leading to accomplishment of the long-term objective.

1999 Annual Performance Goals

- By 2003, provide a full range of multimedia pollution prevention decision-support tools to regional, state, tribal and community decision-makers.
- In FY 2000, develop computer-based tools for process and product designs.
- By 1999 and beyond, produce data, models and technical information which can be used by other researchers; federal, state, and local government officials; and private industry to quantify emissions of indoor pollutants from building materials and products used indoors and to evaluate potential.
- By 1999, implement two beneficial measurement technologies developed in 1997 and 1998.
- By FY 1999, improve computational efficiency of fine particulate model by 25%.
- In FY 1999, use a pilot program to verify environmental technologies.
- By 2004, provide improved engineering cost assessment models for air, water, waste management and control, remediation, ecosystem restoration, and pollution prevention technologies.
- In FY 2001, provide a generic clean oxidation technology for the synthesis of organic chemicals

Pollution prevention is specifically designed to seek risk management alternatives that prevent rather than create pollution. By not creating human health or environmental problems in the first place, there are both short-term and long-term cost savings and an increased likelihood that environmental sustainability will be realized in the future. In many cases, pollution prevention tools and methodologies that would assist individuals and organizations in making decisions on various pollution prevention options, and other options as well, are lacking or in a rudimentary state. This situation prevents the broader adoption of pollution prevention in a number of economic sectors. Also, there are situations where the champion of a pollution prevention technology or approach does not exist. Small companies do not have the resources to address pollution prevention research and development in a material way, and large companies, unless offered incentives, prefer to keep their pollution prevention approaches proprietary to gain a competitive advantage. In these cases it is necessary for government to verify the environmental performance characteristics of commercial-ready technology through the evaluation of objective and quality assured data, so that potential purchasers and state environmental officials who review permit applications are provided with an independent and credible assessment of what they are buying and permitting.

Tools and Methodologies for Pollution Prevention Decision Making

Attributes of such advanced tools an technologies for future pollution prevention include the ability to characterize and compare the environmental impacts of alternative processes and decisions and to measure the benefits of up-front interventions. Currently, there are few tools that provide these capabilities.

EPA will work to critically examine the efficacy and effectiveness of using pollution prevention alternatives at an early stage when addressing emerging human health or environmental problems. If less polluting or non-polluting alternatives (i.e., pollution prevention) are available and make sense both environmentally and economically, then prevention can be employed and scarce risk assessment resources can be focused on other pressing human health and environmental problems.

EPA will also develop tools and methodologies to support quantitative risk management decisions about the most preferred pollution prevention options. This research will accelerate the use of pollution prevention alternatives by enabling decision makers to quantify the relative benefits of using these alternative pollutant management scenarios. Research will focus on providing quantitative information for selecting preferred pollution prevention options, with emphasis on: (1) utility and ease of use of life cycle assessments and process simulations; (2) ability to measure and objectively evaluate the viability and comparative environmental performance of alternative technologies; and (3) impact assessment tools, including tools to address such non-chemical impacts as resource depletion, habitat alteration, and lessened biodiversity.

The types of research to be conducted include:

- Improving Life Cycle Assessment Tools,
- Developing and enhancing computerized databases on less-polluting alternatives,
- Developing a framework for life cycle design and framework testing,
- Developing computerized decision tools for process simulation and chemical replacements,
- Creating tools for the assessment and reduction of chemical impacts,
- Enhancing and refining tools for measuring pollution prevention progress,
- Developing decision tools associated with sustainable development (e.g., industrial ecology decision making tools).

In 1999, EPA is launching an initiative to address problems associated with persistent, bioaccumulative, and toxic pollutants (PBTs), which cause adverse health effects in unborn children and sensitive populations, such as the urban poor, tribes, and some ethnic groups. These PBTs can have detrimental effects on the environment as well as effects on human health. To protect public health, especially children's health, and the environment, aggressive and coordinated actions will be taken, using the most effective tools in a systematic way across the Agency. This initiative will target risks of greatest concern to create strong programmatic and compliance incentives for pollution prevention at several levels -- international, domestic, and regional. The targeting will be done as a collaborative effort among multiple EPA offices and their Regional components.

Work under this objective will improve decision making using pollution prevention tools (e.g., Life Cycle Assessment, measuring pollution prevented,

cost assessments). This effort will be targeted at industrial sectors that are identified as producing PBTs. EPA will also investigate improved methods to prevent, and if not preventable, to control releases of PBTs (including metals) from combustion and other high temperature industrial sources. Under this effort, work will focus on low cost options for reducing mercury emissions from industrial sources including utilities and understanding how organic PBTs and metals (e.g., PAHs, mercury) are formed in combustion systems. An effort will also be undertaken to establish atmospheric deposition monitoring sites to obtain a spatial pattern distribution of mercury deposition, and measure deposition patterns on long range mercury transport to fully quantify the contributions of mercury to surface waters at distant sites.

EPA will also organize and conduct a multi-day "State-of-Science" Workshop to address the current knowledge and future research needs relating to targeted PBTs. The meeting will focus on recent and ongoing research conducted by EPA, but PBT research activities by others in academia, government, and the private sector will also be presented.

Technologies and Approaches for Pollution Prevention

Few resources currently are devoted to improving generic chemical design processes or developing methods to measure and assess pollution prevention in process operations. To promote environmentally benign technology, research is needed to identify and test new industrial manufacturing and processing technologies capable of enhancing productivity without sacrificing long-term resource viability.

EPA will target a number of economic sectors where research and development is needed on pollution prevention technologies and approaches. This research will accelerate the adoption and incorporation of pollution prevention by developing, testing, and demonstrating technologies and approaches applicable across economic sectors, especially those involving chemical science and engineering or characterized by high risk Toxic Release Inventory (TRI) releases or low regulatory compliance. Research will focus on: (1) improving chemical design practices to reduce negative impacts on human health; (2) testing improved oxidation pathways; (3) identifying novel engineering approaches for equipment modifications, product redesign, material substitutions, and in-process changes; and (4) predicting the performance of "intelligent" controls for process operations.

Under this research area, EPA will work cooperatively with other government agencies, academia, and the private sector to:

- Develop improved separations techniques for the removal and reuse of chemicals,
- Assess and evaluate alternatives which significantly reduce or eliminate the amount of toxic or volatile organic compounds used in solvents and coatings,
- Assess and evaluate reductions in releases of halogenated compounds and metals (e.g., persistent, bioaccumulative, and toxic materials) in processing and use,
- Assess releases to the indoor environment from building materials and consumer products and identify potential source management (P2) options,
- Improve process controls to enhance efficiency and reduce wastes,

- Examine and develop green chemistry and green engineering approaches to prevent pollution,
- Support Agency-wide initiatives in pollution prevention (e.g., Common Sense Initiative), and
- Support research on pollution prevention technologies under the Small Business Innovative Research Program (SBIR).

Advanced Monitoring and Modeling Technologies

The Advanced Monitoring and Modeling Technologies program is the EPA's program to facilitate the identification, research, and application of advanced environmental monitoring and modeling tools and enabling technologies needed to support the Agency's mission to protect the environment and public health. The primary objective of this program is to develop and demonstrate scientifically defensible environmental monitoring and modeling tools and to facilitate their eventual use by the broader environmental management community. The research leverages technology advancements from other agencies and research institutions with EPA leadership to develop a framework for multimedia environmental monitoring, modeling, and assessment at community-to-regional scales.

The Advanced Monitoring and Modeling Technology program is comprised of two primary research areas: High Performance Computing and Communication (HPCC) and the Advanced Measurement Initiative (AMI). Each of these programs contributes to the overall objectives of the program which include: (1) development of new measurement tools and techniques, particularly for measuring pollutants and subsequent environmental changes remotely and in real time or near-real time; (2) improved modeling, data analysis, data management, and telecommunication capabilities; and (3) improved scientific understanding of the multi-media, multi-scaled and cross-disciplinary approaches required for environmental monitoring and modeling (4) facilitating the effective adoption and utilization of technologies and tools for operational use.

Technologies such as remote sensing, data analysis and telecommunications have created new opportunities for approaching the management of environmental threats to public health and to natural resources. The focus of AMI is to facilitate the application of these technologies to enhance individual monitoring and measurement technologies, as well as to improve coordination of existing monitoring research and programs such as the mapping of waste sites, the development of ground water and surface water transport models and the characterization of soils and vegetation quality and land use. AMI will develop working partnerships between technology developers, environmental policy makers, and environmental managers -- to ensure that advanced monitoring technologies will meet the needs of EPA, the regulated community, and the public.

Under AMI, EPA will establish effective working partnerships with technology developers to identify and develop, and test new monitoring technologies. EPA will partner with NASA and DOE to further develop and apply remote sensing and in-situ technologies for environmental measurements. EPA will conduct pilot projects to demonstrate and evaluate the effectiveness of advanced monitoring technologies for a range of environmental applications, such as air and water quality monitoring, ecosystem evaluation, and site assessment. EPA will involve federal agencies other than NASA and DOE and will work with private sector technology developers. This will not only validate the use of the technology for EPA and the Federal government, but will facilitate adoption by private industry as well.

AMI research will:

- develop and adapt selected methods and measurements (synoptic and sampled) for chemical, radiological, physical and biological measurements in water, soils, and air for specific Agency needs;

- identify and prioritize the Agency's measurement and monitoring needs to ensure that AMI supported research is relevant to Agency needs and mission;

- participate with other EPA Offices to identify and address technology policy and institutional barriers to the application and acceptance of advanced measurement technologies; and,

- support the application of remote sensing technologies to improve monitoring and measurement capabilities.

Currently, AMI is focusing on a set of demonstration projects to provide a vehicle to evaluate the utility of several technologies, their potential application in an operational setting and address the technology policy barriers to their use by EPA and our partners. These projects include: Open-path Fourier Transform Infrared Technology for Air Quality; Thermal Remote Sensing of Water Temperature; Predictive Emissions Development and Testing in Lime Kilns; Landsat Thematic Mapper Data for Wetlands Change Detection; and Hyper spectral and Thermal Imaging for Mine Waste Characterization.

HPCC work will respond to the need for research that will enhance the scientific credibility of predictive exposure models by improvements in computational efficiency. Such improvements will enable incorporation of better science into practical assessment tools. In order to address this need, EPA will develop efficient scalable high performance computational methods to: 1) handle the complex non-uniform grid meshes required in water body simulations; and 2) keep pace with increasing computational demands necessary to resolve multimedia scale and resolution mismatches. In addition, research will focus on the development of high performance data assimilation methods supported by scalable parallel I/O for incorporation of remotely-sensed data into predictive models. These models will reduce uncertainty in predictions and will facilitate the diagnosis of model inaccuracies.

EPA will extend fundamental modeling framework technologies to enable integration of multi disciplinary science and risk components to form a more comprehensive multimedia, multi pollutant risk assessment framework. The Agency will develop a robust data model that encompasses geo-spatial information and complex topologies of irregular data structures prevalent in hydrology, water, sedimentation , and ecosystem models. Research will also focus on the development of methods for intercommunicating, interchangeable software modules across key multimedia scientific disciplines to facilitate incorporation of community developed science improvements for integrated assessments.

Additional work under the HPCC Program will improve the environmental management community's ability to access and use data, environmental models, and graphical/analytical tools for informed decision making on environmental problems. Numerous independent models and software tools are available to separate aspects of environmental assessments, such as air or water quality, hydrology, hydrodynamics, sedimentation, bioaccumulation, and risk assessment.

This research will facilitate the development of more comprehensive, cross-media assessment tools made of integrated and interoperable components. Research will focus in three areas: 1) Problem solving environments; 2) parallel algorithms; and 3) data access and analysis techniques.

Environmental Technology Verification (ETV)

The Environmental Technology Verification Program (ETV) is a five year pilot program to determine if testing and verification of commercial ready environmental technologies by EPA and its private sector verification partners will speed the deployment of improved environmental protection technologies in the United States and abroad. Under ETV, verification statements are issued by EPA that outline the performance characteristics of evaluated monitoring, prevention, and control technologies in all media. The pilot phase will determine if these evaluations and public statements can make a difference in the ability of improved environmental technologies to penetrate markets and gain wider acceptability by stakeholders. The goal of the program is to make objective performance information available to all of the stakeholders in the environmental marketplace for their consideration and decision making. In order to test program effectiveness, twelve media and industry specific pilots, operating under the guidance of individual stakeholder groups, develop protocols and generic test plans, test technologies under quality controlled conditions, and widely disseminate results. EPA will evaluate verification process efficiency, and the effectiveness of each pilot on a yearly basis, and will use this information to make recommendation to the Congress on program continuation by 2001.

By 1999, private sector verification partners will have been selected for all twelve pilots and all will be in full scale operation. In 1999, several of the older pilots (selected in 1995 and 1996) will have completed a substantial number of tests and issued verification statements to a wide spectrum of technology developers. Data can be collected in this year on the effectiveness of the EPA verification program in influencing states, consultants, and ultimate purchasers to consider improved technologies. Also in 1999 development of the outreach strategy will be underway. State permitter training, a national conference, and Internet connectivity will be used to maximize the outreach effort. Verified data on the performance of 50 technologies in a wide variety of environmental areas will be provided under the ETV Pilot Program by the end of 1999. Numerous consensus protocols and generic test plans will be added to the environmental engineering field.

The evaluation of various models for verification of environmental technology under the pilot program will result in reports to the EPA Administrator and a Report to Congress on the efficacy and effectiveness of the EPA-sponsored ETV pilot program, along with recommendations on future directions for a full-scale ETV program.

Risk Management Technology Costs

As long as EPA is charged with protecting public health and the environment, there will be a continuing Agency need to evaluate and reevaluate environmental risks and develop and/or evaluate cost effective technologies or pollution prevention alternatives to deal with those risks. EPA is frequently called upon to provide cost-effectiveness information or cost-effective technologies to be used in regulatory impact analysis, rulemaking, or

negotiations with affected parties. The better the quality of the cost-effectiveness information, the more help is available to the decision maker to make informed regulatory and technology selection decisions. A strong environmental engineering economic analysis program will also guide EPA's internal research program to focus on the most cost effective areas for technology advancement.

The types of research to be conducted include:

- Improving life cycle assessment tools by integrating cost effectiveness analysis and life cycle costing into the decision framework,
- Developing computerized decision tools for process simulation and chemical replacements and incorporating technology and operating costs into the simulation algorithms,
- Enhancing and refining tools for measuring pollution prevention progress by incorporating total cost accounting,
- Working cooperatively with the in-house research staff to evaluate the potential cost effectiveness of technologies under development and to guide researchers in focusing on the most critical aspects impacting economic viability,
- Conducting in-house training on engineering cost analysis so that the research staff develops independent capabilities to evaluate technology cost effectiveness,
- Actively work with the program and regional offices to provide needed cost effective technologies, methodologies or information to be used in negotiations, rule making, or regulatory impact analysis,
- Developing costing methodologies for the cost effective evaluation of alternatives in high priority risk areas such as indoor air pollution control.

The President's Budget Request also includes a total of 50 work years to be used for 3-year term appointments of postdoctoral candidates to work at ORD laboratories.

1998 Annual Performance Goals

- In 1998, use a pilot program to verify environmental technologies.

- By 1999 and beyond, produce data, models and technical information which can be used by other researchers; federal, state, and local government officials; and private industry to quantify emissions of indoor pollutants from building materials and products used indoors and to evaluate potential.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
04 Obj. Total Change	**$(21,921.3)**	**2.7**
Environmental Program & Management	$(473.7)	0.0
Science and Technology	$(19,415.0)	2.7
Hazardous Substance Superfund	$(2,032.6)	0.0

The redirections for 1999 are largely based on a risk-based priority process and reflect a consideration of the Agency's statutory requirements, technical assistance requirements, and the need for scientific and technical transfer of knowledge and expertise. Reductions related to the discontinuation of the following Congressional earmarks accounted for the significant shift of resources under this objective: 1) EPSCOR, 2) Louisiana Environmental Research Center, 3) Center for Air Toxics Metals, 4) Mine Waste Technology, 5) Urban Waste Management (U. Of New Orleans), 6) Integrated Petroleum Environmental Consortium Project, 7) Texas Regional Institute of Environmental Studies, 8) Institute for Environmental and Industrial Science, and the 9) Great Lakes Small Companies Technology.

- (+$930,000) In 1999, EPA is launching an initiative to address problems associated with persistent, bioaccumulative, and toxic pollutants (PBTs), which cause adverse health effects in unborn children and sensitive populations, such as the urban poor, tribes, and some ethnic groups. Research will be in collaboration with the private sector and other stakeholders to reduce those PBTs that pose the greatest risk to human health and the environment.

- (+$2,000,000) An increase in AMI in 1999 will support three additional demonstration projects, selected in response to the measurement and monitoring needs identified and prioritized in 1998. The increase also reflects additional efforts in the STAR program and directly support research and development of new and promising monitoring and measurement technologies.

- EPA will increase its efforts associated with the technology for Sustainable Environment grants program. The program supports research in Green Chemistry, novel engineering for preventing or reducing pollution from industrial manufacturing and processing activities, and measurement and assessment techniques for pollution prevention.

- (+3.4 workyears) Additionally, this request includes 3.4 work years for postdoctoral scientists and engineers to enhance the intramural research program. These 3-year term appointments will provide a constant stream of highly-trained postdoctoral candidates who can apply state-of-the-science training to EPA issues.

- (-$2,400,000) As stated in the ETV Strategy sent to Congress in February 1997, ETV begins a gradual decline in Federal funding. The reduction of $2,400,000 to the Environmental Technology Verification Program (ETV) will

mostly affect the newer ETV pilots. ETV currently operates twelve pilots that are in various stages of the verification process. The reduction will remove funds only from pilots that are in the organizational phase and will be the least affected by the reduction. These pilots do not have the same requirements as the other six pilots that are further along in the verification process. Reducing ETV will lower the number of technologies verified in out years by a small percentage.

- (-$506,500) Advancements in technologies and methodologies which prevent pollution will be delayed due to this reduction. Efforts to introduce new pollution prevention approaches will be stretched out into future years and the use of these new technologies to prevent air, water, and waste pollution will not proceed as quickly.

Key Performance Measures	**1998**	**1999**
Computerized tool to assist industry with the replacement of industrial solvents will be beta tested and commercially available.	09/30/98	
Produce a standard test method which can be used to measure emissions from office equipment and provide results from an evaluation which used this method to estimate emissions from dry-process photocopiers.	09/30/98	
Establish a bench level proof of principle for alternative oxidation process.	09/30/98	
Produce 12 verification pilots that will be operational for major environmental technology sectors.	09/30/98	
Prepare critical review of sources of cost information for Superfund remediation for submission to a per-reviewed journal.	09/30/98	
Develop computerized algorithm for waste reduction including costs and impact analysis developed for commercial availability.		09/30/99
Complete prototype decision support software for alternative municipal solid waste management options.		09/30/99

Computerized tool to assist industry with the replacement of industrial solvents will be beta tested and commercially available.	09/30/98	
Complete new emissions model which can be used to predict indoor emissions of volatile organic compounds from solvent based paints and coatings based on formulation data.		09/30/99
Implement one or more new measurement technologies.		09/30/99
Complete parallel algorithms for aerosol dynamics.		09/30/99
Provide verification data on 50 or more technologies.		09/30/99

Conclusion

In order to achieve this objective, EPA will develop tools and methods to scientifically and systematically assist in the assessment and design of preferred pollution prevention options. EPA will target a number of economic sectors where research and development is needed on pollution prevention technologies and approaches, aiming to facilitate integration of pollution prevention into regulatory decision-making for specific industries and situations, and pursuing development of generic technologies applicable across a number of industries and pollution problems.

Partnerships with other public (Federal, state and community) and private organizations will advance the development of pollution prevention approaches and engage in state-of-the-art electronic delivery of research information and products related to pollution prevention. New approaches to link quantitative risk assessment with risk management analysis will critically examine the effectiveness of pollution prevention alternatives and the potential impacts of using those alternatives early when addressing emerging human health or environmental problems. Additional research will develop baseline information on economic, social and behavioral reasons which lead individuals and organizations to use pollution prevention approaches as opposed to other risk management alternatives.

EPA will develop methods for measuring, monitoring, and communicating real-time information about major exposure routes and processes. Advanced monitoring technologies will be evaluated and predictive models will be refined to estimate the extent and magnitude of human and ecosystem exposures to stressors. Increased computational capacity and efficiency will enhance the credibility of the predictive models. Real-time exposure data, advanced monitoring information systems, and predictive models will be integrated to enhance overall exposure characterizations.

Achievement of this objective will also develop capability to provide objective and authoritative information on the cost-effectiveness of environmental technologies and risk management methods. This information will be used to provide critical support to EPA's Programs and Regions for environmental cost-effectiveness analysis and to develop appropriate links to benefit/cost analysis throughout the Agency.

Performance Measure Verification and Validation

EPA has several strategies to validate and verify performance measures in the area of environmental science and research. The Agency has implemented a risk-based research planning process to use risk assessment and risk management as principal priority-setting criteria. EPA conducts annual research program reviews to both evaluate the status and accomplishments of its research and determine planning priorities. To better draw upon the expertise of the environmental academic community, EPA created the Science to Achieve Results (STAR) program of peer-reviewed, mission-driven extramural grants; the Agency is working with various professional societies to identify research needs.

Chief among the Agency's validation and verification mechanisms is a rigorous peer review process. In a July 1997 memorandum, EPA's Deputy Administrator states that peer review will be expanded "to include both the major work products provided in the past and...all scientific and technical products supporting Agency decisions..." This expanded and strengthened focus on peer review will help ensure that the performance measures listed here are verified and validated by external organizations. The Agency utilizes peer review throughout the research planning and implementation process, both to ensure that planned research addresses critical knowledge issues within EPA's mission, and to assess the quality of scientific research plans, products, and proposals. This is accomplished through the use of independent entities such as the Science Advisory Board (SAB)and the Board of Scientific Councilors (BOSC). The BOSC, established under the Federal Advisory Committee Act, will even examine the way the Agency uses peer review, as well as the management of its research and development laboratories.

EPA's external research program undergoes extensive peer review. Proposals from the external scientific community are peer-reviewed and projects are then selected for funding through grants or cooperative agreements. In addition, Requests for Applications (RFAs) under the STAR program are often developed jointly with outside partners such as the National Science Foundation. In this way, EPA has developed a mechanism by which to check the quality and relevance of its research program.

The Office of Research and Development Management Information System (OMIS) will be another accountability tool used to verify and validate performance measures. The recently developed GPRA structure will be incorporated into OMIS to ensure consistent maintenance and reporting, resulting in greater accuracy and consistency of information to users.

Sound Science, Improved Understanding of Environmental Risk, and Greater Innovation to Address Environmental Problems

Objective #5: Enable Research on Innovative Approaches to Current and Future Environmental Problems.

Provide services and capabilities, including appropriate equipment, expertise, and intramural support necessary to enable ORD to research innovative approaches to current and future environmental problems and improve understanding of environmental risks.

Overview

Sound management principles, fiscal accountability, quality customer service, rational policy guidance and careful stewardship of our resources are fundamental to the implementation of a strong science and engineering program at EPA. It is critical the EPA scientist, engineers and operational staff have the necessary support to accomplish the science mission of the Agency. The effectiveness of the support provided in this objective is integral to the achievement of numerous agency goals supported by this objective beyond Sound Science as well: Clean Air; Clean and Safe Water; Decreased Pollution in Communities, Homes, Workplaces and Ecosystems; Better Waste Management and Restoration of Abandoned Waste Sites; Reduction of Global and Cross-border Environmental Risks; and Expansion of Americans' Right to Know About their Environment.

The support required to accomplish the science mission of the Agency includes necessary infrastructure, operating expenses and other operational resources, which provide facilities and other support to the overall science and technology program at EPA. These staff support activities include program review, health and safety, resource planning and execution, administrative, financial contract and grant management, equipment and facilities maintenance and automated data processing (ADP).

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 05 Enable Research on Innovative Approaches to Current and Future Environmental Problems	**$120,875.0**	**$86,927.7**	**$88,745.5**
Science and Technology	$116,671.5	$85,013.4	$86,614.3
Leaking Underground Storage Tanks	$6.5	$6.5	$6.5
Oil Spill Response	$2.1	$2.1	$2.1
Hazardous Substance Superfund	$4,194.9	$1,905.7	$2,122.6
Total FTE	449.1	89.6	97.3

1999 Annual Performance Goals

- In FY 1999, to ensure adequate support staff and resources to support implementation of a strong and vigorous science and engineering program at EPA.

The Agency plans to support its research and development workforce through such means as operating expenses and other intramural costs. These operating expense resources are for operational expenses pertaining to scientific and technical equipment, automated data processing support and services, Agency-wide data systems, facilities operating expenses, facilities repair and improvement projects under $75,000, human resources development training, training for scientists and engineers, administrative printing and reproduction, and various other miscellaneous support services.

Producing sound science requires an operations support staff. This staff is necessary to implement the Agency's research program. Staff support activities include program review, resource planning and execution, administrative, and financial contract and grant management, equipment and facilities management and automated data processing (ADP).

The Agency will use these resources to fund data processing services. Data processing and telecommunication services are classified into four cost centers; Enterprise Computing Services, Desktop Computing/Telecommunications Services, Technical Support and Consulting Services, and Headquarters-Only Services. Resources will provide the program's share of depreciation of capital assets, increased service costs, additional mainframe capacity, investments in network services, and investments in technical consulting services.

1998 Annual Performance Goals

- In FY 1998, to ensure adequate support staff and resources to support implementation of a strong and vigorous science and engineering program at EPA.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
05 Obj. Total Change	**$1,817.8**	**7.7**
Science and Technology	$1,600.9	7.1
Leaking Underground Storage Tanks	$0.0	0.0
Oil Spill Response	$0.0	0.0
Hazardous Substance Superfund	$216.9	0.6

- (+$599,600 S&T, +$216,900 SF) A marginal increase in operation expenses to support scientific and technical equipment needs as well as support for EPA's new Postdoctoral program.

Key Performance Measures	1998	1999
Perform an annual review of programs and activities to identify Presidential Material Weaknesses under the Federal managers' Financial Integrity Act (FMFIA). In prior years, resources associated with this objective were identified as Presidential Material Weaknesses, further underscoring the importance of these resources to our program. Past examples include inadequate funding for operating expenses, capital equipment, and supplies. Given this past vulnerability, continued vigilance and review in this area are a high priority for our research program managers.	9/30/98	9/30/99

Conclusion

The resources in this objective are critical to the strong management support of our science mission. These resources provide EPA scientist,

engineers, and technicians with the necessary infrastructure to support research and development across the various goals.

Performance Measure Verification and Validation

The Agency has attempted to develop measures which adequately reflect program goals and objectives. These measures emphasize quantifiable aspects of the program processes, incorporating realistic program outputs and outcomes. The Agency recognizes the importance of verifying the validity of performance measures and indicators. Consequently, efforts are planned and currently underway to ensure that these measures accurately reflect and support our assumptions.

The Office of Research and Development uses management reviews, organizational surveys, skip level meetings and etc... to evaluate the adequacy of resources and the success of the program in utilizing resources to accomplish the research and development mission throughout the various Agency goals.

The Office of Research and Development Management Information System (OMIS) will be another accountability tool used to verify and validate performance measures. The recently developed GPRA structure will be incorporated into OMIS to ensure consistent maintenance and reporting, resulting in greater accuracy and consistency of information to users.

Statutory Authority

Does not apply to this objective.

Environmental Protection Agency

1999 Annual Plan Request to Congress

Sound Science, Improved Understanding of Environmental Risk, and Greater Innovation to Address Environmental Problems

Objective #6: Increase Use of Integrated, Holistic, Partnership Approaches

By 2005, EPA will increase the number of places using integrated, holistic partnership approaches, such as community-based environmental protection (CBEP), and quantify their tangible and sustainable environmental results in places where EPA is directly involved.

Overview

Community Based Environmental Protection (CBEP), with a request of $4,603,100, is a main tenet of the Agency's strategy for "reinventing" its approach to environmental protection by addressing environmental problems holistically. CBEP is a multimedia approach that furthers the identification of environmental problems, sets priorities and forges solutions through an open and inclusive process driven by places and people who live in them. The program integrates environmental protection with human needs, considers long-term ecosystem health, and fosters linkages between prosperity and environmental well-being. CBEP encourages communities to create their vision of environmental health and quality of life and to encourage human activity compatible with that vision. The Agency will also implement CBEP in specific communities where risk to human health is considered high. CBEP fosters capacity building for Regions, states and local communities and promotes entities to implement innovative, cross-cutting approaches in high priority areas.

The Regional Geographic Initiatives (RGI), with a request of $12,045,000, further CBEP's aim by providing resources to projects, identified as a high priority by an EPA Region, state or locality that pose a high human or ecosystem risk and have significant potential for risk reduction. RGI projects are different from other traditional EPA activities in that they are designed for particular places, in response to Regional comparative environmental risk assessments and other Regional environmental problems. The projects are tailored to: 1) implement Regionally unique multi-media geographic solutions using integrated, holistic partnership approaches to air, water, toxics, community involvement, and living resource protection, and 2) promote state-of-the-art environmental management and serve to illustrate EPA's transition from a single-media to a multi-media focus, based on consensus-building, science and risk.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 06 Increase Use of Integrated, Holistic, Partnership Approaches	**$18,049.3**	**$19,386.3**	**$16,810.5**
Environmental Program & Management	$18,049.3	$19,386.3	$16,810.5
Total FTE	35.7	37.6	36.7

1999 Annual Performance Goals

- The Agency will implement CBEP strategy in 10 priority places that are exceptional risk.
- Document and assess the progress, accomplishments, and effectiveness of completed Regional Geographic Initiatives.

For 1998, the program's emphasis on developing a baseline of information, infrastructure, and policy for CBEP will lay the groundwork for the Agency's coordinated work in this cross-cutting strategic approach. Headquarters will provide leadership as a change agent for CBEP work within EPA by coordinating CBEP policy and planning, and improve local practitioners' ability to implement CBEP through EPA's capacity-building work (tools, clearinghouse, etc.).

The CBEP framework will provide staff and management with a clearer guidance on how to apply CBEP with the Agency's programs and policies. Activities in 1999 will strengthen the analytical and scientific bases for CBEP in several cross-media areas such as ecology, economics, socio-cultural aspects, goal setting, indicators, etc. There will also be an emphasis on building partnerships with other entities, such as national associations and agencies, to advocate the CBEP approach and to learn from their CBEP experience.

Assessment of EPA's implementation of the CBEP approach will be another area of the program's focus in 1999, providing a feedback loop to EPA senior management. The Agency will foster implementation of CBEP with its partners at the federal, state and local levels, and will work directly with high priority places to carry out the CBEP approach.

EPA Regional offices will continue to implement state-of-the-art, multi-media, geographic-based solutions to specific priority environmental problems in 1999. Ongoing RGI projects and other efforts are scheduled to be completed in 1999 and new projects are expected to be started. The Agency plans to document and assess the progress, accomplishments, and effectiveness of the RGI.

1998 Annual Performance Goals

- The Agency will begin to identify priority places that face exceptional environmental risk.

- Document and assess the progress, accomplishments, and effectiveness of completed regional geographic initiatives.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
06 Obj. Total Change	$(2,575.8)	(0.9)
Environmental Program & Management	$(2,575.8)	(0.9)

- (-$2,000,000 EPM) decrease to the 1998 Enacted budget level due to a Congressional Add-on received for the Highland, California Environmental Education Center during the appropriations process, but not part of the 1999 President's Request.

- (-$709,700 EPM) will be reduced from the Regional Geographic Initiatives.

Key Performance Measures	1998	1999
Implement CBEP strategy	Implement in 09/30/98	10 places
Identify priority places	10 places	10 places
Annual Regional Geographic Initiative Report	1 Report	1 Report

Conclusion

The work performed under this objective is a key piece of EPA's overall effort in CBEP. The CBEP approach represents a major shift in the way EPA does business: from the current, primarily single-media regulatory approach, to a multi-media, holistic, place-focused approach that considers a broad range of environmental issues, as well as related economic and social issues leading to sustainability. The achievement of annual performance goals will move the Agency towards a community place-based, holistic approach to environmental protection. Moreover, the regional geographic initiative provides multi-media funding so that EPA Regions may have maximum flexibility in tackling unique environmental problems that are not adequately addressed by large national environmental programs.

EPA's goal in this program is to help states, local governments, and communities protect and restore the environment by building capacity at the local level in order to provide sustainability beyond EPA involvement. CBEP's purpose is to achieve environmental protection by distributing the responsibility evenly across environmental, community, and economic interests and across all levels of the government and the private sector. EPA's place-based environmental protection approach tailors environmental programs to address problems of a

particular locality, watershed, ecosystem, or other area. Place-based initiatives are designed to achieve environmental protection by addressing high risks to human health or ecosystems, maximize the use of scarce resources, foster local cooperation, and consider the economic well-being of communities. The achievement of objective depends on adoption and implementation of CBEP policies and guidance by Regional, state, and local communities.

Key Performance Measures Verification

Regions will identify priority places for implementation of CBEB approaches, delivery of tools and technical assistance. In 1999, the CBEB strategy will be implemented in 10 priority places nationally.

Statutory Authority

The Economy Act of 1932

The National Environmental Policy Act

CWA Title I (33 U.S.C. 1251-1271)

Multi-media

Environmental Protection Agency

1999 Annual Plan Request to Congress

Sound Science, Improved Understanding of Environmental Risk, and Greater Innovation to Address Environmental Problems

Objective #7: Increase Opportunities for Sector Based Approaches

By 2005, EPA will increase the number of opportunities for and applications of sectors-based approaches to environmental management by 150 percent over 1996 levels.

Overview

Project XL, with a request of $2,664,100, was created in March 1995 as part of President Clinton's *Reinventing Environmental Regulations*. Under this initiative, projects will provide regulated entities and other stakeholders with the opportunity to develop and implement alternative environmental management strategies that achieve superior environmental performance in lieu of otherwise applicable rules and regulations. This objective also supports the Agency's commitment to pursue common sense approaches and sector-based environmental management. The Agency has called the Common Sense Initiative (CSI) the centerpiece of a new generation of environmental protection. EPA's sustainable industry programs provide a strong foundation for the Common Sense Initiative and other programs similar in orientation and direction.

In the process of developing sectoral approaches, EPA has added greatly to the set of tools it uses to effectively and efficiently deliver environmental quality, promote pollution prevention, and increase risk reduction. While EPA continues to rely on standard setting, permitting and enforcement, these traditional tools are now often augmented by compliance assurance, voluntary programs, stakeholder involvement and many new sector based processes. Further, many of the emerging environmental issues are simply not subject to or amenable to traditional regulatory approaches (e.g. commuter choices for transportation).

Sector strategies, with a total request of $4,289,300, complement current EPA activities by allowing the Agency to approach issues more holistically, with integrated strategies for each sector; tailor efforts to the particular characteristics of each sector; identify related groups of stakeholders with interest in a set of issues; link EPA's efforts with those of other agencies; and craft new approaches to environmental protection. Sector strategy groups relate sets of economic activities together as a basis for solving environmental problems which affords EPA the opportunity to examine an industry or sector of the economy holistically. Sustainable industry programs serve as incubators and developers of innovative approaches to environmental policy making, testing alternative regulatory and programmatic approaches through regional projects, and multi-stakeholder processes. Sustainable industry approaches will offer valuable supplements to traditional environmental policy and may become the predominant means for environmental protection in the 21st century.

EPA has made progress in reinventing its programs in recent years. It continues to be critical for EPA to reform the environmental regulatory system,

to achieve better results at less cost, and without sacrificing public health or environmental protections. In order to have a consistent focus on these efforts and to achieve effective results across the entire Agency, the Administrator created, in 1998, a new Office of Reinvention within the Office of the Administrator. The new Office of Reinvention consolidated the full range of Agency reinvention efforts within one office. It oversees Agency-wide initiatives such as the Common Sense Initiative and Project XL. The Office has primary responsibility for meeting the commitments in the March 1995 Reinvention Environmental Regulation report issued by President Clinton and Vice President Gore. The new organization is available to assist regulated entities in seeking innovative and flexible ways to meet strong environmental standards, and will cooperate with the new Center for Environmental Information and Statistics to meet the Agency's burden reduction goals.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 07 Increase Opportunities for Sector Based Approaches	**$10,342.7**	**$16,478.4**	**$11,496.8**
Environmental Program & Management	$10,342.7	$16,478.4	$11,461.8
Hazardous Substance Superfund	$0.0	$0.0	$35.0
Total FTE	79.7	100.7	100.7

1999 Annual Performance Goals

- Achieve approved environmental protection through sector based strategies.
- Initiate three sector based initiatives.
- By the of 1999 a total of 50 Project XL projects will be in development or implemented, an increase of 15 over 1998.
- Adopt and implement CSI Council recommendations.

Meeting the 1999 annual performance goals will move the Agency towards meeting the objective of developing new approaches to environmental management and greater innovation in dealing with environmental problems. The Agency proposes to expand its Sustainable Industry Program in FY 1999 beyond the six industry sectors established in FY 1997-1998, by adding three additional small business-oriented industry sectors. Sustainable Industry selects, develops, and implements industrial sector-based policies, programs, and reforms. The Program has shown considerable success in sectors already underway, most notably the Metal Finishing Sector. The Agency also has used the Sustainable Industry sector "life-span" process successfully with other small business industries that are not a part of CSI, such as the Batch Chemical Manufacturing Sector, the Photo Imaging Sector, and the Thermoset Plastics Sector.

Sustainable Industry sectors feed easily into larger Agency initiatives such as CSI and Project XL, because they benefit from a strong foundation of analytical insight, stakeholder support, and project testing.

1998 Annual Performance Goals

- Develop a pipeline for evaluating, developing, supporting and maintaining a constant flow of sector-based initiatives for broad sectors of the economy as well as narrow industrial sectors.
- Achieve approved environmental protection through sector based strategies.
- By the end of 1998 a total of 35 project XL projects will be in development or implemented.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
07 Obj. Total Change	**$(4,981.6)**	**0.0**
Environmental Program & Management	$(5,016.6)	0.0
Hazardous Substance Superfund	$35.0	0.0

- (-$4,975,900 EPM) The 1999 request is below the 1998 Enacted budget level due to a Congressional Add-on received during the appropriations process, but not part of the 1999 President's Request.

Key Performance Measures	1998	1999
Add sector based initiatives	3 sectors	2 sectors
Add industrial sector initiatives	2 Partners	4 Partners
Distribute tools to users	25 users	100 users
Implement proposals to improve regulatory flexibility	Implement by 09/30/98	1 proposal
Adopt and implement CSI Council recommendations	Adoption by 09/30/98	Implementation by 09/30/99
Complete XL project agreements	35 projects cumulative	50 projects cumulative

Conclusion

EPA demonstrates four years of progress in this collaborative approach to environmental protection. Many projects are based on the premise that environmental policies in the next century must be developed from a thorough understanding of the complex set of corporate traits and decision making factors that are unique to individual industries, types of companies, or sectors. Stakeholder involvement in concert with the leveraging of resources as well as information on environmental and economic trends, drivers, barriers and leverage points have yielded new Agency policies, programs and demonstration projects. Efforts have led to new partnerships with industries, state and local governments, and cultivated our relationships with other federal agencies, fostering systemic and technological changes. Looking past the year 2000, these activities will collectively yield a cultural change within the Agency. Sustainable industries will provide a constant "pipeline" of sectors at different stages of development. Some sectors will be setting goals and objectives while others will be in the midst of projects which test new ideas. Still others will be evaluating successes and failures while some are in a maintenance phase. Success in moving toward a more sector's based approach is clearly dependent upon the Agency's commitment to the establishment of environmentally sustainable industries.

Key Performance Measures Verification

Performance targets for CSI will be verified by actual completion of each phase of CSI, development of national performance goals, and plans for implementation of lessons learned from the Metal Finishing Sector. Selection of additional sectors will validate expansion of sustainable industries program.

Statutory Authority

National Environmental Policy Act

The Economy Act of 1932

TSCA sections 4, 5, and 6 (15 U.S.C. 2603, 2604, and 2605)

PPA (42 U.S.C. 13101-13109)

Sound Science, Improved Understanding of Environmental Risk, and Greater Innovation to Address Environmental Problems

Objective #8: Regional Enhancement of Ability to Quantify Environment

By 2005, Regions will have demonstrated capability to monitor and measure environmental conditions in their Regions, compare the relative risk of health and ecological problems, and assess the environmental effectiveness of management actions in priority geographic areas.

Overview

The major activities within this objective are supplying field, analytical, technical, quality assurance and data management support to base program needs; developing and sharing new source sampling and analytical approaches; and converting environmental data into useful decision-making information. The total requested for this objective is $7,995,100 and 5 work years.

The Regional Science and Technology program functions are involved in monitoring environmental data, responding to environmental emergencies, sample collection, transport, laboratory analysis, and data review and evaluation. Scientific and technical services provided will include: improved state-of-the-art sampling, analysis and assessment methods; establishing networks with private, state, and academic institutions; ecosystem and pollutant modeling capabilities; as well as field investigations, quality assurance, and Geographic Information Systems.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 08 Regional Enhancement of Ability to Quantify Environmental Outcomes	**$6,306.5**	**$5,969.0**	**$7,995.1**
Environmental Program & Management	$2,925.8	$2,912.3	$4,613.7
Hazardous Substance Superfund	$3,380.7	$3,056.7	$3,381.4
Total FTE	4.6	4.6	4.6

1999 Annual Performance Goals

- Upgrade regional scientific equipment and access to external peer review services.

The Regional Science and Technology programs will continue to supply field, analytical, technical, and data management support to base program needs operating within the Regions in 1999. Serious top-priority environmental problems will be identified and risk-reduction solutions developed by the Regions. The advanced field technology for the Regions and technology transfer to the states will enable field components, within all ten EPA Regions, to make "real time" decisions in field studies supporting assessments of human health and environmental risk. The Regions will procure external peer review services and enhance the science behind Regional geographic and site-specific projects.

1998 Annual Performance Goals

- Upgrade regional scientific equipment.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
08 Obj. Total Change	**$2,026.1**	**0.0**
Environmental Program & Management	$1,701.4	0.0
Hazardous Substance Superfund	$324.7	0.0

- (+$1,701,400 EPM) Increase support for the acquisition of advanced field technology for the Regions to enable field components within all ten EPA Regions to make "real time" decisions in field studies supporting assessments of human health and environmental risk. Regions will, in turn, pass information concerning application of advanced field technology to the states. Regions will procure external peer review services and enhance the science behind Regional geographic and site-specific projects.

Key Performance Measures	1998	1999
Scientific Equipment	100% inventory and assessment	100% inventory and assessment

Conclusion

The Regional Science and Technology Programs will continue to support national programs, including field, analytical, technical, quality assurance and data management support. This support will include increased participation in Regional geographic and site-specific projects and the ability to quantify environmental results. Development of data and information management systems to allow access and sharing of environmental data among various federal, state, and local entities will continue. Advanced technology will be applied to field

measurements to support "real time" decisions in field studies assessing human health and environmental risk across all ten Regions. Increased access to external peer review services will further enhance the quality and recognition of the scientific underpinnings of Regional decision-making.

Key Performance Measure Verification

Regional scientific equipment inventory will be maintained. Annual assessment will be made to determine Regional needs to further upgrades and new technologies.

Statutory Authority

Multi-media

Environmental Protection Agency

1999 Annual Plan Request to OMB

Sound Science, Improved Understanding of Environmental Risk, and Greater Innovation to Address Environmental Problems

Objective #9: Science Advisory Board Peer Review

Conduct peer reviews and provide guidance on the science underlying Agency decisions.

Overview

The Science Advisory Board (SAB), with a request of $2,586,700 and 22.3 total workyears, provides independent expert advice to Congress, the Administrator, and the Agency on scientific and engineering issues that serve as the underpinnings for Agency regulatory decision making. Congress established the SAB in 1978 and gave it a broad mandate to advise the Agency on technical matters. The SAB's 100 members and more than 300 consultants include scientists, engineers, and other specialists drawn from a broad range of disciplines -- physics, chemistry, biology, mathematics, engineering, ecology, economics, medicine, and other fields. The men and women of the SAB come from a variety of organizations doing scientific work -- academia, industry, and independent laboratories. The variety of backgrounds in this diverse and technically well-qualified group helps to ensure a balanced range of outside views on the Board.

Each year, the Administrator and EPA program offices nominate numerous issues to the SAB for peer review. The SAB selects at least 30 of these issues for review each year, culminating in reports that help the Agency make better use of science in its decision-making process. The approximately 30 other issues that are not selected for review can be nominated again the following year. The SAB's broad, objective review of important scientific and technical issues promotes sound science within the Agency's scientific and technical programs.

In addition to peer reviews, the SAB is occasionally tasked with conducting major studies (e.g., the 1995 "Beyond the Horizon" report which discusses the importance of employing methods to anticipate environmental risks that might emerge over the next 20 years). The timing of these studies is not predictable. Major studies typically take multiple years to complete, and are extremely resource intensive. For example, during the past two years, the SAB has been conducting the Integrated Risk Project, a major study on ranking relative environmental risks.

During years in which the SAB is not involved in a major study, the Board is able to dedicate more resources to peer reviews, and may complete up to 40 peer review reports.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 09 Science Advisory Board Peer Review	**$2,418.3**	**$2,415.8**	**$2,586.7**
Environmental Program & Management	$2,418.3	$2,415.8	$2,586.7
Total FTE	22.5	22.5	22.5

1999 Annual Performance Goals

- The SAB will complete peer review reports within 4 months
- The SAB will conduct meeting and prepare reports

The SAB will peer review at least 30 issues. The SAB's long-term goal for the year 2005 is to complete 75% of its peer review reports within four months after the final peer review meeting is held. In 1999, we will hold 40 meetings and produce 30 reports. The results of SAB peer reviews will help the Agency make better use of science in its decision-making processes.

1998 Annual Performance Goals

- The SAB will complete peer review reports within 4 months
- The SAB will conduct meetings and prepare reports

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
09 Obj. Total Change	**$170.9**	**0.0**
Environmental Program & Management	$170.9	0.0

- Total payroll and travel costs for this objective will increase by $170,900 to reflect increased workforce costs.

Key Performance Measures	1998	1999
Report Time to Completion	40% in 4 months	50% in 4 months
Number of Reports	30	30

Conclusion

Congress established the SAB and gave it a broad mandate to advise the Agency on technical matters. The Board consists of independent experts who provide advice on scientific, economic, and engineering issues. For the most part, the SAB's agenda is set by specific requests from EPA and by recommendations of the members themselves. Some of the Board's activities are specified in various environmental laws. For example, the Clean Air Act and the Safe Drinking Water Act direct that the SAB review technical support documents upon which EPA regulatory actions will be based. On occasion, Congress or the Administrator asks for a special review by the Board (e.g., the Integrated Risk Project). These special reviews are unpredictable in timing and are very resource intensive. Therefore, during a year when the Board is involved in a special review, it is not able to conduct as many peer reviews as usual.

The Board's principal mission includes:

- Reviewing the quality and relevance of information being used or proposed as the basis for Agency regulations.
- Reviewing research programs and the technical basis of applied programs.
- Reviewing generic approaches to regulatory science, including guidelines governing the use of scientific information in regulatory decisions, and critiquing such analytic methods as mathematical modeling.
- Advising the Agency on broad strategic matters in science and technology.
- Advising the Agency on emergency and other short-notice programs.

The variety of backgrounds found in the diverse and technically well-qualified members and consultants of the SAB helps to ensure a balanced range of outside views in the Board's peer review products.

As an independent science advisory board, the SAB's value derives from its independent, publicly stated support for the proper use of science by EPA, as well as its independent, publicly stated concern over apparent deficiencies in the Agency's use of science. An additional, but harder to quantify, value provided by the SAB is that its findings assist not only EPA, but also other government and non-government organizations. The SAB will qualitatively document its successes in this regard.

Key Performance Measures Verification

The SAB will maintain records on report time to completion and will summarize its findings at the end of each fiscal year.

Statutory Authority

Federal Advisory Committee Act (5 U.S.C. App.)

Sound Science, Improved Understanding of Environmental Risk, and Greater Innovation to Address Environmental Problems

Objective #10: Improve the Agency's Core Business Practices

Incorporate innovative approaches to environmental management into EPA programs, so that EPA and external partners achieve greater and more cost-effective public health and environmental protection.

Overview

In 1998, the Administrator established a new Office of Reinvention within the Office of the Administrator. The new office consolidated the full range of Agency reinvention efforts within one office. The Office of Reinvention will serve as an important gateway for stakeholders/customers to interact with EPA on reinvention. The office will build relationships needed to make reinvention successful, broker participation in reinvention programs, and amass ideas on new approaches to the way EPA does business. The 1999 President's Budget request for the Regulatory reinvention effort within the Office of the Administrator is $4,334,100 and 20.0 total workyears.

The Office of Reinvention will track and measure reinvention progress and ensure that reinvention activities are evaluated. The evaluation will look at both what's working and what's not working, focusing on a wide range of criteria, including: meeting goals and objectives, achieving environmental results more efficiently and effectively, better serving customers and stakeholders, improving the management of programs and resources, and fulfilling statutory mandates.

Objective by Appropriation
(Dollars in Thousands)

		1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 10	**Incorporate Innovative Approaches to Environmental Management**	**$**	**$6,161.0**	**$4,334.1**
	Environmental Program & Management	$	$6,161.0	$4,334.1
Total FTE			20.0	20.0

1999 Annual Performance Goals

- Implement proposals to improve regulatory flexibility.

The Office of Reinvention will promote innovation within EPA to achieve greater and more cost-effective public health and environmental protection. The office's principal functions include:

- Serving as the primary gateway for stakeholders/customers to interact with EPA on reinvention. This will be accomplished by building relationships needed to make reinvention successful; brokering participation in reinvention programs inside and outside EPA; and gathering ideas on new approaches to the way EPA does business.

- Defining the vision, strategy, ground rules, and principles for reinvention by engaging stakeholders (e.g., EPA leadership, management, and staff; Congress; organizations; industry; and other external groups).

- Ensuring new approaches are identified, designed and piloted by fostering program-specific approaches in other EPA offices.

- Ensuring new approaches are identified, designed, and piloted by managing Agency-wide approaches within the Office of Reinvention.

- Integrating and coordinating new approaches across the Agency into a coherent strategy for change by:

    - Setting priorities across reinvention activities.
    - Coordinating reinvention activities in headquarters and regional offices.
    - Ensuring consistency/fostering synergy across reinvention activities.
    - Establishing communication networks for reinvention activities.

- Tracking progress and evaluating success:

    - Tracking reinvention commitments.
    - Evaluating new approaches, soliciting/collecting lessons learned (both what has worked and what hasn't).
    - Measuring reinvention progress, sharing the results, and ensuring results are used in making improvements.

- Ensuring that successful new approaches are incorporated into the way EPA does business by promoting reinvention and building reinvention capacity across the Agency.

1998 Annual Performance Goals

- Develop proposals to improve permitting, voluntary partnership/leadership programs and regulatory flexibility.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
10 Obj. Total Change	**$(1,826.9)**	**0.0**
Environmental Program & Management	$(1,826.9)	0.0

- (-$2,000,000 EPM) The 1999 request is $2,000,000 below the 1998 Enacted budget level due to a Congressional Add-on received during the appropriations process, but not part of the 1999 President's Request.

- (+$173,000 EPM) Total payroll, travel, and administrative expenses for this objective will increase by $173,100 to reflect increased workforce costs.

Key Performance Measures	1998	1999
Number of proposals developed	3 proposals	
Number of proposals implemented		1 proposal

Conclusion

The Office of Reinvention will ensure reinvention progress is continuously tracked, measured, and evaluated within the office itself, within other Agency offices for their reinvention activities, and across EPA. The office will communicate the results and ensure that action is taken within the Agency (e.g., changing direction where needed and adoption of new approaches), based upon the results.

Key Performance Measures Verification

Records will be maintained on reinvention initiatives and changes to the Agency's core business practices. The results will be reported at the end of the fiscal year.

Statutory Authority

Multi-media

Goal 9: Credible Deterrent

Goal 9: A Credible Deterrent to Pollution and Greater Compliance with the Law **IX-1**
Enforcement Tools to Reduce Non-Compliance IX-4
Increase Use of Auditing, Self-Policing Policies IX-11

Environmental Protection Agency

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A Credible Deterrent to Pollution and Greater Compliance with the Law

Strategic Goal: EPA will ensure full compliance with laws intended to protect public health and the environment.

Goal Summary
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
A Credible Deterrent to Pollution and Greater Compliance with the Law	**$320,827.7**	**$315,828.2**	**$330,951.3**
Obj. 01 Enforcement Tools to Reduce Non-Compliance	$275,311.8	$268,534.7	$281,743.1
Obj. 02 Increase Use of Auditing, Self-Policing Policies	$45,515.9	$47,293.5	$49,208.2
Goal Total FTE:	2,538.3	2,537.8	2,535.9

Protecting the public and the environment from risks posed by violations of environmental requirements is, and always has been, basic to EPA's mission. Many of America's environmental improvements over the last 25 years are attributable to a strong set of environmental laws and an expectation of compliance with those laws. EPA's strong and aggressive enforcement program has been the centerpiece of efforts to ensure compliance, and has achieved real and significant improvements in public health and the environment. The Agency will continue to aggressively punish violators and deter future violations, level the economic playing field for law-abiding companies, and ensure that the price of goods and services reflects true costs.

However, to meet the challenges presented by the continuing, serious, and complex environmental problems and the changes in the types and scope of activities and entities regulated, EPA must seek a broader range of solutions. To this end, EPA is developing additional tools and capabilities for ensuring compliance through assistance and incentives to the regulated community. By ensuring compliance through an array of traditional and innovative approaches, EPA is working to mitigate and avoid risks to human health and the environment.

The 1999 President's Budget requests $330,951,300 and 2535.9 workyears for deterrence and compliance in this goal, an increase of $15,123,100 and a decrease of 1.9 workyears from 1998. These resources will support the use of enforcement and compliance tools to ensure deterrence and compliance including inspections

to target violators, assistance to help the regulated community understand its responsibilities, and incentives to make it economically beneficial to comply with the law. EPA will also continue to provide technical assistance and grants to states and Tribes to help them build effective and well targeted compliance and enforcement programs. EPA will support international environmental commitments, especially along U.S. borders, and work with other Federal agencies to promote environmental protection abroad and encourage a level economic playing field in an increasingly global trading system.

The resources requested in this budget will enable the Agency to meet a number of important performance goals. The most significant of these are:

- Target high priority areas for enforcement and compliance assistance and complete baseline data needed to measure changes in key indicators of compliance. The Agency will identify five high priority areas and improve 3 of their data systems.

- Deter non-compliance by maintaining levels of field presence and enforcement actions, particularly in high risk areas and/or where populations are disproportionately exposed. In 1999, EPA will conduct 15,000 inspections and undertake 2,600 enforcement actions.

- Increase the regulated community's use of compliance incentives and their understanding of, and ability to comply with, regulatory requirements. EPA will offer 20 small entities relief under the Small Business Policy, an increase of 100% over the 1998 levels, and obtain 400 self disclosures. The Agency will also continue to operate 8 Compliance Assistance Centers, and provide compliance assistance tools such as 7 sector notebooks and 4 sector guides.

- Assist states and Tribes with their enforcement and compliance assurance and incentive programs. EPA will provide specialized assistance and training, including 100 courses, to state and tribal officials to enhance the effectiveness of their programs.

- Review 100% of significant proposed Federal actions subject to the National Environmental Policy Act (NEPA) which require EPA follow-up to determine their likely environmental effects and remedy 70% of EPA's concerns with these proposed actions.

HIGHLIGHTS:

Target High Priority Areas for Enforcement and Compliance Assistance

The 1999 President's Budget requests $281,743,100 and 2,055.6 workyears to address the most significant environmental problems through improved targeting of high-risk portions of the regulated community, and increased monitoring. The foundation of this effort will be the completion by EPA's enforcement and compliance assurance program of baseline data improvements that began in 1998, the selection of the most appropriate compliance indicators and types of facilities to be addressed, and the setting of challenging but realistic targets for compliance.

Improve Compliance by Providing Assistance and Incentives to the Regulated Community

The 1999 President's Budget requests $49,208,200 and 480.3 workyears to provide more sophisticated and targeted compliance assistance to the regulated community using compliance baseline data developed for selected sectors, and the Agency's analysis of the root causes of compliance problems. EPA will also increase the regulated community's use of compliance incentives and programs by 10% over 1998 levels, by encouraging communities to voluntarily discover, disclose, and correct violations.

Assist States and Tribes with Their Compliance Assurance and Incentive Programs

Included in the 1999 President's Budget is $2,000,000 for Pesticides Enforcement grants to help prevent future misuses of pesticides in communities and workplaces. EPA also requests $500,000 to help states protect vulnerable children from lead poisoning by increasing enforcement of the lead-based paint provisions of the Toxic Substances Control Act (TSCA). A requested increase of $100,000 will provide compliance assistance to Tribes.

Environmental Protection Agency

1999 Annual Plan Request to Congress

A Credible Deterrent to Pollution and Greater Compliance with the Law

Objective #1: Enforcement Tools to Reduce Non-Compliance

Identify and reduce significant non-compliance in high priority program areas, while maintaining a strong enforcement presence in all regulatory program areas.

Overview

A strong and vital enforcement program is critical to the success of EPA's environmental programs. By identifying and addressing violations of environmental statutes and regulations, the enforcement program ensures compliance with standards, permits and other requirements established by EPA to mitigate and avoid environmental problems and the associated risks. A strong enforcement program achieves environmental protection by deterring potential violators, bringing actual violators into compliance, rectifying damage to the environment, and maintaining a level playing field by protecting companies that comply with environmental requirements from being placed at an economic disadvantage relative to those who do not. EPA's enforcement and compliance responsibilities are outlined in the provisions of 15 environmental statutes and seven international agreements.

EPA has a broad scope of responsibility and a large and diverse universe of private, public and Federal facilities to regulate under the various statutes. EPA will use the most appropriate approach -- whole facilities, industrial sectors, geographic areas, or media-specific authorities -- to ensure compliance with environmental requirements and thus address environmental problems. EPA uses inspections and civil and criminal enforcement actions to address a wide range of environmental regulations. EPA maximizes its effectiveness by strategically targeting its civil and criminal investigations and other monitoring and enforcement activities to address the most significant risks to human health and the environment and to address the disproportionate burden on certain populations in keeping with its environmental justice responsibilities. EPA relies to a large extent on the active involvement of all our partners and a mix of tools to encourage appropriate behavior by the regulated community. EPA supports the states in building effective and well-targeted compliance and enforcement programs and uses prevention and deterrence as key criteria in setting priorities and negotiating state grant programs. In addition to providing specialized assistance and training, EPA will work with states to improve joint planning and priority-setting processes and to better define and analyze results of enforcement and compliance assurance efforts. Also, through implementation of international commitments, particularly those with bordering countries, EPA works with other Federal agencies to promote environmental protection abroad and to ensure a level economic playing field in an increasingly global trading system.

The Agency will use targeting tools for improving compliance including an analysis of such information as base rates of significant noncompliance, repeat violators, timely and appropriate enforcement actions, economic benefits recovered, and pollution reduction in high risk areas. By 1999, EPA will use information from risk models to target monitoring efforts. The Agency will also complete baseline data for measuring changes in key indicators of compliance with high priority regulations. EPA will use risk-based and related criteria, including potential burden on specific populations, during program planning, implementation and evaluation. EPA will consult with states on the portions of the regulated program selected and the development of the baseline data. Ideas generated through EPA's National Performance Measures Strategy will be used to assess the effectiveness of enforcement and compliance assurance efforts in gaining compliance and attaining desired environmental results. Continued improvements in the comprehensiveness and quality of information collected on the environmental results of enforcement cases concluded will give EPA a clearer picture of the relationship between enforcement efforts and environmental results.

EPA also intends to increase the use of injunctive relief provisions and Supplemental Environmental Projects (SEPs) to achieve environmental restoration and cleanup. EPA has used SEPs to gain significant environmental benefits in conjunction with the settlement of enforcement cases. The majority of the 266 SEPs finalized in 1997 addressed risks posed to humans in either a work-related or non-occupational context (54%) or involved ecosystem protection (24%).

The Agency's efforts in this objective will be supported through legal counseling and advocacy. This may include advice, participation in the development of Agency actions, document review, and the conduct of defensive litigation.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 01 Enforcement Tools to Reduce Non-Compliance	$275,311.8	$268,534.7	$281,743.1
Environmental Program & Management	$185,047.7	$178,418.7	$189,300.0
Science and Technology	$8,564.4	$8,116.8	$8,662.8
State and Tribal Assistance Grants	$65,698.5	$64,579.3	$67,079.3
Hazardous Substance Superfund	$16,001.2	$17,419.9	$16,701.0
Total FTE:	2,057.5	2,052.5	2,055.6

1999 Annual Performance Goals

- Target high priority areas for enforcement and compliance assistance and complete baseline data needed to measure changes in key indicators of compliance. The Agency will identify five high priority areas and improve 3 of their data systems.

- Deter non-compliance by maintaining levels of field presence and enforcement actions, particularly in high risk areas and/or where populations are disproportionately exposed. In 1999, EPA will conduct 15,000 inspections and undertake 2,600 enforcement actions.

- Implement international commitments and U.S. Government priorities for enforcement compliance cooperation with other countries, especially along U.S. borders (Mexico and Canada).

- Assist states and Tribes with their enforcement and compliance assurance and incentive programs. EPA will provide specialized assistance and training, including 100 courses, to state and tribal officials to enhance the effectiveness of their programs.

In 1999, the Agency will improve its ability to define high priority segments of the regulated community, develop comprehensive baseline data on the nature and extent of compliance problems in those portions of the regulated community, and deter non-compliance by maintaining levels of field presence and enforcement actions, particularly in high risk areas and/or where populations are disproportionately exposed.

1998 Annual Performance Goals

- Identify high priority areas for enforcement and compliance assistance and begin development of baseline data to measure changes in compliance.

- Deter non-compliance by maintaining levels of field presence and enforcement actions, particularly in high risk areas and/or where populations are disproportionately exposed.

- Implement international commitments and U.S. Government priorities through jointly-agreed upon annual workplans for enforcement and compliance cooperation with other countries, especially along U.S. borders.

- Assist states and tribes with their enforcement and compliance programs.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
01 Obj. Total Change	$13,208.4	3.1
Environmental Program & Management	$10,881.3	3.1
Science and Technology	$546.0	0.0
State and Tribal Assistance Grants	$2,500.0	
Hazardous Substance Superfund	$(718.9)	0.0

- (+3.1 FTE and +$250,000 EPM) Regional workyears shifted from Project XL to support civil enforcement case development, settlement, and litigation.
- (+$800,000 EPM) Reflects a partial restoration of reductions taken in 1998 to the Regional programs that perform RCRA and Stationary Source inspections and civil enforcement actions.
- (+$400,000 EPM) Supports the Persistent, Bioaccumulative and Toxic Pollutant (PBT) initiative for case development and enforcement targeting.
- (+$100,000 EPM) Supports the Agency's tribal compliance assistance efforts in the Regions.
- (+$2,000,000 STAG) Pesticides state grants to support the prevention of future misuses of pesticides in communities and workplaces.
- (+$500,000 STAG) Toxic state grants to enforce the lead provisions of TSCA.
- (+$9,148,700 EPM) Resources provided to support increased payroll-related costs.
- (+$540,000 S&T) Resources provided to support increased payroll-related costs.
- (-$707,000 SF) A reduction in systems development is due to the completion of data systems enhancements.

Key Performance Measures	1998	1999
Lab Integrity Inspections	86 Inspections	86 Inspections
Lab Integrity Audits	230 Audits	230 Audits
Import/Export Notifications	2300 Notifications	2300 Notifications
Multimedia Inspections - HQ	15 Inspections	15 Inspections
Multimedia Inspections - RT	120 Inspections	120 Inspections
Federal Facility Inspections	28 Inspections	28 Inspections
Mobile Sources Inspections	2250 Inspections	2250 Inspections
NPDES Inspections	2400 Inspections	2400 Inspections
UIC/PWSS Inspections	5700 Inspections	5500 Inspections
Stationary Source Inspections	2100 Inspections	2030 Inspections
FIFRA Inspections	125 Inspections	125 Inspections
TSCA Inspections	1100 Inspections	1060 Inspections
NPDES Civil Referrals	50 Case Referrals	50 Case Referrals
State Pesticides Inspections	53800 Inspections	60300 Inspections
State Toxics Inspections	1000 Inspections	1000 Inspections
Single Media Inspections - FD	14 Inspections	14 Inspections
Multimedia Inspections - FD	15 Inspections	15 Inspections
RCRA Inspections	1100 Inspections	1060 Inspections
Sector Inspections		390 Inspections
Administrative Orders Issued	90 Admin.Orders	100 Admin.Orders
Administrative Cases Concluded	80 Admin.Cases	80 Admin.Cases
Civil Judicial Cases Concluded	2 Civil Cases	3 Civil Cases
Non-Penalty Actions	225 NONs/NOVs	250 NONs/NOVs
UIC/PWSS Civil Referrals	20 Case Referrals	20 Case Referrals
Stat. Source Civil Referrals	70 Case Referrals	70 Case Referrals
FIFRA Civil Referrals	3 Case Referrals	3 Case Referrals
Toxics Civil Referrals	2 Case Referrals	2 Case Referrals
RCRA Civil Referrals	12 Case Referrals	13 Case Referrals
NPDES APO Complaints	150 APO Complaints	150 APO Complaints
UIC/PWSS APO Complaints	60 APO Complaints	60 APO Complaints
Stat. Sources APO Complaints	90 APO Complaints	90 APO Complaints
FIFRA APO Complaints	80 APO Complaints	80 APO Complaints
Toxics APO Complaints	185 APO Complaints	185 APO Complaints
RCRA APO Complaints	64 APO Complaints	72 APO Complaints
NPDES Compliance Orders	505 Compli.Orders	505 Compli.Orders
UIC/PWSS Compliance Orders	300 Compl.Orders	300 Compl.Orders
Stat. Sources Compl. Orders	155 Compl.Orders	155 Compl.Orders
FIFRA Compliance Orders	10 Compl.Orders	10 Compl.Orders
RCRA Compliance Orders	20 Compl.Orders	22 Compl.Orders
Wetlands Compliance Orders	40 Compl.Orders	40 Compl.Orders
Criminal Cases Referred	310 Cases	310 Cases
Specialized Asst. & Training		100 Courses
Annual Wkplns under BorderXXI & CEC Agree.	2 Workplans	2 Workplans
High priority areas identified		5 Areas
Data systems improve. to capture chgs to 98 base		3 Data System

Conclusion

In its commitment to enforcing compliance with environmental laws, EPA will continue in its efforts to identify and take action against environmental violators, deter would-be violators, and ensure a level playing field so that violators do not gain an unfair competitive advantage over law-abiding members of the regulated community. EPA also will improve its effectiveness in addressing the most significant environmental problems through improved targeting of high-risk portions of the regulated community and increased monitoring. The foundation of this effort will be the development of sound baseline data, the selection of the most appropriate compliance indicators and types of facilities to be regulated, and the setting of challenging but realistic targets for compliance in 1999.

Key Performance Measures Verification

EPA's enforcement and compliance assurance data are contained in 14 database systems across the Agency. While specific data entry/quality control practices may vary by individual system, each current system has been developed in accordance with the Office Information Resources Management (OIRM) Life Cycle Management Guidance which establishes the Agency's processes for development, implementation and maintenance of the Agency's data systems throughout their life cycle. The systems incorporate data validation processes and include internal screen audit checks and verifications; development of detailed system and user documentation (include training guides, data element dictionary, security plans); data quality audit reports (available to Regional and Headquarters staff); third party testing protocols for system enhancements; and detailed report specifications for showing how data are calculated.

EPA has prepared a Strategic and Tactical Automation Management Plan which will significantly impact the quality and reliability of nine of the Agency's systems. This plan will integrate the Agency's enforcement and compliance mission, priorities and goals into a comprehensive strategy for improving information management for the National Enforcement and Compliance Assurance Program.

EPA is also developing and implementing detailed system specific Quality Management Plans for all systems it manages directly. These plans will include: development of Data Quality Objectives (establishing measurable criteria for data quality); Quality Assurance Project Plans (to determine how QA activities will be implemented through the system life cycle); and Standard Operating Procedures (to provide a consistent and routine process for assessing data quality measurements).

Statutory Authority

Resource Conservation and Recovery Act sections 3007, 3008, 3013, and 7003 (42 U.S.C. 6927, 6928, 6934, 6973)

Comprehensive Environmental Response, Compensation, and Liability Act sections 106, 107, 109, and 122 (42 U.S.C. 9606, 9607, 9609, 9622)

Clean Water Act (CWA) sections 308, 309, and 311 (33 U.S.C. 1318, 1319, 1321)

Safe Drinking Water Act sections 1413, 1414, 1417, 1422, 1423, 1425, 1431, 1432, 1445 (42 U.S.C. 300g-2, 300g-3, 300g-6, 300h-1, 300h-2, 300h-4, 300i, 300i-1, 300j-4)

Clean Air Act sections 113, 114, and 303 (42 U.S.C. 7413, 7414, 7603)

Toxic Substances Control Act (TSCA) sections 11, 16, and 17 and TSCA Titles II and IV (15 U.S.C. 2610, 2615, 2616, 2641-2656, 2681-2692)

Emergency Planning and Community Right-to-Know Act sections 325 and 326 (42 U.S.C. 11045, 11046)

Federal Insecticide, Fungicide, and Rodenticide Act sections 8, 9, 12, 13, and 14 (7 U.S.C. 136f, 136g, 136j, 136k, 136l)

Ocean Dumping Act sections 101, 104B, 105, and 107 (33 U.S.C. 1411, 1414B, 1415, 1417)

North American Agreement on Environmental Cooperation

1983 La Paz Agreement on US/Mexico Border Region

Objective #2: Promote Voluntary Compliance

Promote the regulated community's voluntary compliance with environmental requirements through compliance incentives and assistance programs.

Overview

While much of the environmental improvement realized over the past several years is attributable to the use of traditional civil and criminal enforcement activities, the continuation of serious environmental problems and changes in the scope and types of activities and entities regulated present new challenges. EPA is working to integrate more traditional approaches with well-designed and carefully-managed efforts to identify and implement new ways to achieve compliance, environmental protection, and reduction in the risk to human health.

EPA uses compliance assistance to assure that the regulated community understands its obligations by providing clear and consistent descriptions of regulatory requirements. Compliance assistance can also help regulated industries find cost-effective ways to comply through the use of pollution prevention and innovative technologies. For 1998 and 1999, EPA will target its compliance assistance to key program areas, sectors or geographic areas based on the nature of the compliance problems noted, the newness or complexity of the regulations, or other relevant factors.

EPA is also working to improve its effectiveness through compliance incentives which motivate and enhance the capacity and the will of the regulated community to promptly and fully comply with the law and to voluntarily and promptly disclose violations before they come to the attention of the government.

This objective also addresses EPA's responsibilities under the National Environmental Policy Act (NEPA). NEPA requires that Federal agencies consider the environmental consequences of their activities. EPA's NEPA program reviews major actions taken by other Federal agencies and by EPA to ensure that adverse effects are identified and are either eliminated or mitigated. The Agency's efforts may include technical advice, participation in the development of Agency actions, document reviews, and follow-up on comments.

The Agency's efforts in this objective will be supported through legal counseling and advocacy. This may include advice, participation in the development of Agency actions, document review, and the conduct of defensive litigation.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 02 Increase Use of Auditing, Self-Policing Policies	**$45,515.9**	**$47,293.5**	**$49,208.2**
Environmental Program & Management	$42,592.3	$43,469.2	$45,388.3
Science and Technology	$328.7	$98.3	$97.9
State and Tribal Assistance Grants	$2,214.2	$3,333.4	$3,333.4
Hazardous Substance Superfund	$380.7	$392.6	$388.6
Total FTE:	480.8	485.3	480.3

1999 Annual Performance Goals

- Increase the regulated community's use of compliance incentives and their understanding of, and ability to comply with, regulatory requirements. EPA will offer 20 small entities relief under the Small Business Policy, an increase of 100% over the 1998 levels, and obtain 400 self disclosures. The Agency will also continue to operate 8 Compliance Assistance Centers, and provide compliance assistance tools such as 7 sector notebooks and 4 sector guides.

- Review 100% of significant proposed Federal actions subject to the National Environmental Policy Act (NEPA) which require EPA follow-up to determine their likely environmental effects and remedy 70% of EPA's concerns with these proposed actions.

This objective will be met through the Agency's efforts to improve compliance by using compliance incentives and the continuation of compliance assistance activities. By providing incentives for companies to undertake environmental audits or other environmental management practice, EPA encourages internal corporate mechanisms to detect and prevent future violations. These mechanisms could result in significant environmental improvements. The Agency will encourage the regulated community to voluntarily discover, disclose, and correct violations before they are discovered by the government for enforcement investigation or response. In appropriate and specific situations, the policy provides incentives, such as reduced penalties and reduced criminal liability, for companies meeting established conditions for finding, disclosing and fixing violations.

EPA's small business policy is intended to promote compliance among small businesses by providing incentives for participation in compliance assistance

programs and prompt correction of violations. In addition, the Agency will provide compliance assistance to assure that environmental standards are clear and understood by the regulated community. By defining compliance baseline information for targeted sectors of the regulated community and continuing its analysis of the root causes of compliance problems, the Agency will develop tools appropriate to the particular circumstances of the regulated community. For example, in partnership with industry, academic institutions, environmental groups and other federal and state agencies, EPA is sponsoring national compliance assistance centers for specific sectors. Centers are operational for printing, automotive, metal finishing and agricultural services. Transportation, municipalities, printing wiring board, and chemical industry sector centers will be in place in 1999.

1998 Annual Performance Goals

- Increase the regulated community's understanding of regulatory requirements and policies through training and outreach.
- Increase the regulated community's and Federal facilities use of incentive policies and programs by 10% over 1997 levels.
- Review 100% of major Federal actions subject to NEPA which require EPA follow-up to determine their likely environmental effects and remedy 70% of EPA's concerns with these proposed actions.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
02 Obj. Total Change		**$1,914.7**	**(5.0)**
Environmental Program & Management		$1,919.1	(5.0)
Science and Technology		$(0.4)	0.0
Hazardous Substance Superfund		$(4.0)	0.0

- (-4.0 FTE and -$300,000 EPM) Regional resources shifted from Project XL to support civil enforcement case development, settlement, and litigation in Objective 1.
- (-1.0 FTE and -$81,600 EPM) Resources transferred to support the Agency's Office of Reinvention.
- (+$2,287,600 EPM) Increased payroll-related costs.

Key Performance Measures	1998	1999
Number of small entities receiving relief under Small Business Policy	10 Entities	20 Entities
Compliance Assistance Centers in Operation	8 Centers	8 Centers
Compliance Tools Development	7 Sector Notebooks	7 Sector Notebooks
Compliance Tools Development	4 Sector Guides	4 Sector Guides
NEPA Compliance	30 Actions	30 Actions
EIS Filing and Data Reporting	650 Federal Registers	650 Federal Registers
Major Federal Actions Requiring Follow-up	300 Actions	300 Actions
Concerns Resolved on Major Federal Actions	294 Concerns	294 Concerns
Number of disclosures resulting from targeted Agency action	75 Disclosures	75 Disclosures
Number of Self Disclosures	330 Disclosures	400 Disclosures
Federal Facilities Management Reviews	15 Reviews	15 Reviews

Conclusion

By supplementing traditional enforcement approaches with tools aimed at improving the capacity and the willingness of the regulated community to comply with environmental requirements, EPA will increase the rates of compliance and the environmental performance of facilities. Compliance assistance will promote greater understanding of regulatory requirements and help the regulated universe, especially small businesses, achieve environmental compliance.

Compliance incentives will encourage the regulated community to take responsibility for their compliance statutes and pollution practices. Further, EPA work with the states to adopt policies that provide appropriate incentives and require adequate safeguards for systematic discovery, prompt disclosure, and timely correction of environmental violations.

Key Performance Measures Verification

Through the Agency's Enforcement and Compliance Assurance's National Performance Measures Strategy and other efforts, EPA is improving its ability

to identify measures to assess the effectiveness of compliance assistance and compliance incentives efforts. Compliance assistance data are or will be collected through a number of sources, including the end-of-year reporting on accomplishments under the Regional Memorandum of Agreement process, the Docket (a national database for tracking EPA civil, judicial, and administrative enforcement actions), manual reporting by the regions and the states, and through OMB-approved surveys on the effectiveness of compliance assistance. Information on the regulated communities' use of voluntary approaches, such as the Environmental Leadership Program and Project XL, will be collected at the Headquarters level, although as these programs mature over the next few years, EPA regional offices will collect information on participation in these programs. Regions and Headquarters' offices enter audit policy case data on self-disclosures into the DOCKET database.

The Environmental Review Tracking System (ERTS) is the national database that serves as the official filing system for environmental impact statements and other actions, as required under regulations of the Council on Environmental Quality implementing the National Environmental Policy Act. ERTS also tracks EPA's review responsibilities under Section 309 of the Clean Air Act.

Statutory Authority

Resource Conservation and Recovery Act sections 3007, 3008, 3013, and 7003 (42 U.S.C. 6927, 6928, 6934, 6973)

Comprehensive Environmental Response, Compensation, and Liability Act sections 106, 107, 109, and 122 (42 U.S.C. 9606, 9607, 9609, 9622)

Clean Water Act (CWA) sections 308, 309, and 311 (33 U.S.C. 1318, 1319, 1321)

Safe Drinking Water Act sections 1413, 1414, 1417, 1422, 1423, 1425, 1431, 1432, 1445 (42 U.S.C. 300g-2, 300g-3, 300g-6, 300h-1, 300h-2, 300h-4, 300i, 300i-1, 300j-4)

Clean Air Act sections 113, 114, and 303 (42 U.S.C. 7413, 7414, 7603)

Toxic Substances Control Act (TSCA) sections 11, 16, and 17 and TSCA Titles II and IV (15 U.S.C. 2610, 2615, 2616, 2641-2656, 2681-2692)

Emergency Planning and Community Right-to-Know Act sections 325 and 326 (42 U.S.C. 11045, 11046)

Federal Insecticide, Fungicide, and Rodenticide Act sections 8, 9, 12, 13, and 14 (7 U.S.C. 136f, 136g, 136j, 136k, 136l)

Ocean Dumping Act sections 101, 104B, 105, and 107 (33 U.S.C. 1411, 1414B, 1415, 1417)

National Environmental Policy Act (NEPA)

Goal 10: Effective Management

Goal 10: Effective Management X-1
Executive Leadership X-6
Management Services, Administrative, and Stewardship X-12
Building Operations, Utilities and New Construction. X-23
Regional Management Services and Support X-29
Provide Audit and Investigative Products and Services. X-33

Environmental Protection Agency

1999 Annual Plan Request to Congress

Effective Management

Strategic Goal: EPA will establish a management infrastructure that will set and implement the highest quality standards for effective internal management and fiscal responsibility.

Goal Summary
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Effective Management	**$716,580.2**	**$668,857.3**	**$659,860.5**
Obj. 01 Executive Leadership	$26,003.4	$27,897.8	$30,895.9
Obj. 02 Management Services, Administrative, and Stewardship	$175,284.8	$165,331.7	$180,937.4
Obj. 03 Building Operations, Utilities and New Construction	$367,905.0	$331,959.5	$299,921.3
Obj. 04 Regional Management Services and Support	$110,769.2	$107,103.7	$108,189.1
Obj. 05 Provide Audit and Investigative Products and Services	$36,617.8	$36,564.6	$39,916.8
Goal Total FTE	2,927.9	2,919.6	2,974.7

Efforts under this goal support the full range of Agency activities for a healthy and sustainable environment. Agency management provides vision and leadership within the Agency, and conducts policy oversight for all Agency programs. The effectiveness of EPA's management will determine, in large measure, how successful we will be in pursuit of the other goals identified in the Agency's annual plan. Sound management principles, practices, results-based planning and budgeting, fiscal accountability, quality customer service, rational policy guidance and careful stewardship of our resources are the foundation for everything EPA does to advance the protection of human health and the environment. Agency management systems and processes will be supported by independent evaluations that promote efficient and effective programs, so that we can obtain the greatest return on taxpayer investment.

The 1999 President's Budget requests $659.9 million and 2,975 workyears for the Effective Management goal, a decrease of $9.0 million and increase of 55 workyears over 1998. Managerial accomplishments will include implementation of

automated and streamlined human resources and financial management processes, construction of new facilities, and establishment of state-of-the-art laboratories. The Agency will also honor its obligations to protect children from environmental hazards by working to make the protection of children's health a fundamental goal of environmental protection in the United States.

The resources requested in this budget will enable the Agency to meet a number of important performance goals. The most significant of these include:

- By the end of 1999, continue renovation of the new Headquarters complex by completing 100% buildout of the Ariel Rios north building and 50% of the Interstate Commerce Commission/Customs building, and moving 47% of EPA personnel from vacated spaces to the new consolidated complex.

- By the end of 1999, complete at least 50% of construction of the consolidated research lab at Research Triangle Park in North Carolina.

- By the end of 1999, implement performance-based contracting for 10% of EPA contracts awarded to improve quality and timeliness.

- By the end of 1999, implement Phase I of the Integrated Grants Management System (IGMS) award module in all regions.

- By the end of 1999, evaluate 5 EPA standards to ensure they are protective of children's health.

- By March, 1999, 100% of EPA category 1 & 2 systems tested will calculate the Year 2000 correctly.

- By the end of 1999, the Agency can plan and track performance against annual goals and capture 100% of costs through the new PBAA structure, based on modified budget and financial accounting systems, a new accountability process and new cost accounting mechanisms.

- In 1999, the OIG will provide objective, timely, and independent auditing, consulting, and investigative services through such actions as completing 15 construction grant closeout audits.

HIGHLIGHTS:

Protecting Children's Health

The 1999 President's Budget requests $30.9 million and 265 workyears to provide vision and leadership, as well as executive direction and policy oversight, for all Agency programs, including Children's Health.

The Agency will honor its obligation to protect children from environmental hazards by targeting resources toward the Agency's many diverse children's activities. Children today face significant and unique health threats from a range of environmental hazards. They are often more heavily exposed and more vulnerable than adults to toxins in the environment, from asthma-exacerbating air pollution and lead-based paint in older homes, to treatment-resistant microbes

in drinking water, to persistent chemicals that may cause cancer or induce reproductive or developmental changes. Children's developing immune and nervous systems can be highly vulnerable to disruption by toxins in the environment, and the consequences may be lifelong.

In 1999, major activities include establishing, with the Department of Health and Human Services, six Children's Environmental Research Centers, ensuring that EPA's public health regulations consider children's health, and providing information to parents to better protect their children from environmental hazards.

Improving Management Services, Administrative Support, and Stewardship

The 1999 President's Budget requests $289.1 million and 2,154 workyears for management services, administrative support, and stewardship. EPA will provide the management services and administrative support to achieve its environmental mission and to meet its fiduciary and workforce responsibilities.

The Agency wants to ensure that its workforce is of the highest caliber and is fully prepared to deliver national leadership and expertise in environmental protection. To do so, the Agency will invest in its employees through training and education. The Agency is also striving toward increasing efficiencies in hiring and placement of staff with the necessary scientific and technical skills to sustain effective environmental protection programs. By implementing an automated and streamlined human resources process, the Agency will take major steps toward achieving these goals.

Previously, the Agency has relied on cost-plus, level-of-effort contracting. In an effort to enhance the timeliness and quality of contract products and service, the Agency will be transitioning from this more costly and less efficient method of contracting to the more programmatic and cost effective method of performance-based service contracting. Furthermore, by improving the Agency's contract management information systems, the Agency will improve the quality and availability of information on the status and use of resources, thereby assuring that the Agency acquires the best quality goods and services in support of Agency objectives.

The Agency is also taking steps toward reducing reporting burdens by the Agency's highest volume submitters by encouraging and supporting electronic reporting. These efforts will facilitate EPA's acquisition of key information about environmental conditions across the country.

In 1999, upon correction of grants management vulnerabilities, emphasis will be placed on all aspects of post award grants management to ensure fiscal integrity. This will be accomplished by supporting and maintaining an Agency-wide Integrated Grants Management System that will provide for significant and immediate customer service and communication, as well as substantial time and resource savings, increased integrity of data quality, and post award management/closeout support.

Improving the Agency's ability to focus on environmental results and ensuring effective stewardship of Agency resources is a high priority for the Agency. To strengthen the Agency's accountability through a performance-based

management system, EPA will continue development of its integrated planning, budgeting, and accountability process, and will further its achievement of the substantive statutory requirements of the Government Performance and Results Act (GPRA), Chief Financial Officers Act (CFO Act), and related legislation. The Agency will also focus on development of effective financial management systems, and greater efficiency through streamlining, customer service, and automated systems development.

Maintaining and Improving Agency Infrastructure

The Agency is requesting a total of $299.9 million and 155 workyears to provide a quality work environment that considers employee safety and security, building operations, utilities, facilities repairs, new construction, and pollution prevention throughout the Agency's ten Regional offices, research and development laboratory complexes, field stations, and Headquarters locations.

In support of effective management, the Agency will provide for construction and establishment of state-of-the-art laboratories, providing the tools essential to researching innovative solutions to current and future environmental problems and enhancing our understanding of environmental risks. The consolidated laboratory office complex at Research Triangle Park, North Carolina is an excellent example. For 1999, the Agency is requesting $32.0 million for the continued construction of this complex. This facility will consolidate several locations that EPA currently leases, saving taxpayers over $100 million over the facility's life. Also, EPA is requesting and advance appropriation of $40.7 million in fiscal year 2000 to complete the project.

The Agency's goal of consolidating its Headquarters personnel into one central location is closer to being realized. In 1999, EPA is requesting $16.0 million for relocation to and continued construction of the new Headquarters buildings. The single largest component of this request is for the telecommunication costs to conform to EPA's Integrated Services Digital Network (ISDN) and local area network standards. Significant accomplishments for 1999 include completion of the buildout in the Ariel Rios North building, and 50% completion of the Interstate Commerce Commission building. Furthermore, lab construction at Ft. Meade, Maryland will be completed.

EPA's employees are a major asset and the Agency will continue to take steps to provide a wide range of facilities management and safety, health and environmental management policies, procedures and services. Facilities operations include rent; preventive maintenance of existing space; security and property management; printing services; postage and mail management services; transportation services; Agency recycling; and health, safety and environmental compliance activities, including medical monitoring and training.

Assisting EPA in Reaching Its Mission by Providing Audit and Investigative Products and Services

The Agency is requesting $39.9 million and 401 workyears to provide audits and investigations of EPA's program, administrative, and financial activities by the Office of Inspector General. This will ensure that the Agency's programs are delivered in an effective, efficient, and economical manner and in compliance with all applicable laws and regulations. Audits and investigations assist the Agency in identifying areas of potential risk and necessary improvements that can significantly contribute to EPA's fulfillment of its mission. Services also include working in partnership with Agency management to find more effective and efficient solutions to environmental problems.

Environmental Protection Agency

1999 Annual Plan Request to Congress

Effective Management

Objective #1: Executive Leadership

EPA will establish a management infrastructure that will set and implement the highest quality standards for effective internal management and fiscal responsibility.

Overview

To meet the challenges of the 21st century, Americans are calling for a new generation of environmental protection -- one that is based on common sense and partnership. They are challenging their leaders to adopt tough but achievable goals for the environment and to offer people and institutions the flexibility to find cost-effective ways to achieve those goals.

Major activities within this objective are vision and leadership; children's health protection; regional vision and leadership; EEO/Civil Rights/Diversity Policy Guidance; Environmental Appeals Board actions; and Administrative Law Judge actions.

In 1999, the Agency will honor its obligations to protect children from environmental hazards by targeting resources towards the Agency's many diverse children's activities with a request of $6,716,200 and 15.5 total workyears for the Office of Children's Health Protection. Children today face significant and unique health threats from a range of environmental hazards. They are often more heavily exposed and more vulnerable than adults to toxins in the environment, from asthma-exacerbating air pollution and lead-based paint in older homes, to treatment-resistant microbes in drinking water, and to persistent chemicals that may cause cancer or induce reproductive or developmental changes. Children's developing immune and nervous systems can be highly vulnerable to disruption by toxins in the environment and the consequences may be lifelong. EPA will continue to work with all EPA headquarters and regional offices -- as well as with Congress, other federal agencies, academic institutions, health professionals, community groups, parents, and others -- to implement the Agency's Children's Agenda.

Policy direction and guidance will be provided within the Agency on equal employment opportunity, civil rights and diversity issues with a request of $4,104,700 and 41 total workyears. EPA will process discrimination complaints and develop, administer and monitor the implementation of affirmative employment programs. Furthermore, EPA will manage special emphasis programs designed to improve the representation and utilization of minorities and women in the Agency's workforce. Finally, administration of the external compliance program, including Title VI of the Civil Rights Act of 1964, will be conducted since it requires nondiscrimination in programs and activities receiving financial assistance from EPA.

The Environmental Appeals Board (EAB), with a total request of $1,360,300 and 13 total workyears, will issue decisions on administrative environmental matters. These decisions are the end point in the Agency's administrative enforcement and permitting programs. The right of affected persons to appeal these decisions to the Agency is conferred by various statutes, regulations and constitutional due process rights.

The Administrative Law Judges (ALJs), with a request of $2,124,300 and 31 total workyears, will preside over and issue decisions in cases initiated by administrative complaints filed under EPA's enforcement program. The ALJs provide hearings to those accused of environmental violations under various environmental statutes. In addition, the ALJs have increased use, in recent years, of alternative dispute resolution techniques in bringing cases to settlement and, thereby, avoiding more costly litigation.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 01 Executive Leadership	**$26,003.4**	**$27,897.8**	**$30,895.9**
Environmental Program & Management	$25,914.7	$27,809.7	$30,806.5
Hazardous Substance Superfund	$88.7	$88.1	$89.4
Total FTE:	257.0	268.8	265.0

1999 Annual Performance Goals

- Close EEO discrimination complaints.
- Evaluate existing EPA standards to ensure they are protective of children's health.
- Resolve Title VI and other external compliance program complaints.

The Agency will engage in EEO/Civil Rights/workforce diversity activities at both Headquarters and in the Regions. EPA will resolve 80 EEO discrimination complaints. In addition, enhancements will be made to the Agency's external civil rights compliance program, including Title VI of the Civil Rights Act of 1964. These enhancements will enable the Agency to resolve 12 Title VI and other external compliance program complaints. Title VI prohibits discrimination on the basis of race, color, and national origin in any program or activity receiving federal financial assistance. Since the fall of 1993, the Agency has received 41 Title VI complaints raising environmental justice claims. Of these, 21 are still pending. Increased resources will be used to collect and analyze data needed to make decisions on pending Title VI complaints.

As a national policy, EPA will ensure that its standards address the heightened risks faced by children. The most significant standards will be reevaluated to provide greater prevention of environmental health threats to children. In 1999, EPA will reevaluate up to five of its most significant public health and environmental standards to be reissued on an expedited basis.

The EAB will issue administrative environmental decisions in a timely manner. In 1999, the EAB will complete at least 80% of its active permit and enforcement cases within 12 months of receipt. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) section 106(b) petitions, on the other hand, typically are more time consuming and resource intensive. In the Year 2000, EPA will establish a baseline to determine the time frame in which CERCLA section 106(b) petitions are completed. The EAB's long-term goal is to complete 80% of its active CERCLA section 106(b) petitions within 18 months of receipt. The EAB's disposition of cases serves an oversight function by applying the environmental laws fairly to all parties.

The ALJs will adjudicate administrative complaints in a timely manner. In 1999, the Office of the Administrative Law Judges will identify opportunities for improvements in their alternative dispute resolution program and case management efforts, which will enable it to complete actions brought before them within 18 months of receipt. Completion of cases depends in large part upon the parties' settlement efforts, and the ALJs are in the process of reducing a backlog of cases. The disposition of cases serves an oversight function by encouraging the Agency's programs to fairly apply the environmental laws to all parties.

1998 Annual Performance Goals

- Close EEO discrimination complaints.
- Evaluate existing EPA standards to ensure they are protective of children's health.
- Resolve Title VI and other external compliance program complaints.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
01 Obj. Total Change	**$2,998.1**	**(3.8)**
Environmental Program & Management	$2,996.8	(3.8)
Hazardous Substance Superfund	$1.3	0.0

- (+$2,460,000 EPM) Implement the Agency's Children's Health Initiative. Additional funding will be used for programs to include development of Risk Assessment Protocols for Children; Benefits Analysis for Preventing Disease in Children from Environmental Toxins; and activities targeting

communities where EPA can combine the expertise of other Agency programs to eliminate and/or minimize health threats to children.

- (+$500,000 EPM) Enhance the Agency's external civil rights compliance program to resolve complaints. This investment would provide for contractor support in four areas: guidance and technical assistance for recipients of EPA assistance; develop and administer post-award compliance reviews; assistance in investigating administrative complaints filed under EPA's Title VI regulations; and to develop and conduct data gathering analysis to investigate administrative complaints that raise environmental justice issues.

- (-$300,000 EPM, 3.0 total workyears) Reduction from the Administrative Law Judges. The ALJs have been successful in reducing their backlog of enforcement cases.

- Based upon a review of actual workforce costs, Regional payroll and travel was reduced by $241,300, and Headquarters payroll and travel was increased $544,500 to more accurately reflect the cost of workyears.

Key Performance Measures	1998	1999
Close EEO Discrimination Complaints	72	80
Resolve Title VI and Other Complaints	10	12
Select standards for evaluation to ensure they consider the children's special health needs.	5	
Reevaluate standards to ensure they consider the children's special health needs.		up to 5

Conclusion

Within EPA high standards for effective internal management will be set and implemented. The Agency's topmost managers will provide vision, leadership, and direction to ensure that the Agency is able to provide better environmental protection at less cost at the turn of the century and beyond. Resources will be used for a wide variety of activities intended to ensure strong and effective vision, leadership, and direction at the Agency.

The Agency will review and set in place systems to assure child-protective environmental standards. It will support development of new policies on children's unique susceptibility and exposure to pollutants by working with researchers at other Federal agencies and academic institutions to identify and expand research on children's health, and develop new, comprehensive policies that address preventing children's simultaneous and cumulative exposures to

environmental health threats. Finally, EPA will enhance community right-to-know and education on children's health by expanding information for families, and provide parents, teachers, and health practitioners with education and information about protecting children from environmental health threats in their homes, schools, and communities.

This mission will be accomplished by coordinating children's health protection across the Agency, ensuring strong standards that protect children's health, using the best scientific research to protect our children's futures, and increasing public education and community outreach on children's issues. EPA and its stakeholders will benefit from this coordinated approach to reducing environmental risks to children, by making the reduction of environmental risks to children a priority of our administrative, programmatic, and scientific efforts; ensuring a central point of contact for our stakeholders on children's environmental health issues; and increasing public awareness of children's environmental health risks.

Policy direction and guidance on equal employment opportunity, civil rights, and diversity issues will be provided within the Agency. EPA will process discrimination complaints; develop, administer, and monitor the Agency's affirmative employment program; manage the special emphasis programs; and administer the Title VI external compliance program. The last of these efforts is designed to help ensure nondiscrimination in programs and activities receiving financial assistance from EPA.

The EAB and the ALJs will issue decisions on cases brought before them. These decisions will ensure the impartial treatment of all parties by the Agency's program offices by providing a fair and independent review of administrative environmental matters. These efforts will help ensure the fair application of environmental laws, regulations, and programs to all parties.

Key Performance Measures Verification

EEO Complaints Closed: The Office of Civil Rights will maintain records on the number of complaints closed during the year.

Title VI Complaints Closed: The Office of Civil Rights will maintain records on the number of complaints closed during the year.

The Office of Children's Health Protection will select and evaluate up to five standards to ensure they consider the special needs of children's health. Records will be maintained.

The EAB will maintain records on the number of completed permit and enforcement cases reviewed annually.

The Administrative Law Judge (ALJ) will maintain records on the number of completed actions brought before them.

Statutory Authority

Administrative Procedures Act

Civil Rights Act of 1964, Title VI

Civil Rights Act of 1964, Title VII

Comprehensive Environmental Response, Compensation, and Liability Act

Objective #2: Management Services, Administrative, and Stewardship

The Agency will provide the management services, administrative support and operations to enable the Agency to achieve its environmental mission and to meet its fiduciary and workforce responsibilities.

Overview

This objective provides for management of an integrated planning, budgeting, financial management, and accountability process to ensure effective stewardship of Agency resources. This process will, at a minimum, meet the substantive statutory requirements of the Government Performance and Results Act (GPRA), Chief Financial Officers Act (CFO), Clinger-Cohen Act and related legislation.

Accomplishment of this objective will help to promote timely programmatic and resource allocation decisions based on clearly articulated goals, priorities and strategic approaches; instill the use of sound scientific, technical and financial analyses in those decisions; incorporate effective financial and management integrity principles into the day-to-day operations of the Agency's environmental programs; provide Agency managers and external customers with information about program results and service quality; and support the workforce with timely and high quality financial services.

The Agency will continue to implement a strategic planning process including the development of long term goals and general strategies for attaining these goals, and develop and manage the Agency's accountability system for identifying and reporting performance and resource information. EPA will also manage the Agency annual planning and budgeting process, which includes overseeing the development of annual performance plans, budget formulation and execution, and provide financial accounting and fiscal services to the Agency. In addition, EPA will conduct analyses to incorporate scientific data and information into the Agency's planning, budgeting, and accountability process. The Agency will also coordinate the implementation and management of the Working Capital Fund, support for the development of environmental financing alternatives, and performance of all budgetary and administrative functions specific to the Office of the Chief Financial Officer (OCFO). EPA will also support the resource management analysis, accountability and management integrity responsibilities of the Senior Resource Official and Responsible Planning and Implementation Officers; and provide required cost documentation of the Superfund Cost Recovery program. The Agency is requesting a total of $74,567,100 for these activities.

EPA's vision for the delivery of management services in this objective is fundamentally simple but important -- providing environmental funds to people who can turn it into environmental results in a straightforward and efficient manner.

The Agency will accomplish this by: collaborating with the regions and states on systems development through the Partnership 2000 team; aggressive streamlining of processes; providing user-friendly, innovative technology; implementing the General Accounting Office's information resources management's best practices in support of the goals of the Information Technology Management Reform Act (ITMRA) (Clinger-Cohen Act); and strengthening post award and close-out management.

Specifically, EPA is committed in 1999 to improve performance in a number of areas, and we have established specific performance goals for each of our management services. EPA intends to speed up the contract processes through fast-track system enhancements and automation efforts. For each contract action, the Agency will have established stringent time frames for completing work. For example, purchase orders will be processed in 20 working days versus a current average of 45 days; work assignments and delivery orders will be processed in 7 working days versus a current average of 13 days; procurement packages will be reviewed within 5 days; new procurements (less than $5 million) will be completed within 11 months, versus a current average of 18 months. Within this objective, the Agency is requesting $28,818,300 for Contracts Management.

For the first time, EPA will implement a new, integrated, automated personnel management system (Peoplesoft) in the Human Resources and Organizational Services area. This system will enable the Agency to manage positions, recruit employees, track performance, log labor relation cases and disputes, plan salaries, administer benefits, produce workforce demographics reports, process automatic personnel actions and other functions, all within one system. Processing time will be greatly reduced and paperwork eliminated. This will allow the Agency to devote more resources to consultant-based services and better assist managers in the recruitment, hiring and development of employees. This will also provide the potential to reduce traditionally labor and time intensive processes, such as recruitment, thereby improving the Agency's capability to deliver services in a timely manner. Within this objective, the Agency is requesting $28,360,400 Human Resources.

In the Information Resource Management area, EPA will implement three of GAO best practices for Information Resources Management (IRM) service and stewardship. Completion of the remaining eight best practices is expected by 2003. Also, the Agency will improve the information technology capital planning and review process, and reengineer and implement several automated systems. For example, EPA intends to expand the electronic forms system from 6,000 users to 10,000 users (bringing the user total to 55%). Major improvements to Internet searching will be implemented, improving service to an expanded customer base exceeding 15 million queries per month (up from 12 million). Within this objective, the Agency is requesting $25,731,400 for Information Management.

The Agency will correct current FMFIA material weaknesses by eliminating 100% of the closeout backlog for nonconstruction grants that ended between October 1990 and September 1995. At the same time, the corrective action plan to prevent backlogs will be followed. Within this objective, the Agency is requesting $10,079,600 million for Grants Management.

Agency-level efforts for addressing systems issues associated with the Year 2000 project will primarily focus on ensuring that mission critical systems meet the government-wide goal of achieving Year 2000 compliancy by March, 1999. This

activity will continue to provide guidance and policy for incorporating Year 2000 data changes, ensure effective oversight and contingency planning, and manage a certification program to verify Year 2000 compliancy of mission critical assets. Critical systems will be corrected by the end of 1998 to allow rigid testing and implementation of the government-wide target of March, 1999.

Partnership 2000 (P2000) will automate the functions of the total grant process, from policy, guidance, application, award, negotiation, tracking, and reporting. It will eliminate the need for paper, include an electronic signature, and promote information access.

Phase I of the Integrated Grant Management System (i.e. Partnership 2000) will automate the functions of the state grant process, from policy, guidance, application, award, workplan negotiation, tracking, and reporting. It will eliminate the need for paper, include electronic signature, and promote information access.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 02 Management Services, Administrative, and Stewardship	**$175,284.8**	**$165,331.7**	**$180,937.4**
Environmental Program & Management	$128,803.3	$121,918.5	$131,576.2
Science and Technology	$227.7	$35.0	$226.0
Leaking Underground Storage Tanks	$1,014.0	$834.4	$1,047.6
Oil Spill Response	$3.3	$3.7	$3.3
Inspector General	$72.2	$72.2	$72.1
Hazardous Substance Superfund	$45,164.3	$42,467.9	$48,012.2
Total FTE	1,502.3	1,521.2	1,551.8

1999 Annual Performance Goals

- By the end of 1999, the Agency can plan and track performance against annual goals and capture 100% of costs through the new PBAA structure, based on modified budget and financial accounting systems, a new accountability process and new cost accounting mechanisms.
- The Agency annual planning, budgeting, analysis, and accountability processes link resources to environmental results.

- The Agency financial resources are managed responsibly, assure quality customer service, and promote cost-effective investment in environmental protection.

- The Agency systems for planning, budgeting, financial management, accountability, and program analysis provide timely, accurate, and useful information to Agency and external customers.

- Develop a national workforce training and development program by the end of 1999.

- Implement an automated human resources management system.

- Meet customer service goals nearly 100% of time within the contracts management program.

- Implement Electronic Commerce/Electronic Data Interchange Systems to comply with the President's Executive Order.

- Implement performance-based contracting for 10% of EPA's contracts.

- Correct current FMFIA material weaknesses in grants management by eliminating 100% of closeout backlog for non-construction grants between October 1, 1990 and September 30, 1995.

- Implement Phase I - Integrated Grants Management System award module in all grants management offices.

- Implement a case management system for Suspension and Debarment cases.

- Implement GAO best practices for information resources management.

- Complete Agency wide Year 2000 corrective action plan on mission critical systems ensuring EPA computer systems are in compliance by March, 1999.

- Implement the Partnership 2000 electronic award in all Regions

- 100% of EPA category 1 and 2 systems tested will calculate to the Year 2000 correctly by March, 1999.

EPA's 1999 accomplishments are targeted toward an integrated planning, budgeting and analysis process, and oversight of the Agency's strategic planning process. This includes the development of long term goals and general strategies for attaining these goals, and the development and implementation of the Agency process for multi-year plans. This will provide a more detailed strategy for attaining the objectives and sub-objectives.

Through close coordination among National Program Managers (NPMs) and stakeholders, EPA will continue development of the Agency's integrated planning-budgeting-accountability process to improve EPA's ability to focus on environmental results and to ensure effective stewardship of Agency resources. In 1999, the Agency will further EPA's achievement of the substantive statutory

requirements of GPRA, CFO, and related legislation to strengthen Agency accountability through a performance-based management system. OCFO will utilize its resources in three principal areas: continued development of the integrated Planning, Budgeting, Analysis and Accountability (PBAA) system that implements the GPRA, development of effective financial management systems, and greater efficiency through streamlining, customer service, and automated systems development. Major activities associated with these areas in 1999 are development of an Agency-wide accountability system, plans for major financial systems upgrades, achievement of Agencywide cost accounting capability which supports GPRA objectives and budget restructuring and automation.

The Agency will develop the first phase of an Agency-wide accountability system to identify and report on performance and resource information as required by GPRA and Agency managers. It is anticipated that this system will integrate the many disparate accountability systems in the Agency and will include Integrity Act reporting and material weakness identification. Further, OCFO will continue to comply with the Inspector General Act, as amended in 1988, by reporting semiannually to Congress on audits, as well as pursuing audit resolution activities and training of audit coordinators.

Analyses will be conducted to incorporate scientific data and information into the Agency's PBAA process, and work will begin on program evaluations required under GPRA to assess progress toward strategic goals and objectives. The Agency will prepare protocols and guidance for risk analysis of objectives and sub-objectives across offices and programs, and develop the Agency's first Annual Performance Progress Report.

The Agency will continue to streamline management procedures, strengthen its use of information technology to improve services and enhance budget management processes. EPA will provide executive direction for the Agency's budget, financial, and resources management functions, and manage the annual planning and budgeting process for the Agency. This includes overseeing the development of annual performance plans, budget formulation and execution, as well as providing financial accounting and fiscal services. These services include payroll, travel and vendor payments to the Agency. EPA will also operate and maintain the Agency's financial management system, and provide support to the Agency's cost recovery efforts. In addition, the Agency will coordinate the planning and budgeting process for the Working Capital Fund, and provide leadership for implementing the Agency's environmental financing program.

Development and implementation of the budget and financial management processes and information systems needed to improve EPA's ability to manage for results will also continue. Activities in 1999 include 1) development of Annual Plans consistent with the Agency's Strategic Plan, multi-year actions plans and EPA's annual budget; 2) automation and restructuring of the Agency's overall budget process; and 3) development of cost accounting capability to enable Agency managers and stakeholders to know the full cost of Agency programs and the resources associated with achievement of environmental results.

EPA is committed in 1999 to improve performance in a number of management services areas. Enhanced acquisition and contract management training will allow EPA to comply with the Federal Acquisition Reform Act (FARA) of 1995 by providing

competency-based training to contracting officers. In addition, performance-based contracting will enhance the quality and timeliness of contract products and services. For 1999, a goal that 10 percent of contracts will be performance based has been established. Furthermore, with the Electronic Commerce/Electronic Data Interchange (EC/EDI) system, data on business transactions between the government and private sectors will be readily exchanged. Implementation of EC/EDI is scheduled at all 27 Small Purchase Agreements (SPA) purchasing sites by 1999.

Upon correction of grant management vulnerabilities, emphasis will be placed on all aspects of post award management to ensure fiscal integrity. Supporting and maintaining an Agency-wide Integrated Grants Management System will provide for significant and immediate customer service and communication improvement as well as substantial time and resource savings, increased integrity of data quality and post award management/closeout support.

The improvement in service delivery, timeliness and overall quality in human resource activities will enhance customer satisfaction and greatly reduce processing time and eliminate paperwork, allowing us to devote more resources to consultant-based services and, thereby, better assist managers in the recruitment, hiring and development of employees. Levels of satisfaction should increase by ten percent from 1998 through 1999.

Emphasis is placed on fostering IRM stewardship by developing strategic plans for IRM, implementing applicable legal mandates, defining EPA's information architecture and setting IRM policy.

The Executive Steering Committee for Information Resources Management will assist in the implementation of these efforts through the Year 2000 and P2000 activities. This will include providing Agency-level coordination and guidance for addressing Year 2000, assistance with the promulgation of date standards, and automated grant processing.

1998 Annual Performance Goals

- The Agency annual planning, budgeting, analysis, and accountability processes link resources to environmental results.
- The Agency financial resources are managed responsibly, assure quality customer service, and promote cost-effective investment in environmental protection.
- The Agency systems for planning, budgeting, financial management, accountability, and program analysis provide timely, accurate, and useful information to Agency and external customers.
- Improve customer service, enhance contract training opportunities and implement performance-based contracting to enhance quality and timeliness of contracts.

- Implement Electronic Commerce/Electronic Data Interchange systems to comply with the President's order. Will support Agency's Integrated Contracts Management System(ICMS).

- Test market electronic grant awards in five EPA regions and in five states.

- Correct current FMFIA material weaknesses in grants management by providing 100% of EPA's program offices with required Agency certified assistance project officer training.

- Investigate 100% of Suspension and Debarment matters regarding waste, fraud, abuse and environmental crimes for potential development of cases for recommended action to the Agency's debarring Official.

- Provide basic personnel services, training, outreach and recruitment and employee services.

- Improve customer satisfaction with the delivery of human resources and organizational services by 5% in 1998.

- Develop IRM strategic plans, implement applicable legal mandates, define EPA's architecture and set IRM policy, provide efficient and cost-effective systems.

- Establish a Year 2000 Center of Excellence.

- Test the Partnership 2000 Prototype in 5 Regions and 5 States.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
02 Obj. Total Change	**$15,605.7**	**30.6**
Environmental Program & Management	$9,657.7	45.9
Envir. Program & Mgmt - Reim	$0.0	(1.0)
Science and Technology	$191.0	0.0
Leaking Underground Storage Tanks	$213.2	0.0
Oil Spill Response	$(0.4)	0.0
Inspector General	$(0.1)	0.0
Hazardous Substance Superfund	$5,544.3	(14.3)

- (+$1,300,000 EPM) The Agency will enhance and expand the Agency's existing grants management systems. By linking electronic commerce, system integration and programmatic accountability, we will increase the efficiency of the grants and program management processes, improve

customer service, expand our information sharing capacity, improve GPRA tracking and enhance the Agency's ability to partner with our grantee community.

- (+$1,000,000 EPM) The Agency will focus on assessing and addressing the issues facing the current workforce and on identifying and meeting the workforce challenges of the future. The Agency will examine the skills and competencies of the current workforce, the skill gaps that currently exist, and the requirements of future jobs. EPA will also develop and complete a nationwide workforce assessment and implement a workforce training and development program.

- (+$2,210,000 EPM, +$4,906,300 SF) The Agency will establish the new Planning Analysis and Accountability (PBAA) system, streamline budget and financial processes, and upgrade major financial systems. Also the Agency will implement the first phase of the accountability process; conduct a minimum of ten PBAA workshops to build Agency and stakeholder capacity; collect and analyze comparative analyses of environmental programs; enhance the Agency payroll system (EPAYS); enhance the Superfund Cost Recovery Package and Imaging On-line System (SCORPIOS); and automate the Bankcard payment system.

- (+$2,390,600 and 33 FTE EPM) Reflects a shift, as a result of an OPPE reorganization, from Goal 7, Expansion of Americans' Right to Know About Their Environment, for GPRA and management accountability activities.

Key Performance Measure	**1998**	**1999**
Accountability system is developed and ready to implement	9/3098	-
Accountability system captures 100% of key EPA performance measures	-	9/30/99
Agency payroll and related systems Year 2000 compliant	-	3/31/99
Implement Small Purchase Electronic Data Interchange at purchasing sites	-	27 sites
Eliminate close-out backlog of non-construction grants that ended 10/1/90-9/30/95	-	100%
EPA systems in compliance with Year 2000 corrective action plan	100%	100%
Electronic grant award available in all regions	-	100%

Conclusion

The Agency will manage an integrated planning, budgeting, financial management, and accountability process to ensure effective stewardship of Agency resources. This process will meet the statutory requirements of GPRA, CFO, and related legislation and improve EPA's ability to manage for results. In addition, EPA will continue to provide core budget, financial, and resource management services essential to the Agency's achievement of its environmental goals and objectives.

EPA's strategic direction over the next five years is focused on improving the products and services provided to our customers. In 1999 the Agency intends to build on the accomplishments expected in 1998 and provide an improved level of management services, administrative support and operations. Specifically, expectations at the program level are:

Development of the first phase of an Agency-wide accountability system to identify and report on performance and resource information. Initiation of analyses to incorporate scientific data and information into the Agency's PBAA process and program evaluations to assess progress toward strategic goals and objectives. Preparation of protocols and guidance for risk analysis of objectives and sub-objectives across offices and programs, and develop the Agency's first Annual Performance Progress Report.

The restructuring and automation of the Agency's overall budget process. The development of cost accounting capability to enable Agency managers and stakeholders to know the full cost of Agency programs and the resources associated with achievement of environmental results.

The implementation of an electronic commerce system to result in reductions in purchasing lead time, as well as, labor and cost savings. These efforts combined with the implementation of performance-based contracting and enhanced training, will allow EPA to significantly improve the quality and timeliness of the services we provide.

Correction of grant management material weaknesses to allow the Agency to strengthen and improve overall fiscal integrity. Streamlining administrative responsibilities and redirecting resources will enable EPA to operate in a more efficient manner. In 1999, the design and development of the Integrated Grants Management System will be completed and ready for implementation in 2000. These accomplishments highlight our efforts to provide the highest quality of service and support to our customers.

To improve the services we provide our customers in order to define our strategic direction for the next 5 years. This goal will be achieved by identifying standards, measuring satisfaction and delivering a high level of service. In addition, progress in streamlining and automation will allow us to emphasize three key

areas: human resource consulting; workforce development; and organizational effectiveness.

The delivery of services in a more effective and efficient manner will be achieved through implementation of the Information Technology Management Reform Act (ITMRA/Clinger-Cohen Act). Implementation of the requirements outlined in ITMRA/Clinger-Cohen Act, in hand with current reinvention activities, will lead to a greater return on information resource management investments. Prudent investments and more effective project oversight will provide a better level of support to the Agency's environmental protection infrastructure. In addition, benefits expected include the strengthening of records management, security and other stewardship services. These efforts will ensure that we achieve an improved level of timeliness and quality in the delivery of our products and services.

The end result of the Year 2000 project will support Agency programs and Regions to become Year 2000 compliant by developing or revising EPA guidance, procedures, and an information exchange structure as well as by preparing recommendations for addressing Year 2000 system analyses and modifications. Additionally, the success of this program will be documented through a certification process to ensure that mission critical assets are Year 2000 compliant. The P2000 project will advance Agency priorities such as Reinvention, eliminate or greatly reduce the paper processing burden, provide accessible information through the use of the "information highway," and enhance accountability by measuring accomplishments.

Key Performance Measures Verification

The Agency has attempted to develop measures which adequately reflect program goals and objectives. These measures emphasize quantifiable aspects of program processes, incorporating realistic program outputs and outcomes. The Agency recognizes the importance of verifying the validity of performance measures and indicators. Consequently, efforts are planned and currently underway to ensure that measures accurately reflect and support our assumptions. An important first step in this process has been the undertaking of a Customer Service survey to measure customer satisfaction. The results of this survey will provide us with a framework by which to validate and revise many of our assumptions. As the process evolves, the program output and outcome data provided will allow us to refine both our measures and our supporting information management system. Many of the key measures are verifiable through quantitative means. The measures are output oriented and actual outputs or products will be counted or verified.

The Office of the Chief Financial Officer has developed validation methods for key performance measures for 1998 and 1999. One 1998 key performance measure is that the "Accountability System is developed and ready to implement." To verify whether this performance measure has been met, we will evaluate and document whether all components of the Accountability System have been fully developed and tested; whether all policies, procedures and guidance related to use of the Accountability System have been developed, approved, and promulgated; and whether all appropriate Agency personnel have been trained in policy, procedures and processes related to use and application of the Accountability

System. To validate the results of this performance measure, we will evaluate and document whether the Accountability System achieves all development standards established in the planning phase. The other OCFO Fiscal Year 1998 key measure relates to Year 2000 compliance. To validate the performance measure "Agency financial management system is Year 2000 compliant in time to achieve invisible processing of financial transactions," we will conduct independent testing and evaluation to demonstrate results of systems programming changes on the processing of financial transactions.

In 1999, the key Accountability System measure is that the "Accountability System captures 100% of key EPA performance measures." To verify and validate this measure, we will evaluate and document whether the Accountability system contains a complete and accurate set of key EPA performance measures articulated in the Agency's Annual Plan. There is also a key 1999 performance relating to Year 2000 compliance: "Agency payroll and all related systems are Year 2000 compliant in time to achieve invisible processing of payroll transactions." To validate this performance measure, we will conduct independent testing evaluation to demonstrate results of systems programming changes on the processing of payroll transactions.

Statutory Authority

Civil Service Reform Act of 1978

Clinger-Cohen Act

Chief Financial Officers Act

Federal Financial Management Improvement Act of 1996

Federal Managers Financial Integrity Act of 1982

Competition in Contracting Act

Contract Disputes Act

Federal Grant and Cooperative Agreement Act

Federal Records Act

Federal Claims Collection Act

Paperwork Reduction Act of 1995

Government Performance and Results Act of 1993

Objective #3: Building Operations, Utilities and New Construction

OARM will provide the Agency with a quality work environment that considers employee safety and security, building operations, utilities, facilities, new construction, repairs and pollution prevention within Headquarters as well as nationwide.

Overview

This objective supports the Agency's goal for Effective Management through the construction of new facilities, and the design and establishment of state-of-the-art laboratories. These facilities provide the tools essential for researching innovative solutions to current and future environmental problems and enhancing our understanding of environmental risks.

The Agency provides a wide range of facilities management and safety, health and environmental management policies, procedures and services to EPA customers. The facilities operations include rent paid to GSA and others; space utilization; preventive maintenance of existing space; security and property management; printing services; postage and mail management services; transportation services; Agency recycling; and health, safety and environmental compliance activities, including medical monitoring, audits, and training. The Agency is requesting $262,035,200 for these activities.

New construction activities include real property acquisition and management, and modification of existing space. New construction also includes project management of the Agency's major construction activities including the new headquarters project and the consolidated laboratory at Research Triangle Park, as well as design and construction of replacement laboratories. The Agency is requesting $32,000,000 for the RTP project in 1999 and $40,700,000 in advanced appropriations in 1999, and $15,945,300 for the new headquarters project in 1999.

The repairs and improvement request for 1999 is $15,428,000 to provide for engineering studies, design, and construction costs related to the repair and improvement of buildings occupied by the EPA. The Agency will address critical repairs related to employee health and safety, and will ensure that the Agency's facilities are in compliance with environmental statutes. EPA will also invest in energy and water conservation improvement, and support alterations related to moves and program required changes as well as emergency repairs and maintenance for laboratory facilities. A major activity includes the decommissioning of the Annapolis and Beltsville labs, an investment of $2,000,000. Decommissioning of real property from EPA will assure EPA's compliance with prudent facilities management practices, as well as meet our environmental liabilities by complying with all requirements of the Community Environmental Response Facilitation Act (CERFA) which assures the property is returned with no contaminants present.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 03 Building Operations, Utilities and New Construction	**$367,905.0**	**$331,959.5**	**$299,921.3**
Environmental Program & Management	$184,611.4	$180,174.4	$202,350.0
Building and Facilities	$141,420.0	$109,420.0	$52,948.0
Leaking Underground Storage Tanks	$723.3	$711.1	$723.3
Oil Spill Response	$511.7	$511.7	$511.7
Inspector General	$1,967.6	$1,977.8	$1,955.4
Hazardous Substance Superfund	$37,186.8	$37,680.3	$39,948.7
Hazardous Substance SF-IG	$1,484.2	$1,484.2	$1,484.2
Total FTE	155.4	155.4	154.9

1999 Annual Performance Goals

- Continue renovation of the new Headquarters complex by completing 100% buildout of the Ariel Rios north building and 50% of the Interstate Commerce Commission/Customs building, and move 47% of EPA personnel from vacated spaces to the new consolidated complex.
- Complete at least 50% of construction of the consolidated research lab at Research Triangle Park in North Carolina.
- Improve space management by vacating 41,463 square feet of surplus space in 1999.
- Ensure that adjusted office space utilization rate is in compliance with OMB Directive of 135 square feet per person.
- Conduct health and safety audits at 13 EPA facilities to ensure facility compliance with standards.
- Implement energy conservation and pollution prevention at three EPA labs.
- Occupy new consolidated laboratory in Fort Meade.

In 1999, the Agency will continue to provide the best service possible to EPA customers including real property acquisition and management; security services; postage and mail management services; and other operational support that will ensure a quality work environment. Additionally, EPA will develop and implement internal safety, health and environmental management policies and program models, and provide technical assistance and training to EPA field employees to ensure the Agency meets all statutory and regulatory requirements.

The Agency will ensure employee safety at our federal facilities by maintaining the security standards set by the President's Memorandum on Security Standards. EPA's laboratory construction, office renovation, and repair and improvement projects support pollution prevention and energy efficiencies that will lead to a safe, quality work environment. EPA will make capital investments in two major construction projects -- the new Headquarters Project and the Consolidated Laboratory at Research Triangle Park (RTP), North Carolina. It is essential to the Agency's mission that our infrastructure be maintained to provide a safe, environmentally efficient workplace.

In keeping with the Agency's efforts to provide all employees with a quality work environment that is safe, healthy, and secure, our highest priority for 1999 is to continue progress on the renovation of nearly 750,000 square feet of space in two buildings included in the Agency's housing plan -- the ICC-Customs and Ariel Rios buildings. Adjacent to these buildings, the Agency will also be moving into additional space as a result of the acquisition of the Wilson Building.

To ensure the Agency's compliance with prudent facilities management practices, as well as meet environmental liabilities, EPA will invest in the decommissioning of real property at the Annapolis and Beltsville labs from the Agency. By performing due diligence at sites that EPA will vacate, the Agency removes any environmental liability that might have resulted from its operations.

1998 Annual Performance Goals

- Complete 50% buildout of the Ariel Rios phase of the new Headquarters project, complete 90% of construction at Ft Meade, and complete 20% of construction of the consolidated lab at Research Triangle Park.

- Provide a healthy and safe workplace at the optimum utilization rate while promoting better space management and environmental efficiencies.

- Complete 100% upgrade of security as required by the Department of Justice to comply with the Presidential Memorandum on security at Federal buildings.

- Conduct audits of Safety, Health and Environmental Management Programs at thirteen EPA locations in 1998.

- Integrate energy conservation and pollution prevention into EPA's facilities management practices to protect human health and the environment. We will streamline purchases, minimize waste and maximize usage.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
03 Obj. Total Change	**$(32,038.2)**	**(0.5)**
Environmental Program & Management	$22,175.6	3.4
Building and Facilities	$(56,472.0)	0.0
Leaking Underground Storage Tanks	$12.2	0.0
Inspector General	$(22.4)	0.0
Hazardous Substance Superfund	$2,268.4	(3.9)

- (+$17,577,000 EPM, +$2,480,400 SF, +$12,200 LUST) New space which is expected to come on line in 1999 in headquarters, regional, and field offices. In addition, the funds will cover anticipated GSA and Direct Lease rate increases. The Agency has successfully curbed the rate of growth in this account and will continue to aggressively pursue opportunities to reconfigure space to reduce our inventory and to reduce costs.

- (+$2,567,300 EPM, +$793,000 SF) The Agency will make an investment for the relocation to the New Headquarters buildings. The single largest component of this request is for the telecommunication costs to conform to EPA's ISDN and local area network standards. As is the case with any consolidation, telecommunications costs are the Agency's responsibility.

- (+$2,500,000 B&F) An investment will allow the agency to complete the tenant alterations in the renovated buildings at the new Headquarters complex which are necessary to accommodate the "special spaces" such as computer rooms, telecommunication center, education center, hearing rooms, cafeteria, public dockets, and other agency specific needs necessary to effectively use the space.

- (+1,770,700 EPM, +$97,000 SF) Additional resources needed for utility rate increases in remote laboratory locations and to cover security contract rate increases.

- (-$58,000,000 B&F) Funding for the RTP project will be reduced from $90,000,000 in 1998 to $32,000,000 in 1999 allowing the construction of the main facility to stay on schedule. This phase includes the main laboratory and office complex, as well as site utilities and roadways. This level of funding also provides start-up funds to begin construction of the second phase of the High Bay Building (HBB), the National Computer Center (NCC) and the Child Care Center (CCC). Construction of the HBB will begin early in 1999, and procurement of the NCC and CCC will commence.

  $40,700,000 is requested in advanced appropriations for 2000 to complete the main facility, and to complete the construction of the HBB, CCC and NCC.

- (-$700,000 EPM) A disinvestment of the one time costs associated with the completion of the President's Security Enhancement Initiative resulting from the Oklahoma City bombing.

- (+$2,000,000 B&F) An investment for the decommissioning of the Annapolis and Beltsville labs. Funds are needed to ensure compliance with prudent facilities management practices, as well as to meet our environmental liabilities.

- (-$2,000,000 B&F) A disinvestment (one time cost) as a result of completion of the alternative fuels dispensing project in Ann Arbor, MI.

Key Performance Measures	1998	1999
Provide additional security enhancements at regional facilities	-	10 regions
Agency adjusted office space utilization rate does not exceed:	-	135 sq ft/person
Evaluate facilities for weakness reducing health & safety audit findings & lost time due to accidents	-	30% reduction
Improve efficiency & reduce energy consumption in EPA labs	-	3 labs
Complete Lab Construction at Ft. Meade	80,100 Sq Ft	89,000 Sq Ft
Construction of new RTP building	20%	50%
Complete buildout of Ariel Rios building	130,000 Sq Ft	260,000 Sq Ft
Continue buildout of ICC building	10%	50%
Comply with Presidential Memo-Security level II & III	100%	-

Conclusion

EPA continues major initiatives to correct deficiencies in the Agency's infrastructure as well as deliver a wide range of quality services designed to enhance our employees' working environment. Ongoing and proposed new construction includes the renovation of two historical buildings in the EPA headquarters housing plan and the construction of the consolidated facility at RTP. The RTP main facility construction is scheduled for completion by January, 2001. With 1999 funding to start the remaining phase of the campus, and continuation in 2000, the High Bay Building will be completed concurrently with the main facility. The National Computer Center and Child Care Center are targeted for completion by mid 2001. Additionally, EPA will continue the repair and improvement programs at our existing laboratories which, in 1999, will include the decommissioning of two laboratory facilities. The program also provides a safe and healthy work environment for EPA employees by upgrading and modifying current facilities to more adequately and efficiently address the Agency's changing programs.

Key Performance Measures Verification

The Agency has attempted to develop measures which adequately reflect program goals and objectives. These measures emphasize quantifiable aspects of program processes, incorporating realistic program outputs and outcomes. The Agency recognizes the importance of verifying the validity of performance measures and indicators. Consequently, efforts are planned and currently underway to ensure that measures accurately reflect and support our assumptions. As the process evolves, the program output and outcome data provided will allow us to refine both our measures and our supporting information management system.

Statutory Authority

Public Buildings Act

Federal Property and Administrative Services Act

V.A., H.U.D., and Independent Agencies Appropriations Act

Objective #4: Regional Management Services and Support

The Regions will continue to provide the management services, infrastructure support and facility operations necessary for the Agency to achieve its environmental mission, and meet its fiduciary and workforce responsibilities.

Overview

This objective provides the means and capability for the Regions to accomplish their mission and carry out their responsibilities. It includes the resources needed to select and train the workforce; provide for the physical space they work in and tools necessary to perform their jobs; and manage the Regions' resources. The Agency will accomplish the goals of this objective through aggressive streamlining of processes; providing user-friendly, innovative technology; and implementing the General Accounting Office's (GAO) information resources management's best practices in support of the goals of the Information Technology Management Reform Act (ITMRA). The Agency is requesting $108,189,100 in 1999 for this objective.

EPA is committed in 1999 to improve performance in a number of areas and we have established specific performance goals for each of the management and facilities services. The Regions need the right people with the right skills and experiences to successfully accomplish its mission. This workforce needs basic support as well as training to maintain and enhance job skills. This objective includes management services such as recruitment, training, employee services, and organizational consulting and advising.

Resources are essential to both the Regions and our partners in the States and Tribes in accomplishing the Agency's mission. This objective also includes the proper and effective management of these contracts and grants resources. To be effective and efficient, the regional workforce needs a wide range of infrastructure tools and services, including support for telecommunications and mission-critical information systems.

The Agency will ensure a safe and effective work environment and provide for records management, library services, copying, mailroom services, and general office and safety supplies. Management of the Regions' physical space, tools, and administrative services is also accounted for in this objective.

These activities are vital to the operation of the Regional offices, and consequently, to the Agency's ability to achieve its mission and to meet its statutory and fiduciary responsibilities.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 04 Regional Management Services and Support	**$110,769.2**	**$107,103.7**	**$108,189.1**
Environmental Program & Management	$80,167.9	$75,559.0	$77,208.2
Leaking Underground Storage Tanks	$310.4	$296.7	$310.4
Oil Spill Response	$27.9	$35.8	$26.2
Inspector General	$619.2	$619.2	$582.5
Hazardous Substance Superfund	$29,643.8	$30,593.0	$30,061.8
Total FTE	610.8	596.8	601.8

1999 Annual Performance Goals

- Implement an automated human resources management system.
- Implement the Phase I - Integrated Grants Management System (IGMS) award module in all grants management offices.
- Implement GAO best practices for information resources management.

The Agency's goal to achieve the requirements of the Government Performance and Results Act (GPRA) and to strengthen accountability through performance-based management systems will put increasing demands on the program managers to have the right people with the right skills and experiences. The Regional human resources offices intend to meet this challenge and develop measures to determine customer satisfaction with human resources services. The other key piece in this effort will be to clearly understand customer service values and expectations, and the human resources offices in the Regions intend to undertake efforts to identify and define these.

The Agency maintains the quality and timeliness of the Regional human resources services while increasing the usefulness of human resources (HR) consulting and advisory services, innovation, and support for organizational change. Human resource processes will be streamlined and strengthened through automation initiatives as established by the Agency and implemented in the regions. These improvements will permit a shift of emphasis towards a proactive, consultative role that supports EPA programs ($12,046,200).

The Agency will maintain effective contracts management while improving contracts tracking, information dissemination, analysis and records management through the use of functional data systems enhancement. Performance Partnership Grants will be awarded to states that want to participate and grants staff will continue to provide technical assistance through the Management Assistance Program (MAP) review process, as well as participate with program staff in the formulation of Regional/State priorities and result-based measures. Grants staff

will utilize available information systems and electronic grant processes, as development of these systems come on-line ($18,045,500).

By the year 2003, the Agency will satisfy all relevant GAO best practices for IRM services and stewardship through the implementation of Agency processes, procedures, best practices, benchmark studies, performance measurement reviews, tools and service standards. The Agency has a significant effort underway to streamline and automate work processes--Regional IRM services will coordinate the implementation of these projects.

Efforts will be supported to improve the Agency's mission-critical environmental information systems, to include more information (such as ecosystems assessment, and ambient environmental data) needed by citizens and regional, state, tribal and local governments to make informed decisions. Approaches to application improvement will include Rapid Applications Development and Deployment (RADD) and data warehousing. The Regional IRM offices will also be undertaking efforts to clearly understand customer service expectations and will be developing standards and using them to measure effectiveness.

Continued support will be provided for a wide range of facility and administrative services needed to support the Agency's mission and programs. These include: library services, records management, copy center, mail room, safety and health services; GSA fleet and property management; and other facilities management services ($78,097,400).

1998 Annual Performance Goals

- Establish baseline measures for EPA employee customer satisfaction with administrative management services.
- Establish baseline measures for EPA employee customer satisfaction with IRM services.
- Develop Regional human resources EPA employee customer service survey.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
04 Obj. Total Change	**$1,085.4**	**5.0**
Environmental Program & Management	$1,649.2	5.0
Leaking Underground Storage Tanks	$13.7	0.0
Oil Spill Response	$(9.6)	0.0
Inspector General	$(36.7)	0.0
Hazardous Substance Superfund	$(531.2)	0.0

- (+$1,748,200 EPM, +$13,700 LUST, -$854,800 SF, -$36,700 IG, -$9,600 OIL) Additional resources of $860,800 will be used in support of regional infrastructure, such as utilities, security, and regional moves, and ADP infrastructure.

- ($335,600 EPM and 5 FTE) The Agency will invest in grants management assistance to tribes to protect the fiscal integrity of grant resources and meet Tribal requests for training and technical and program assistance. These resources will help address high-priority environmental problems where Tribes have not yet built the capacity to address these problems themselves.

Conclusion

The Regions will operate management activities in a way that addresses the high-priority needs of program operations. Well-run, effective human resources management; contracts and grants management; and infrastructure will assist the Regions in meeting their program obligations and responsibilities.

Key Performance Measures Verification

The Agency has attempted to develop measures which adequately reflect program goals and objectives. These measures emphasize quantifiable aspects of program processes, incorporating realistic program outputs and outcomes. The Agency recognizes the importance of verifying the validity of performance measures and indicators. Consequently, efforts are planned and currently underway to ensure that measures accurately reflect and support our assumptions. An important first step in this process has been the undertaking of a Customer Service survey to measure customer satisfaction. The results of this survey will provide us with a framework by which to validate and revise many of our assumptions. As the process evolves, the program output and outcome data provided will allow us to refine both our measures and our supporting information management system.

Statutory Authority

Civil Service Reform Act of 1978

V.A., H.U.D., and Independent Agencies Appropriations Act

Clinger-Cohen Act

Paperwork Reduction Act Amendments of 1995

Federal Records Act

Objective #5: Provide Audit and Investigative Products and Services

Provide audit and investigative products and services all of which can help EPA accomplish its mission.

Overview

The Federal Government's Inspectors General developed an Inspector General Vision Statement which the Inspector General (IG) has adopted as its own: "We are agents of positive change striving for continuous improvement in our Agency's management and program operations, and in our own offices." The IG's mission is prescribed in the Inspector General Act of 1978, as amended, which requires the Inspector General to: (1) conduct and supervise audits and investigations relating to programs and operations in the Agency; (2) provide leadership and make recommendations designed to (I) promote economy, efficiency, and effectiveness and (ii) prevent and detect fraud and abuse in Agency programs and operations; and (3) fully inform the Agency Head and the Congress about problems and deficiencies identified by the Office of Inspector General (OIG) relating to the administration of Agency programs and operations. The OIG's general goals are to: (1) help EPA achieve its environmental goals by improving the performance and integrity of EPA programs and operations, by safeguarding and protecting the Agency's resources, and by clearly reporting the results of our work; (2) foster strong working relationships; and (3) operate at the highest performance level.

In carrying out its environmental mission, EPA administers billions of dollars of government programs, making it vulnerable to various financial abuses. The OIG's primary role is to independently and objectively review EPA's financial transactions, program operations, contracts, and administrative activities; investigate allegations and indications of criminal and civil violations; and promote cost-effective Agency operations. A strong, effective OIG is an essential partner with the Agency, helping identify needed improvements, prevent waste of scarce resources, and maintain the integrity of the Agency's programs. The total request for this objective is $39,916,800.

Through program, contract, assistance agreement, and financial statement audits, the OIG provides the Agency with objective evaluations and constructive advice and recommendations which reduce risk, improve service delivery, and promote accountability. These audits allow the Agency to make better use of its resources by ensuring it pays for only what it receives. Fraud and abuse weaken Agency programs, erode public confidence in these programs, and subvert EPA's mission. Investigations are vital in detecting and deterring fraud and abuse, promoting cost-effective programs, and helping ensure the integrity of contractors and employees, thereby reducing risk. Investigative results include criminal prosecutions, civil actions, fines, civil recoveries, suspensions, debarments, and systemic improvements. The OIG seeks the greatest return on its investment for the Agency. Our reinvention initiatives and administrative reforms are increasing our organizational performance, and our strategic work

plans address the Agency's most significant risks, improve its accountability, and assist Agency management in meeting its goals.

The OIG audits EPA's environmental programs to evaluate their economy, efficiency, and effectiveness and to determine if they are operating in accordance with applicable laws and regulations. OIG's focus is primarily on issues based on their relative risk, materiality, and importance to EPA's mission; other audits are conducted in response to Congressional or Agency requests.

Program Audits - Determine the extent to which the desired results or benefits envisioned by the Administration and Congress are being achieved, reviews the economy, efficiency and effectiveness of operations, and determines the extent of compliance with applicable laws and regulations.

Financial Statement Audits - Review of the Agency's financial systems and statements to ensure that the Agency's accounting information is accurate, reliable and useful, and complies with applicable laws and regulations. Our objective is to assist EPA in making improvements in the financial management processes and controls which will provide better information for decisions promoting the greatest possible environmental results.

Assistance Agreement Audits - Audits of EPA's Construction Grant Program, State Revolving Fund, Performance Partnership Grants, Interagency Agreements and Cooperative Agreements, which provide assistance to state, local and tribal governments, universities and nonprofit recipients accounting for about half of EPA's budget. The OIG will audit both the financial and performance aspects, building on the Single Audit Act and focusing on resource-intensive, high-risk programs.

Contract Audits - Audits of Agency indirect cost proposals, preaward, interim and final contracts. These audits determine the eligibility, allocability, and reasonableness of costs claimed by contractors and assure that EPA pays only for what it requests and receives. EPA has assumed audit cognizance of 15 major contractors and will continue to monitor the contract universe to identify high-risk contractors. In addition, the Defense Contract Audit Agency provides contract audit services, on a reimbursable basis (paid for with OIG funds), at the majority of EPA's contractors.

The OIG investigates alleged fraud, waste, abuse, or other illegal activities by EPA employees, contractors, and grantees. A variety of investigations are worked; they result in referrals for criminal prosecution and civil actions, indictments, convictions, fines, restitutions, civil recoveries, suspensions, debarments, other administrative actions, identification of systemic vulnerabilities, improvements in programs and operations, and/or savings or economic benefits. Fraud-awareness briefings are held to increase the awareness of integrity issues throughout the Agency.

Program Integrity Investigations - Investigations of activities that could undermine the integrity of Agency programs concerning safety and public health, and erode public confidence in the Agency. These

cases are initiated in response to allegations or may be self-initiated in high-risk areas where there is reasonable suspicion of fraud.

Assistance Agreement Investigations - Investigations of criminal activities related to Agency grants, State Revolving Fund, Interagency Agreements and Cooperative Agreements, which provide assistance to state, local and tribal governments, universities and nonprofit recipients. Collectively these programs account for about half of EPA's budget.

Contract and Procurement Investigations - Investigations involving acquisition management, contracts and procurement practices. The OIG will specifically focus on cost mischarging, defective pricing, and collusion on EPA contracts. The decentralized nature of EPA contracting, the complexity of Agency contracting and the lack of a central vendor and subcontractor data base increases the Agency's vulnerability to fraud.

Employee Integrity Investigations - Investigations involving allegations against EPA employees that could threaten the credibility of the Agency. *Employee integrity* investigations are conducted to maintain the integrity of EPA personnel.

The OIG will plan, control and report on the use of available resources, prepare clear, accurate, timely, and independent reports to the Administrator, Congress and the public to provide better accountability for the Agency, information for policy and action, and a factual summary of the OIG's work and its value to the Agency and taxpayers. The OIG will develop computer applications to provide fast, economical information to reduce OIG costs and increase our value; technology is one the OIG's primary means to implement administrative reforms and apply a greater percentage of staff to direct mission objectives. The OIG will help the Agency prevent and reduce the risk of loss and impropriety through timely and responsive reviews of personnel backgrounds and employment suitability, employee complaints, and legislation and regulations.

Strategic Planning, Execution and Reporting - Develop strategic and performance plans, budgets, and reports in compliance with the GPRA that clearly link all resources to organizational objectives and results. Provide sound fiscal controllership to ensure accountability for effective decision making and the best application of resources to meet mission objectives. Also, the OIG will perform activities relating to the IG Act reporting requirements and communication with Congress and the Administrator, and leadership activities of the Immediate Office of the IG.

Program Management, Fraud Prevention and Personnel Security - Provide a fully-staffed, highly-qualified, and culturally-diverse workforce supported by appropriate and efficient administrative services to maximize application of OIG staff time on direct mission work. Promote employee and contractor awareness to improprieties and deter possible fraud and wrongdoing, and encourage employees and the public to report possible instances of fraud, waste and mismanagement. Review and evaluate Agency and related legislation and regulations to identify possible weakness, duplications, risks

and opportunities for improvements and savings, and initiating background investigations and National Agency Checks of current and prospective EPA employees and contractors to determine if security requirements are met to protect the integrity of the EPA programs and operations.

Information Resources Management - Ensure development, acquisition, implementation, application and management of comprehensive technical information resources providing better, cheaper and faster communications and product quality, improving OIG efficiency and its value to the Agency.

Working Capital Fund - Provide the necessary computing, communications and postage services to OIG staff.

Overall, the OIG sees its mission as identifying not only problems, but also solutions. The OIG will do this through its audits and investigations, as well as by providing advisory and assistance services at the request of Agency management. The OIG is developing strong partnerships with EPA managers in working toward the common goals of improving the efficiency of EPA operations and providing more effective delivery of environmental programs. The OIG is working closely with the Agency's partners, such as state agencies, to ensure proper implementation of major assistance programs. With Congressional and Administration emphasis on operating with fewer resources, the OIG will continue to increase our efficiency, effectiveness, and accountability.

Objective by Appropriation
(Dollars in Thousands)

	1998 Pres Bud	1998 Enacted	1999 Pres Bud
Obj. 05 Provide Audit and Investigative Products and Services	**$36,617.8**	**$36,564.6**	**$39,916.8**
Environmental Program & Management	$619.7	$576.0	$619.7
Inspector General	$25,841.0	$25,831.8	$28,544.0
Hazardous Substance SF-IG	$10,157.1	$10,156.8	$10,753.1
Total FTE	402.4	377.4	401.2

1999 Annual Performance Goals

- In 1999, the Office of Audit will provide objective, timely, independent auditing and consulting services by completing and initiating more audit assignments, such as 15 construction grant closeout audits, reducing the average time of assignments, and dedicating more resources to consulting services.

- In 1999, the Office of Investigations will increase its effectiveness in detecting and deterring fraud and other improprieties by increasing the

number of assistance agreement and contract cases, improving the percentage of cases resulting in referrals for action, reducing the average time for case completion, and conducting more fraud awareness briefings.

- In 1999, the Program Support Staff will support OIG performance by effectively planning, applying and reporting to Congress fiscal, human and technical resources use, and by facilitating the redirection of two OIG-wide FTE to direct mission objectives.

Agency program audits will be performed to determine the extent to which desired results or benefits envisioned by the Administration and Congress are being achieved. The OIG will audit areas of high risk, materiality, and importance in accomplishing the EPA mission, and ensure adequate safeguards over Agency resources. Specifically, the OIG will focus on the following areas.

Superfund - Legislative audit requirements include an annual trust fund audit, an annual audit of response claims, audits of a sample of state cooperative agreements, and technical reviews of cleanup decisions. In addition to the mandatory financial audits, the OIG will audit the Agency's management of the Superfund program. Further, as the Agency expands Superfund activities to carry out the President's commitment to accelerate cleanups, the OIG will review EPA's Superfund efforts to accelerate cleanup of the Nation's worst toxic waste sites.

Hazardous Waste - The OIG will audit the success of the program to date and seek improvements which could make the program more effective.

Information Resources Management (IRM) - The OIG will continue to audit the IRM program because it utilizes a significant part of EPA's budget and plays a major role in tracking the Agency's resources.

Water Quality - The OIG will audit the clean water program because of continued water pollution problems and the significant resources that are being expended to improve pollution control in this area.

Performance Measures - The OIG will audit performance measures to determine if controls are in place to ensure that the Agency accurately reports its expenditures and related accomplishments.

Toxic Substances - The OIG will determine if the Agency is adequately protecting the public and the environment from the risks associated with the manufacture, use and disposal of all commercial toxic chemicals.

The OIG will audit EPA's financial statements as required by the Government Management and Reform Act, and Trust Funds such as Superfund and LUST as required by the Chief Financial Officers Act. These audits test the accuracy of the Agency's financial systems and statements to ensure that EPA's accounting information is reliable and useful, and complies with applicable laws and regulations; and evaluate internal and management controls. Our objective is to assist EPA to improve financial information which managers use to make environmental program decisions.

The OIG's assistance agreement audits will focus on EPA's Performance Partnership Grants, State Revolving Funds, Construction Grants Program, Interagency Agreements and Cooperative Agreements. These agreements, which provide assistance to state, local, and tribal governments as well as universities and nonprofit recipients, account for about half of EPA's budget. The OIG will audit both the financial and performance aspects, building on the Single Audit Act and focusing on resource intensive, higher risk programs which constitute approximately 70 percent of the total funds for assistance programs.

The OIG will continue to audit contracts to determine the eligibility, allocability, and reasonableness of costs claimed by a contractor and assure that EPA pays only for what it requests and receives. The OIG has assumed audit cognizance of 15 major contractors, and will provide contract services for all Federal contracts at these companies. In addition, the Defense Contract Audit Agency provides contract audit services, on a reimbursable basis (paid for with IG funds), for the majority of EPA's contractors. GAO issued a report in February 1997 concluding that the Agency remains vulnerable to overpaying its contractors and not achieving the maximum cleanup work with its limited resources and that it needs to increase the timeliness of audits. GAO specifically recommended that EPA and the OIG identify and request the resources required to reduce the large backlog of contract audits within a reasonable time and improve the timeliness of audits.

Program and employee integrity investigations will focus on Agency environmental program and employee activities that could undermine the integrity of Agency programs concerning safety and public health, and erode public confidence in the Agency. Program integrity cases are initiated in response to allegations or are self-initiated in high-risk areas where there is reasonable suspicion of fraud. Employee integrity cases involve allegations against EPA employees for illegal, unethical, or other conduct which could threaten the credibility of the Agency.

As part of a new initiative to uncover criminal activity in the awarding and delivery of EPA assistance agreements, the OIG will increase investigations of criminal activities related to Agency grants, State Revolving Funds, Interagency agreements and cooperative agreements. These programs, which provide assistance to state, local and tribal governments, universities and nonprofit recipients, collectively account for about half of EPA's budget.

The OIG will continue to investigate contract and procurement practices. Specifically, the OIG will focus on cost mischarging, defective pricing, and collusion on EPA contracts. The decentralized nature and complexity of EPA contracting and the lack of a central vendor and subcontractor data base increases the Agency's vulnerability to fraud.

The OIG will increase its efforts to establish strong working relationships with state and local law enforcement officials and environmental program officials. In addition, the OIG will provide fraud awareness briefings to Agency staff as well as state, local, and other Federal officials to foster strong working relationships and a customer-oriented organization.

1998 Annual Performance Goals

- In 1998, the Office of Audit will provide objective, timely, independent auditing and consulting services by completing and initiating more audit assignments, such as 15 construction grant closeout audits, reducing the average time of assignments, and dedicating more resources to consulting services.

- In 1998, the Office of Investigations will increase its effectiveness in detecting and deterring fraud and other improprieties by increasing the number of assistance agreement and contract cases, improving the percentage of cases resulting in referrals for action, reducing the average time for case completion, and conducting more fraud awareness briefings.

- In 1998, the Program Support Staff will support OIG performance by effectively planning, applying and reporting to Congress fiscal, human and technical resources use, and by facilitating the redirection of one OIG-wide FTE to direct mission objectives.

1999 Change from 1998 Enacted
(Dollars in Thousands)

	Dollars	FTE
05 Obj. Total Change	**$3,352.2**	**23.8**
Environmental Program & Management	$43.7	0.0
Inspector General	$2,712.2	15.6
Hazardous Substance SF-IG	$596.3	8.2

- ($2,712,000 IG, $596,300,00 SF, 24 FTE) Total payroll costs for this objective will increase to fully fund the workforce.

Key Performance Measures	1998	1999
Potential monetary value of recommendations, questioned costs, savings and recoveries as resulting from audits.	$138.5M	$118.5M
More timely IG recommendations made and actions taken to improve economy, efficiency and effectiveness of operations and environmental programs resulting from audits.	57 Recommendations	57 Recommendations

Monetary value of fines, recoveries, judgments, settlements, restitutions and savings resulting from investigations.	$4.0M	$4.2M
Judicial, administrative and other actions taken to enforce law, reduce or avoid risk resulting from investigations.	51 actions	52 actions
Complete construction grants closeout audits	15 audits	15 audits

Conclusion

The OIG has adopted the Federal Government's Inspectors General March 1994 Vision Statement which states, "We are agents of positive change striving for continuous improvement in our agency's management and program operations, and in our own offices." The OIG is a key component of achieving the Agency's *Effective Management* goal, by continuing to focus on promoting economy, efficiency, and effectiveness and identifying and preventing fraud, waste, abuse, and mismanagement in EPA programs and operations. The OIG is finding new ways to work more cost-effectively, and the work of the OIG is also becoming less compliance-oriented and more directed toward helping the Agency meet its environmental goals using sound and economical approaches. These changes will increase the OIG's value to the Agency in accomplishing its goal of *Effective Management*. Ultimately, this will help EPA achieve its mission; increase the economy, efficiency, and effectiveness of EPA operations; and reduce the risk of fraud, waste, abuse and mismanagement.

Key Performance Measures Verification

The primary source of key performance measure data for the Office of Audit (OA) is the Prime Audit Tracking System (PATS). The reports generated by PATS are used by OA management to monitor progress, workload assignments, and the general productivity of the office. Specifically, PATS provides detailed listings of audits and reports, personnel time data, summary financial information, and quantifiable results. Headquarters and divisional OA personnel are the users of PATS and are responsible for entering data in accordance with the PATS Handbook. Each user must verify that the data has been accurately reported in the system. System security is maintained by limiting access through the use of passwords. The accuracy of data in PATS is subject to daily internal management review and independent reviews by the Management Assessment Review team (within the Program Support Staff) and a peer review team from another Federal Office of Inspector General.

The primary source of key performance measure data for the Office of Investigations (OI) is the OI Management Information System. The reports generated by this system are used by management to evaluate productivity by tracking the number of cases open and closed, personnel time charges, judicial and administrative actions (such as indictments, convictions, suspensions and debarments, sentencing or personnel actions), and financial information to

include fines, recoveries, judgments, settlements, restitutions, and savings. Divisional personnel are responsible for entering data on personnel time charges and verifying that these charges are accurately reflected in the system. An investigative information specialist in Headquarters monitors data entered by divisional personnel and enters information on case openings and closings, judicial and administrative actions, and financial information. Management accountability reports are prepared and sent to Headquarters desk officers and divisional personnel for review and verification. System security is maintained by limiting access through the use of passwords. The accuracy of data in the OI system is also subject to independent review by the Management Assessment Review team (within the Program Support Staff).

The primary sources of key performance measure data within the Program Support Staff are the EPA Integrated Financial Management System (IFMS)and the EPA Budget Planning System. The IFMS generates the information necessary to prepare annual operating plans and monthly status of funds reports which are used by management to effectively and efficiently use available resources. This system provides detailed information on operating plan projections as well as expenditures and remaining balances by account and budget object class. The BPS contains budget development information which is used by management to estimate future budget needs and to implement the requirements of the Government Performance and Results Act. Data is entered in IFMS and BPS by both OIG and Agency personnel who are responsible for verifying that the information is accurately reflected. System security is maintained through the use of passwords. The accuracy of data in the IFMS and BPS are subject to audit by the EPA Office of Inspector General and the General Accounting Office.

The Office of Inspector General is currently developing an integrated management information system called the Inspector General Operations and Reporting System (IGOR) in conjunction with correcting the Year 2000 problem to recognize four-digit dates. IGOR will consolidate and upgrade the functions of several existing systems and integrate management and performance data, including project cost accounting.

Statutory Authority

Inspector General Act of 1978, as amended

Special Analysis

Special Analysis **SA-1**
EPA User Fees Program SA-1
Non-Appropriated Funds SA-3
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EPA USER FEE PROGRAM

In 1999, EPA has five (5) user fee programs in operation and is proposing four (4) additional user fee programs. These user fee programs are as follows.

USER FEES CURRENTLY BEING COLLECTED

- **Motor Vehicle and Engine Compliance Program Fee**

  This fee is authorized by the Clean Air Act of 1990 and is managed by the Office of Air and Radiation. Fee collections began in August 1992. This fee is imposed on manufacturers of light-duty vehicles, light and heavy trucks, and motorcycles. It covers the cost of certifying new engines and vehicles and monitoring compliance of in-use engines and vehicles. In 1999, EPA expects to collect over $8.8 million from this fee.

- **Radon Proficiency and Testing Fee**

  In 1994, the Office of Radon Programs developed two fees, one for training radon abatement contractors and the other for certifying radon measurement devices. These two fees are specifically authorized by the Indoor Radon Abatement Act and are designed to recover EPA's cost of its radon training and certification programs. In 1999, EPA expects to collect $.3 million from these two fees.

- **Pesticide Reregistration Maintenance Fee**

  The 1998 amendments to the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) mandated accelerated reregistration of all pesticide products registered prior to November 1984. Congress authorized the Agency to collect two kinds of fees - Pesticide Reregistration Fees and annual Pesticide Maintenance Fees. The Pesticide Reregistration Fee expired in 1992. The Agency continues to collect Pesticide Maintenance Fees, which are deposited into the non-appropriated Reregistration and Expedited Processing Revolving Fund (FIFRA Fund). Pesticide Maintenance Fees are assessed on the manufacturers of active ingredients used in pesticide products based on the manufacturer's market share. The Food Quality Protection Act of 1996 (FQPA) extended Pesticide Maintenance Fees through 2001 and increased the cap on fees by $2.0 million. EPA expects to collect $16.0 million from this fee in 1999.

- **Pesticide Tolerance Fee**

  A tolerance is the maximum legal limit of a pesticide residue in and on food commodities and animal feed. In 1954, the Federal Food, Drug, and Cosmetic Act (FFDCA) authorized the collection of fees for the establishment of tolerances on raw agricultural commodities and in food commodities. These fees supplement annual appropriated funds for EPA's Tolerance Program and are also deposited into the FIFRA Fund. Annually the fees are adjusted by the percentage change in the Federal employee General Schedule (GS) pay scale. EPA expects to collect $2.0 million from these fees in 1999. The FQPA mandates that EPA must require the payment of such fees as will in the aggregate, be sufficient to provide, equip, and maintain an adequate service for establishing tolerances. The Agency plans to reevaluate fees to recover the full cost of tolerance determinations as directed by the FQPA. In 1999, EPA will promulgate the needed rules to increase tolerance fees to ensure that the tolerance

setting process will be as self-supporting as possible. EPA expects these rules to take effect in FY 2000.

- **Pre-manufacture Notice Fee**

  Since 1989, this fee has been collected for the review and processing of new chemical Pre-Manufacture Notices (PMN) submitted to EPA by the chemical industry. They are paid at the time of submission of the PMN for review by EPA's Office of Prevention, Pesticides and Toxic Substances. PMN fees are authorized by the Toxic Substances Control Act and contain a cap on the amount the Agency may charge for a PMN review. EPA expects to collect $3.0 million in PMN fees in 1999.

USER FEE PROPOSALS

- **Pesticide Registration Fee**

  The Agency will work to implement the Pesticide Registration Fees authorized by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and U.S.C. 9701 "Fees and Charges for Government Services and Things of Value." The Agency expects to collect $16 million in 1999 from the reinstatement of pesticide registration fees that Congress suspended through 2001. Under this proposal, the Agency would collect $16,000,000 in 1999. Through such fees, manufacturers of new pesticide products share the cost of ensuring that authorized uses of these products do not pose an unreasonable risk to human health or the environment. Pesticides registration fees will be deposited into a special fund in the U.S. Treasury to be available to the Agency, subject to appropriation, to cover the cost of issuing the registrations.

- **Resource Conservation and Recovery Act(RCRA) Fees**

  The Agency will work to implement the Omnibus Budget Reconciliation Act of 1990 which requires EPA to assess fees for services. Among the potential fees being reviewed, EPA is assessing the feasibility of requiring a fee for processing hazardous waste export notifications and RCRA handler notifications. Initial revenue projections from these fees by the Administration have totaled approximately $3.0 million annually.

- **National Pollution Discharge and Elimination System (NPDES) Fee**

  EPA will finalize a regulation to collect non-refundable fees for developing, issuing, and modifying NPDES permits. These fees will be collected for selected EPA-issued NPDES permits and will be charged when a draft permit is issued for new facilities and modified permits are issued for existing facilities.

- **Pre-manufacture Notice Fee**

  The Agency is proposing appropriations language to raise the existing Pre-manufacture Notice (PMN) fees to allow the Agency to cover the full cost of the PMN program. This language would modify the current statutory cap in the Toxic Substances Control Act on the total fee that EPA is allowed to charge. Under the current fee structure, the Agency will collect $3,000,000 in FY 1999. The Agency expects to collect an additional $8,000,000 in FY 1999 from this increase. The increase in PMN fees will be deposited into a special fund in the U.S. Treasury, available to the Agency, subject to appropriation.

NON-APPROPRIATED FUNDS

OVERVIEW

Non-appropriated funds are monies which pay for discreet Agency activities supported by fees which do not require an appropriation. The Environmental Protection Agency (EPA) has two accounts for such non-appropriated funds. These are 1) the Reregistration and Expedited Processing Revolving Fund and 2) the Revolving Fund for Certification and Other Services.

The 1988 amendments to FIFRA required the Agency to review and reregister all pesticides that were registered before November 1984. To supplement appropriated funding for the Pesticide Registration Program, two types of fees were established on the pesticide industry, Federal, state and local governments: (1) a Reregistration Fee and (2) an annual Maintenance Fee. Fee receipts are deposited into the Reregistration and Expedited Processing Revolving Fund available to EPA without annual appropriation. For this reason, EPA does not request dollars from this fund, commonly called the "FIFRA Fund", in the annual President's Budget. The Reregistration Fee expired in 1992, but Maintenance Fees will continue until 2001. From 1999 to the year 2000, $16,000,000 in annual Maintenance Fees will be collected and in the year 2001, $14,000,000 will be collected. EPA continues to fund part of the Pesticide Reregistration Program through its annual appropriations.

The Federal Food, Drug and Cosmetic Act (FFDCA) of 1963 requires EPA to establish tolerance levels and exemptions for pesticide residues on raw agricultural commodities. Under section 408 of FFDCA, the Agency is authorized to collect fees to recover the costs of processing petitions for these pesticide tolerances. The fees are paid by companies/registrants requesting establishment of a permanent or temporary pesticide tolerance at the time of the request and work is not begun until verification of the fees receipt is made. Fee receipts, until 1997, were deposited into the Revolving Fund for Certification and Other Services, commonly called the "Tolerance Fund" which are available to EPA without an annual appropriation. With enactment of the Food Quality Protection Act of 1996, fee receipts are now deposited into the Reregistration and Expedited Processing Revolving Fund. These fees are increased annually based on the pay raise increase for Federal General Service (GS) employees. In 1999, the Agency expects to collect $2,000,000 in Tolerance Fees.

PROGRAM AND ACTIVITY HIGHLIGHTS

Reregistration and Expedited Processing Revolving Fund

In 1999, estimated fee collections will be $18,000,000. Beginning in 1997, this non-appropriated revolving fund includes $2,000,000 in new tolerance fees collected under the Food Quality Protection Act of 1996, plus the collection of the annual Pesticide Maintenance Fees. In 1999, EPA will promulgate the needed rules to increase tolerance fees to ensure that the tolerance setting process will be as self-supporting as possible. EPA expects these rules to take effect in FY 2000.

The Agency's emphasis on pesticide reregistrations will continue in 1999 and is reflected in the appropriated budget request to complete forty-two (42) Reregistration Eligibility Decisions. As information gathered through the reregistration process continues to be reviewed, EPA expects that some pesticides

will meet the triggers for Special Reviews. The projected number of Special Reviews for 1999 is eight.

The Agency continues to establish tolerances for pesticide residues in or on food for feed crops in the United States under The Food Quality Protection Act of 1986. The Agency expects to conduct 95 tolerance petition actions in 1999.

Revolving Fund for Certification and Other Services

The Food Quality Protection Act of 1996 requires new tolerance fees be deposited into the Registration and Expedited Processing Revolving (FIFRA) Fund. In 1999, tolerance fees are no longer deposited in the Revolving Fund for Certification and Other Services. The Agency expects to outlay the remaining fund balance in FY98.

WORKING CAPITAL FUND

In 1999, the Agency begins its third year of operation of the Working Capital Fund (WCF). A WCF is a revolving fund authorized by law to finance a cycle of operations, where the costs of goods and services provided are charged to the users on a fee-for-service basis. The funds received are available without fiscal year limitation, to continue operations and to replace capital equipment. EPA's WCF was implemented under the authority of Section 403 of the Government Management Reform Act of 1994 and EPA's FY97 Appropriations Act. Permanent WCF authority was contained in the FY98 Appropriations Act.

The Chief Financial Officer and the Office of the Comptroller initiated the WCF in FY97 as part of their effort to: (1) be accountable to Agency offices, the Office of Management and Budget, and the Congress; (2) increase the efficiency of the administrative services provided to program offices; and (3) increase customer service and responsiveness. The Agency has a WCF Board which provides policy and planning oversight and advises the CFO regarding the WCF financial position. The Board is chaired by the Deputy CFO.

Two Agency services, begun in FY97, will continue into FY99. These are the Agency's computer center and telecommunications operations, managed by the Enterprise Technology Services Division (ETSD), Research Triangle Park, North Carolina and Agency postage costs, managed by the Office of Administration, Washington, DC. The Agency's 1999 budget request includes resources for these two activities in each National Program Manager's submission, totaling approximately $119 million. These estimated resources may be increased to incorporate program office's additional service needs during the operating year. To the extent that these increases are subject to Congressional reprogramming notifications, the Agency will comply.

THE CUSTOMER SERVICE PROGRAM AND ITS GOALS

EPA has been seeking ways to provide better customer service for several years, and developed a formal centralized activity after President Clinton signed Executive Order 12862, "Setting Customer Service Standards," in 1993. The Office of Policy, Planning, and Evaluation provides staff support and chairs EPA's Customer Service Steering Committee (CSSC), the management group that provides policy guidance and leadership for the Customer Service Program (CSP). The goal of the CSP is to improve the Agency's ability to achieve its mission of protecting public health and the environment by more efficiently and effectively serving the public, industry, state and local agencies, and other customers.

To guide the Agency in achieving this goal, EPA developed a Customer Service Plan in September 1995, and adopted Six Rules of Customer Service that apply to all the work of the Agency as well as eight sets of process-specific customer service standards to cover the activities that provide the majority of services to EPA customers. The different services are permitting, rulemaking, enforcement & compliance assistance, partnership programs, public access, research grants, state/tribal and local grants, and pesticides registration. The Six Rules address professionalism (courtesy, flexibility, honesty, and active listening leading to improved services), telephone service (respond by close of business the next day, and/or give an accurate referrals), correspondence response (within 10 work days or provide an interim response), public involvement (seek ideas from customers on our policies, rules and programs), information access and clarity (provide information that is clear, easy to access and understand, in formats that meet customers needs), and dealing with partners in service delivery (relationships of cooperation, helpfulness and flexibility). By 2003, if the CSP is fully successful, all EPA staff should be meeting the customer service standards that apply to their work and have received any training necessary to assist them to achieve the standards.

The Importance of Improving Customer Service

Achieving improved customer service is central to reinventing government. Customer focused agencies will better meet the needs of those they serve. EPA's Customer Service work will establish stronger connections between our employees and their customers, encourage and gather customer input on what our customers need and value, and how to do our work better. Listening to customers articulate their needs and opinions will help us shift our focus to products and services, their outcomes and values to the public, away from the number of transactions and activities to the quality and value produced by them. Over time, shifting to a customer focus will help us reduce dissatisfaction with government and reduce rework as we learn more about and then meet the needs of customers. With our focus on customers, we will be able to better define what we can do best and what others can do better to satisfy customers. In essence, good customer service is important because it promotes activities that build efficiency in meeting environmental goals and build public trust in government.

What Improved Customer Service Will Achieve

When EPA becomes a more customer focused agency, staff will seek ways to improve their personal skills such as pro-active listening, problem solving and negotiation, we will have better personal and program evaluation and measurement tools, and will recognize opportunities to learn from our partners and customers. With customers as our focus, we can better plan for and execute improvements in

communication and information access systems, and appropriately train EPA staff to be fully responsive to customer needs. As we improve relationships with our regulatory partners, the public, industry, states, recipients of permits and registrations, and others, we can expect to reduce complaints, increase trust in the Agency, and improve EPA staff moral. The CSP requires minimal resources to produce measurable benefits.

Strategies for Accomplishing the Objectives

The Customer Service strategy is centered upon the five objectives:

- helping all EPA employees understand the importance and substantial benefits of improving service to the public;
- providing employees with goals and guides for that improvement (the Six Rules and eight sets of process standards) and involving them in identifying and attempting to eliminate barriers to achieving standards (core process improvement groups);
- providing training to build staff capacity to achieve the standards and effectively apply customer service skills;
- developing measurement and tracking systems to document improvements in service; and
- learning what we need to do to increase satisfaction with our services and improve our treatment of customers.

To achieve these five objectives, the CSP is working with many individuals across the Agency and several contractors. Customer Service Coordinators in all Regions and Offices are disseminating information about the standards, their potential impact and the importance of their implementation and achievement. Many Offices and Regions have established working groups to assist the Coordinators to increase awareness of the standards, the potential for improvement, training opportunities, and methods to measure improvement.

A customer service skills training program was launched in January 1998, after EPA employees were trained to teach the course work. There is an overview course called "Forging the Links" which provides the framework and philosophy of customer service excellence at EPA, and clearly connects providing excellent service to achieving the Agency's mission of protecting public health and safeguarding the natural environment, as it underscores the ties between EPA employees and their customers -- both external and internal. In addition, six other customer service skills units are available through EPA trainers across the Agency. These courses will provide helpful, hands-on tools for improving customer service. Further, customer service video programs are available on loan from the CSP, and several organizations are holding brown bag lunch sessions to share the videos with interested staff.

Surveys will continue to be used to obtain customer feedback, and their results will be widely shared with employees so they can better meet customer needs. Offices and Regions plan to conduct over three hundred surveys of external customers annually during the next three years. The responses should be very useful to managers in their reinvention work. In addition, internal surveys will continue to gather staff opinions and suggestions on how best to improve service to employees. Survey software will assist more organizations to do surveys and analyze and report results to managers so positive, customer

driven changes can be made. A work group was formed late in 1997 and charged with the development of Customer Satisfaction Feedback and Measurement Guidelines for Agency wide use once approved by the CSSC.

Valuable feedback is also provided in customer complaints. Complaints handling procedures across the Agency will be documented during FY 1998. Best practices will be shared and recommendations for improvements will be provided to the CSSC and managers across the Agency.

In addition, through a network of other Federal agencies and outstanding customer service organizations in the private sector, the CSP will use benchmarking to identify, adopt and adapt customer service best practices to EPA's processes. Benchmarking has already proven to be useful to EPA in the areas of training, survey development, telephone service and standards.

The CSP will periodically report progress in achieving customer service standards to Agency senior managers. Representatives of all eight processes and coordinators for each Region and Headquarters Office may provide information for use in the reports.

Expected Results

Through the CSP, EPA expects to increase customer satisfaction with the Agency's overall performance, build staff capacity to meet and exceed customer service standards and customers' expectations, build stronger partnerships, and better achieve our mission. When they understand the needs of customers, EPA employees will provide better services to the general public and their specific customers, including each other. Service delivery improvements will translate into a higher degree of public trust in EPA.

Performance Measures

The Agency is committed to meeting the Six Customer Service Standards and the standards for the different core process within the agency. Performance measures are being established, and Guidelines for Customer Satisfaction Feedback and Measurement should help those planning surveys to improve their ability to obtain comparable and actionable results. Over 40 customer service surveys have been performed throughout the Agency and many more are planned. These surveys provide those offices involved with the feedback on what is important to customers and how work processes can be improved. The customer service staff, with contractual support and cross-Agency groups, will establish a system to effectively measure progress as the standards become an integral part of the daily habits and activities of EPA staff.

GOAL 1: CLEAN AIR

NSPS: Nitrogen Oxide Emissions From Fossil-Fuel Fired Steam Generating Units--Revision

Anticipated Costs and Benefits: We have not yet completed a cost/benefit analysis; we have estimated costs at $81 million with the benefits only qualitatively addressed. These benefit categories include acute and chronic morbidity, mortality, ecosystem damage, reductions in agricultural and forestry yields, visibility degradation, and materials damage.

The current NSPS for electric utility and non-utility steam generating units were promulgated in 1979 and 1986, respectively. A major feature of the NSPS is NOx control through the use of low NOx burners or overfired air. Section 407 of the Clean Air Act requires the EPA to revise existing NSPS for NOx emissions from fossil-fuel fired steam generating units, including both electric utility and non-utility units. These revised standards are to reflect improvements in methods for the reduction of NOx emissions.

EPA proposed revisions to the NSPS on July 9, 1997. The revision was based on the performance of selective catalytic reduction for NOx control. For the proposed rulemaking, the Agency estimated total annual costs of $81 million (1995 dollars).

Integrated NESHAP and Effluent Guidelines: Pulp and Paper

Anticipated Costs and Benefits: The capital investment costs of complying with the integrated rules are estimated to be approximately $1.8 billion, with total annualized costs of approximately $277 million (including operation and maintenance and capital costs). While EPA is not able to monetize all the benefits of the regulations, the categories that are monetized result in benefits ranging from -$727 million due to an increase in emissions of some pollutants to +$1,496 million per year. In addition, the non-monetized benefits include reductions in hazardous air pollutants, total reduced sulfates, carbon monoxide, and nitrogen oxides.

The Clean Air Act (CAA) Amendments of 1990 direct the Environmental Protection Agency (EPA) to set National Emission Standards for Hazardous Air Pollutants (NESHAP) for new and existing sources under section 112 and to base these standards on maximum achievable control technology (MACT). The Clean Water Act (CWA) directs EPA to develop effluent guidelines for certain categories and classes of point sources. These guidelines are used for setting discharge limits for specific facilities that discharge to surface waters or municipal sewage treatment systems. For the pulp and paper industry, EPA is developing an integrated regulation that includes both effluent guidelines and air emission standards to control the release of pollutants to both the water and the air. The regulations are being developed jointly to provide greater protection to human health and the environment, to promote the concept of pollution prevention, and to enable the industry to more effectively plan compliance via a multimedia approach. This Regulatory Plan entry also includes RIN 2040-AB53, Effluent Guidelines and Standards for the Pulp, Paper, and Paperboard Category, reported in full in Part III of this issue of the Federal Register.

The integrated NESHAP and Effluent Guidelines were approved by OMB in October 1997 and signed by the EPA Administrator on November 14, 1997. Promulgation of the integrated rule in the Federal Register is expected to occur in late February 1998.

NAAQS: Sulfur Dioxide (Review and Implementation)
Anticipated Costs and Benefits:

On November 15, 1994, the Environmental Protection Agency (EPA) proposed not to revise the existing 24-hour and annual primary standards. The EPA sought public comment on the need to adopt additional regulatory measures to address the health risk to asthmatic individuals posed by short-term peak sulfur dioxide exposure. On March 7, 1995, EPA proposed implementation strategies for reducing short-term high concentrations of sulfur dioxide emissions in the ambient air. On May 22, 1996, EPA published its final decision not to revise the primary sulfur dioxide NAAQS. The notice stated that EPA would shortly propose a new implementation strategy to assist States in addressing short-term peaks of sulfur dioxide. The new implementation strategy -- the Intervention Level Program -- was proposed on January 2, 1997. Final action on the Intervention Level Program is anticipated in May, 1998.

NESHAP: Integrated Iron and Steel
Anticipated Costs and Benefits: We have not yet done a cost/benefit analysis.

The Clean Air Act, as amended November 1990, requires the EPA to regulate categories of major and area sources of hazardous air pollutants (HAP). The EPA has determined that integrated iron and steel mills emit several of the 189 HAP listed (including compounds of chromium, lead, manganese, toluene, and polycyclic organic matter) in quantities sufficient to designate them as major sources. As a consequence, integrated iron and steel facilities are among the HAP-emitting source categories selected for regulation.

NESHAP for Industrial, Commercial and Institutional Boilers and Process Heaters
Anticipated Costs and Benefits: We have not yet done a cost/benefit analysis.

The Clean Air Act, as amended 1990, requires EPA to develop emission standards for sources of hazardous air pollutants (HAPs). Industrial boilers, institutional/commercial boilers, and process heaters are among the potential source categories to be regulated under Section 112 of the CAA. Emissions of HAPs will be addressed by this rulemaking for both new and existing sources. EPA promulgated an NSPS for these source categories in 1987 and 1990. The standards for the NESHAP are to be technology-based and are to require the maximum achievable control technology (MACT) as described in Section 112 of the CAA. This standard is part of the Industrial Combustion Coordinated Rulemaking.

Industrial Combustion Coordinated Rulemaking -- ICCR Project
Anticipated Costs and Benefits:

The EPA is developing combustion related regulations for five source categories. The source categories are: combustion turbines, internal combustion engines, industrial/ commercial/ institutional boilers, process heaters, and solid waste incinerators burning non-hazardous waste. Some of these projects are listed separately in this section. These regulations are being developed under sections 111, 112, and 129 of the CAA. Sections 111 and 129 require maximum achievable control technology (MACT) floors and MACT levels to be determined. MACT standards apply to both new and existing facilities. Section 111 requires the development of new source performance standards (NSPS). These regulations apply to new, modified and reconstructed sources and do not apply to existing sources. These source categories are wide spread and one or more of these source

categories are located at virtually every manufacturing and chemical plant in the US. Section 112 standards apply to a list of 189 hazardous air pollutants (HAPs); section 129 standards apply to nine pollutants (dioxin and furans, mercury, cadmium, lead, particulate matter and opacity, sulfur dioxide, hydrogen chloride, oxides of nitrogen, and carbon monoxide) which are a combination of HAP's and criteria pollutants; and section 111 applies to criteria pollutants. There is likely to be some regulatory interaction between these source categories since many are located at the same plant site. Therefore EPA considered the option of a coordinated rulemaking where all regulation development proceeded along the same time line. EPA also wanted early and continuing stakeholder input. A coordinated participatory rulemaking offers benefits to all stakeholders including: the opportunity for stakeholders to shape regulatory development, more cost effective regulations, avoidance of duplicative or conflicting regulations, simpler regulations, compliance flexibility, EPA and stakeholder resource savings in rule development, and an improved scientific basis for regulations.

GOAL 2: CLEAN AND SAFE WATER

NPDES Storm Water Phase II Rule
Anticipated Costs and Benefits:

The recently proposed NPDES storm water phase II rule establishes a permitting program to regulate contaminated storm water discharges from small municipal separate storm sewer systems in urbanized areas and small construction sites (between one and five acres). There are some waivers built into the draft rule, reducing or eliminating application requirements where there is little or no environmental impact. For the rulemaking components that have been proposed, the Agency estimated total annual costs ranging from $131 million to $494 million (1997 dollars). The Agency has continued to receive a wide range of comments through various public forums and expects that there will be revisions; however, the magnitude of those revisions has not been determined. The types of benefits associated with the proposed rule include both monetized and non-monetized benefits based on improvements to water quality and reduced human health risks. Estimated annual monetized benefits for positive financial impacts, recreational, and health related benefits ranged from $65 million to $495 million (1997 dollars) annually. This estimate of benefits understates the true benefits, as the Agency is unable to monetize all of the other expected benefits.

Effluent Guidelines - Industrial Laundries
Anticipated Costs and Benefits:

The proposed effluent guidelines rule for the industrial laundries industry would limit the discharges of pollutants into waters of the United States and into publicly owned treatment works (POTWs) by establishing pretreatment standards for existing sources (PSES). The proposed rule would benefit the environment by removing toxic pollutants that have adverse effects on human health and aquatic life. The standards would also reduce potential interference with POTW operations. The proposed PSES limitations would reduce the discharge of pollutants to POTWs by approximately 158 million pounds per year, which would then result in reduced discharges of 27 million pounds of pollutants per year to waters of the U.S. EPA estimates that these pollutant reductions would provide several types of benefits: reduced incidences of cancer, recreational improvements, and avoided sewage sludge disposal costs for POTWs. EPA estimates annual benefits in the range of $2.6 million to $9.6 million (1993 dollars). Other benefits that are expected, but have not been expressed in monetary terms,

include reduced noncancer health effects, reduced administrative costs to develop local limits, improved aesthetic quality of water bodies near laundries, tourism benefits, and biodiversity benefits. The estimated total annual social cost for the standards is $126.1 million (1993 dollars), which incorporates capital costs of $425 million and annual operating and maintenance costs of $78 million.

National Primary Drinking Water Regulations: Radon
Anticipated Costs and Benefits:

In 1991 EPA proposed a maximum contaminant level goal (MCLG) and a maximum contaminant level (MCL) for radon and other radionuclides in drinking water. The proposed rule included a total annual cost estimate of $272 million per year to treat radon in drinking water. The regulated industry estimated higher costs than EPA, e.g., the American Water Works Association estimated a national cost of $2.5 billion per year. As a result of this major difference in costs as well as other radon-related issues, Congress, through appropriations language, prohibited EPA from issuing a final regulation on radon in drinking water.

The 1996 Amendments to the Safe Drinking Water Act require EPA to withdraw the Agency's 1991 proposed radon standards (MCLG and MCL) and to issue a proposed rule by August, 1999. Consequently, the Agency is currently developing standards for radon in drinking water that will incorporate the best available science, treatment technologies, occurrence data, cost/benefit analysis, and stakeholder input. In addition, the National Academy of Sciences (NAS) is undertaking a radon risk assessment that is scheduled to be completed by the summer of 1998. The NAS study will provide significant data for the anticipated costs and benefits of the proposed rule.

National Primary Drinking Water Regulations: Ground Water Disinfection (GWD)
Anticipated Costs and Benefits:

The protection of human health from microbial illness attributed to drinking water involves both surface water and ground water sources of drinking water. This proposed regulation focuses exclusively on ground water sources not under the direct influence of surface water. The GWD rule's focus is to reduce microbial contamination risk from public water systems relying on ground water. To determine if treatment is necessary, the rule will establish a framework to identify public water supplies vulnerable to microbial contamination and to develop and implement risk control strategies including, but not limited to, disinfection. The structure of the proposed rule is a series of barriers to microbial contamination. The proposed barriers are source water protection and vulnerability assessment; assessment and maintenance of the well, treatment facility and distribution system; disinfection where necessary, and monitoring. From a public health perspective, the GWD rule will reduce both endemic levels and outbreaks of illness. The economic impact analysis for this rule is taking all these components, as well as the public health consequences, into account. These analyses are still under development and information will not be released until appropriate stakeholder involvement and consensus has been reached.

National Primary Drinking Water Regulations: Stage 1 Disinfectant/Disinfection Byproducts Rule
Anticipated Costs and Benefits:

The proposed regulation for Stage 1 Disinfectant/Disinfection Byproducts is intended to expand existing public health protections and address concerns

regarding risk trade-offs between pathogens and disinfection byproducts. This rule and the Interim Enhanced Surface Water Treatment Rule were proposed in 1994 as a result of formal regulatory negotiations. The Agency estimated total annualized costs of approximately $1.1 billion each year (1992 dollars). Estimates of benefits range from $400,000 to $8.0 billion per year related to the estimated 1-10,000 cancer cases avoided per year.

The Agency has received extensive public comments on the cost estimates as well as other major aspects of the rule. As a result of these comments and the deadlines mandated in the 1996 Amendments to the Safe Drinking Water Act, EPA established a committee under the Federal Advisory Committee Act to assist in revising the proposal. The Microbial/ Disinfection Byproducts Committee met from March through July 1997 to discuss, evaluate and provide advice on data, analysis, and approaches to the Notice of Data Availability (NODA), which the Agency plans to issue in the fall of 1997. Revised cost-benefit data are under development and will be included in the NODA.

National Primary Drinking Water Regulations: Interim Enhanced Surface Water Treatment Rule
Anticipated Costs and Benefits:

The proposed regulation for Interim Enhanced Surface Water Treatment is intended to expand existing public health protections and address concerns regarding risk trade-offs between pathogens and disinfection byproducts. This rule and the Stage 1 Disinfectant/Disinfection Byproducts Rule were proposed in 1994 as a result of formal regulatory negotiations. The Agency estimated total annualized costs of approximately $393 million each year (1992 dollars). Estimates of benefits range from $1.2-$1.5 billion per year related to the estimated 400,000-500,000 cases of infections from micro-organisms (e.g., giardia) avoided per year.

The Agency has received extensive public comments on the cost estimates as well as other major aspects of the rule. As a result of these comments and the deadlines mandated in the 1996 Amendments to the Safe Drinking water Act, EPA established a committee under the Federal Advisory Committee Act to assist in revising the proposal. The Microbial/ Disinfection Byproducts Committee met from March through July 1997 to discuss, evaluate and provide advice on data, analysis, and approaches to the Notice of Data Availability (NODA), which the Agency plans to issue in the fall of 1997. Revised cost-benefit data are under development and will be included in the NODA.

GOAL 4: PREVENTING POLLUTION IN COMMUNITIES, HOMES, WORKPLACES AND ECOSYSTEMS

Selected Rulemakings for Abating Lead Hazards
Anticipated Costs and Benefits:

For rules promulgated under the Residential Lead-Based Paint Hazard Reduction Act of 1992 (Title X) section 406, cost estimates have been provided with the proposed rule, and will be available with the final rule. For sections 402, 404 and 1018 of Title X, the costs have been provided in the final economic impact analysis that was prepared in conjunction with the final rules. For section 403 of Title X, costs will be estimated in a draft economic impact analysis that will be prepared for the proposed rule. Since benefits depend on private sector implementation of certain lead hazard abatement activities which are not mandated by any of these rules, benefits will be difficult to quantify. The Agency plans to conduct analyses to help quantify the benefits.

Pesticides and Ground Water State Management Plan (SMP) Regulation
Anticipated Costs and Benefits:

EPA anticipates four categories of costs entailed in requiring SMPs. Federal program costs are those of administering ground-water protection activities, such as the review of state proposals. State program costs entail both capital and annual costs. Registrant and Pesticide-user Impacts are the economic losses ascribed to the reduced use of the classified pesticides, as well as the costs (to the registrants) of complying with Federal and state provisions. Benefits accrue from the reduced levels of pesticide residues in ground water, and a corresponding reduction in: 1) human and ecological risk; and 2) threats to the economic and intrinsic values of the ground-water resource. Enormous uncertainties accompany the quantification of these benefits, however.

GOAL 5: BETTER WASTE MANAGEMENT, RESTORATION OF CONTAMINATED WASTE SITES AND EMERGENCY RESPONSE

Revised Standards for Hazardous Waste Combustion Facilities
Anticipated Costs and Benefits:

The Environmental Protection Agency's (EPA's) strategy for hazardous waste minimization and combustion and a judicial settlement agreement commit EPA to upgrade its standards for burning hazardous waste in incinerators, boilers, and industrial furnaces. These standards would be applicable during the construction and operation of these combustion facilities. Estimates presented below are based on data, methodology, and findings related to the 1996 Proposed Phase I rule. Estimates may change significantly for the Final Phase I rule as well as for the Final Phase II rule.

EPA's analysis of the April 1996 Proposed Rule indicates that some combustion facilities may experience a substantial change in the cost of burning waste, but that this change is likely to have a limited impact on combustion markets. In terms of effects on waste-burning cost structure, cement kilns and lightweight aggregate kilns (LWAKs) are most affected by the regulation. This is primarily a product of their relatively low baseline costs of burning, meaning that incremental compliance costs represent a large increase in their overall cost of burning waste. For incinerators, compliance costs are lower, represent smaller additions to baseline costs, and change little across regulatory options. The analysis concludes that cement kilns have the lowest average waste burning costs even after regulation, and so will continue to have the greatest flexibility in marketing their services for those wastes that can be burned in kilns.

To the extent that compliance costs cannot be passed through to generators and fuel blenders, the profitability of waste burning in kilns will fall. Nonetheless, waste burning kilns are expected to have healthy operating profit margins after the rule. Market exit in all sectors is concentrated among facilities that burn small quantities of hazardous waste. While as many as 98 combustion facilities may stop burning hazardous wastes as a result of the proposed MACT options, the small quantities these facilities burn suggest that market dislocations will be minor.

Overall, EPA believes the social costs of the rule are balanced by a set of potentially substantial benefits. Given the severity of the potential adverse health effects from dioxin and mercury (cancer, adverse developmental effects in children, and bioaccumulation in ecosystems), EPA believes the substantial

reductions of these pollutants from hazardous waste burning sources under the MACT standard justifies moving ahead with the proposed rule beyond the floor (BTF) option. An alternative way of valuing benefits is the potential increase in property values around closed or more stringently regulated combustion facilities. The fact that this approach also suggests potentially substantial benefits strengthens EPA's belief that the costs of moving forward with the proposed BTF option for certain pollutants and/or source categories are justified.

HWIR Contaminated Media Rule
Anticipated Costs and Benefits:

The Hazardous Waste Identification Rule for contaminated media (HWIR Media), as proposed in April 1996, would give EPA and authorized States the authority to remove certain lower-risk contaminated media from regulation as "hazardous waste" under RCRA. Additionally, the rule would establish modified treatment requirements and modified permitting procedures for higher-risk contaminated media that remain subject to hazardous waste regulations. A final HWIR Media rule, with an accompanying assessment of the anticipated costs and benefits, is scheduled for promulgation in June 1998.

The HWIR Media rule would provide relief from current standards. The proposed rule would affect between 8.1 million tons per year of contaminated media (soil and sediment; ground water is included in the rule but not in this volume estimate) and 10.3 million tons per year (adding old waste and debris), and will provide a cost savings to generators of between $1.2 billion per year and $1.5 billion per year over the next five years. These figures are based on the assumptions that all States quickly adopt the rule, that all eligible waste receives relief under the rule, and that sludges are not included in the scope of the rule. Potential cost savings for generators translate into possible revenue losses for the environmental services industry, as a decrease in commercial hazardous waste management is anticipated to result from the rule. Overall, no small entities are anticipated to incur net costs as a result of the rule.

The rule is anticipated to result in a number of benefits such as faster cleanups, incentives for a greater number of cleanups, and lower administrative costs and avoided delays in cleanup; these benefits were not quantified for the proposed rule.

Corrective Action for Solid Waste Management Units
Anticipated Costs and Benefits:

The Corrective Action Rule for Solid Waste Management Units would provide a broad procedural and protectiveness framework for remediation at RCRA treatment, storage, and disposal facilities. As the majority of States are authorized for corrective action, the program is predominantly implemented at the State level; this rule would provide a Federal baseline with which State programs must comply. The corrective action rule was proposed in 1990, and is scheduled for promulgation in late 1998.

In a 1993 regulatory impact analysis performed on the proposed rule requirements, the agency estimated the costs and benefits of the standards for corrective action. EPA estimated that there are 5,800 active hazardous waste management facilities potentially subject to RCRA corrective action requirements. The total cost for those facilities requiring corrective action is estimated at

$16.7 billion. The costs for three additional regulatory options (two options which are less stringent than the proposed rule requirements, and one which is more stringent) were analyzed in 1995. These regulatory options were designed to cover a range of alternatives including increased containment in place of source control, cleanup of groundwater plumes to the facility boundary instead of the unit boundary, varying future land use assumptions for a site, and alternative media cleanup standards. These options yielded total costs ranging from $9.1 billion and $12.6 billion, for the two options less stringent than the proposal, to $57.3 billion for the more stringent option.

The benefits of the corrective action requirements for the proposed rule were examined in the 1993 regulatory impact analysis. Six benefit categories were addressed in the regulatory impact analysis, including human health risk reduction, averted water use costs, nonuse benefits, effects of facilities on residential property values, and increases in facility values. Ecological threats existing under baseline conditions were also examined. While a host of issues surround these benefit measures and how they compare with the compliance costs, the agency believes that there are strong reasons to move forward with a final rule. Further analyses of the social impacts of a final rule, including analyses that will help the Agency monetize benefits, are planned.

GOAL 7: EXPANSION OF AMERICANS' RIGHT TO KNOW ABOUT THEIR ENVIRONMENT

Data Expansion Amendments, Toxic Chemical Release Reporting, and Community Right-to-Know Rules

Anticipated Costs and Benefits:

The anticipated costs related to these actions are unknown at present, but the FY 1998 cost of compliance to industry from the Toxic Release Inventory (TRI) program is estimated at $384 million. EPA is unable to estimate costs since we are unsure about what data elements need to be added to the TRI and whether this data will even need to be collected or is already available. To the extent that additional sources must provide data, there will be reporting costs for those parties. Benefits in general will result from the information reported in TRI increasing our knowledge of the pollutants released to the environment and their exposure pathways, improving the scientific understanding of health and environmental risks from toxic chemicals. This allows the public to make informed decisions on where to work and live, enhances the ability of corporate lenders and purchasers to accurately gauge a facility's potential liability, and assists Federal, state, and local authorities in making better decisions on acceptable levels of toxics in communities.

Reporting Threshold Amendment, Toxic Chemicals Release Reporting, and Community Right-to-Know Rules

Anticipated Costs and Benefits:

The anticipated costs related to these actions are unknown at present. EPA is still unsure how low to set reporting thresholds or for what specific list of chemicals the lower reporting thresholds should apply. To the extent that additional sources must provide data, there will be reporting costs for those parties. Benefits in general will result from the information reported in TRI increasing our knowledge of the pollutants released to the environment and their exposure pathways, improving the scientific understanding of health and environmental risks from toxic chemicals. This allows the public to make informed decisions on where to work and live, enhances the ability of corporate lenders and purchasers to accurately gauge a facility's potential liability, and

assists Federal, state, and local authorities in making better decisions on acceptable levels of toxics in communities.

Addition of Oil and Gas Exploration and Production to the Toxic Release Inventory Rule

Anticipated Costs and Benefits:

Based on the current status of the project, anticipated costs are unknown. Until further evaluations are performed, estimated benefits cannot be accurately calculated. Generally, anticipated benefits include making available more complete information regarding the release and disposition of toxic chemicals in the environment.

FUNDS FOR AMERICA

The President's Budget proposes several Funds for America in the FY 1999 budget to enhance high-priority, inter-agency programs and initiatives. These Funds support key environmental and research programs through deficit neutral funding mechanisms, including the renewal of taxes that support the Superfund Trust Fund. EPA programs and initiatives are included in both the *Environmental Resources Fund for America* and the *Research Fund for America*.

Environmental Resources Fund for America (dollars in millions)

	FY 1998 Pres Bud	FY 1998 Enacted	FY 1999 Pres Bud
Clean Water SRF	$1,075.0	$1,350.0	$1,075.0
Drinking Water SRF	$725.0	$725.0	$775.0
Clean Water Initiative			
Nonpoint Source Grants	$100.0	$105.0	$200.0
Sec. 106 Water Quality Grants	$95.5	$95.5	$115.5
Wetlands	$15.0	$15.0	$15.0
Sec 104(b)(3) Coop. Agreements	$20.0	$20.0	$19.0
EPM Water Quality Programs	$269.5	$265.6	$299.4
Total Clean Water Initiative	$500.0	$501.1	$648.9
Superfund	$2,094.2	$1,500.0	$2,092.7
Total	**$4,378.2**	**$4,058.3**	**$4,572.4**

Research Fund for America (dollars in millions)

	FY 1998 Pres Bud	FY 1998 Enacted	FY 1999 Pres Bud
Office of Research & Development	$514.2	$538.9	$487.1
Climate Change Technology Initiative	$149.3	$89.4	$205.7
Total	**$663.5**	**$628.3**	**$692.8**

U.S. Environmental Protection Agency
Object Classification
(dollars in millions)

	Account and Object Class	Actuals 1997	Request 1998	Estimate 1998	Request 1999
	Office of the Inspector General				
	Direct Obligations				
	Personnel services	18	21	21	24
21.0	Travel and transportation of persons	1	1	1	1
23.1	Rental payments to GSA	3	3	3	3
25.2	Other Services	2	2	0	1
25.3	Purchase of goods and services from Government Account	3	2	3	2
31.0	Equipment	1	0	1	0
99.0	Subtotal, Direct obligations	28	29	29	31
	Reimbursable Obligations				
	Subtotal, Reimbursable Obligations 1/	10	10	10	11
	Below reporting threshold	2	1	2	1
	TOTAL OBLIGATIONS	40	40	41	43
	Science and Technology				
	Direct Obligations				
	Personnel services	164	174	175	180
21.0	Travel and transportation of persons	5	4	6	4
22.0	Transportation of things	1	1	1	1
23.3	Communications, utilities, and miscellaneous charges	4	4	5	4
24.0	Printing and Reproduction	1	0	1	0
25.1	Advisory and assistance services	5	5	7	5
25.2	Other Services	30	37	166	71
25.3	Purchases of goods and services from Governmment Accoun	32	75	39	75
25.4	Operation and maintenance of facilities	8	0	9	9
25.5	Research and development contracts	53	62	65	62
25.7	Operation and maintenance of equipment	17	0	20	20
26.0	Supplies and materials	9	9	11	9
31.0	Equipment	25	21	31	21
41.0	Grants, subsidies, and contributions	176	178	218	172
99.0	Subtotal, Direct Obligations	530	570	754	633
	Reimbursable Obligations				
	Subtotal, Reimbursable Obligations 2/	58	124	50	50
	Below reporting threshold	1	1	1	0
	TOTAL OBLIGATIONS	589	695	805	683

1/ Reflects Superfund and LUST Inspector General resources transferred into the IG account.
2/ Reflects Superfund Research transferred into the S & T account.

U.S. Environmental Protection Agency
Object Classification
(dollars in millions)

	Account and Object Class	Actuals 1997	Request 1998	Estimate 1998	Request 1999
	Environmental Programs and Management				
	Direct Obligations				
	Personnel services	774	843	822	878
21.0	Travel and transportation of persons	25	25	25	26
22.0	Transportation of things	2	3	2	2
23.1	Rental payments to GSA	112	101	117	131
23.2	Rental payments to others	11	21	11	11
23.3	Communications, utilities, and miscellaneous charges	11	63	11	11
24.0	Printing and reproduction	7	10	7	7
25.1	Advisory and assistance services	36	38	37	37
25.2	Other services	358	470	540	471
25.3	Purchases of goods and services from Government Accoun	76	84	78	78
25.7	Operation and maintenance of facilities	9	0	9	9
25.5	Research and development contracts	2	1	2	2
25.7	Operation and maintenance of equipment	26	0	26	26
26.0	Supplies and materials	11	2	12	12
31.0	Equipment	42	54	42	42
41.0	Grants, subsidies, and contributions	243	171	246	250
42.0	Insurance claims and indemnities	0	1	0	0
99.0	Subtotal, Direct Obligations	1745	1887	1987	1993
	Reimbursable Obligations				
	Subtotal, Reimbursable Obligations	43	81	80	80
	Below reporting threshold	2	0	1	1
	TOTAL OBLIGATIONS	1790	1968	2068	2074
	Buildings and Facilities				
	Direct Obligations				
25.2	Other services	0	13	0	0
25.3	Purchases of goods and services from Government Accoun	0	4	0	0
25.4	Operation and maintenance of facilities	13	0	20	8
32.0	Land and structure	72	121	113	45
41.0	Grants, subsidies, and contributions	0	3	0	0
	TOTAL OBLIGATIONS	85	141	133	53

U.S. Environmental Protection Agency
Object Classification
(dollars in millions)

	Account and Object Class	Actuals 1997	Request 1998	Estimate 1998	Request 1999
	State and Tribal Assistance Grants				
	Direct Obligations				
25.2	Other services	5	0	5	5
25.3	Purchases of goods and services from Government Accoun	12	1	24	12
41.0	Grants, subsidies, and contributions	2280	2792	4534	2886
99.0	Subtotal, Direct Obligations	2297	2793	4563	2903
	Reimbursable Obligations				
41.0	Grants, subsidies, and contributions	6	0	0	0
	Subtotal, Reimbursable Obligations	6	0	0	0
	TOTAL OBLIGATIONS	2303	2793	4563	2903
	Working Capital Fund				
	Reimbursable Obligations				
	Personnel services	5	5	5	5
22.2	Transportation of things	2	0	2	2
23.3	Communications, utilities, and miscellaneous charges	20	13	48	52
25.2	Other services	12	73	12	23
25.7	Operation and maintenance of equipment	53	0	23	35
26.0	Supplies and materials	0	7	0	0
31.0	Equipment	11	2	11	2
	Below reporting threshold	0	1	0	0
	TOTAL OBLIGATION	103	101	101	119

U.S. Environmental Protection Agency
Object Classification
(dollars in millions)

	Account and Object Class	Actuals 1997	Request 1998	Estimate 1998	Request 1999
	Hazardous Substance Superfund				
	Direct Obligations				
	Personnel services	223	272	229	267
21.0	Travel and transportation of persons	10	23	9	11
22.0	Transportation of things	1	0	1	1
23.1	Rental payments to GSA	29	29	30	33
23.2	Rental payments to others	3	5	3	5
23.3	Communications, utilities, and miscellaneous charges	2	5	2	5
24.0	Printing and reproduction	1	1	1	1
25.1	Advisory and assistance services	8	28	8	28
25.2	Other Services	281	492	1044	697
25.3	Purchases of goods and services from Government Accoun	550	793	505	593
25.4	Operation and maintenance of facilities	3	0	2	2
25.5	Research and development contracts	3	11	3	11
25.7	Operation and maintenance of equipment	6	0	6	6
26.0	Supplies and materials	4	4	3	4
31.0	Equipment	19	13	17	13
41.0	Grants, subsidies, and contributions	143	335	131	335
42.0	Insurance claims and indemnities	8	11	7	11
99.0	Subtotal, Direct Obligations	1294	2022	2001	2023
	Allocation Account				
	Personnel services	23	27	25	22
21.0	Travel and transportation of persons	2	1	2	2
22.0	Transportation of things	1	0	1	1
23.1	Rental payments to GSA	2	1	2	1
24.0	Printing and reproduction	2	0	2	2
25.2	Other services	18	19	20	18
26.0	Supplies and materials	1	0	1	1
31.0	Equipment	2	1	2	2
41.0	Grants, subsidies, and contributions	21	19	24	21
	Subtotal, Allocation Account	72	68	79	70
	Subtotal, Reimbursable Obligations	391	230	250	250
	Below reporting threshold	2	4	0	0
	TOTAL OBLIGATIONS	1759	2324	2330	2343

U.S. Environmental Protection Agency
Object Classification
(dollars in millions)

	Account and Object Class	Actuals 1997	Request 1998	Estimate 1998	Request 1999
	L.U.S.T. Trust Fund				
	Direct Obligations				
	Personnel services	5	6	5	5
21.0	Tavel and transportation of persons	0	1	0	0
23.1	Rental payments to GSA	1	1	1	1
25.2	Other services	1	1	3	1
25.5	Research and development contracts	0	0	1	1
41.0	Grants, subsidies, and contributions	51	61	56	63
99.0	Subtotal, Direct Obligations	58	70	66	71
	Below reporting threshold	2	1	1	0
	TOTAL OBLIGATION	60	71	67	71
	Oil Spill Response				
	Direct Obligations				
	Personnel services	6	7	7	8
23.1	Rental payments to GSA	0	1	0	0
25.2	Other services	5	5	4	7
25.3	Purchase of goods and services from Government Account	1	1	1	1
41.0	Grants, subsidies, and contributions	1	0	1	1
99.0	Subtotal, Direct Obligations	13	14	13	17
99.0	Subtotal, Reimbursable Obligations	15	20	20	20
	Below reporting threshold	2	1	2	0
	TOTAL OBLIGATIONS	30	35	35	37

STATE and TRIBAL ASSISTANCE GRANTS
Dollars in Thousands

Grant	FY 1997 ENACTED	FY 1998 PRES BUD	FY 1998 ENACTED	FY 1999 PRES BUD
Air & Radiation				
State and Local Assistance	$153,190.0	$157,190.0	$181,933.0	$190,190.0
Tribal Assistance	$5,882.2	$10,168.8	$10,168.8	$11,068.8
Radon	$8,158.0	$8,158.0	$8,158.0	$8,158.0
	$167,230.2	$175,516.8	$200,259.8	$209,416.8
Water				
Pollution Control (Section 106)	$80,700.0	$95,529.3	$95,529.3	$115,529.3
Nonpoint Source	$100,000.0	$100,000.0	$105,000.0	$200,000.0
Wetlands Program	$15,000.0	$15,000.0	$15,000.0	$15,000.0
Water Quality Cooperative Agrmts	$20,000.0	$20,000.0	$20,000.0	$19,000.0
	$215,700.00	$230,529.30	$235,529.30	$349,529.3
Drinking Water				
PWSS	$90,000.0	$93,780.5	$93,780.5	$93,780.5
UIC	$10,500.0	$10,500.0	$10,500.0	$10,500.0
	$100,500.0	$104,280.5	$104,280.5	$104,280.5
Hazardous Waste				
H.W. Financial Assistance	$98,298.2	$98,598.2	$98,598.2	$98,598.2
Underground Storage Tanks	$10,544.7	$10,544.7	$10,544.7	$10,544.7
	$108,842.9	$109,142.9	$109,142.9	$109,142.9
Pesticides & Toxics				
Pesticides Program Implementation	$12,814.6	$13,114.6	$13,114.6	$13,114.6
Lead Grants	$12,500.0	$13,712.2	$13,712.2	$13,712.2
	$25,314.6	$26,826.8	$26,826.8	$26,826.8
Multimedia				
Pollution Prevention	$5,999.5	$5,999.5	$5,999.5	$5,999.5
Pesticides Enforcement	$16,133.6	$17,511.7	$17,511.7	$19,511.7
Toxics Enforcement	$6,486.2	$6,864.2	$6,864.2	$7,364.2
Indian General Assistance Program	$28,000.0	$38,585.4	$38,585.4	$42,585.4
	$56,619.3	$68,960.7	$68,960.7	$75,460.7
TOTALS	**$674,207.0**	**$715,257.0**	**$745,000.0**	**$874,657.0**

STATE and TRIBAL ASSISTANCE GRANTS (STAG)

Dollars in Thousands

	FY 1997 Enacted	FY 1998 Pres Budget	FY 1998 Enacted	FY 1999 Pres Budget
STATE/TRIBAL GRANT ASSISTANCE				
State/Tribal Grant Total	$674,207.0	$715,257.0	$745,000.0	$874,657.0
INFRASTRUCTURE ASSISTANCE				
Clean Water State Revolving Fund	$625,000.0	$1,075,000.0	$1,350,000.0	$1,075,000.0
Drinking Water State Revolving Fund	$1,275,000.0	$725,000.0	$725,000.0	$775,000.0
Consolidated State Revolving Fund	$1,900,000.0	$1,800,000.0	$2,075,000.0	$1,850,000.0
Mexican Border Projects	$150,000.0	$150,000.0	$125,000.0	$100,000.0
- Mexican Border	$100,000.0	$100,000.0	$75,000.0	$100,000.0
- Colonias	$50,000.0	$50,000.0	$50,000.0	$0.0
Special Needs Projects	$101,050.0	$128,000.0	$76,000.0	$78,000.0
1. Boston Harbor	$75,000.0	$100,000.0	$50,000.0	$50,000.0
2. Bristal County, MA	$2,550.0	$3,000.0	$3,000.0	$3,000.0
3. New Orleans, LA	$8,500.0	$10,000.0	$8,000.0	$10,000.0
4. Alaskan Native Villages	$15,000.0	$15,000.0	$15,000.0	$15,000.0
Needy Cities Projects	$84,950.0	$0.0	$191,625.0	$0.0
Infrastructure Total	$2,236,000.0	$2,078,000.0	$2,467,625.0	$2,028,000.0
GRAND TOTALS	$2,910,207.0	$2,793,257.0	$3,212,625.0	$2,902,657.0

TSCA section 13 (15 U.S.C. 2612)

Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) sections 3, 4, 5, 6, 11, 18, 24, and 25 (7 U.S.C. 136a, 136a-1, 136c, 136d, 136i, 136p, 136v, and 136w)

Objective #4: Healthier Indoor Air

By 2005, fifteen million more Americans will live or work in homes, schools, or office buildings with healthier indoor air than in 1994.

Overview

Indoor air pollution poses high risks to human health, especially sensitive populations, and has ranked among the top four environmental risks in relative risk reports. In homes, radon is the second leading cause of lung cancer and is responsible for an estimated 14,000 deaths per year. The Agency recommends that all homes be tested for radon and mitigated if levels are at or above 4 picocuries per liter of air; nearly 1 out of every 15 homes is estimated to have radon concentrations above this action level. Environmental tobacco smoke (ETS) is a "class A" carcinogen and causes about 3,000 lung cancer deaths in nonsmokers annually. A recent study reported in the American Heart Association Journal concluded that constant ETS exposure in the workplace or at home nearly doubles the risk of having a heart attack (between 30,000 and 60,000 excess deaths annually). It is responsible for many childhood respiratory problems including 150,000-300,000 cases of pneumonia and bronchitis each year in children under 18 months of age as well as middle ear fluid build up in children. Asthmatic children are especially at risk since ETS exposure increases the number of episodes and severity of symptoms for up to 1,000,000 asthmatic children.

In schools, the General Accounting Offices estimates that 9.9 million students and 570,000 teachers and school staff suffer illnesses annually due to poor indoor air quality. A World Health Organization Committee has suggested that up to 30% of new and remodeled buildings, including schools, worldwide may be the subject of excessive complaints related to indoor air quality.

Additionally, exposure to organic chemicals and biological contaminants in the indoor environment has been associated with adverse effects on the human immune, neurological and respiratory systems as well as sensory irritation. Recently, studies have also identified a relationship between exposure to biological contaminants and the development or exacerbation of asthma.

The Environmental Protection Agency (EPA) is concerned about these effects because scientific studies demonstrate individuals spend approximately 90 percent of their time indoors where air pollutant concentrations are typically 2-5 times higher than outdoors. The private sector is concerned about indoor pollution because of the impacts on worker productivity and the high medical costs. The combination of these two factors is estimated to cost the U.S. economy tens of billions of dollars per year.