

**Environmental Protection Agency
2008 Annual Performance Plan and Congressional Justification**

Table of Contents - Science and Technology

Resource Summary Table	1
Program Projects in S&T.....	1
Program Area: Air Toxics And Quality	5
Clean Air Allowance Trading Programs.....	6
Federal Support for Air Quality Management	10
Federal Support for Air Toxics Program	12
Federal Vehicle and Fuels Standards and Certification	14
Radiation: Protection	18
Radiation: Response Preparedness	20
Program Area: Climate Protection Program.....	22
Climate Protection Program.....	23
Program Area: Enforcement	26
Forensics Support.....	27
Program Area: Homeland Security	29
Homeland Security: Critical Infrastructure Protection	30
Homeland Security: Preparedness, Response, and Recovery	33
Homeland Security: Protection of EPA Personnel and Infrastructure.....	37
Program Area: Indoor Air.....	38
Indoor Air: Radon Program	39
Reduce Risks from Indoor Air.....	41
Program Area: IT / Data Management / Security	44
IT / Data Management	45
Program Area: Operations and Administration.....	48
Facilities Infrastructure and Operations.....	49
Program Area: Pesticides Licensing	51
Pesticides: Registration of New Pesticides	52
Pesticides: Review / Reregistration of Existing Pesticides.....	54
Pesticides: Protect Human Health from Pesticide Risk	56
Pesticides: Protect the Environment from Pesticide Risk.....	58
Pesticides: Realize the Value of Pesticide Availability	61
Program Area: Research: Clean Air.....	64
Research: Air Toxics.....	65
Research: Clean Air	66
Research: Global Change.....	71
Research: NAAQS	75
Program Area: Research: Clean Water	77
Research: Drinking Water.....	78
Research: Water Quality	82
Program Area: Research: Human Health And Ecosystems.....	87
Human Health Risk Assessment.....	88
Research: Computational Toxicology.....	93

Research: Endocrine Disruptor	97
Research: Fellowships	101
Research: Human Health and Ecosystems.....	104
Program Area: Research: Land Protection	114
Research: Land Protection and Restoration	115
Program Area: Research: Sustainability.....	119
Research: Economics and Decision Science(EDS)	120
Research: Sustainability.....	122
Program Area: Toxic Research and Prevention.....	126
Research: Pesticides and Toxics	127
Program Area: Water: Human Health Protection.....	131
Drinking Water Programs	132

**Environmental Protection Agency
FY 2008 Annual Performance Plan and Congressional Justification**

**APPROPRIATION: Science & Technology
Resource Summary Table
(Dollars in Thousands)**

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Science & Technology				
Budget Authority	\$764,737.6	\$788,274.0	\$754,506.0	(\$33,768.0)
Total Workyears	2,432.8	2,431.6	2,405.8	-25.8

**Program Projects in S&T
(Dollars in Thousands)**

Program Project	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Air Toxics and Quality				
Clean Air Allowance Trading Programs	\$8,036.1	\$9,259.4	\$8,259.0	(\$1,000.4)
Federal Support for Air Quality Management	\$9,647.9	\$10,272.9	\$10,886.0	\$613.1
Federal Support for Air Toxics Program	\$2,029.6	\$2,264.7	\$2,252.0	(\$12.7)
Federal Vehicle and Fuels Standards and Certification				
Energy Policy Act & Related Authorities Implementation	\$0.0	\$11,400.0	\$8,388.0	(\$3,012.0)
Federal Vehicle and Fuels Standards and Certification (other activities)	\$61,604.3	\$56,924.5	\$57,334.0	\$409.5
Subtotal, Federal Vehicle and Fuels Standards and Certification	\$61,604.3	\$68,324.5	\$65,722.0	(\$2,602.5)
Radiation: Protection	\$2,311.9	\$2,054.3	\$2,120.0	\$65.7
Radiation: Response Preparedness	\$3,263.4	\$3,585.9	\$3,721.0	\$135.1
Subtotal, Air Toxics and Quality	\$86,893.2	\$95,761.7	\$92,960.0	(\$2,801.7)
Climate Protection Program				
Climate Protection Program	\$19,650.5	\$12,549.6	\$13,104.0	\$554.4
Enforcement				
Forensics Support	\$13,044.2	\$13,185.2	\$15,075.0	\$1,889.8
Homeland Security				
Homeland Security: Critical Infrastructure Protection				
Water sentinel and related training	\$707.8	\$41,735.2	\$21,884.0	(\$19,851.2)
Homeland Security: Critical	\$12,598.3	\$3,515.8	\$3,702.0	\$186.2

Program Project	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Infrastructure Protection (other activities)				
Subtotal, Homeland Security: Critical Infrastructure Protection	\$13,306.1	\$45,251.0	\$25,586.0	(\$19,665.0)
Homeland Security: Preparedness, Response, and Recovery				
Decontamination	\$11,345.1	\$24,666.7	\$20,738.0	(\$3,928.7)
Laboratory Security: Preparedness, Response, and Recovery	\$578.2	\$600.0	\$600.0	\$0.0
Safe Building	\$2,441.4	\$4,000.0	\$4,000.0	\$0.0
Homeland Security: Preparedness, Response, and Recovery (other activities)	\$18,328.1	\$15,231.4	\$15,430.0	\$198.6
Subtotal, Homeland Security: Preparedness, Response, and Recovery	\$32,692.8	\$44,498.1	\$40,768.0	(\$3,730.1)
Homeland Security: Protection of EPA Personnel and Infrastructure	\$3,013.8	\$2,079.0	\$594.0	(\$1,485.0)
Subtotal, Homeland Security	\$49,012.7	\$91,828.1	\$66,948.0	(\$24,880.1)
Indoor Air				
Indoor Air: Radon Program	\$583.9	\$442.2	\$428.0	(\$14.2)
Reduce Risks from Indoor Air	\$759.9	\$828.7	\$788.0	(\$40.7)
Subtotal, Indoor Air	\$1,343.8	\$1,270.9	\$1,216.0	(\$54.9)
IT / Data Management / Security				
IT / Data Management	\$4,412.9	\$4,268.0	\$3,499.0	(\$769.0)
Operations and Administration				
Facilities Infrastructure and Operations	\$8,841.7	\$70,239.5	\$73,859.0	\$3,619.5
Pesticides Licensing				
Pesticides: Protect Human Health from Pesticide Risk	\$0.0	\$0.0	\$3,294.0	\$3,294.0
Pesticides: Protect the Environment from Pesticide Risk	\$0.0	\$0.0	\$2,115.0	\$2,115.0
Pesticides: Realize the Value of Pesticide Availability	\$0.0	\$0.0	\$472.0	\$472.0
Pesticides: Registration of New Pesticides	\$2,631.7	\$2,766.1	\$0.0	(\$2,766.1)
Pesticides: Review / Reregistration of Existing Pesticides	\$2,347.0	\$2,820.4	\$0.0	(\$2,820.4)
Subtotal, Pesticides Licensing	\$4,978.7	\$5,586.5	\$5,881.0	\$294.5
Research / Congressional Priorities				
Congressionally Mandated Projects	\$56,300.5	\$0.0	\$0.0	\$0.0

Program Project	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Research: Clean Air				
Research: Air Toxics	\$18,535.1	\$12,274.2	\$0.0	(\$12,274.2)
Research: Clean Air	\$0.0	\$0.0	\$81,054.0	\$81,054.0
Research: Global Change	\$17,495.2	\$17,456.4	\$16,908.0	(\$548.4)
Research: NAAQS	\$65,242.5	\$65,455.6	\$0.0	(\$65,455.6)
Subtotal, Research: Clean Air	\$101,272.8	\$95,186.2	\$97,962.0	\$2,775.8
Research: Clean Water				
Research: Drinking Water	\$52,015.9	\$49,242.5	\$48,548.0	(\$694.5)
Research: Water Quality	\$48,233.9	\$56,988.2	\$56,454.0	(\$534.2)
Subtotal, Research: Clean Water	\$100,249.8	\$106,230.7	\$105,002.0	(\$1,228.7)
Research: Human Health and Ecosystems				
Human Health Risk Assessment	\$33,663.5	\$34,488.5	\$38,856.0	\$4,367.5
Research: Computational Toxicology	\$13,264.5	\$14,983.1	\$15,103.0	\$119.9
Research: Endocrine Disruptor	\$11,234.3	\$9,081.2	\$10,131.0	\$1,049.8
Research: Fellowships	\$15,609.9	\$8,383.0	\$8,438.0	\$55.0
Research: Human Health and Ecosystems				
Human Health	\$0.0	\$0.0	\$72,055.0	\$72,055.0
Ecosystems	\$0.0	\$0.0	\$72,761.0	\$72,761.0
Research: Human Health and Ecosystems (other activities)	\$169,126.0	\$161,312.7	\$230.0	(\$161,082.7)
Subtotal, Research: Human Health and Ecosystems	\$169,126.0	\$161,312.7	\$145,046.0	(\$16,266.7)
Subtotal, Research: Human Health and Ecosystems	\$242,898.2	\$228,248.5	\$217,574.0	(\$10,674.5)
Research: Land Protection				
Research: Land Protection and Restoration	\$12,101.5	\$10,552.8	\$10,737.0	\$184.2
Research: Sustainability				
Research: Economics and Decision Science(EDS)	\$2,487.6	\$2,494.6	\$0.0	(\$2,494.6)
Research: Environmental Technology Verification (ETV)	\$2,761.9	\$0.0	\$0.0	\$0.0
Research: Sustainability	\$27,042.4	\$21,404.9	\$22,478.0	\$1,073.1
Subtotal, Research: Sustainability	\$32,291.9	\$23,899.5	\$22,478.0	(\$1,421.5)
Toxic Research and Prevention				
Research: Pesticides and Toxics	\$28,343.3	\$26,223.7	\$24,795.0	(\$1,428.7)

Program Project	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Water: Human Health Protection				
Drinking Water Programs	\$3,101.9	\$3,243.1	\$3,416.0	\$172.9
Subtotal, Drinking Water Programs	\$3,101.9	\$3,243.1	\$3,416.0	\$172.9

Program Area: Air Toxics And Quality

Clean Air Allowance Trading Programs

Program Area: Air Toxics and Quality
Goal: Clean Air and Global Climate Change
Objective(s): Healthier Outdoor Air

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Environmental Program & Management	\$17,710.5	\$19,126.4	\$19,388.0	\$261.6
<i>Science & Technology</i>	<i>\$8,036.1</i>	<i>\$9,259.4</i>	<i>\$8,259.0</i>	<i>(\$1,000.4)</i>
Total Budget Authority / Obligations	\$25,746.6	\$28,385.8	\$27,647.0	(\$738.8)
Total Workyears	89.6	92.2	89.1	-3.1

Program Project Description:

The CAIR emissions allowance trading programs build upon the successful and cost-effective Acid Rain SO₂ cap-and-trade program created in 1990. The Clean Air Interstate Rule (CAIR), promulgated on May 12, 2005, uses a multi-pollutant control approach to provide states with a solution to the problem of ozone and fine particulate matter (PM_{2.5}) -- pollution that drifts from one state to another. Using a market-based approach, CAIR is projected to achieve the deepest cuts in sulfur dioxide (SO₂) and nitrogen oxides (NO_x) emissions in more than a decade. Reductions in these emissions will lower both PM_{2.5} and ozone.

CAIR provides a Federal framework requiring 28 states and the District of Columbia to reduce emissions of SO₂ and/or NO_x. These states contribute significantly to unhealthy levels of fine particles and ozone in downwind states. Under CAIR, annual emissions are permanently capped, and there is an additional seasonal NO_x cap for states that contribute significantly to transported ozone pollution. These reductions will be substantial and cost-effective in many areas the reductions are large enough to meet the air quality standards however some areas may need to take additional local actions.

All of the affected states have indicated to EPA that they intend to achieve the mandated reductions primarily by controlling power plant emissions through an EPA-administered interstate cap-and-trade program. When fully implemented, CAIR is projected to reduce SO₂ emissions from electrical power generation sources in the covered states by over 70 percent and NO_x emissions by over 60 percent from 2003 levels. By enabling states to cost-effectively reduce air pollutants from power plants, CAIR will protect public health and the environment without interfering with the steady flow of affordable energy for American consumers and businesses.

On May 15, 2005, EPA promulgated the Clean Air Mercury Rule (CAMR), the first-ever Federal rule to reduce and permanently cap mercury emissions from coal-fired power plants. CAMR establishes "standards of performance" limiting mercury emissions from new and existing coal-fired power plants in two phases with caps. In the first phase, which begins in 2010, mercury emissions nationwide will be reduced to 38 tons by taking advantage of "co-benefit"

reductions—that is, mercury reductions achieved by reducing SO₂ and NO_x emissions under CAIR. In the second phase, due in 2018, coal-fired power plants will be subject to a second cap, which will reduce emissions to 15 tons upon full implementation.

Other important features of this landmark rule include: stringent emission monitoring and reporting requirements, a model cap-and-trade program that states can adopt to achieve and maintain their mercury emissions budgets, and significant penalties for noncompliance. CAMR also creates an EPA-administered market-based allowance trading program that states may join by adopting the model trading rule in state regulations or promulgating regulations that mirror the necessary components of the model trading rule.

EPA is responsible for managing the Clean Air Status and Trends Network CASTNET, a national long-term atmospheric deposition monitoring network established in 1987 that serves as the nation's primary source for atmospheric data on the dry deposition component of total acid deposition, rural ground-level ozone and other forms of atmospheric pollution that enter the environment as particles and gases. Used in conjunction with the National Atmospheric Deposition Program (NADP) and other networks, CASTNET's long-term datasets and data products are used to determine the efficacy of national emission control programs through monitoring geographic patterns and temporal trends in ambient air quality and atmospheric deposition in rural areas of the country. Maintaining a robust long-term atmospheric deposition monitoring network is critical for the accountability of the Acid Rain Program, CAIR, and other programs for controlling transported air pollutants.

FY 2008 Activities and Performance Plan:

In FY 2008 EPA will:

- Continue to provide litigation program support for CAIR and CAMR: Conduct legal, technical, and economic analyses to support timely implementation of these rules; continue assessing regulatory impacts on the US economy, environment, small business, and local communities.
- Continue to assist states with CAIR implementation: Provide technical assistance to states in implementing state plans and rules for CAIR. Assist states in resolving issues related to source applicability, emissions monitoring and reporting, and the compliance supplement pool as well as provide technical support. Required emissions monitoring and reporting for CAIR annual and ozone-season NO_x programs begins in 2008.
- Work with states and tribes on CAMR implementation: EPA will work with states and Tribes on emissions monitoring provisions. Required mercury monitoring and reporting for CAMR begins in 2009. Work will begin to develop a mercury deposition baseline to assess and validate the effectiveness of CAMR's mercury control program. EPA also will assist the states and Tribes which elect to participate in the EPA-administered interstate CAMR allowance trading program to establish allowance allocations and implement reconciliation procedures.
- Continue modifying data systems and operating infrastructure for CAIR/CAMR: Effective and efficient operation of these programs depends critically upon further

development of the e-GOV infrastructure supporting the Acid Rain electronic allowance trading and emissions reporting systems. Data systems must be modified for mercury emissions reporting.

- Ensure accurate and consistent results for the program: Successful air pollution control and trading programs require accurate and consistent monitoring of emissions from affected sources. Work on performance specifications and investigate monitoring alternatives and methods to improve the efficiency of monitor certification and emissions data reporting, especially for mercury emissions and sources that are new to market-based control programs.
- Assist states considering regional programs for Electric Generating Units (EGUs) outside of the CAIR region: EPA will work with states to create cap-and-trade programs where they potentially could be more cost-effective than application of Best Available Retrofit Technology (BART).
- In FY 2008, the program will continue the refurbishment project to modernize and enhance CASTNET. The program has made progress in evaluating alternative technologies and in procuring new equipment to be deployed for testing operational performance under realistic field conditions. The upgraded site equipment, reconfigured network and improved geographic coverage will help ensure CASTNET's continued viability and enhance the monitoring capacity to support ongoing and future accountability needs, particularly relating to interstate pollutant transport.

Working with other Federal agency partners, EPA will continue developing a new, coordinated network for monitoring atmospheric mercury that is scientifically credible and with sites strategically located to meet CAMR accountability needs (e.g., in source-impacted areas). The program assessment capability, also to be developed through intra- and inter-agency partnerships and cooperation, will focus on the mercury "chain-of-accountability"— specifically, how changes in mercury emissions affect human health and wildlife.

In FY 2008, EPA will continue to work closely with the National Institute of Standards and Technology (NIST), Electric Power Research Institute (EPRI), and industry in the development, implementation, and commercialization of mercury continuous emissions monitoring systems (CEMS) and other source monitoring capability. In addition, the program will continue to provide analytical support for the interagency National Acid Precipitation Assessment Program (NAPAP). NAPAP coordinates Federal acid deposition research and monitoring of emissions, acidic deposition, and their effects, including assessing the costs and benefits of Title IV. In 2008, the program will continue analyzing the costs and benefits of the Acid Rain Program for inclusion in NAPAP's Integrated Assessment Report.

The National Ambient Air Quality Standards Federal program, PARTed in 2005, received a rating of "adequate." EPA is working to implement improvements within current statutory limitations that address deficiencies in design and implementation, and identify and evaluate needed improvements that are beyond current statutory authority. The Air Quality Grants and Permitting Program, also PARTed in 2005, received a rating of "ineffective." The Agency has updated current grant allocation processes to ensure resources are properly targeted and developing measures of program efficiency. In 2003, OMB assessed the Acid Rain program through the PART process and gave it a rating of "moderately effective." EPA is working to

develop a measure of program efficiency that takes into consideration the full cost of the program.

Performance Targets:

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Outcome	Tons of sulfur dioxide emissions from electric power generation sources	Data Available 2007	7,000,000	7,500,000	8,000,000	Tons Reduced

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Outcome	Percent change in average sulfur deposition and mean ambient sulfate concentrations reduced.	No Target Established	No Target Established	29	No Target Established	Percentage

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Outcome	Percent change in average nitrogen deposition and mean total ambient nitrate concentrations reduced.	No Target Established	No Target Established	10	No Target Established	Percentage

Reducing emissions of SO₂ remains a crucial component of EPA's strategy for cleaner air. Particulate matter can be formed from direct sources (such as diesel exhaust or smoke), but can also be formed through chemical reactions. Emissions of SO₂ can be chemically transformed into sulfates, which are very tiny particles that can be carried by winds hundred of miles. These same small particles are also a main pollutant that impairs visibility across large areas of the country, particularly national parks that are known for their scenic views.

EPA tracks the change in nitrogen and sulfur deposition and ambient nitrate and sulfate concentrations triennially with the next report date planned for FY 2010.

FY 2008 Change from FY 2007 President's Budget (Dollars in Thousands):

- (-\$1,000.4) A reduction in funding to the CASTNET will begin a phase down from "upgrade" of the network systems to operations and maintenance. The reduction also reflects expected decreased federal costs for CAIR/CAMR implementation as states gain knowledge and development of technology tool is completed and deployed.

Statutory Authority:

CAA (42 U.S.C. 7401-7661 f).

Federal Support for Air Quality Management

Program Area: Air Toxics and Quality

Goal: Clean Air and Global Climate Change

Objective(s): Healthier Outdoor Air

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Environmental Program & Management	\$93,053.0	\$88,065.6	\$90,490.0	\$2,424.4
<i>Science & Technology</i>	<i>\$9,647.9</i>	<i>\$10,272.9</i>	<i>\$10,886.0</i>	<i>\$613.1</i>
Total Budget Authority / Obligations	\$102,700.9	\$98,338.5	\$101,376.0	\$3,037.5
Total Workyears	706.9	709.0	700.7	-8.3

Program Project Description:

This program supports state development of the clean air plans through developing modeling and other tools. EPA works with states and local governments to ensure the technical integrity of the mobile source controls in the State Implementation Plans (SIPs). Also, EPA assists states and local governments to identify the most cost-effective control options available.

FY 2008 Activities and Performance Plan:

As part of implementing the 8-hour ozone and particulate matter 2.5 (PM_{2.5}) standards, EPA will continue to provide state and local governments with substantial assistance in developing SIPs and implementing the conformity rule during this period. In FY 2008, EPA will continue to ensure national consistency in how conformity determinations are conducted across the US. EPA will continue to ensure consistency in adequacy findings for motor vehicle emissions budgets in air quality plans, which are used in conformity determinations. In addition, EPA will work with states and local governments to ensure the technical integrity of the mobile source controls in the SIPs for the 8-hour ozone and PM_{2.5} air quality standards which are due in 2007 and 2008, respectively. EPA also will assist areas in identifying the most cost-effective control options available and provide guidance, as needed, for areas that implement conformity.

EPA will partner with states, Tribes, and local governments to create a comprehensive compliance program to ensure that vehicles and engines pollute less. EPA will use advanced in-use measurement techniques and other sources of in-use data to monitor the performance of On-board Diagnostics (OBD) systems on vehicle models to make sure that OBD is a reliable check on the emissions systems. In FY 2006, basic and/or enhanced vehicle I/M testing was being performed in over 30 states with technical and programmatic guidance from EPA. In FY 2008, EPA will continue to assist states in bridging operating programs toward the future.

EPA will continue to assist state, tribal, and local agencies in implementing and assessing effectiveness of national clean air programs via a broad suite of analytical tools. (For more information visit: <http://www.epa.gov/ttn/>).

The NAAQS Federal program, PARTed in 2005, received a rating of “adequate.” EPA is working to implement improvements within current statutory limitations that address deficiencies in design and implementation and identify and evaluate needed improvements that are beyond current statutory authority. The Air Quality Grants and Permitting Program, also PARTed in 2005, received a rating of “ineffective.” EPA is working to update current grant allocation processes to ensure resources are properly targeted, and developing measures of program efficiency.

Performance Targets:

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Outcome	Cumulative percent reduction in population-weighted ambient concentration of fine particulate matter (PM-2.5) in all monitored counties from 2003 baseline.	Data Available 2007	2	3	4	Percentage

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Outcome	Cumulative percent reduction in population-weighted ambient concentration of ozone in monitored counties from 2003 baseline.	Data Available 2007	5	6	8	Percentage

EPA, collaborating with the states, will be implementing federal measures and assisting with the development of clean air plans to continue to improve air quality as measured by the air quality index and other measures.

FY 2008 Change from FY 2007 President’s Budget (Dollars in Thousands):

- (+\$613.0) This reflects an increase for payroll and cost of living for existing FTE.

Statutory Authority:

CAA (42 U.S.C. 7401-7661f); Motor Vehicle Information Cost Savings Act; Alternative Motor Fuels Act of 1988; National Highway System Designation Act; NEP Act, SAFETEA-LU of 2005.

Federal Support for Air Toxics Program

Program Area: Air Toxics and Quality

Goal: Clean Air and Global Climate Change

Objective(s): Healthier Outdoor Air

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Environmental Program & Management	\$24,332.1	\$25,513.7	\$24,711.0	(\$802.7)
<i>Science & Technology</i>	<i>\$2,029.6</i>	<i>\$2,264.7</i>	<i>\$2,252.0</i>	<i>(\$12.7)</i>
Total Budget Authority / Obligations	\$26,361.7	\$27,778.4	\$26,963.0	(\$815.4)
Total Workyears	140.5	144.2	141.8	-2.4

Program Project Description:

Federal support for the air toxics program includes a variety of tools to help characterize the level of risk to the public and measure the Agency's progress in reducing this risk. The program will develop and provide information and tools to assist state, local, and Tribal agencies as well as communities to reduce air toxics emissions and risk specific to their local areas.

Reductions in emissions of mobile source air toxics, such as diesel particulate matter (PM), are achieved through innovative and voluntary approaches working with state, local, and Tribal governments as well as a variety of stakeholder groups. This program also includes activities related to the Stationary Source Residual Risk Program. (For more information visit: <http://www.epa.gov/ttn/atw/risk/residriskpg.html>)

FY 2008 Activities and Performance Plan:

In FY 2008, EPA will continue to work with a broad range of stakeholders to develop incentives for different economic sectors (construction, ports, freight, and agriculture) to address the emissions from existing diesel engines.

Work is being done across these sectors at the national and regional level to clean up the existing fleet. This work addresses emissions from diesel engines that both contribute to meeting the Agency's Ambient Air Quality Goals and reduce the harmful exposure to air toxics from diesel engines. EPA has also developed several emissions testing protocols that will provide potential purchasers of emission control technology a consistent, third party evaluation of emission control products. EPA has developed partnerships with state and local governments, industry, and private companies to create project teams to help fleet owners create the most cost-effective retrofit programs.

EPA also will continue to provide technical expertise and support to state, local, and Tribal air toxics programs in assessing and reducing mobile source air toxics. This support includes models and other assessment tools; guidance on the application of such tools for evaluating impacts of proposed transportation facilities; guidance on the benefits of voluntary mobile source control programs; and other education and outreach materials.

EPA will work with partners to develop improved emission factors and inventories. This effort will include gathering improved activity databases and using geographic information systems (GIS) and satellite remote sensing, where possible, for key point, area, mobile and fugitive source categories and global emission events.

The Air Toxics program, re-assessed by OMB in 2004 through the PART process, received a rating of “adequate.” EPA is working on improving monitoring systems to fill data gaps and get a better assessment of actual population exposure to toxic air pollution.

Performance Targets:

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Outcome	Cumulative percentage reduction in tons of toxicity-weighted (for noncancer risk) emissions of air toxics from 1993 baseline.	Data Available 2009	58	58	59	Percentage

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Outcome	Cumulative percentage reduction in tons of toxicity-weighted (for cancer risk) emissions of air toxics from 1993 baseline.	Data Available 2009	34	35	35	Percentage

Performance targets for reduction of toxicity weighted emissions are also supported by work under the Federal Stationary Source Regulations program project.

FY 2008 Change from FY 2007 President’s Budget (Dollars in Thousands):

- (-\$12.7) This decrease is the net effect of increases for payroll and cost of living for existing FTE, combined with a reduction based on the recalculation of base workforce costs.

Statutory Authority:

CAA (42 U.S.C. 7401-7661f).

Federal Vehicle and Fuels Standards and Certification

Program Area: Air Toxics and Quality
Goal: Clean Air and Global Climate Change
Objective(s): Healthier Outdoor Air

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
<i>Science & Technology</i>	<i>\$61,604.3</i>	<i>\$68,324.5</i>	<i>\$65,722.0</i>	<i>(\$2,602.5)</i>
Total Budget Authority / Obligations	\$61,604.3	\$68,324.5	\$65,722.0	(\$2,602.5)
Total Workyears	293.1	295.2	295.2	0.0

Program Project Description:

The most common mobile sources of air pollution are highway motor vehicles and their fuels. Other mobile sources, such as airplanes, ships, construction equipment and lawn mowers also produce significant amounts of pollutants. EPA regulates all of these sources to reduce the production of air pollution. The Agency also provides emissions and fuel economy information for new cars, funds grants for the development of cleaner burning fuels and alternative energy sources, and educates consumers on the ways their actions affect the environment.

Primary responsibilities include: developing national regulatory programs to reduce mobile source-related air pollution from light-duty cars and trucks, heavy-duty trucks and buses, nonroad engines and vehicles and their fuels; evaluating emission control technology; and providing state and local air quality regulators and transportation planners with access to critical information on transportation programs and incentive-based programs. Other activities include testing vehicles, engines and fuels, and establishing test procedures for and determining compliance with Federal emissions and fuel economy standards.

The Partnership for Clean Fuels and Vehicles was announced at the World Summit on Sustainable Development (WSSD) in 2002. EPA's role in this partnership will be to assist developing countries in the development and implementation of action plans for the adoption of clean fuel standards and cleaner vehicle requirements.

FY 2008 Activities and Performance Plan:

In FY 2008, EPA will continue to support implementation of the Tier II light-duty (LD) vehicle program, the 2007-2010 Heavy-Duty (HD) Diesel standards, and the Non-Road Diesel Tier 4 standards (and earlier nonroad standards) in order to ensure the successful delivery of cleaner vehicles, equipment, and fuel. EPA will also begin implementing the Renewable Fuels Standards (RFS) rule scheduled to be promulgated in 2007, and will begin the development of several more actions required by the Energy Policy Act (EPAct) of 2005. Some of these EPAct actions include a study of the changes in emissions of air pollutants and air quality, and a fuel system harmonization study which is expected to be a complex study and will be completed in coordination with DOE.

In FY 2008, a number of regulatory actions will be under development or completed. EPA will promulgate new standards for locomotives and marine diesel engines, as well as new standards for large commercial ships. An EPA rule will be issued addressing exhaust and evaporative emissions from small gasoline engines (under 50 horsepower), including all recreational marine gasoline engines, non-handheld engines (such as those used in lawnmowers), and handheld engines (such as those used in trimmers and chainsaws).

In 2008, EPA will also develop proposals for on-board-diagnostic (OBD) standards and an in-use compliance program for nonroad diesel engines, certification procedures and test cycles for world harmonized motorcycle standards, designation of U.S. coastal areas as SO_x Emission Control Areas (SECA), and new aircraft NO_x standards that would align Federal rules with international standards. EPA will also continue its technology reviews for highway diesel 2007-2010 standards and nonroad diesel standards.

EPA's National Vehicle and Fuel Emissions Laboratory (NVFEL) will continue to conduct vehicle emission tests as part of the pre-production tests, certification audits, in-use assessments, and recall programs to support mobile source clean air programs. Tests are conducted on motor vehicles, heavy-duty engines, non-road engines, and fuels to: 1) certify that vehicles and engines meet Federal air emission and fuel economy standards; 2) ensure engines comply with in-use requirements; and 3) ensure fuels, fuel additives, and exhaust compounds meet Federal standards. In FY 2008, EPA will continue to conduct testing activities for fuel economy, LD vehicle and HD engine characterization, Tier II testing, reformulated gasoline, future fleets, OBD evaluations, certification audits, and recall programs.

EPA will review and approve approximately 2,600 vehicle and engine emissions certification requests, including light-duty vehicles, heavy-duty diesel engines, nonroad engines, marine engines, locomotives and others. The Agency will review the first in-use verification program data submitted by vehicle manufacturers to determine whether there are any emissions compliance issues, and continue the development of a new, web-based compliance information system to be used by manufacturers and EPA staff to house compliance data for all regulated vehicles and engines.

EPA will also test heavy-duty diesel engines to support implementation of the 2007 HD diesel requirements and non-road diesel engine rulemaking activities. In-use compliance is an important element of EPA's regulatory programs ensuring that new engine standards are actually met under real-world conditions. EPA will begin implementation of a manufacturer-run in-use compliance surveillance program for highway heavy-duty diesel engines. Additionally, EPA is planning to propose a manufacturer-run in-use testing program for nonroad diesel engines.

EPA also will continue implementing the Reformulated Gasoline (RFG) program, which is designed to substantially reduce vehicle emissions of ozone-forming and toxic pollutants. Major changes in the RFG regulations will be introduced to account for the elimination of the oxygen mandate in light of the new Energy Policy Act of 2005. Additionally, new opt-in rules covering newly eligible areas (under the Energy Policy Act) will have to be promulgated and implemented. EPA also will continue to address issues associated with the use of oxygenates (e.g., MTBE and ethanol) and will review the industry's retail station survey plan.

Through the WSSD partnerships with developing countries EPA will continue addressing the threat to human health and the environment from motor vehicles in developing countries. EPA will continue to focus its efforts on two priorities: completing the global elimination of lead from gasoline (30 countries still use this fuel); and reducing sulfur in diesel and gasoline, while concurrently introducing cleaner vehicle technologies. Fuel sulfur reductions are a precondition for using cleaner vehicle technologies. Together, these steps will enable dramatic and cost-effective reductions in emissions of particulate matter (PM) and nitrogen oxides (NOx, a precursor to ozone), yielding tremendous health benefits in developing countries. Many of these emissions reductions (e.g., in Mexico, China, and India) will also reduce pollution that is transported across our borders and the northern hemisphere into the United States, and will thus yield important air quality, public health, and economic benefits to the United States.

The Mobile Sources program was assessed in 2004 through the PART process, and rated it as “moderately effective.” EPA is collecting data to better monitor efficiency improvements, and is systematically analyzing and evaluating regulations to ensure they effectively achieve the greatest benefits.

Performance Targets:

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Outcome	Tons of PM-10 Reduced since 2000 from Mobile Sources	Data Available 2007	74,594	87,026	99,458	Tons

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Outcome	Limit the increase of CO emissions (in tons) from mobile sources compared to a 2000 baseline.	Data Available 2007	1.01	1.18	1.35	Million Tons

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Outcome	Millions of Tons of Nitrogen Oxides (NOx) Reduced since 2000 Reduced from Mobile Sources	Data Available 2007	2.03	2.37	2.71	Million Tons

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Outcome	Millions of Tons of Volatile Organic Compounds (VOCs) Reduced since 2000 from Mobile Sources	Data Available 2007	1.03	1.20	1.37	Million Tons

Funding will allow EPA to continue achieving results in reducing pollution from mobile sources, especially NOx emissions. The Tier 2 Vehicle program, which took effect in 2004, will make new cars, SUVs, and pickup trucks 77 to 95 percent cleaner than 2003 models. Beginning in 2007, the Clean Trucks and Buses program will make new highway diesel engines as much as 95 percent cleaner than current models. Under the Non-road Diesel program, new fuel and engine requirements will reduce sulfur in off-highway diesel by more than 99 percent by 2010. Combined, these measures will prevent over 22,000 premature deaths each year, reduce millions of tons of pollution a year, and prevent hundreds of thousands of respiratory illnesses.

FY 2008 Change from FY 2007 President's Budget (Dollars in Thousands):

- (+\$104.0) This increase is associated with increased programmatic laboratory fixed costs.
- (-\$106.3) This reduction reflects savings from improvements to the Agency's small administrative IT systems.
- (+\$213.8) This reflects an increase for payroll and cost of living for existing FTE.
- (-\$14.0) This reduction reflects an Agency wide effort to reduce international travel.
- (+\$200.0) This increase supports the World Summit on Sustainable Development (WSSD) initiative. This funding will address global elimination of lead in gasoline and the reduction of sulfur in diesel and gasoline.
- (-\$3,000.0) This reduction reflects completion of the Renewable Fuel Standard rule and a shift to implementation in FY 2008 in accordance with the Energy Policy Act of 2005.

Statutory Authority:

CAA (42 U.S.C. 7401-7661f); MVICS Act; AMF Act of 1988; NHSD Act; NEP Act; EPC Act; and EPA of 2005.

Radiation: Protection

Program Area: Air Toxics and Quality
Goal: Clean Air and Global Climate Change
Objective(s): Radiation

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Environmental Program & Management	\$11,301.6	\$10,648.6	\$10,186.0	(\$462.6)
<i>Science & Technology</i>	<i>\$2,311.9</i>	<i>\$2,054.3</i>	<i>\$2,120.0</i>	<i>\$65.7</i>
Hazardous Substance Superfund	\$1,938.3	\$2,323.3	\$2,373.0	\$49.7
Total Budget Authority / Obligations	\$15,551.8	\$15,026.2	\$14,679.0	(\$347.2)
Total Workyears	95.7	96.6	88.6	-8.0

Program Project Description:

This program supports the maintenance of an on-going radiation protection capability at the National Air and Radiation Environmental Laboratory (NAREL) located in Montgomery, Alabama and the Radiation and Indoor Environments National Laboratory (R&IE) located in Las Vegas, Nevada. These laboratories provide radioanalytical and mixed waste testing and analysis of environmental samples to support site assessment, clean-up, and response activities.

Both labs provide technical support for conducting site specific radiological characterizations and clean-ups, using the best available science to develop risk assessment tools. The labs also develop guidance for cleaning up sites that are contaminated with radioactive materials in collaboration with the public, industry, states, Tribes and other governments. EPA, in partnership with other Federal agencies, will promote the management of radiation risks in a consistent and safe manner.

FY 2008 Activities and Performance Plan:

In FY 2008 EPA, in cooperation with state and local governments and other Federal agencies will assist with site characterizations and providing analytical support for site assessment activities, remediation technologies, and measurement and information systems; and provide training and direct site assistance including laboratory, field, and risk assessment support at sites with actual or suspected radioactive contamination.

EPA's laboratories will provide radiological and technical support to EPA Superfund Remedial Project Managers and On-Scene Coordinators, the public, industry, Tribes and state and local governments. EPA will also conduct radioanalytical and mixed waste analyses in support of Regional site assessments, cleanups and response activities.

EPA is on track through its ongoing work to meet its 2011 strategic plan goal of protecting public health and the environment from unwanted releases of EPA regulated radioactive waste and to minimize impacts to public health from radiation exposure. EPA will continue to track

progress on routine program indicators such as preparedness and response capability for radiological incidents.

Performance Targets:

EPA is developing new outcome-oriented performance measures for this program in preparation for a 2007 PART assessment. The program will have new performance measures to report in FY 2009. EPA will continue to track progress on routine program indicators such as preparedness and response capability for radiological incidents.

FY 2008 Change from FY 2007 President's Budget (Dollars in Thousands):

- (+\$66.0) This reflects an increase for payroll and cost of living for existing FTE.
- (+\$0.3) Change due to rounding in the FY 2008 President's Budget.

Statutory Authority:

AEA of 1954, as amended, 42 U.S.C 2011 et seq. (1970), and Reorganization Plan #3 of 1970; CAA Amendments of 1990; CERCLA, as amended by the SARA of 1986 ; Energy Policy Act of 1992, P.L. 102-486; Executive Order 12241 of September 1980, National Contingency Plan, 3 CFR, 1980; NWPA of 1982; PHS Act, as amended, 42 U.S.C 201 et seq.; SDWA; UMTRCA of 1978; Waste WIPP Land Withdrawal Act.

Radiation: Response Preparedness
 Program Area: Air Toxics and Quality
 Goal: Clean Air and Global Climate Change
 Objective(s): Radiation

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Environmental Program & Management	\$2,374.4	\$2,688.7	\$2,928.0	\$239.3
<i>Science & Technology</i>	<i>\$3,263.4</i>	<i>\$3,585.9</i>	<i>\$3,721.0</i>	<i>\$135.1</i>
Total Budget Authority / Obligations	\$5,637.8	\$6,274.6	\$6,649.0	\$374.4
Total Workyears	41.5	42.3	42.3	0.0

Program Project Description:

The National Air and Radiation Environmental Laboratory (NAREL) in Montgomery, Alabama and the Radiation and Indoor Environments National Laboratory (R&IE) in Las Vegas, Nevada provide field sampling and analyses, laboratory analyses, and direct scientific support to respond to radiological and nuclear incidents. This includes measuring and monitoring radioactive materials in the environment and assessing radioactive contamination in the environment. This program comprises direct scientific field and laboratory activities to support preparedness, planning, training, and procedures development. In addition, selected staffs are members of EPA's Radiological Emergency Response Team (RERT) and are trained to provide direct expert assistance in the field.

FY 2008 Activities and Performance Plan:

In FY 2008, EPA's RERT, a component of the Agency's emergency response structure, will maintain its preparedness in the laboratories for radiological incidents including those for which EPA is the Coordinating Agency under the National Response Plan. The laboratory RERT members will conduct training and exercises to enhance and demonstrate their ability to fulfill EPA responsibilities in the field, using mobile analytical systems, and in the fixed labs; and in order to provide the necessary mix of rapid and accurate radionuclide analyses in environmental matrices.¹

Also in FY 2008, the labs will continue to be ready to deploy field teams that provide scientific data, analyses and updated analytical techniques for radiation emergency response programs across the Agency; maintain readiness for radiological emergency responses, participate in mock emergency response situations; provide on-site scientific support to state radiation, solid waste, and health programs that regulate radiation remediation; participate in the Protective Action Guidance (PAG) workshops; and respond, as required, to radiological incidents.

¹ Additional information can be accessed at: <http://www.epa.gov/radiation/rert/rert> last accessed 1/8/2007.

Performance Targets:

EPA is on track through its ongoing work to meet its 2011 strategic plan goal of protecting public health and the environment from unwanted releases of EPA regulated radioactive waste and to minimize impacts to public health from radiation exposure. The Agency is developing new outcome-oriented strategic and annual performance measures for this program in preparation for a 2007 PART assessment. The program will have new performance measures to report in FY 2009. EPA will continue to track progress on routine program indicators such as preparedness and response capability for radiological incidents.

FY 2008 Change from FY 2007 President's Budget (Dollars in Thousands):

- (+\$12.7) This increase is associated with increased programmatic laboratory fixed costs.
- (+\$122.4) This reflects an increase for payroll and cost of living for existing FTE.

Statutory Authority:

AEA of 1954, as amended, 42 U.S.C 2011 et seq. (1970), and Reorganization Plan #3 of 1970; CAA. Amendments of 1990; CERCLA, as amended by the (SARA); Executive Order 12241 of September 1980, National Contingency Plan, 3 CFR, 1980; Executive Order 12656 of November 1988, Assignment of Emergency Preparedness Responsibilities, 3 CFR, 1988; Public Health Service Act, as amended, 42 U.S.C 201 et seq.; Robert T. Stafford Disaster Relief and EAA, as amended, 42 U.S.C 5121 et seq.; SDW Act; and Title XIV of the NDA of 1997, PL 104-201 (Nunn-Lugar II).

Program Area: Climate Protection Program

Climate Protection Program

Program Area: Climate Protection Program
Goal: Clean Air and Global Climate Change
Objective(s): Reduce Greenhouse Gas Intensity

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Environmental Program & Management	\$83,693.9	\$91,843.3	\$87,927.0	(\$3,916.3)
<i>Science & Technology</i>	<i>\$19,650.5</i>	<i>\$12,549.6</i>	<i>\$13,104.0</i>	<i>\$554.4</i>
Total Budget Authority / Obligations	\$103,344.4	\$104,392.9	\$101,031.0	(\$3,361.9)
Total Workyears	210.9	214.1	212.5	-1.6

Program Project Description:

EPA manages the Clean Automotive Technology (CAT) and the Fuel Cell and Hydrogen programs which are designed to help recognize and remove barriers in the marketplace, and to more rapidly deploy technology into the transportation sector of the economy. The Agency's Clean Automotive Technology program develops advanced clean and fuel-efficient automotive technology to better protect the environment and save energy. (For more information visit: <http://www.epa.gov/otaq/technology>).

The emphasis of Clean Automotive Technology program work will be research and collaboration with the automotive, trucking, and fleet industries. Through cooperative research and development agreements (CRADA), EPA plans to continue demonstrating its unique hydraulic hybrid technology and advanced clean-engine technologies in vehicles, such as large SUVs, pickup trucks, urban delivery trucks, school buses, shuttle buses, and refuse trucks. The intent of these real world demonstrations is to lead to the initial commercial introduction of significant elements of EPA's technologies by vehicle manufacturers. EPA's goal is to achieve initial commercialization of urban delivery trucks in 2010.

FY 2008 Activities and Performance Plan:

In FY 2008, the Clean Automotive Technology Program will:

- Evaluate the effectiveness of the Clean Automotive Technology Program's high-efficiency, clean combustion E-85/M-85 alcohol engine.
- Continue the transfer EPA's advances in hydraulic hybrid technologies (promote adoption of technology and technical assistance) of, providing continuity in EPA's commitments to the truck and fleet industry for development and deployment.
- Continue field tests currently underway and planned for 2008 for hydraulic-hybrid and clean engine technologies achieving better fuel economy than the typical baseline vehicles,

- Finish developing performance measures that demonstrate the program’s greenhouse gas reduction contributions.

In FY 2008, the Fuel Cell and Hydrogen Program will:

- Continue to coordinate with key stakeholders through the public/private California Fuel Cell Partnership to facilitate the commercialization of innovative technologies.

OMB assessed the Climate Change Program in 2004 through the PART process, and gave it a rating of “adequate.” There are over 20 climate change programs which work with the private sector to cost effectively reduce greenhouse gas emissions and facilitate energy efficiency improvements. Each sector (buildings, industry and transportation) has performance and efficiency measures to track the amount of greenhouse gas emissions that are reduced as a result of the program’s efforts. EPA is working to complete an assessment and comparison of the potential benefits and efforts of the Clean Automotive technology program, and to develop better performance measures that more clearly link to greenhouse gas reduction potential in the near term.

Performance Targets:

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Output	Million metric tons of carbon equivalent (mmtce) of greenhouse gas reductions in the buildings sector.	Data Available 2007	26.5	29.4	32	MMTCE

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Output	Million metric tons of carbon equivalent (mmtce) of greenhouse gas reductions in the industry sector.	Data Available 2007	58	62.6	68	MMCTE

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Output	Million metric tons of carbon equivalent (mmtce) of greenhouse gas reductions in the transportation sector.	Data Available 2007	1.2	1.6	1.5	MMTCE

FY 2008 Change from FY 2007 President’s Budget (Dollars in Thousands):

- (+\$50.0) This increase provides funding to support program evaluation which assesses the effectiveness of the Clean Automotive Technology Program’s high-efficiency, clean combustion E-85/M-85 alcohol engine.

- (+\$504.5) This reflects an increase for payroll and cost of living for existing FTE.
- (-\$0.1) Change due to rounding in the FY 2008 President's Budget.

Statutory Authority:

CAA Amendments, 42 U.S.C. 7401 et seq. - Sections 102, 103, 104, and 108; Pollution Prevention Act, 42 U.S.C. 13101 et seq. - Sections 6602, 6603, 6604, and 6605; NEPA, 42 U.S.C. 4321 et seq. - Section 102; Global Climate Protection Act, 15 U.S.C. 2901 - Section 1103; Federal Technology Transfer Act, 15 U.S.C. - Section 3701a.

Program Area: Enforcement

Forensics Support

Program Area: Enforcement

Goal: Compliance and Environmental Stewardship

Objective(s): Enhance Societies Capacity for Sustainability through Science and Research

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
<i>Science & Technology</i>	<i>\$13,044.2</i>	<i>\$13,185.2</i>	<i>\$15,075.0</i>	<i>\$1,889.8</i>
Hazardous Substance Superfund	\$3,600.9	\$4,184.2	\$2,310.0	(\$1,874.2)
Total Budget Authority / Obligations	\$16,645.1	\$17,369.4	\$17,385.0	\$15.6
Total Workyears	101.8	107.8	105.8	-2.0

Program Project Description:

The Forensics Support program provides specialized scientific and technical support for the nation's most complex civil enforcement cases and provides technical expertise for non-routine Agency compliance efforts. EPA's National Enforcement Investigations Center (NEIC) is the only accredited environmental forensics center in the nation. NEIC's Accreditation Standard has been customized to cover the civil, criminal, and special program work conducted by the program.

NEIC collaborates with state, local and Tribal agencies to provide technical assistance, consultation, and on-site investigation and inspection activities in support of the Agency's civil program. In addition, the program coordinates with the Department of Justice and other Federal, state and local law enforcement organizations in support of criminal investigations.¹

FY 2008 Activities and Performance Plan:

Efforts to stay at the forefront of environmental enforcement in FY 2008 will include the refinement of successful multi-media inspection approaches, use of customized laboratory methods to solve unusual enforcement case problems, and applied research and development for both laboratory and field applications. In response to case needs, the NEIC will conduct applied research and development to identify and deploy new capabilities and to test and/or enhance existing methods and techniques involving environmental measurement and forensic situations. As part of this activity, NEIC also will evaluate the scientific basis and/or technical enforceability of select EPA regulations that may impact program activities.

In FY 2008, the Forensics program will continue to function under more stringent International Standards of Operation for environmental data measurements to maintain its accreditation. The program also will continue development of emerging technologies in field measurement techniques and laboratory analytical techniques, as well as identifying sources of pollution at abandoned waste sites.

¹ For more information, refer to: <http://www.epa.gov/compliance/neic/index.html>.

The EPA Enforcement of Environmental Laws (Civil) PART program received an “adequate” rating in 2004 with the development of a measure implementation plan. In FY 2006, at OMB's direction, EPA conducted a review of enforcement and compliance measures used by states, other Federal agencies, and other countries, as well as consulting with academics and other measurement experts. The purpose of the review was to identify opportunities to improve measurement. As a result of this review, EPA is beginning to transition the Enforcement and Compliance Assurance program from a tool-oriented to a problem-oriented GPRA strategic architecture, and as new measures are developed they will replace existing measures in the Agency's Strategic Plan.

Performance Targets:

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Outcome	Pounds of pollution estimated to be reduced, treated, or eliminated as a result of concluded enforcement actions. (civil enf)	890	450	500	550	million pounds

One of the program measures, pounds of pollutants reduced, looks at the overall reduction in pollution as a result of enforcement actions². The Agency is exploring methodologies to strengthen the measure by analyzing the risk associated with the pollutants reduced. This may entail analysis of pollutant hazards and population exposure.

Although the estimated pollution reductions as a result of the enforcement actions taken by EPA have grown over the past five years, these pollutant reductions are projections based on settlement agreements entered each fiscal year. One or two cases can have a significant effect on the end-of-year results.

FY 2008 Change from FY 2007 President's Budget (Dollars in Thousands):

- (+\$352.6 / +7.5 FTE) This increase reflects a transfer to NEIC's Science and Technology budget reflecting a shift in NEIC workload from Superfund related projects to projects which support other media.
- (-\$98.5) This decrease will reduce available funding for laboratory equipment at the NEIC.
- (+\$3.5) This increase is associated with increased programmatic laboratory fixed costs.
- (+\$1,632.2) This reflects an increase for payroll and cost of living for existing FTE.

Statutory Authority:

CERCLA; EPCRA.

² With the adoption of the Clean Air Interstate Rule, pollution reduction will move from an enforcement category to a regulatory category; therefore, the enforcement targets should not be expected to increase, although overall pollution reduction is certain to increase.

Program Area: Homeland Security

Homeland Security: Critical Infrastructure Protection

Program Area: Homeland Security

Goal: Clean and Safe Water

Objective(s): Protect Human Health

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Environmental Program & Management	\$4,717.4	\$7,242.7	\$7,787.0	\$544.3
<i>Science & Technology</i>	<i>\$13,306.1</i>	<i>\$45,251.0</i>	<i>\$25,586.0</i>	<i>(\$19,665.0)</i>
Hazardous Substance Superfund	\$985.1	\$1,571.6	\$1,857.0	\$285.4
Total Budget Authority / Obligations	\$19,008.6	\$54,065.3	\$35,230.0	(\$18,835.3)
Total Workyears	47.1	59.0	59.0	0.0

Program Project Description:

This program provides resources to coordinate and support protection of the nation’s critical water infrastructure from terrorist threats and other catastrophic events. Reducing risk in the water sector requires a multi-step approach to: determine risk through vulnerability, threat, and consequence assessments; reduce risk through security enhancements; prepare to effectively respond to and recover from incidents; and measure the water sector’s progress in risk reduction. Homeland Security Presidential Directives (HSPDs) 7 and 9 direct EPA to help the water sector implement protective measures and develop comprehensive water surveillance and monitoring programs. The Public Health Security and Bioterrorism Response and Preparedness Act of 2002 (Bioterrorism Act) also provides that EPA support the water sector in such activities.

(See <http://www.epa.gov/safewater/watersecurity> for more information.)

FY 2008 Activities and Performance Plan:

EPA will continue to support the water security initiative (formerly known as WaterSentinel) pilot program and water sector-specific agency responsibilities, including the Water Alliance for Threat Reduction (WATR), to protect the nation’s critical water infrastructure. In FY 2008, the Agency in collaboration with our water sector security stakeholders will continue our efforts to develop, implement and initiate tracking of national measures related to homeland security critical infrastructure protection activities. All of these efforts support the Agency’s responsibilities and commitments under the National Infrastructure Protection Plan, as defined within the Water Sector Specific Plan, which includes, for example, specific milestones for work related to the water security initiative and metric development.

Water Security Initiative

HSPD-9 directs EPA to develop a “robust, comprehensive, and fully coordinated surveillance and monitoring system” for drinking water and a water laboratory network that would support water surveillance and emergency response activities. The overall goal of the initiative is to

design and demonstrate an effective system for timely detection and appropriate response to drinking water contamination threats and incidents through a pilot program that would have broad application to the nation's drinking water utilities in high threat cities.

The water security initiative consists of five general components: (1) enhanced physical security monitoring, (2) water quality monitoring, (3) routine and triggered sampling of high priority contaminants, (4) public health surveillance, and (5) consumer complaint surveillance. Recent simulation analyses underscore the importance of a contaminant warning system that integrates all five components of event detection, as different contaminants are detected by different sequences of triggers, or "alarms."

The water security initiative is intended to demonstrate the concept of an effective contamination warning system that drinking water utilities in high threat cities of all sizes and characteristics could adopt. It will provide a comprehensive protocol that would enable utilities to most effectively – in terms of budgetary resources and detection capability – deploy contamination warning systems. Through the pilots, EPA will analyze the design and implementation issues over a range of system types including: different sized water systems; different type of water delivery systems (open versus closed); and different types of treatment (chlorinated versus non-chlorinated). The pilots also involve building the analytical capability and capacity necessary to support the contaminant-specific sampling by leveraging existing laboratory infrastructure for processing high priority biological, chemical, and radiological threat agents in water.

Resources appropriated to date have enabled EPA to establish and calibrate an initial pilot for the water security initiative. Interim guidance will be issued in 2007. Requested FY 2008 funding for the program will continue to support the existing pilot, and will support the establishment of additional pilots. Thus, all planned pilots will be underway by 2008. In the out years, EPA will focus on calibrating the contaminant warning systems and conduct extensive and thorough evaluations of each pilot. The Agency also will continue to prepare and refine a series of guidance documents for water utilities, on designing, deploying, and testing contamination warning systems based on additional lessons-learned from the pilots.

Each of the system's five components will be subjected to extensive validation in the field. In the absence of an actual contamination event, much of the evaluation of the pilots will occur through reviewing, for example, the success of conducting sample analysis in response to a trigger. EPA will quickly share information learned from the pilots with other water utilities, rather than waiting for the pilots' conclusion before disseminating key results. Work will be carried out in collaboration with other Federal agencies, such as the Department of Homeland Security (DHS), Centers for Disease Control and Prevention, Department of Defense, and the U.S. Geological Survey.

Water Sector-Specific Agency Responsibilities

HSPD-7 designates EPA as the Sector-Specific Agency "responsible for infrastructure protection activities" for the water sector (drinking water and wastewater utilities). Under this directive, EPA is responsible for developing and providing tools and training on improving security to the 54,000 community water systems and 16,000 publicly-owned treatment works.

EPA will continue to provide special assistance to high-priority drinking water systems under the Water Alliance for Threat Reduction (WATR). In FY 2008, EPA will work to ensure that water sector utilities have tools and information to prevent, detect, respond to, and recover from terrorist attacks, other intentional acts, and natural disasters. The following preventive and preparedness activities will be implemented for the water sector in collaboration with DHS and states' homeland security and water sector officials:

- Continue to develop and conduct exercises to prepare utilities, emergency responders, and decision-makers to evaluate and respond to physical, cyber-, and contamination threats and events;
- Provide expert technical assistance in preparedness and response for national special security events and incidents;
- Disseminate tools and provide technical assistance to ensure that water utilities and emergency responders react rapidly and effectively to intentional contamination and other incidents. Tools include information on high priority contaminants, incident command protocols, sampling and detection protocols and methods, and treatment options;
- To support WATR, EPA will continue to conduct additional training sessions for water sector systems serving over 100,000 people; and
- Support the establishment of mutual aid agreements among utilities to improve recovery times.

Performance Targets:

Work under this program supports EPA's protect human health objective. Currently, there are no performance measures specific to this program.

FY 2008 Change from FY 2007 President's Budget (Dollars in Thousands):

- (-\$20,000.0) This decrease reflects resources to maintain the existing water security initiative pilot and to complete deployment of remaining pilot systems under the initiative.
- (+\$333.9) This reflects an increase for payroll and cost of living for existing FTE.
- (+\$1.1) Change due to rounding in the FY 2008 President's Budget.

Statutory Authority:

SDWA; CWA; Public Health Security and Bioterrorism Emergency and Response Act of 2002; EPCRA.

Homeland Security: Preparedness, Response, and Recovery

Program Area: Homeland Security

Goal: Clean Air and Global Climate Change

Objective(s): Radiation

Goal: Healthy Communities and Ecosystems

Objective(s): Chemical and Pesticide Risks; Enhance Science and Research

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Environmental Program & Management	\$1,659.2	\$3,328.7	\$3,381.0	\$52.3
<i>Science & Technology</i>	<i>\$32,692.8</i>	<i>\$44,498.1</i>	<i>\$40,768.0</i>	<i>(\$3,730.1)</i>
Hazardous Substance Superfund	\$40,400.0	\$49,774.9	\$45,280.0	(\$4,494.9)
Total Budget Authority / Obligations	\$74,752.0	\$97,601.7	\$89,429.0	(\$8,172.7)
Total Workyears	148.6	165.6	167.6	2.0

Program Project Description:

Through research, development and technical support activities, this program continues to increase the Agency’s preparedness, and its response and recovery capabilities for homeland security incidents involving chemical, biological or radiological threats. The Agency continues to assemble and evaluate private sector tools and capabilities so that efficacious response approaches can be identified and evaluated for future use by first responders, decision makers, and the public. EPA also continues to work with Federal institutions and other organizations through collaborative research efforts to strengthen decontamination capabilities.

FY 2008 Activities and Performance Plan:

Agency homeland security research, the radiological monitoring program, and biodefense research will continue to strengthen response capabilities, and clarify roles and responsibilities to ensure an effective response. It will also promote improved response capabilities across government and industry in areas where EPA has unique knowledge and expertise.

EPA’s National Homeland Security Research Center (NHSRC):

The NHSRC oversees Agency research in preparedness, risk assessment, detection, containment, decontamination, and disposal associated with chemical, biological, and radiological attacks. The Center will continue work in support of its responsibilities as assigned in Homeland Security Presidential Directives (HSPDs) (e.g., HSPD-7, HSPD-9, and HSPD-10) and Department of Homeland Security requirements for EPA expertise in a number of key areas. Activities in FY 2008 will include the following:

- Water infrastructure protection research will focus on developing, testing, demonstrating, communicating, and implementing enhanced methods for detection, treatment, and

containment of biological and chemical warfare agents, certain radiological contaminants, and bulk industrial chemicals intentionally introduced into drinking water and wastewater systems. This is consistent with the Critical Infrastructure Protection Plan (CIPP) developed for water infrastructure and with the *Water Security Research and Technical Support Action Plan*.

- Threat and consequence assessment research will focus on conducting risk assessments of decontamination byproducts; refining toxicity databases; developing fate, transport, dispersion, and exposure parameters; and developing computer-based tools to aid decision makers in assessing the risks associated with biological and chemical attacks; as well as determination/revision of cleanup guidance goals.
- To support the homeland security requirements under HSPDs 9 and 10, EPA will expand its Standardized Analytical Methods (SAM) document for homeland security to include development, validation, and testing of non-standard methods and additional methods for chemicals, biologicals, and radiologicals in new environmental matrices. EPA also will establish an applied measurement science research program to administer the activities of a national laboratory network that will manage method development, validation, and application for contaminants resulting from terrorist attacks.
- EPA will conduct critical research to improve existing decontamination systems and to develop and test new decontamination methods and systems for buildings, large structures, and outdoor areas. In addition, field studies to validate decontamination methods specific to anthrax will be conducted, as will research to develop decontamination and disposal methods for building materials.
- Other efforts will begin evaluating toxicity, infectivity, mechanisms of action, and other risk characterization information for biological contaminants in order to develop dose/response relationships that can assist the development of cleanup goals.
- EPA's Homeland Security research program plans to have several projects and proposals reviewed by independent scientific advisory bodies during FY 2008. EPA has set up a special Science Advisory Board (SAB) committee to review research related to homeland security. In addition, EPA's Homeland Security research program has tentatively planned a Board of Scientific Counselors (BOSC) review during 2008.

Radiation Monitoring:

In the Nuclear/Radiological Incident Annex to the National Response Plan for Homeland Security, EPA's responsibilities include maintenance and enhancement of the RadNet monitoring network. The network includes deployable monitors and near real-time stationary monitors. EPA also is responsible for maintenance of both fixed and mobile monitors, and personnel and asset readiness for radiological emergency responses, which includes participating in emergency response situations and providing technical expertise and support.

- The Agency will continue to upgrade and enhance the RadNet air monitoring network. Monitors will be put into operation as they are delivered and installed at the sites by the manufacturer. These near-real-time monitors will replace the pre-existing system of 60 conventional air samplers. Fixed stations will operate in conjunction with 40 deployable monitors. From FY 2006 through FY 2008, EPA expects to install over 100 monitors providing near real-time radiation monitoring coverage for over two-thirds of the 100 most populous U.S. cities. As the RadNet air monitoring network is upgraded and enhanced, response time and data dissemination will be reduced from days to hours and will provide the Agency with greater access to near real-time data, improving officials' ability to make decisions about protecting public health during an incident. The improved system will help ensure preparedness for radiological incidents.

Improve National Radiological Lab Capacity and Capability:

In FY 2008, EPA will build upon work begun in FY 2006 to augment EPA's existing applied science radiological labs to meet emerging homeland security needs and serve as the Agency's radiological reference laboratory. Also, EPA will continue to upgrade the Agency's lab response capability to ensure a minimal level of surge capacity for radiological terrorism incidents; enhance the existing capability to conduct chemical and radiological analysis simultaneously; and coordinate the Radiological Emergency Response Team's sample handling protocols with the mobile triage units. Additionally, EPA will align and integrate related radiological activities with existing National Lab Networks. The Agency will initially assess capability and capacity of ten state, Federal, and commercial laboratories.

Biodefense:

EPA will continue work to develop and validate methods to evaluate the efficacy of products against bioterrorism agents, expanding this work to address fumigants. EPA will continue to address critical gaps in efficacy test methodology and knowledge of microbial resistance. In addition to bacteria, in FY 2008, EPA will address threatening viruses and other emerging pathogens in environmental media. Thus far, decontamination test methods for viruses have only begun to be addressed. EPA will propose the development and evaluation of efficacy test protocols for products designed to control viruses in the environment during decontamination.

In order to improve the Agency's ability to respond to events involving biothreat agents, EPA will increase the number of standardized and validated methods for evaluating the efficacy of decontamination agents. Critical efforts in FY 2007 through FY 2008 will focus on evaluating additional non-spore forming threat agents and viruses, novel antimicrobial formulations such as gases and sprays, and additional surface materials (concrete, wood etc.). EPA will continue to seek independent third-party analysis for method validation efforts through recognized standard setting organizations. As new methods are developed, statistical modeling for various biodefense scenarios will be critical to the development of science based performance standards. Microbial persistence, resistance to antimicrobial agents, and an understanding of biofilm environments are also key factors in evaluating the efficacy of decontamination tools.

Performance Targets:

Work under this program supports multiple strategic objectives. Currently, there are no PART measures for this specific program/project. However, in FY 2008 the program plans to accomplish its goals of completing and delivering 100% of its planned outputs in support of 1) the efficient and effective clean-up and safe disposal of decontamination wastes, 2) the water security initiative, 3) the rapid assessment of risk and the determination of clean-up goals and procedures following contamination, and 4) the establishment of the National Laboratory Response Network. In achieving these targets, the program will contribute to EPA's goal of providing scientifically sound guidance and policy decisions related to the health of people, communities, and ecosystems.

FY 2008 Change from FY 2007 President's Budget (Dollars in Thousands):

- (+\$229.9) This reflects an increase for payroll and cost of living for existing FTE.
- (-\$6.3) This reduction reflects efficiencies gained in Agency administrative or contract management services.
- (-\$4,000.0) This reflects a reduction to EPA's planned decontamination research. However, the reduction will not affect ongoing research projects.
- (+\$46.1) This increase is associated with increased programmatic laboratory fixed costs.
- (+\$0.2) Change due to rounding in the FY 2008 President's Budget.

Statutory Authority:

Atomic Energy Act of 1954, as amended, 42 U.S.C 2011 et seq. (1970), and Reorganization Plan #3 of 1970; CAA; CERCLA, SARA; Executive Order 12241 of September 1980, National Contingency Plan, 3 CFR, 1980; Executive Order 12656 of November 1988, Assignment of Emergency Preparedness Responsibilities, 3 CFR, 1988; Public Health Service Act, as amended, 42 U.S.C 201 et seq.; Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended, 42 U.S.C 5121 et seq.; SDWA; Title X IV of the National Defense Authorization Act of 1997, PL 104-201 (Nunn-Lugar II) National Response Plan; Public Health Security and Bioterrorism Emergency and Response Act of 2002; TSCA; Oil Pollution Act; Pollution Prevention Act; RCRA; EPCRA; CWA; FIFRA; Federal Food, Drug and Cosmetic Act; FQPA; Ocean Dumping Act; Public Health Service Act, as amended; 42 U.S.C 201 et seq.; Executive Order 10831 (1970); Public Law 86-373; PRIA.

Homeland Security: Protection of EPA Personnel and Infrastructure

Program Area: Homeland Security

Goal: Provide Agency-wide support for multiple goals to achieve their objectives. This support involves Agency-wide activities primarily provided by EPA's six (6) support offices - the Office of Administration and Resources Management (OARM), Office of the Chief Financial Officer (OCFO), Office of Environmental Information (OEI), Office of General Counsel (OGC), Office of the Administrator (OA), and the Office of Inspector General (OIG).

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Environmental Program & Management	\$8,845.1	\$6,268.9	\$6,345.0	\$76.1
<i>Science & Technology</i>	<i>\$3,013.8</i>	<i>\$2,079.0</i>	<i>\$594.0</i>	<i>(\$1,485.0)</i>
Building and Facilities	\$10,800.9	\$11,385.1	\$7,870.0	(\$3,515.1)
Hazardous Substance Superfund	\$534.7	\$594.2	\$594.0	(\$0.2)
Total Budget Authority / Obligations	\$23,194.5	\$20,327.2	\$15,403.0	(\$4,924.2)
Total Workyears	3.0	3.0	3.0	0.0

Program Project Description:

This program involves activities to ensure that EPA's physical structures and assets are secure and operational and that certain physical security measures are in place to help safeguard staff in the event of an emergency. These efforts also protect the capability of EPA's vital infrastructure assets.

FY 2008 Activities and Performance Plan:

In FY 2008, the Agency will continue to provide physical security at specific laboratory facilities, including homeland security support activities.

Performance Targets:

Work under this program supports multiple strategic objectives. Currently, there are no performance measures for this specific program.

FY 2008 Change from FY 2007 President's Budget (Dollars in Thousands):

- (-\$1,485.0) This reduction reflects substantial progress in completing initial vulnerability mitigations at EPA's most vulnerable facilities, allowing a reduction in the pace of physical security upgrades and vulnerability assessments.

Statutory Authority:

Public Health Security and Bioterrorism Emergency and Response Act of 2002; Secure Embassy Construction and Counterterrorism Act (Sections 604 and 629).

Program Area: Indoor Air

Indoor Air: Radon Program

Program Area: Indoor Air

Goal: Clean Air and Global Climate Change

Objective(s): Healthier Indoor Air

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Environmental Program & Management	\$7,418.0	\$5,519.2	\$5,429.0	(\$90.2)
<i>Science & Technology</i>	<i>\$583.9</i>	<i>\$442.2</i>	<i>\$428.0</i>	<i>(\$14.2)</i>
Total Budget Authority / Obligations	\$8,001.9	\$5,961.4	\$5,857.0	(\$104.4)
Total Workyears	37.3	42.9	39.9	-3.0

*Resources under this program/project were formerly captured under Indoor Air: Asthma (74), Indoor Air: Environmental Tobacco Smoke (75), and Indoor Air: Schools and Workplaces Programs (77)

Program Project Description:

The Radiation and Indoor Environments National Laboratory (R&IE) in Las Vegas, NV is the only remaining Federal, National Institute of Standards and Technology (NIST)-traceable radon laboratory. The R&IE radon laboratory supports EPA’s radon program by providing exposure services to local, state, and Federal radon programs and to privatized radon proficiency programs. The R&IE radon laboratory also distributes and analyzes radon test kits for community-based environmental justice partners with a focus on tribes.

FY 2008 Activities and Performance Plan:

In FY 2008, EPA’s radon laboratory will continue to provide: radon exposure services to support local, state, and Federal radon programs; radon laboratory inter-comparisons and device verification exposures to support privatized radon proficiency programs; and test kits and analyses for community-based environmental justice partners. As part of its environmental justice efforts, EPA will distribute 2,000 radon kits to our network of partner organizations and community-based environmental justice partners and analyze 100% of returned radon kits.

The Indoor Air program received a rating of “moderately effective” during a 2005 PART assessment. The Indoor Air program is not regulatory; instead, EPA works toward its goal by conducting research and promoting appropriate risk reduction actions through voluntary education and outreach programs. The Agency will continue to focus on making efficiency improvements and plans to improve transparency by making all aspects of the State Indoor Radon Grant (SIRG) program performance/results data available to the public via our website or other easily accessible means.

Performance Targets:

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Outcome	Number of additional homes (new and existing) with radon reducing features	Data Available 2007	180,000	190,000	225,000	Homes

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Efficiency	Total Cost (public and private) per future premature cancer death prevented through lowered radon exposure.	Data Available 2007	450,000	No Target Established	No Target Established	Dollars

In FY 2008, EPA expects 225,000 additional homes to have radon reducing features bringing the cumulative number of U.S. homes with radon reducing features to over 2 million. EPA estimates that this cumulative number will result in approximately 800 future premature cancer deaths prevented (each year these radon reducing features are in place). EPA will track progress against the efficiency measure in the table above triennially with the next report date in FY 2009.

These program goals are a result of the total funding the program area receives through EPM, S&T, and SIRG funding.

FY 2008 Change from FY 2007 President's Budget (Dollars in Thousands):

- (-\$14.2) This decrease is the net effect of increases for payroll and cost of living for existing FTE, combined with a reduction based on the recalculation of base workforce costs.

Statutory Authority:

CAA Amendments of 1990; (IRAA), Section 306; Title IV of the SARA of 1986; TSCA, section 6, Titles II, and Title III (15 U.S.C. 2605 and 2641-2671), and Section 10.

Reduce Risks from Indoor Air

Program Area: Indoor Air

Goal: Clean Air and Global Climate Change

Objective(s): Healthier Indoor Air

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Environmental Program & Management	\$19,023.2	\$23,464.3	\$21,440.0	(\$2,024.3)
Science & Technology	\$759.9	\$828.7	\$788.0	(\$40.7)
Total Budget Authority / Obligations	\$19,783.1	\$24,293.0	\$22,228.0	(\$2,065.0)
Total Workyears	71.1	68.9	68.3	-0.6

*Resources under this program/project were formerly captured under Indoor Air: Asthma (74), Indoor Air: Environmental Tobacco Smoke (75), and Indoor Air: Schools and Workplaces Programs (77)

Program Project Description:

The Radiation and Indoor Environments National Laboratory (R&IE) maintains the capacity to conduct field measurements, assessments and technical support for indoor air quality remediations. R&IE also conducts training and provides technical support for development of tribal capacity for indoor air quality programs, such as mold remediation, assessment and characterization of sources of volatiles and intruding vapors, and monitoring and measurement techniques.

FY 2008 Activities and Performance Plan:

In FY 2008, EPA will conduct Indoor Air Quality (IAQ) intervention and remediation training courses which will continue to support development of tribal capacity for indoor air quality programs. EPA will continue conducting field measurements and assessments and providing technical support for indoor air quality remediations.

Performance Targets:

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Outcome	Percent of public that is aware of the asthma program's media campaign.	33	>20	>20	>20	Percentage

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Output	Additional health care professionals trained annually by EPA and its partner on the environmental	Data Available 2007	2000	2000	2000	Number

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
	management of asthma triggers.					

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Efficiency	Annual Cost to EPA per person with asthma taking all essential actions to reduce exposure to indoor environmental asthma triggers.	Data Available 2007	8.38	No Target Established	No Target Established	Dollars

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Outcome	Estimated annual number of schools establishing indoor air quality programs based on EPA's Tools for Schools guidance.	Data Available 2007	1200	1100	1100	Number

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Efficiency	Average cost to EPA per student per year in a school that is implementing an Indoor Air Quality plan.	Data Available 2007	2	No Target Established	No Target Established	Dollars

The Indoor Air program, rated by OMB as “moderately effective” during a 2005 PART assessment will continue to focus on making efficiency improvements in response to recommendations in the PART assessment. EPA will track progress against the efficiency measures included in the tables above triennially with the next planned report date in FY 2009.

EPA will continue to work towards its long term 2012 goal to have 6.5 million people with asthma take the essential actions to reduce their exposure to their environmental triggers of asthma, including environmental tobacco smoke. EPA’s goal is to have close to 400,000 additional people with asthma to take these actions in 2008, bringing the total number to over 4.9 million people with asthma taking these actions. As part of this goal, EPA will continue to work to reduce existing disparities between disproportionately impacted populations and the overall population.

FY 2008 Change from FY 2007 President's Budget (Dollars in Thousands):

- (-\$40.7) This decrease is the net effect of increases for payroll and cost of living for existing FTE, combined with a reduction based on the recalculation of base workforce costs.

Statutory Authority:

CAA Amendments of 1990; RGIAQR Act; Title IV of the SARA of 1986.

Program Area: IT / Data Management / Security

IT / Data Management

Program Area: IT / Data Management / Security

Goal: Provide Agency-wide support for multiple goals to achieve their objectives. This support involves Agency-wide activities primarily provided by EPA's six (6) support offices - the Office of Administration and Resources Management (OARM), Office of the Chief Financial Officer (OCFO), Office of Environmental Information (OEI), Office of General Counsel (OGC), Office of the Administrator (OA), and the Office of Inspector General (OIG).

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Environmental Program & Management	\$98,871.4	\$96,807.2	\$91,019.0	(\$5,788.2)
<i>Science & Technology</i>	<i>\$4,412.9</i>	<i>\$4,268.0</i>	<i>\$3,499.0</i>	<i>(\$769.0)</i>
Leaking Underground Storage Tanks	\$130.9	\$175.9	\$177.0	\$1.1
Oil Spill Response	\$38.8	\$32.5	\$34.0	\$1.5
Hazardous Substance Superfund	\$16,646.2	\$17,120.4	\$16,338.0	(\$782.4)
Total Budget Authority / Obligations	\$120,100.2	\$118,404.0	\$111,067.0	(\$7,337.0)
Total Workyears	515.5	488.0	488.0	0.0

Program Project Description:

The IT/Data Management Science & Technology (S&T) program manages and coordinates the Agency's Science and Technology Enterprise Architecture and develops analytical tools (e.g., Environmental Indicators) to ensure sound environmental decision-making. The program implements the Agency's E-Government (E-Gov) responsibilities; designs, develops and manages the Agency's Internet and Intranet resources including the Integrated Portal. The program 1) supports the development, collection, management, and analysis of environmental data (to include both point source and ambient data) to manage statutory programs and to support the Agency in strategic planning at the national, program, and regional levels, 2) provides a secure, reliable, and capable information infrastructure based on a sound enterprise architecture which includes data standardization, integration, and public access, 3) manages the Agency's Quality System ensuring EPA's processes and data are of quality and adhere to Federal guidelines, and 4) supports regional information technology infrastructure, administrative and environmental programs, and telecommunications. These functions are integral to the implementation of Agency information technology programs and systems like the Exchange Network, the Central Data Exchange (CDX) and Permit Compliance System (PCS). Agency offices rely on the IT/Data Management program and its capabilities to develop and implement tools for ready access to accurate and timely data. Recent partnerships include portals projects with the Offices of Research and Development and Air and Radiation to access scientific and program data.

FY 2008 Activities and Performance Plan:

In FY 2008, EPA's Science and Information Technology community will continue focusing on

the Agency's Technology Initiative¹ and fulfilling the Agency's E-Gov commitments. The Agency's IT/Data Management program forms the core of this effort with its focus on building and implementing the Agency's Integrated Portal and Enterprise Content Management System (ECMS), developing Environmental Indicators, and continuing to deploy enterprise-wide IT infrastructure solutions.

Integral to the successful achievement of the Technology Initiative and the broader IT/Data Management efforts is the quality of the data and services. In FY 2008, EPA's IT/Data Management program will continue to provide methods to manage the quality of environmental data collection, generation, and use. The primary goal of the EPA Quality System is to ensure that its S&T environmental data are of sufficient quantity and quality to support the data's intended use. As part of the Agency's Quality System, policies and procedures have been developed to assist individual data collectors, data users, and decision makers in defining their needs for data and assessing data against these needs, and to provide EPA management with methods for overseeing the quality-related activities of their programs. Like the larger IT/Data Management efforts, the Quality System is closely coordinated with the Exchange Network and Information Security programs. This relationship ensures quality data are available and accessible to promote sound environmental decision-making.

In FY 2008, EPA expects savings from the first phase of the Network Optimization Project effort of key IT services and solutions. The services included in this effort include email services, access to data files, telephone communications, and Enterprise Content Management System (ECMS). The end result will be changes to the Agency's IT environment including the ability to manage key IT services, use the power of competition to control costs in a highly competitive environment, and hold vendors and contractors accountable for providing consistently excellent services.

Performance Targets:

Work under this program supports multiple strategic objectives. Currently, there are no performance measures for this specific program project.

FY 2008 Change from FY 2007 President's Budget (Dollars in Thousands):

- (+\$81.1) This reflects an increase for payroll and cost of living for existing FTE.
- (-\$850.1) This change reflects the Agency working to streamline IT consolidation. This reduction is an aggregate estimate. The final distribution by program will be determined when the Network Optimization Project is completed.

¹ Office of Environmental Information's (OEI) FY 2006 Technology Initiative has three major components: 1) Building on its Analytical Capacity and Indicators work, OEI will uncover and fill data gaps, and develop response capacity; 2) Using the portal and Exchange Network, OEI will increase the integration of quality data, streamline transactions to foster collaboration, reduce the data entry burden, and improve decision making; and 3) OEI's Readiness to Serve initiative will build capacity and infrastructure to allow more EPA employees to telecommute or work safely and securely in the field.

Statutory Authority:

FACA; GISRA; CERCLA; CAAA; CWA and amendments; ERD and DAA; TSCA; FIFRA; FQPA; SDWA and amendments; FFDCA; EPCRA; RCRA; SARA; GPRA; GMRA; CCA; PRA; FOIA; CSA; PR; EFOIA.

Program Area: Operations and Administration

Facilities Infrastructure and Operations
Program Area: Operations and Administration

Goal: Provide Agency-wide support for multiple goals to achieve their objectives. This support involves Agency-wide activities primarily provided by EPA's six (6) support offices - the Office of Administration and Resources Management (OARM), Office of the Chief Financial Officer (OCFO), Office of Environmental Information (OEI), Office of General Counsel (OGC), Office of the Administrator (OA), and the Office of Inspector General (OIG).

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Environmental Program & Management	\$336,980.6	\$294,760.1	\$303,728.0	\$8,967.9
<i>Science & Technology</i>	\$8,841.7	\$70,239.5	\$73,859.0	\$3,619.5
Building and Facilities	\$30,871.3	\$28,430.9	\$26,931.0	(\$1,499.9)
Leaking Underground Storage Tanks	\$769.6	\$916.8	\$901.0	(\$15.8)
Oil Spill Response	\$366.1	\$499.3	\$490.0	(\$9.3)
Hazardous Substance Superfund	\$66,365.6	\$73,944.7	\$74,956.0	\$1,011.3
Total Budget Authority / Obligations	\$444,194.9	\$468,791.3	\$480,865.0	\$12,073.7
Total Workyears	375.1	438.6	415.9	-22.7

Program Project Description:

S&T resources in the Facilities Infrastructure and Operations Program Project are used to fund rent, utilities, and security, and also to manage activities and support services in many centralized administrative areas such as health and safety, environmental compliance, occupational health, medical monitoring, fitness/wellness and safety, and environmental management functions at EPA. Resources for this program also support a full range of ongoing facilities management services including: facilities maintenance and operations, Headquarters security, space planning, shipping and receiving, property management, printing and reproduction, mail management, and transportation services.

FY 2008 Activities and Performance Plan:

The Agency will continue to manage its lease agreements with GSA and other private landlords by conducting rent reviews and verifying that monthly billing statements are correct. The Agency also reviews space needs on a regular basis.

These resources also help to improve operating efficiency and encourage the use of new, advanced technologies and energy sources. EPA will continue to direct resources towards acquiring alternative fuel vehicles and more fuel-efficient passenger cars and light trucks to meet the goals set by Executive Orders (EO) 13149¹, *Greening the Government through Federal Fleet*

¹ Information available at <http://www.epa.gov/fedsite/eo13149.htm>

and Transportation Efficiency and EO 13123², Greening the Government through Efficient Energy Management.

Lastly, EPA will provide transit subsidy to eligible applicants as directed by Executive Order (EO) 13150³ *Federal Workforce Transportation*. EPA will continue the implementation of the Safety and Health Management Systems to ensure a safe working environment.

Performance Targets:

Work under this program supports multiple strategic objectives. Performance information is included in the Program Performance and Assessment section.

FY 2008 Change from FY 2007 President's Budget (Dollars in Thousands):

- (+\$1,577.0) Provides additional resources for increases in rent costs.
- (+\$2,159.4) Provides additional resources for increases in utility costs.
- (+\$362.5) Provides additional resources for increases in security costs.
- (+\$25.2) Provides additional resources for increases in Transit Subsidy.
- (-\$504.6) This reduction reflects efficiencies gained in Agency administrative or contract management services.

Statutory Authority:

FPASA; PBA; Annual Appropriations Act; CWA; CAA; D.C. Recycling Act of 1988; Executive Orders 10577 and 12598; United States Marshals Service, Vulnerability Assessment of Federal Facilities Report; Presidential Decision Directive 63 (Critical Infrastructure Protection).

² Information available at <http://www.epa.gov/fedsite/eo13123.htm>

³ Additional information available at <http://ceq.eh.doe.gov/nepa/regs/eos/eo13150.html>

Program Area: Pesticides Licensing

Pesticides: Registration of New Pesticides

Program Area: Pesticides Licensing

Goal: Healthy Communities and Ecosystems

Objective(s): Chemical and Pesticide Risks

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Environmental Program & Management	\$39,406.5	\$39,767.6	\$0.0	(\$39,767.6)
<i>Science & Technology</i>	<i>\$2,631.7</i>	<i>\$2,766.1</i>	<i>\$0.0</i>	<i>(\$2,766.1)</i>
Total Budget Authority / Obligations	\$42,038.2	\$42,533.7	\$0.0	(\$42,533.7)
Total Workyears	380.3	327.8	0.0	-327.8

Program Project Description:

The Agency has three laboratories supporting registration activities including an analytical chemistry laboratory and a microbiology laboratory at the Environmental Science Center (ESC) at Fort Meade, MD and an environmental chemistry laboratory (ECL) at Stennis Space Center, Bay St. Louis, MS. The Analytical Chemistry and Environmental Chemistry laboratories validate environmental and analytical chemistry methods to ensure that the Food and Drug Administration (FDA), United States Department of Agriculture (USDA), EPA offices and states have reliable methods to measure and monitor pesticide residues in food and in the environment.

Beginning in FY 2008, these resources will be presented according to descriptions that better reflect the Agency's Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) mandate and aligned with the Agency Strategic Plan. These description titles are: Protect Human Health from Pesticide Risk, Protect the Environment from Pesticide Risk, and Realize the Value of Pesticide Availability.

FY 2008 Activities and Performance Plan:

Resources previously presented in this program project are now presented within three new program projects and are distributed as outlined in the Explanation of Change section below. Please see the descriptions for program projects: Protect Human Health from Pesticide Risk, Protect the Environment from Pesticide Risk, and Realize the Value of Pesticide Availability for detailed descriptions of the FY 2008 activities and performance.

Performance Targets:

Please see the narratives for program projects: Protect Human Health from Pesticide Risk, Protect the Environment from Pesticide Risk, and Realize the Value of Pesticide Availability for detailed descriptions of the FY 2008 activities and performance.

FY 2008 Change from FY 2007 Presidents Budget (Dollars in Thousands):

- (-\$1,549.0 /-8.6 FTE) This represents a transfer of resources to the Pesticides: Protect Human Health from Pesticide Risk program. This is the outgoing transfer from the Pesticides: Registration of New Pesticides program's base resources and does not reflect a change in program resources, activities, or activity levels from what would have otherwise been presented under this program project.
- (-\$995.8 /-5.5 FTE) This represents a transfer of resources to the Pesticides: Protect the Environment from Pesticide Risk program. This is the outgoing transfer from the Pesticides: Registration of New Pesticides program's base resources and does not reflect a change in program resources, activities, or activity levels from what would have otherwise been presented under this program project.
- (-\$221.3 /-1.2 FTE) This represents a transfer of resources to the Pesticides: Realize the Value of Pesticide Availability program. This is the outgoing transfer from the Pesticides: Registration of New Pesticides program's base resources and does not reflect a change in program resources, activities, or activity levels from what would have otherwise been presented under this program project.

Statutory Authority:

PRIA; FIFRA; FFDCA; and FQPA.

Pesticides: Review / Reregistration of Existing Pesticides

Program Area: Pesticides Licensing
Goal: Healthy Communities and Ecosystems
Objective(s): Chemical and Pesticide Risks

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Environmental Program & Management	\$54,507.5	\$51,814.6	\$0.0	(\$51,814.6)
<i>Science & Technology</i>	<i>\$2,347.0</i>	<i>\$2,820.4</i>	<i>\$0.0</i>	<i>(\$2,820.4)</i>
Total Budget Authority / Obligations	\$56,854.5	\$54,635.0	\$0.0	(\$54,635.0)
Total Workyears	460.5	458.7	0.0	-458.7

Program Project Description:

The Pesticide Reregistration and Registration Review programs are supported by an analytical chemistry laboratory and a microbiology laboratory at the Environmental Science Center (ESC) at Fort Meade, MD, and an environmental chemistry laboratory (ECL) at Stennis Space Center, Bay St. Louis, MS. These laboratories support program activities by validating environmental and analytical chemistry methods to ensure that the Food and Drug Administration (FDA), the United States Department of Agriculture (USDA), EPA offices, and states have reliable methods to measure and monitor pesticide residues in food and in the environment. The laboratories, in cooperation with industry, state and other EPA laboratories, develop multi-residue analytical methods to allow enforcement agencies to test for several different chemicals using one test.

Beginning in FY 2008, these resources will be presented according to descriptions that better reflect the Agency's Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) mandate and align with the Agency Strategic Plan. These description titles are: Protect Human Health from Pesticide Risk, Protect the Environment from Pesticide Risk, and Realize the Value of Pesticide Availability.

FY 2008 Activities and Performance Plan:

Resources previously presented in this program project are now presented within three new program projects and are distributed as outlined in the Explanation of Change section below. Please see the descriptions for program projects: Protect Human Health from Pesticide Risk, Protect the Environment from Pesticide Risk, and Realize the Value of Pesticide Availability for detailed descriptions of the FY 2008 activities and performance.

Performance Targets:

Please see the narratives for program projects: Protect Human Health from Pesticide Risk, Protect the Environment from Pesticide Risk, and Realize the Value of Pesticide Availability for detailed descriptions of the FY 2008 activities and performance.

FY 2008 Change from FY 2007 Presidents Budget (Dollars in Thousands):

- (-\$1,579.4 /-9.5 FTE) This represents a transfer of resources to the Pesticides: Protect Human Health from Pesticide Risk program. This is the outgoing transfer from the Pesticides: Review/Reregistration program's base resources and does not reflect a change in program resources, activities, or activity levels from what would have otherwise been presented under this program project.
- (-\$1,015.4 /-6.1 FTE) This represents a transfer of resources to the Pesticides: Protect the Environment from Pesticide Risk program. This is the outgoing transfer from the Pesticides: Review/Reregistration program's base resources and does not reflect a change in program resources, activities, or activity levels from what would have otherwise been presented under this program project.
- (-\$225.6 /-1.4 FTE) This represents a transfer of resources to the Pesticides: Realize the Value of Pesticide Availability program. This is the outgoing transfer from the Pesticides: Review/Reregistration program's base resources and does not reflect a change in program resources, activities, or activity levels from what would have otherwise been presented under this program project.

Statutory Authority:

PRIA; FIFRA; FFDCA; FQPA.

Pesticides: Protect Human Health from Pesticide Risk

Program Area: Pesticides Licensing
Goal: Healthy Communities and Ecosystems
Objective(s): Chemical and Pesticide Risks

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Environmental Program & Management	\$0.0	\$0.0	\$62,514.0	\$62,514.0
<i>Science & Technology</i>	<i>\$0.0</i>	<i>\$0.0</i>	<i>\$3,294.0</i>	<i>\$3,294.0</i>
Total Budget Authority / Obligations	\$0.0	\$0.0	\$65,808.0	\$65,808.0
Total Workyears	0.0	0.0	488.5	488.5

Program Project Description:

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), section 3(c)(5), states that the Administrator shall register a pesticide if it is determined that, when used in accordance with labeling and common practices the product “will not generally cause unreasonable adverse effects on the environment.” Further, FIFRA defines “unreasonable adverse effects on the environment” as “any unreasonable risk to man or the environment. EPA has restructured its program projects in order to align resource requests and resource presentation with the program’s mandate. This program project 1) links resources with FIFRA’s mandate to protect human health from unreasonable pesticide risks, 2) aligns with EPA’s 2006-2011 Agency Strategic Plan, and 3) comprises the human health activities formerly described in the Pesticides: Pesticides: Review/Reregistration of Existing Pesticides and the Pesticides: Registration of New Pesticides program projects.

EPA’s Pesticides program screens new pesticides before they reach the market and ensures that pesticides already in commerce are safe. As directed by FIFRA, the Federal Food, Drug, and Cosmetic Act (FFDCA), and the Food Quality Act of 1996 that amended FIFRA and FFDCA, EPA is responsible for registering and reregistering pesticides to protect consumers, pesticide users, workers who may be exposed to pesticides, children, and other sensitive populations. To make regulatory decisions and establish tolerances or maximum allowable pesticide residues on food and feed, EPA must balance the risks and benefits of using the pesticide, consider cumulative and aggregate risks, and ensure extra protection for children.

Research for the Pesticide program supports the goal of protecting human health through three pesticide laboratories: an analytical chemistry laboratory and a microbiology laboratory at the Environmental Science Center (ESC) at Fort Meade, MD, and an environmental chemistry laboratory (ECL) at Stennis Space Center, Bay St. Louis, MS. These laboratories develop and validate environmental and analytical chemistry methods to ensure the United States Department of Agriculture (USDA), USGS, EPA offices, and states have reliable methods to measure and monitor pesticide residues in food and in the environment. The laboratories, in cooperation with industry, state and other EPA laboratories, develop multi-residue analytical methods to allow enforcement agencies to test for several different chemicals using one test.

FY 2008 Activities and Performance Plan:

In 2008, the Agency will continue to protect human health by evaluating residue analytical methods for detecting pesticide residues in food and feed, ensuring suitability for monitoring pesticide residues and enforcement of tolerances. This will be accomplished by developing and validating multi-residue pesticide analytical methods for food, feed and water for use by other Federal (USDA Pesticide Data Program and FDA) and state laboratories, and subsequently the program office. The methods will help estimate human health risks by operating the National Pesticide Standard Repository and conducting chemistry and efficacy testing for antimicrobials.

EPA's laboratories will continue to provide quality assurance and technical support and training to EPA regions, state laboratories, and other Federal agencies that implement the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). The laboratories will evaluate registered products that are most crucial to infection control (sterilants, tuberculocides, and hospital-level disinfectants). Under the Plant-Incorporated Protectant (PIP) method validation program, work will continue on evaluating several novel molecular-based methods.

Performance Targets:

Work under this program supports multiple performance objectives. Some of this program's performance measures are program outputs which represent statutory requirements to ensure that pesticides entering the marketplace are safe for human health and the environment and when used in accordance with the packaging label present a reasonable certainty of no harm. While program outputs are not the best measures of risk reduction, they do provide a means for realizing benefits in that the program's safety review prevents dangerous pesticides from entering the marketplace.

FY 2008 Change from FY 2007 Presidents Budget (Dollars in Thousands):

- (+\$1,579.4 \ +9.5 FTE) This increase is the incoming transfer of the Pesticides: Review/Reregistration of Existing Pesticides program's base resources, including payroll and FTE, and does not reflect new resources, or program activities that would have been presented under the previous program project structure.
- (+\$1,549.0 \ +8.6 FTE) This increase is the incoming transfer of the Pesticides: Registration of New Pesticides program's base resources and does not reflect new resources, or program activities that would have been presented under the previous program project structure.
- (+\$163.3) This reflects an increase for payroll and cost of living for existing FTE.
- (+\$2.3) This increase reflects minor shifts in workforce support.

Statutory Authority:

PRIA; FIFRA; FFDCA; FQPA.

Pesticides: Protect the Environment from Pesticide Risk

Program Area: Pesticides Licensing
Goal: Healthy Communities and Ecosystems
Objective(s): Chemical and Pesticide Risks

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Environmental Program & Management	\$0.0	\$0.0	\$41,750.0	\$41,750.0
<i>Science & Technology</i>	<i>\$0.0</i>	<i>\$0.0</i>	<i>\$2,115.0</i>	<i>\$2,115.0</i>
Total Budget Authority / Obligations	\$0.0	\$0.0	\$43,865.0	\$43,865.0
Total Workyears	0.0	0.0	320.5	320.5

Program Project Description:

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), section 3(c)(5), states that the Administrator shall register a pesticide if it is determined that, when used in accordance with labeling and common practices the product “will not generally cause unreasonable adverse effects on the environment.” Further, FIFRA defines “unreasonable adverse effects on the environment” as “any unreasonable risk to man or the environment.” EPA has restructured its program projects in order to align resource requests and resource presentation with the program’s mandate. This program project 1) links resources with FIFRA’s mandate to protect the environment from unreasonable pesticide risks, 2) aligns with EPA’s 2006-2011 Agency Strategic Plan, and 3) comprises the environmental protection activities formerly described in the Pesticides: Pesticides: Review/Reregistration of Existing Pesticides and the Pesticides: Registration of New Pesticides program projects.

Along with assessing the risks that pesticides pose to human health, EPA conducts ecological risk assessments to determine potential effects on plants, animals, and ecosystems. EPA works to protect ecosystems, particularly the plants and animals that are not targets of the pesticide, as well as satisfy additional responsibilities under the Endangered Species Act (ESA).¹ As directed by FIFRA, EPA must determine that a pesticide is not likely to harm the environment, and may impose risk mitigation measures such as restricting uses, denying uses, or requiring monitoring of environmental conditions, such as effects on water sources.² In making its regulatory decisions, the Agency considers both the risks and the benefits derived from the use of the pesticide.

Research for the Pesticide program supports the goal of protecting the environment from pesticides use through three pesticides laboratories: an analytical chemistry laboratory and a

¹ The Endangered Species Act of 1973 sections 7(a)1 and 7 (a)2; Federal Agency Actions and Consultations, as amended (16 U.S.C. 1536(a)). Available at U.S. Fish and Wildlife Service, Endangered Species Act of 1973 internet site: <http://www.fws.gov/endangered/esa.htm#Lnk07>.

² Federal Insecticide, Fungicide, and Rodenticide Act, as amended. January 23, 2004. Section 3(a), Requirement of Registration (7U.S.C. 136a). Available online at: www.epa.gov/opp00001/regulating/fifra.pdf.

microbiology laboratory at the Environmental Science Center (ESC) at Fort Meade, MD, and an environmental chemistry laboratory (ECL) at Stennis Space Center, Bay St. Louis, MS. These laboratories develop and validate environmental and analytical chemistry methods to ensure the United States Department of Agriculture (USDA), USGS, EPA offices, and states have reliable methods to measure and monitor pesticide residues in food and in the environment. The laboratories, in cooperation with industry, state and other EPA laboratories, develop multi-residue analytical methods to allow enforcement agencies to test for several different chemicals using one test.

FY 2008 Activities and Performance Plan:

In 2008, the Agency will support the protection of the environment by developing methods and conducting analyses to make more informed decisions regarding pesticide exposures and risk to the environment and by operating the National Pesticide Standard Repository to support Federal and State labs involved in enforcement activities. Under the Plant-Incorporated Protectant (PIP) method validation program, work will continue on evaluating several novel molecular-based methods.

The laboratories will also support the protection of the environment by evaluating residue analytical methods used for detecting pesticide residues in environmental matrices, such as water, soil and sediment. Evaluating residue analytical methods will give the program confidence in assessing the results generated by the registrant and submitted to the Agency, which is required by the pesticide registration guidelines of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). Evaluating residue analytical methods will also assist the Agency in developing and validating multi-residue pesticide analytical methods for environmental matrices for use by other Federal and state laboratories to estimate environmental risks.

The laboratories also respond to urgent pesticide program needs for analytical chemistry support to address specific short-term, rapid turnaround issues of high priority. The labs cooperate with regional activities related to analysis of environmental samples for select pesticides or other environmental contaminants related to pesticide production or disposition and develop exposure data for dioxins, polychlorinated biphenyls (PCBs) and other persistent contaminants of environmental concern, to support Agency environmental risk assessments.

Additionally, the labs conduct product performance evaluations of antimicrobials to remove inefficacious products and eliminate unnecessary source effluent affecting the environment as well as provide data to support use of effective tools for remediation efforts and testing capacity for environmental monitoring of microbial populations (due to overt or unintentional contamination). Another activity involves conducting validation services on methods used to detect DNA and/or proteins for PIPs in major agricultural commodities such as corn, soybeans, potatoes, cotton, etc.

EPA's laboratories will continue to provide quality assurance and technical support and training to EPA regional offices, state laboratories, and other Federal agencies that implement FIFRA. Additionally, the laboratories provide EPA's enforcement programs with highly specialized

pesticide chemistry services to support enforcement cases, including the more difficult to analyze older pesticides.

Performance Targets:

Work under this program supports multiple performance measures. Some of the pesticide program's performance measures are program outputs which represent statutory requirements to ensure that pesticides entering the marketplace are safe for human health and the environment and when used in accordance with the packaging label present a reasonable certainty of no harm.

FY 2008 Change from FY 2007 Presidents Budget (Dollars in Thousands):

- (+\$1,015.4 \ +6.1 FTE) This increase is the incoming transfer of the Pesticides: Review/Reregistration of Existing Pesticides program's base resources, including payroll and FTE, and does not reflect new resources, or program activities that would have been presented under the previous program project structure.
- (+\$995.8 \ +5.5 FTE) This increase is the incoming transfer of the Pesticides: Registration of New Pesticides program's base resources and does not reflect new resources, or program activities that would have been presented under the previous program project structure.
- (+\$105.5) This reflects an increase for payroll and cost of living for existing FTE.
- (- \$1.7) This decrease reflects minor shifts in workforce support.

Statutory Authority:

PRIA; FIFRA; FFDCA; FQPA.

Pesticides: Realize the Value of Pesticide Availability

Program Area: Pesticides Licensing
Goal: Healthy Communities and Ecosystems
Objective(s): Chemical and Pesticide Risks

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Environmental Program & Management	\$0.0	\$0.0	\$12,114.0	\$12,114.0
<i>Science & Technology</i>	<i>\$0.0</i>	<i>\$0.0</i>	<i>\$472.0</i>	<i>\$472.0</i>
Total Budget Authority / Obligations	\$0.0	\$0.0	\$12,586.0	\$12,586.0
Total Workyears	0.0	0.0	90.4	90.4

Program Project Description:

Within the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), the definition of “unreasonable adverse effects on the environments” expands upon the concept of protecting against unreasonable risks to man or the environment, by adding “taking into account the economic, social and environmental costs and benefits of the use of any pesticide...” An example of actions that lead to these societal benefits are exemptions granted under FIFRA Section 18. In the event of an emergency, FIFRA Section 18 provides EPA the authority to temporarily exempt certain pesticides uses from registration requirements. This program project, which aligns with the 2006-2011 Agency Strategic Plan, is restructured for FY 2008 and now comprises the activities formerly described in the Pesticides: Pesticides: Review/Reregistration of Existing Pesticides and the Pesticides: Registration of New Pesticides program projects, as they relate to the value of pesticide availability.

EPA must ensure that such emergency uses will not present an unreasonable risk to the environment. EPA’s timely review of emergency exemptions has avoided an estimated \$1.5 billion in crop losses per year, resulting from new pests on crops when exemptions are necessary while progress is made towards full registration. In such cases, EPA’s goal is to complete the more detailed and comprehensive unreasonable risk review conducted for pesticide registration within three years.

The statute clearly recognizes that there will be societal benefits beyond protection of human health and the environment from the pesticide registration process that it establishes. Section 3 of FIFRA also authorizes EPA to register “me-too” products; that is products that are identical or substantially similar to already-registered products. The entry of these new products, also known as “generics,” into the market can cause price reductions resulting from new competition and broader access to products. These price declines generate competition that provides benefits to farmers and consumers. For example, an estimated \$900 million in termite damage is avoided each year through the availability of effective termiticides. While some effective termiticides have been removed from the market due to safety concerns, EPA continues to work with industry to register safe alternatives that meet or exceed all current safety standards and offer a high level of protection. The program project is in alignment with the 2006-2011 Agency Strategic Plan.

The Pesticides program supports the goal of realizing the value of pesticides through three pesticide laboratories: an analytical chemistry laboratory and a microbiology laboratory at the Environmental Science Center (ESC) at Fort Meade, MD, and an environmental chemistry laboratory (ECL) at Stennis Space Center, Bay St. Louis, MS. These laboratories support program activities by validating environmental and analytical chemistry methods to ensure that the Food and Drug Administration (FDA), the United States Department of Agriculture (USDA), EPA offices, and states have reliable methods to measure and monitor pesticide residues in food and in the environment. Additionally, the laboratories provide support to ensure that certain pesticide products are efficacious. The laboratories, in cooperation with industry, state and other EPA laboratories, develop multi-residue analytical methods to allow enforcement agencies to test for several different chemicals using one test.

FY 2008 Activities and Performance Plan:

In 2008, the Agency will continue to realize the benefits of pesticides by operating the National Pesticide Standard Repository and conducting chemistry and efficacy testing for antimicrobials. EPA's laboratories will continue to provide quality assurance and technical support and training to EPA regions, state laboratories, and other Federal agencies that implement the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). The laboratories will evaluate registered products that are most crucial to infection control (sterilants, tuberculocides, and hospital-level disinfectants). Under the PIP method validation program, work will continue on evaluating several novel molecular-based methods.

The laboratories support the program by evaluating residue analytical methods for detecting pesticide residues in food and feed ensuring suitability for monitoring pesticide residues and enforcement of tolerances and by operating the National Pesticide Standard Repository which distributes analytical standards to Federal and state laboratories involved in enforcement activities. The labs develop and validate multi-residue pesticide analytical methods for food, feed and water for use by other Federal (USDA Pesticide Data Program and FDA) and state laboratories. These laboratories generate residue data that is then used by the program office to estimate human health risks. The labs are prepared to respond to urgent program needs for analytical chemistry support and special studies to address specific short-term, rapid turnaround, priority issues.

In addition to residue methods, the labs provide method validation services for genetically modified organism (GMO) products (plant-incorporated protectants). They also develop data to support FIFRA section 18 uses for new chemicals where efficacy data is non-existent (particularly biothreat agents, including *B. anthracis*, or emerging hospital pathogens), as well as evaluate the product performance of antimicrobials used to control infectious pathogens in hospital environments. The labs develop new test methods for novel uses or emerging pathogens, including biothreat agents, in order to provide guidelines for efficacy data for public health claims and guidance for registration and to provide technical support and training on testing methods and procedures.

Performance Targets:

Work under this program supports multiple performance objectives. Some of this program's performance measures are program outputs which represent statutory requirements to ensure that pesticides entering the marketplace are safe for human health and the environment and when used in accordance with the packaging label present a reasonable certainty of no harm. While program outputs are not the best measures of risk reduction, they do provide a means for realizing benefits in that the program's safety review prevents dangerous pesticides from entering the marketplace.

FY 2008 Change from FY 2007 Presidents Budget (Dollars in Thousands):

- (+\$225.6 \ +1.4 FTE) This increase is the incoming transfer of the Pesticides: Review/Reregistration of Existing Pesticides program's base resources, including payroll and FTE, and does not reflect new resources, or program activities that would have been presented under the previous program project structure.
- (+\$221.3 \ +1.2 FTE) This increase is the incoming transfer of the Pesticides: Registration of New Pesticides program's base resources and does not reflect new resources, or program activities that would have been presented under the previous program project structure.
- (+\$23.3) This reflects an increase for payroll and cost of living for existing FTE.
- (+\$1.8) This increase reflects minor shifts in workforce support.

Statutory Authority:

PRIA; FIFRA; FFDCA; FQPA.

Program Area: Research: Clean Air

Research: Air Toxics

Program Area: Research: Clean Air
Goal: Clean Air and Global Climate Change
Objective(s): Enhance Science and Research

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Science & Technology	\$18,535.1	\$12,274.2	\$0.0	(\$12,274.2)
Total Budget Authority / Obligations	\$18,535.1	\$12,274.2	\$0.0	(\$12,274.2)
Total Workyears	55.2	52.6	0.0	-52.6

Program Project Description:

Air Toxics (AT) research provides the scientific foundation that enables the Agency to fulfill responsibilities mandated by the Clean Air Act. This research seeks to increase understanding of the exposure and health risks posed by hazardous air pollutants (HAPs) and reduce uncertainty in both national- and community-scale assessments as well as residual risk. Research also provides tools (*i.e.*, methods, models, and health hazard, exposure, and emission data) needed to identify and implement cost-effective approaches to reduce AT risks. This program addresses both indoor and outdoor environments and source categories regulated by the Agency's AT rules.

FY 2008 Activities and Performance Plan:

EPA is integrating the Research: NAAQS and Research: Air Toxics programs in FY 2008 to take advantage of research synergies and better enable multi-pollutant considerations. The activities are described within the Research: Clean Air program.

Performance Targets:

EPA is integrating the Research: NAAQS and Research: Air Toxics programs in FY 2008. The activities are described within the Research: Clean Air program.

FY 2008 Change from FY 2007 President's Budget (Dollars in Thousands):

- (–\$12,274.2 / –52.6 FTE) EPA is integrating the Research: NAAQS and Research: Air Toxics programs in FY 2008 under a new program heading titled Research: Clean Air. This change reflects the transfer of the Research: Air Toxics program's base resources to the new heading and does not reflect a reduction in resources for the Agency's air research.

Statutory Authority:

CAA.

Research: Clean Air

Program Area: Research: Clean Air
Goal: Clean Air and Global Climate Change
Objective(s): Enhance Science and Research

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Science & Technology	\$0.0	\$0.0	\$81,054.0	\$81,054.0
Total Budget Authority / Obligations	\$0.0	\$0.0	\$81,054.0	\$81,054.0
Total Workyears	0.0	0.0	236.2	236.2

Program Project Description:

EPA’s air research provides the scientific foundation for the Agency’s actions to protect the air all Americans breathe. The program supports the Agency’s implementation of the Clean Air Act (CAA), especially the National Ambient Air Quality Standards (NAAQS),¹ which set limits on how much tropospheric ozone, particulate matter, carbon monoxide, sulfur dioxide, nitrogen oxides, and lead are allowed in the atmosphere. The program also conducts research to reduce risks from hazardous air pollutants, also known as air toxics. The program is guided by a series of National Academy of Sciences reports² and Agency research plans,³ which outline research needs, the program’s strategy to meet those needs, and measures for evaluating the program’s performance.

The scientific findings from this program inform Air Quality Science Assessments (AQSA), formerly Air Quality Criteria Documents (AQCDs), which are periodic reports that synthesize the science relevant to setting and implementing NAAQS. Preparation of AQSA is funded by the Human Health Risk Assessment program.

A subcommittee of EPA’s Board of Scientific Counselors (BOSC)—a Federal advisory committee comprised of qualified, independent scientists and engineers—conducted an external review of the particulate matter and tropospheric ozone research programs in 2005. The subcommittee reported that the program “has resulted in significant reductions in scientific uncertainty in critical areas...the outputs produced by research to support these reductions in uncertainty have provided a sound basis for subsequent improvements in public health.”⁴ The BOSC recommended the continued reshaping of the air research programs into one program based on a multi-pollutant concept that will consider the source-to-health-impact paradigm to achieve more effective and efficient control and mitigation strategies. The Agency is

¹ For more information, see <http://www.epa.gov/ttn/naaqs/>.

² The most recent report is: NRC, *Research Priorities for Airborne Particulate Matter: IV. Continuing Research Progress*. Washington, D.C.: National Academies Press (2004). See <http://books.nap.edu/catalog/10957.html>.

³ EPA, *Particulate Matter Research Program Multi-Year Plan*. Washington, D.C.: EPA (2003). See <http://epa.gov/osp/myr/pm.pdf>. EPA, *Air Toxics Research Multi-Year Plan*. Washington, D.C.: EPA (2003). See <http://epa.gov/osp/myr/airtox.pdf>.

⁴ EPA, Board of Scientific Counselors, *Particulate Matter and Ozone Research Program*. Washington, D.C.: EPA (2005), 4. See <http://www.epa.gov/osp/bosc/pdf/pm0508rpt.pdf>.

implementing this recommendation in FY 2008 by integrating the Research: Air Toxics and Research: NAAQS programs to form the Research: Clean Air program.

FY 2008 Activities and Performance Plan:

Several external scientific reviews have recommended that EPA manage its air research in an integrated multi-pollutant or “one atmosphere” manner. To address these recommendations, EPA is integrating the research plans and budget structures of its particulate matter, tropospheric ozone, and air toxics research. The Agency is merging the Research: NAAQS and Research: Air Toxics programs to form the Research: Clean Air program in FY 2008.

The program will continue research to understand the sources of air pollution and methods for controlling emissions.⁵ It will investigate methods for measuring and characterizing emissions from human-made and biogenic sources. The Agency, states, and Tribes use this work to improve emission inventories, which estimate air pollutant emissions by source in specific areas of the country. States must periodically revise their inventories to comply with the CAA. These methods also support source apportionment, which traces pollutants measured in ambient air to specific sources based on chemical or structural markers unique to those sources. EPA will also research, develop, and assess the cost and performance of technologies capable of reducing emissions of multiple pollutants from single sources.

FY 2008 research also will continue to study Americans’ exposure to air pollution. The program will continue an interagency agreement with the National Oceanic and Atmospheric Administration (NOAA) to develop the Community Multiscale Air Quality (CMAQ) modeling system, which forecasts air quality in the U.S. at local and national scales.⁶ States use CMAQ’s modeling capabilities to evaluate their State Implementation Plans (SIPs), which specify how they will meet the requirements of the CAA. The program also will study atmospheric chemistry, such as the formation of secondary pollutants through in-atmosphere reactions, and conduct field research to correlate ambient measurements of air pollution with actual human exposure to those pollutants.

This program also will continue epidemiological, clinical, and toxicological studies of air pollution’s health effects.⁷ Research will focus on determining the relative toxicity of particles’ different sizes and chemical components; understanding how emissions from different particle sources affect health; the degree to which lifestyle, age, and diseases like diabetes and asthma affect susceptibility to air pollution; and the mechanisms inside the human body by which air pollution causes harm. EPA also will investigate air pollution’s effects on cardiopulmonary, nervous, reproductive, and immune systems and on development during pregnancy and infancy.

The program makes extensive use of the Science to Achieve Results (STAR) program’s competitive, peer-reviewed grants. In FY 2008, STAR will continue funding five-year grants to particulate matter research centers at five universities.⁸ STAR also will continue to fund a ten-

⁵ For more information, see <http://www.epa.gov/appcdwww/>.

⁶ For more information, see <http://www.epa.gov/asmdnerl/>.

⁷ For more information, see <http://www.epa.gov/nheerl/research/cleanair.html>.

⁸ For more information, see http://cfpub.epa.gov/ncer_abstracts/index.cfm/fuseaction/outlinks.centers/centerGroup/19/.

year grant to the Multi-Ethnic Study of Atherosclerosis–Air Pollution Study,⁹ which is examining how long-term exposure to particulate matter influences heart disease in 8,700 volunteers, and a five-year grant to the Health Effects Institute,¹⁰ a nonprofit chartered in 1980 to conduct independent research on the health effects of air pollution. Other grants will fund efforts to link atmospheric model data with epidemiological data of air pollution’s health effects.

In FY 2008, the program will emphasize research on air pollution near roads. Research will focus on topics such as measuring and characterizing emissions near roads; the extent of human exposure to and the health effects from those pollutants; and the effectiveness of potential controls, such as barriers.

The BOSC recommended the maintenance of a periodic, formalized process for assessing EPA’s research and development programs’ primary stakeholders’ perceptions of and satisfaction with its role in the source-to-health outcome process. The program is in the process of developing a survey instrument to help assess client satisfaction and attitudes regarding its support.

OMB rated the Research: NAAQS program as “adequate” in the program’s second PART review, which was conducted in calendar year 2005 under the program title “National Ambient Air Quality Standards Research.”¹¹ OMB rated the program “results not demonstrated” in its first review, conducted in calendar year 2003. The improvement is attributable primarily to the development of two new long-term goals: assessing the links between sources of air pollution and human health and reducing uncertainty in the science that supports standard-setting and air quality management decisions. The program is currently determining methods for demonstrating long-term and annual progress toward these goals. OMB identified developing a means to measure the program’s efficiency, improving budget–performance integration, and convening annual review meetings as follow-up actions. To this end, the program is reviewing how other Federal research programs measure annual progress toward reduction in scientific uncertainty, is engaging the National Academy of Sciences (NAS) for assistance in identifying an outcome-oriented efficiency measure, and formed a workgroup with EPA’s BOSC to discuss long-term measurement of the program’s research.

Performance Targets:

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Output	Percent progress toward completion of a hierarchy of air pollutant sources based on the risk they pose to human health.	10	10	30	50	Percent

⁹ For more information, see <http://depts.washington.edu/mesaair/>.

¹⁰ For more information, see <http://www.healtheffects.org/>.

¹¹ For more information, see <http://www.whitehouse.gov/omb/expectmore/summary.10001137.2005.html>.

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Output	Percent planned actions accomplished toward the long-term goal of reducing uncertainty in the science that support standard setting and air quality management decisions.	94	100	100	100	Percent

In 2008, the program plans to meet its goal of completing 50% of a hierarchy of air pollutant sources based on the risk they pose to human health. Additionally, the program plans to accomplish its goal of completing 100% of its planned actions related to the program long-term goal of reducing uncertainty in the science that supports standard-setting and air quality management decisions. In achieving these targets, the program will contribute to EPA's goal of developing a better understanding and characterization of human health and environmental outcomes related to clean air.

FY 2008 Change from FY 2007 President's Budget (Dollars in Thousands):

- (+\$65,455.6 \ +191.9 FTE) EPA is integrating the Research: NAAQS and Research: Air Toxics programs in FY 2008. This increase is the incoming transfer of the Research: NAAQS program's base resources and does not reflect new resources.
- (+\$12,274.2 \ +52.6 FTE) EPA is integrating the Research: NAAQS and Research: Air Toxics programs in FY 2008. This increase is the incoming transfer of the Research: Air Toxics program's base resources and does not reflect new resources.
- (+\$4,485.3) This increase supports research in three areas: 1) aiding the development of emission inventories, which estimate air pollutant emissions by source in specific areas of the country. States must periodically revise their inventories to comply with the CAA. 2) Supporting an interagency agreement with NOAA that develops the Community Multiscale Air Quality (CMAQ) modeling system, which forecasts air quality in the U.S. at local and national scales. States use CMAQ's modeling capabilities to evaluate their State Implementation Plans (SIPs), which specify how they will meet the requirements of the CAA. The third (3) area is research on air pollution near roads, including measurement and characterization of emissions near roads, study of the extent of human exposure to and the health effects from emissions near roads, and research on the effectiveness of potential controls, such as barriers.
- (+\$254.1) This reflects an increase for payroll and cost of living for existing FTE.
- (+\$75.0) This increase provides funds for program evaluations in EPA's air research.

- (+\$15.3) This increase is associated with increased programmatic laboratory fixed costs.
- (−8.3 FTE) This change reflects EPA’s workforce management strategy that will help the Agency better align resources, skills and Agency priorities. 1.9 FTE of this reduction reflects efficiencies gained in EPA’s research and development IT and administrative activities. 6.4 FTE of this reduction is in lower priority air toxics research. These reductions will not impede Agency efforts to maximize efficiency and effectiveness in carrying out its programs.
- (−\$576.8) This technical adjustment realigns workforce support costs (such as capital equipment and repairs and improvement) across the research program to better reflect FY 2008 priorities. There will be no programmatic impacts.
- (−\$740.7) This reduction reflects savings from improvements to the Agency’s small administrative IT Systems.
- (−\$171.3) This reduction reflects efficiencies gained in Agency administrative or contract management services.
- (−\$16.7) This is part of an Agencywide effort to reduce travel, including international travel.

Statutory Authority:

CAA.

Research: Global Change

Program Area: Research: Clean Air
Goal: Healthy Communities and Ecosystems
Objective(s): Enhance Science and Research

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Science & Technology	\$17,495.2	\$17,456.4	\$16,908.0	(\$548.4)
Total Budget Authority / Obligations	\$17,495.2	\$17,456.4	\$16,908.0	(\$548.4)
Total Workyears	40.5	35.3	32.6	-2.7

Program Project Description:

EPA’s global change research focuses on understanding the effects of global change (particularly climate change and variability) on air and water quality, ecosystems, and human health in the United States. The goal of the program is to produce timely and useful information and tools that enable resource managers and policymakers to more effectively consider global change issues in decision-making.

The program’s activities are coordinated with other Federal agencies’ climate change research through the U.S. Climate Change Science Program (CCSP).¹ The Agency plans the program’s research to support EPA’s mission and CCSP’s strategic plan.² The program is also guided by a research strategy³ and multi-year plan, which is currently being revised.⁴ These documents outline research needs, the strategy to meet those needs, and measures for evaluating performance.

A subcommittee of EPA’s research oversight body, the Board of Scientific Counselors (BOSC), conducted a review of the entire program in calendar year 2005. The subcommittee reported that the program “has provided substantial benefits to the nation and that it is on course to make significant further contributions.”⁵ For more findings, see <http://www.epa.gov/osp/bosc/pdf/glob0603rpt.pdf>.

¹ For more information, see <http://www.climatescience.gov/>.

² U.S. Climate Change Science Program, *Strategic Plan for the U.S. Climate Change Science Program*. Washington, D.C.: CCSP (2003).

³ U.S. EPA, *Research Strategy of the Global Change Research Program*. Washington, D.C.: EPA (2000). See <http://www.epa.gov/ncea/pdfs/glblstrtg.pdf>.

⁴ The Global Change Research Program’s Multi-Year Plan is currently being revised. The prior Plan (2003 version) is available on the web at: <http://www.epa.gov/osp/myr/global.pdf>.

⁵ U.S. EPA, Board of Scientific Counselors, Subcommittee on Global Change Research, *Review of the Office of Research and Development’s Global Change Research Program at the U.S. Environmental Protection Agency, Final Report*. Washington, D.C.: EPA (2006), 6. See <http://www.epa.gov/osp/bosc/pdf/glob0603rpt.pdf>.

FY 2008 Activities and Performance Plan:

The U.S. Global Change Research Act of 1990 mandates periodic scientific assessments of climate change.⁶ In FY 2008, EPA will continue its participation in the interagency CCSP and complete two CCSP Synthesis and Assessment Products⁷ for which EPA is the lead Federal agency: product 4.4, “Preliminary review of adaptation options for climate-sensitive ecosystems and resources,” and product 4.6, “Analyses of the effects of global change on human health and welfare and human systems.” EPA is coordinating product 4.4 with the Department of Energy (DOE), National Aeronautics and Space Administration (NASA), National Oceanic and Atmospheric Administration (NOAA), and the United States Geological Survey (USGS) and product 4.6 with DOE, NASA, NOAA, and the National Institutes of Health (NIH).

In FY 2008, the program will also contribute to eight products led by other Federal agencies: product 3.2, “Climate projections based on emissions scenarios for long-lived radiatively active trace gases and future climate impacts of short-lived radiatively active gases and aerosols;” product 3.4, “Abrupt climate change;” product 4.2, “State-of-knowledge of thresholds of change that could lead to discontinuities (sudden changes) in some ecosystems and climate-sensitive resources;” product 4.3, “The effects of global change on agriculture, biodiversity, land, and water resources;” product 4.5, “Effects of climate change on energy production and use in the United States;” product 5.1, “Uses and limitations of observations, data, forecasts, and other projections in decision support for selected sectors and regions;” product 5.2, “Best practice approaches for characterizing, communicating, and incorporating scientific uncertainty in decisionmaking;” and product 5.3, “Decision support experiments and evaluations using seasonal to interannual forecasts and observational data.”

The program will enhance computer models that can simulate how global change may affect U.S. air quality.⁸ This work is supported by modeling of potential changes in energy and transportation technologies in various regions and sectors of the U.S.⁹ Together, these efforts will help air quality resource managers make informed decisions about how to respond to global change’s effects on air quality.

The global change research program makes extensive use of the Science to Achieve Results (STAR) program’s competitive, peer-reviewed grants. In FY 2008, STAR’s global change component will focus on global change’s potential effects on U.S. air quality.¹⁰ The program also will partner with the Department of Agriculture and NASA to fund studies on how climate change, climate variability, and changing land use may affect invasive species. STAR will fund studies of global change’s potential effects on aeroallergens such as pollen and spores.

Another priority for the program is the study of the effects of global change on corals.¹¹ It will evaluate South Florida reefs to develop quantitative tools for characterizing coral health and to

⁶ See 15 USC §2936.

⁷ For more information, see <http://www.climatescience.gov/Library/sap/>.

⁸ For more information, see <http://www.epa.gov/nerl/goals/global/>.

⁹ For more information, see <http://www.epa.gov/appcdwww/apb/greengas.htm>.

¹⁰ For more information, see http://es.epa.gov/ncer/rfa/2006/2006_star_gcaq.html.

¹¹ For more information, see http://www.epa.gov/ged/resprog_dw.htm.

study the relationship between global change and coral condition. The program will study how changes in water temperature and ultraviolet radiation affect corals and their symbionts.

Additionally, the program will continue work in FY 2008 on developing an inventory of climate-sensitive decisions in specific regions of the U.S. in an effort to help support the creation of more effective decision support strategies. EPA also plans to cosponsor with NOAA a National Research Council study titled “Strategies and Methods for Climate-Related Decision Support” to develop a framework for organizing and evaluating decision support activities related to climate change.

OMB rated the Research: Global Change program as “adequate” in the program’s first PART review, which was conducted in calendar year 2006 under the program title “Global Change Research.” OMB identified strengthening performance measures and definition of the program’s framework and mission, developing a means to measure the program’s efficiency, and improving budget–performance integration as follow-up actions. To this end, the program is reviewing how other Federal research programs measure annual progress toward reduction in scientific uncertainty, is engaging the National Academy of Sciences (NAS) for assistance in identifying an outcome-oriented efficiency measure, and formed a workgroup with EPA’s BOSC to discuss long-term measurement of the program’s research. The Administration has identified climate change science—particularly support for CCSP’s strategic goals and CCSP Synthesis and Assessment Products—as a FY 2008 research and development budget priority.¹²

Performance Targets:

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Output	Percentage of planned outputs delivered.				100	Percent

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Output	Percent progress toward completion of a framework linking global change to air quality.	65	60	75	85	Percent

In 2008, the program plans to accomplish its goal of completing and delivering 100% of its planned outputs. In achieving these targets, the program will contribute to EPA’s goal of providing scientifically sound guidance and policy decisions related to the health of people, communities, and ecosystems, with regard to global change.

¹² Executive Office of the President, Office of Management and Budget and Office of Science and Technology Policy, *FY 2008 Administration Research and Development Budget Priorities*. Washington, D.C.: OMB (2006), 6. See <http://www.whitehouse.gov/omb/memoranda/fy2006/m06-17.pdf>.

FY 2008 Change from FY 2007 President's Budget (Dollars in Thousands):

- (+\$1.4) This increase is associated with increased programmatic laboratory fixed costs.
- (-\$420.5) As a result of this adjustment, in FY 2008 the Science to Achieve Results (STAR) program will award approximately two instead of three grants to universities and nonprofits to study how global change may influence aeroallergens such as pollen and mold. EPA will continue to fund its critical research needs in global change, including production of CCSP Synthesis and Assessment Products, and will meet critical performance commitments.
- (-2.7 FTE) This change reflects EPA's workforce management strategy that will help the Agency better align resources, skills and Agency priorities. 0.2 FTE of this reduction reflects efficiencies gained in EPA's research and development IT and administrative activities and will not impede Agency efforts to maximize efficiency and effectiveness in carrying out its programs.
- (-\$47.4) This technical adjustment realigns workforce support costs (such as capital equipment and repairs and improvement) across the research program to better reflect FY 2008 priorities. There will be no programmatic impacts.
- (-\$39.5) This reduction reflects efficiencies gained in Agency administrative or contract management services.
- (-\$25.1) This decrease is the net effect of increases for payroll and cost of living for existing FTE, combined with a reduction based on the recalculation of base workforce costs.
- (-\$14.9) This reduction reflects savings from improvements to the Agency's small administrative IT Systems.
- (-\$2.4) This is part of an Agencywide effort to reduce travel, including international travel.

Statutory Authority:

USGCRA; NCPA.

Research: NAAQS

Program Area: Research: Clean Air
Goal: Clean Air and Global Climate Change
Objective(s): Enhance Science and Research

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Science & Technology	\$65,242.5	\$65,455.6	\$0.0	(\$65,455.6)
Total Budget Authority / Obligations	\$65,242.5	\$65,455.6	\$0.0	(\$65,455.6)
Total Workyears	186.3	191.9	0.0	-191.9

*In FY 2006, Program/Project Research: Particulate Matter (B4) and Program/Project Research: Tropospheric Ozone (B9) were eliminated and Program/Project Research: NAAQS (H6) established.

Program Project Description:

This research provides the scientific foundation for implementation and review of the National Ambient Air Quality Standards (NAAQS) for particulate matter (PM), tropospheric ozone, carbon monoxide, sulfur dioxide, nitrogen oxides, and lead. Research focuses on PM in particular, but also considers ozone (O₃) and other important co-pollutants.

The NAAQS research program develops and transfers to clients new data in atmospheric, exposure, biological, engineering, and environmental sciences, including research on speciation. This research informs the setting of standards to protect air quality by providing insights into human susceptibility to air pollution and into specific sources and attributes of PM associated with a growing number of potential health outcomes. In addition, the program develops products that can help inform environmental decision-making, such as tools to predict, measure, and model concentrations and emissions of air pollutants, which are directly used by states to develop and successfully implement the most cost-effective control strategies to comply with existing NAAQS. The program includes research that addresses scientific uncertainties and refines knowledge of the health risks associated with sources of PM exposure.

FY 2008 Activities and Performance Plan:

EPA is integrating the Research: NAAQS and Research: Air Toxics programs in FY 2008 to take advantage of research synergies and better enable multi-pollutant considerations. The activities are described within the Research: Clean Air program.

Performance Targets:

EPA is integrating the Research: NAAQS and Research: Air Toxics programs in FY 2008. The activities are described within the Research: Clean Air program.

FY 2008 Change from FY 2007 President's Budget (Dollars in Thousands):

- (−\$65,455.6 / −191.9 FTE) EPA is integrating the Research: NAAQS and Research: Air Toxics programs under a new program heading titled Research: Clean Air. This change reflects the transfer of the Research: NAAQS program's base resources to that new heading and does not reflect a reduction in resources for the Agency's air research.

Statutory Authority:

CAA.

Program Area: Research: Clean Water

Research: Drinking Water

Program Area: Research: Clean Water

Goal: Clean and Safe Water

Objective(s): Enhance Research to Support Clean and Safe Water

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Science & Technology	\$52,015.9	\$49,242.5	\$48,548.0	(\$694.5)
Total Budget Authority / Obligations	\$52,015.9	\$49,242.5	\$48,548.0	(\$694.5)
Total Workyears	195.1	208.6	207.2	-1.4

Program Project Description:

The goal of EPA’s Drinking Water research program is to develop leading-edge research products that other EPA programs and clients use in implementing the 1996 Safe Drinking Water Act (SDWA) Amendments.¹ In pursuit of this goal, the research program directly supports developing or revising standards for contaminants of concern, effectively implementing these standards, and protecting drinking water sources.

To meet the requirements of SDWA, EPA conducts an integrated, multi-disciplinary research program that is closely linked to the Agency’s regulatory activities and timelines. Research in the Drinking Water program provides new scientific data and analytical methods for identifying and evaluating the health effects of waterborne pathogens (*e.g.*, *Cryptosporidium*, Norwalk virus) and chemicals (*e.g.*, arsenic, disinfection byproducts) that may contaminate drinking water (assessments and methods for estimating risk to waterborne pathogens and chemicals are conducted under the Human Health Risk Assessment Program); and develops improved technologies for cost-effective control of these risks. The program also investigates the impact of distribution systems, including aging infrastructure, on drinking water quality, and develops tools to protect source waters.

Research is directed by several peer-reviewed research strategies^{2,3} and guidance from external experts.^{4,5,6,7} The Agency also maintains a Drinking Water Research Program Multi-Year Plan⁸

¹ Safe Drinking Water Act Amendments of 1996, Public Law 104-182. Available at: <http://www.epa.gov/safewater/sdwa/sdwa.html>.

² U.S. EPA, Office of Research and Development. *Research Plan for Microbial Pathogens and Disinfection By-Products in Drinking Water*. EPA 600-R-97-122, Washington, D.C.: U.S. Government Printing Office (1997).

³ U.S. EPA, Office of Research and Development. *Research Plan for Arsenic in Drinking Water*. EPA 600-R-98-042, Washington, D.C.: U.S. Government Printing Office (1998).

⁴ National Research Council. *Classifying Drinking Water Contaminants for Regulatory Consideration*. Washington, D.C.: The National Academies Press (2001).

⁵ National Academies of Science. *From Source Water to Drinking Water: Workshop Summary*. Washington, D.C.: The National Academies Press (2004).

⁶ National Research Council. *Indicators for Waterborne Pathogens*. Washington, D.C.: The National Academies Press (2004).

⁷ National Research Council. *Public Water Supply Distribution Systems: Assessing and Reducing Risks--First Report*. Washington, D.C.: The National Academies Press (2005).

(MYP) that outlines steps for meeting these needs and annual performance goals and measures for evaluating progress. The Agency is currently revising the drinking water MYP to reflect anticipated science and regulatory needs in FY 2008 and beyond. These plans are subjected to rigorous peer review⁹ and address those problems deemed most pressing in the area of drinking water quality (R&D Criteria: Quality, Relevance, Performance).

In 2005, the Drinking Water research program underwent a program-wide review by the Board of Scientific Counselors (BOSC), a Federal advisory committee comprised of qualified, independent scientists and engineers,¹⁰ which concluded that the program is “quite relevant and is focused on high quality research of national importance” and that the program’s “research outputs are leading to important outcomes with respect to EPA’s Water program and other clients” (R&D Criteria: Quality, Relevance, Performance). The Drinking Water research program is adopting specific BOSC recommendations, including researching newly identified, unregulated disinfection by-products and continuing to plan anticipatory drinking water research.

FY 2008 Activities and Performance Plan:

In FY 2008, the Drinking Water research program will focus on the science needed to implement SDWA’s requirements for the Contaminant Candidate List (CCL), safety of drinking water quality in distribution systems including developing tools to manage the nation’s aging drinking water infrastructure, and the protection of drinking water sources, while continuing to support the SDWA-mandated 6-year review of regulated contaminants. The research conducted reflects a progressive shift in the program from addressing single contaminants toward development of treatment strategies, exposure and analytical methods, and effects information that can be applied to classes of contaminants in the context of the complete drinking water hydrological cycle from source to tap. Research started in FY 2007 under the "Water Infrastructure for the 21st Century" initiative, will continue in 2008 to develop the science and engineering to improve and evaluate promising innovative technologies and techniques to increase the effectiveness and reduce the cost of operation, maintenance, and replacement of aging and failing drinking water distribution systems.

Key FY 2008 activities planned include:

- Report on advanced condition assessment for drinking water mains;
- Report on molecular microarrays for detection of non-pathogenic bacteria and bacterial pathogens in drinking water source waters;
- Epidemiology studies on alternative disinfection processes and their byproducts;

⁸ U.S. EPA, Office of Research and Development, Drinking Water Research Program Multi-Year Plan. Washington, D.C. Available at: <http://www.epa.gov/osp/myr.htm>.

⁹ Science Advisory Board. *Review of EPA’s 2003 Draft Drinking Water Research Program Multi-Year Plan* (2005). Available at: <http://www.epa.gov/sab/pdf/sab-05-008.pdf>.

¹⁰ Board of Scientific Counselors. *Review Of The Office Of Research And Development’s Drinking Water Research Program At The U.S. Environmental Protection Agency.* (2005). Available at: <http://www.epa.gov/osp/bosc/pdf/dw1027rpt.pdf>.

- State-of-the-science report on real time early warning systems for source water protection;
- Synthesis of information on arsenic removal technologies;
- Improved method(s) for CCL-related chemicals for use in Unregulated Contaminant Monitoring Regulations;
- Epidemiology study on the illness rate for untreated groundwater and distribution systems;
- Immunotoxicity assessment of priority CCL toxicants; and
- Evaluation of the usefulness of virulence factor activity relationships (VFARs) for characterizing CCL pathogens.

In 2005, the Drinking Water research program received an “adequate” in its first PART review. This rating was supported by OMB findings that the program developed sufficient annual and long-term performance measures, though the measures lacked targets and results. As a follow-up to the PART, the program is developing baselines and targets for its measures, establishing an outcome-oriented efficiency measure, and improving oversight of non-grant partners, requiring them to work toward program goals. The program has formed a workgroup comprised of OMB, EPA, and BOSC members to discuss long-term measurement of EPA’s Research and Development programs and set appropriate baselines and targets.

By conducting research in support of SDWA, this research program will assist the Agency in pursuing its strategic objective of providing, by 2011, drinking water that meets all applicable health-based drinking water standards to 91 percent of the population served by community water systems.

Performance Targets:

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Output	Percentage of planned outputs delivered in support of Six Year Review decisions.	94	100	100	100	Percent

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Output	Percentage of planned outputs delivered in support of Contaminate Candidate List Decisions.	100	100	100	100	Percent

In 2008, the program plans to accomplish its goals of completing and delivering 100% of its planned outputs in support of Six Year Review Decisions and Contaminant Candidate List Decisions. In achieving these targets, the program will contribute to EPA’s goal of supporting the protection of human health through the reduction of human exposure to contaminants in drinking water.

FY 2008 Change from FY 2007 President's Budget (Dollars in Thousands):

- (+\$1,461.2) This reflects an increase for payroll and cost of living for existing FTE.
- (+\$45.5) This increase includes increased fixed costs and a technical adjustment to realign workforce support costs across the research program to better reflect FY 2008 priorities. There will be no programmatic impacts.
- (-\$1,900.5) This reduction reflects a shift to higher priorities within the Clean Air and Human Health Risk Assessment research programs. While some lower priority research will be delayed, the program will remain on target to meet its annual and long-term performance measures. In addition, the Agency will continue to support a robust drinking water research program that directly supports key elements of the Agency's strategic clean and safe water goals.
- (-\$295.8) This reduction reflects savings and efficiencies gained from the Agency's small administrative IT systems and administrative and contract management services as well as technical adjustments to realign travel resources across the research program to better reflect FY 2008 programmatic priorities.
- (-1.4 FTE) This change reflects EPA's workforce management strategy that will help the Agency better align resources, skills and Agency priorities. This reduction reflects efficiencies gained in EPA's Research and Development IT and administrative activities and will not impede Agency efforts to maximize efficiency and effectiveness in carrying out its programs.
- (-\$4.9) This is part of an Agencywide effort to reduce travel, including international travel.

Statutory Authority:

SDWA; CWA; MPRSA.

Research: Water Quality

Program Area: Research: Clean Water

Goal: Clean and Safe Water

Objective(s): Enhance Research to Support Clean and Safe Water

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Science & Technology	\$48,233.9	\$56,988.2	\$56,454.0	(\$534.2)
Total Budget Authority / Obligations	\$48,233.9	\$56,988.2	\$56,454.0	(\$534.2)
Total Workyears	249.5	245.4	239.4	-6.0

Program Project Description:

Although the quality of the nation’s waters has shown improvement, threats to water quality remain and new threats continue to be identified. The adoption and implementation of watershed management approaches by states and Tribes require strong standards, monitoring, Total Maximum Daily Load (TMDL) determinations, and implementation programs, including best-management practices, restoration, and TMDL watershed plans. Water quality research provides the sound science needed to implement effective watershed management approaches by developing methods to: apply criteria that support designated uses of water bodies; monitor and assess water body conditions; diagnose causes and sources of water body impairments; protect water bodies; and forecast the effectiveness of protection/restoration alternatives.

Research is guided by several research strategy documents (*e.g.*, landscape ecology¹ and aquatic stressors²) which were developed with participation from major clients. The strategies outline the research needs and priorities. The Agency also maintains a Water Quality Research Program Multi-Year Plan³ (MYP) that outlines steps and provides a timeline for meeting these needs along with related annual performance goals and measures for evaluating progress (R&D Criteria: Relevance, Performance).

EPA’s Board of Scientific Counselors (BOSC), a Federal advisory committee comprised of qualified, independent scientists and engineers, reviewed the Water Quality research program in January 2006. The BOSC review found “the Water Quality research program appropriately addresses EPA’s Goal 2 by creating the tools necessary for the Office of Water to establish water quality criteria and respond when those criteria are not being met. The program is responsive to EPA’s Office of Water, which the program has correctly identified as its primary client, in developing their research priorities.”⁴

¹ U.S. EPA, Office of Research and Development, *A National Assessment of Landscape Change and Impacts to Aquatic Resources: A 10-year Research Strategy for the Landscape Sciences Program*. EPA/600/R-00/001, Washington, D.C.: EPA. (2000). Available at: <http://www.epa.gov/nerlesd1/land-sci/pdf/157leb00.pdf>.

² U.S. EPA, Office of Research and Development, *Aquatic Stressors: A Framework and Implementation Plan for Effects Research*. EPA 600/R-02-074 (2002).

³ U.S. EPA, Office of Research and Development, *Water Quality Research Program Multi-Year Plan*. Washington, D.C.: EPA. Available at: <http://www.epa.gov/osp/myp.htm>.

⁴ Available at: <http://www.epa.gov/osp/bosc/pdf/wq0605rpt.pdf>.

FY 2008 Activities and Performance Plan:

Research efforts within the water quality research program are aligned with the Agency's strategic objectives of: promulgation of protective standards; identification of contaminant contributions to impaired waters; and the utilization of tools needed to restore and protect the nation's waters with due consideration to point and non-point sources of contamination. The Water Quality research program has close links to the research conducted under EPA's Healthy Communities and Ecosystems goal that focuses on the optimization of ecosystem services.

In FY 2008, the Water Quality program will continue to use the watershed management approach to identify and reduce waterbody impairments nationwide. Research on diagnostic methods will enable EPA to continue its focus on the causes and sources of aquatic system impairment. Specifically, this research will provide the scientific foundation and information management scheme for an integrated process for assessing, listing, and reporting water quality conditions that meet statutory requirements, including a classification framework for surface waters, watersheds, and regions. As EPA directs and informs the efforts of the states to adopt nutrient criteria for individual waterbodies, research is required to identify nutrient responses based on geographic region, waterbody type, and designated use. Research will continue to provide technical guidance for the development of nutrient water quality criteria for coastal wetlands and estuaries and Great Lakes.

Research on river reference conditions for non-wadeable rivers, which will identify best attainable reference conditions for a variety of impairments, will be used to interpret the results of EPA's 2008-2009 National Rivers Survey and for Clean Water Act (CWA) reporting. Efforts will continue to advance the development of new methods for deriving water quality criteria to protect human and ecological health from harmful exposures to toxic chemicals. These methods incorporate new and improved scientific techniques to address highly bioaccumulative chemicals, dietary exposure pathways, chemical mixtures, fluctuating exposures, extrapolation of toxicity data across species, and effects at the population level. The methods will address risks to special status taxa (endangered) and aquatic-dependent wildlife not traditionally taken into consideration under water quality criteria. Research will continue to develop bioindicator and bioassessment methods for states to use, particularly for assessing and determining the function of poorly-studied waterbodies, such as headwaters and wetlands. Research to improve pathogen indicators for protection of recreational waters and beaches will continue as well.

To provide more efficient monitoring and diagnostic tools, EPA will continue to develop methods of using landscape assessments for monitoring and assessing watershed condition. Models to determine the likelihood of impairment will be integrated with monitoring in order to assess condition and develop optimal monitoring strategies that support integrated assessments and reporting, as required by statute. Research on the integration of economic data and ecosystem services will lead to better understanding of both the costs and benefits of alternative ways to achieve water quality.

The integrated watershed management work will supply tools for watershed-based management designed to connect management actions with outcomes. Work will be carried out in six areas including: (1) optimizing selection and placement of restoration options; (2) molecular source

tracking; (3) evaluating water quality benefits of best management practices (BMPs) in watersheds; (4) science supporting integrated watershed management; (5) role of wetlands in water quality trading; and (6) improved control of effluents from publicly owned treatment works (POTWs) during wet weather flow conditions. Developing improved fate and transport models for priority stressors (nutrients, sediments, and pathogens) will continue, along with technical support, to assist states with TMDL determinations.

In FY 2008, research will continue the development of innovative solutions to manage the nation's aging wastewater infrastructure. Through research started in FY 2007 under the "Water Infrastructure for the 21st Century" initiative, we will continue to develop the science and engineering to improve and evaluate promising innovative technologies and techniques to increase the effectiveness and reduce the cost of operation, maintenance, and replacement of aging and failing wastewater conveyance systems. Research efforts will include state of technology reports on innovative condition assessments and rehabilitation methods for sewer collection systems.

Research on the management of manure to ensure that environmentally responsible practices are available will continue in support of EPA's Wastewater Management program. Field studies of Concentrated Animal Feeding Operations (CAFOs) will determine the magnitude of releases to ground waters and surface waters and evaluate control options with emphasis on nutrient and pathogen contaminants, along with emerging chemicals such as endocrine disruptors.

Research on wetlands will continue to develop a hierarchical assessment approach to address the objectives of the President's initiative to preserve and restore wetlands by incorporating wetlands functions and impacts on water quality. In addition, research will continue on the use of wetlands as a source of pollution reduction credits in water quality trading, a priority for EPA's Water program. Comparison of natural and constructed wetlands to determine how seasonal changes in hydrologic regime, stressor load, and upland land use affect the functioning of these systems will inform the protection and restoration of wetlands.

In FY 2008, new research will be conducted to assess and improve the control of microbial releases from POTWs during periods of significant wet weather events. During these events wastewater flow may exceed POTW treatment capacity, resulting in diversion of wastewater around secondary treatment units followed by recombination with flows from the secondary treatment units or discharging it directly into waterways from the treatment plant. Studies will be conducted on the efficacy of disinfection treatment options under such conditions to determine how to optimize them. Current POTW practices for handling significant wet weather events, such as blending, will be assessed to identify "best practices" during such events. In out years, this work will lead to reports that POTW managers can use to more cost-effectively operate their systems in wet weather conditions while still protecting water quality.

In 2006, the water quality research program received an "adequate" rating in its first PART review. This rating was supported by findings that the program has long-term and annual output performance measures that reflect the purpose of the program, as well as a preliminary output efficiency measure. However, the program is continuing to develop more ambitious long-term outcome measures, develop an outcome-oriented efficiency measure, and improve its budget

performance integration through better use of financial and performance tracking data. To this end, EPA has formed and convened a BOSC/OMB/EPA workgroup to discuss long-term measurement of research and development programs. As part of this workgroup, the program has developed water quality-specific questions to be used in future BOSC reviews, and has begun to identify specific data sources that will be provided to the BOSC.

Performance Targets:

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Output	Percentage of planned outputs (in support of WQRP long-term goal #1) delivered	100	100	100	100	Percent

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Output	Percentage of planned outputs (in support of WQRP long-term goal #2) delivered	100	100	100	100	Percent

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Output	Percentage of planned outputs (in support of WQRP long-term goal #3) delivered	92	100	100	100	Percent

In 2008, the program plans to accomplish its goals of completing and delivering 100% of its planned outputs. In achieving these targets, the program will contribute to EPA’s goal of supporting the protection of human health through the reduction of human exposure to contaminants in fish, shellfish, and recreational waters, and to support the protection of aquatic ecosystems.

FY 2008 Change from FY 2007 President’s Budget (Dollars in Thousands):

- (+\$953.4) This reflects an increase in payroll and cost of living for existing FTE.
- (+\$541.0) This technical adjustment realigns workforce support costs (such as capital equipment and repairs and improvement) across the research program to better reflect FY 2008 priorities. There will be no programmatic impacts.
- (+/- \$505.6 / +/- 2.0 FTE) This reflects an internal redirection of resources within the Water Quality research program to fund efforts to assess and improve the control of microbial releases from POTWs during periods of significant wet weather events when wastewater flow may exceed POTW treatment capacity. Current POTW practices for handling significant wet weather events, such as blending, will be assessed to identify

“best practices” during such events. Resources will be redirected from research on water quality trading.

- (+\$15.8) This increase is associated with increased programmatic laboratory fixed costs.
- (-\$1,246.0) This reflects reductions to lower priority research in the extramural component of the Water Quality Program, including discontinuation of EPA’s participation in the Ecology and Oceanography of Harmful Algal Blooms (EcoHab) research program.
- (-6.0 FTE) This change reflects EPA’s workforce management strategy that will help the Agency better align resources, skills and Agency priorities. 1.4 FTE of this reduction reflects efficiencies gained in EPA’s Research and Development IT and administrative activities. 4.6 FTE of this reduction will delay new toxics stressor research and reflects a greater emphasis being placed on the development of watershed based information and tools. These reductions will not impede Agency efforts to maximize efficiency and effectiveness in carrying out its programs.
- (-\$396.2) This reduction reflects efficiencies gained in Agency administrative or contract management services.
- (-\$400.2) This reduction reflects savings from improvements to the Agency’s small administrative IT Systems.
- (-\$2.0) This is part of an Agencywide effort to reduce travel, including international travel.

Statutory Authority:

CWA; ODBA; SPA; CVA; WRDA; WWWQA; MPPRCA; NISA; CZARA; CWPPRA; ESA; NAWCA; FIFRA; TSCA.

Program Area: Research: Human Health And Ecosystems

Human Health Risk Assessment

Program Area: Research: Human Health and Ecosystems

Goal: Healthy Communities and Ecosystems

Objective(s): Enhance Science and Research

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
<i>Science & Technology</i>	\$33,663.5	\$34,488.5	\$38,856.0	\$4,367.5
Hazardous Substance Superfund	\$3,604.4	\$3,847.2	\$3,972.0	\$124.8
Total Budget Authority / Obligations	\$37,267.9	\$38,335.7	\$42,828.0	\$4,492.3
Total Workyears	181.5	183.9	182.1	-1.8

Program Project Description:

Human health risk assessment is a process where information is analyzed to determine if an environmental hazard might cause harm to exposed persons (National Research Council, 1983). Risk assessment is used extensively by EPA programs, Regional Offices, and other parties to determine the potential risk to public health from exposure to environmental contaminants, to develop regulatory standards, and to manage environmental cleanups.

This research program is guided by the Human Health Risk Assessment Multi-Year Plan¹ (MYP), which provides detail on the assessment and methods development products planned under this program. The MYP also outlines research needs and priorities. Performance outputs and outcomes are documented in the MYP through the annual performance goals and measures structure. The MYP also coordinates with a number of EPA research strategies and plans² (e.g., Human Health Research Plan, Asthma Research Strategy, Particulate Matter and Ozone MYPs) to obtain the information necessary to inform risk assessment outputs and programmatic decision-making needs.

In FY 2003, a Board of Scientific Counselors (BOSC)—a Federal advisory committee comprised of qualified, independent scientists and engineers—subcommittee review found that the National Center for Environmental Assessment (NCEA) has made several key advancements including completion of a strategic plan, targeting cutting-edge risk assessments, improving the proportionate representation of ecological assessments to human health assessments, enhancing communication, and improving capabilities to provide environmental assessment resources in response to September 11th. A subsequent BOSC subcommittee program review is scheduled for September 2007.

Three complementary areas comprise the risk assessment program:

Integrated Risk Information System (IRIS) and other health hazard assessments: Peer reviewed, qualitative and quantitative health hazard assessments are prepared on

¹ Available at: <http://www.epa.gov/osp/myr/HHRA.pdf>.

² Available at: <http://www.epa.gov/ord/htm/researchstrategies.htm#rs01>.

environmental pollutants of major relevance to EPA's regulatory mandates. These assessments are used by EPA's program and Regional Offices to support their decision-making, and they are also disseminated to the public, principally on the IRIS internet database.³ IRIS is widely used throughout EPA and the risk assessment/risk management community as the premier source of hazard and dose-response information for environmental pollutants. At the end of 2006, there were over 540 health hazard assessments available through IRIS (R&D Criteria: Quality, Relevance).

Risk assessment guidance, methods and model development: Improved risk assessment guidance, methods, and models are developed to enhance the quality and objectivity of assessments through the incorporation of contemporary scientific advances for use in decision-making by EPA programs and Regional Offices. These scientific products are externally peer reviewed and disseminated through the published literature, EPA web sites, and incorporation in IRIS assessments (R&D Criteria: Quality, Relevance).

Air Quality Science Assessments: Congress requires that EPA regularly summarize the state-of-the-science on the criteria air pollutants – ozone, particulate matter, sulfur and nitrous oxides, carbon monoxide, and lead – to assist EPA's air and radiation programs in determining the National Ambient Air Quality Standards (NAAQS). These Science Assessment summaries (formerly Air Quality Criteria Documents) are major risk assessments that undergo rigorous external peer review by the Clean Air Scientific Advisory Committee (CASAC) (R&D Criteria: Quality, Relevance).

FY 2008 Activities and Performance Plan:

In FY 2008, the Agency will continue to support the Integrated Risk Information System (IRIS) and other health hazard assessments by:

- Completing 16 health hazard assessments of high priority chemicals for interagency review or external peer review and posting 8 finalized assessments on the internet (R&D Criteria: Quality, Relevance, Performance);
- Expanding opportunities for interagency review and public comment (R&D Criteria: Quality); and
- Consulting with the National Academy of Sciences (NAS) on critical risk assessment method developments and assessment approaches (R&D Criteria: Quality, Relevance).

In the area of risk assessment guidance, methods and models, the Agency will support improvements by:

- Continuing to provide analysis of uncertainty in physiologically-based pharmacokinetic (PBPK) models and application to risk assessment (R&D Criteria: Relevance, Performance);
- Providing improved quantitative risk assessment procedures (R&D Criteria: Relevance, Performance);

³ Available at: <http://www.epa.gov/iris>.

- Preparing a summary of issues and criteria for improved use of mode-of-action information in risk assessments (R&D Criteria: Relevance, Quality);
- Providing a revision of the reference concentration methodology for use in IRIS assessments (R&D Criteria: Relevance, Performance); and
- Providing an external review draft update of the Exposure Factors Handbook, collating exposure information for use in Agency risk assessments (also supported by HHRA SF; R&D Criteria: Relevance, Performance).

In FY 2008, the Agency will support the National Ambient Air Quality Standards (NAAQS) process by:

- Developing and implementing a process to identify, compile, characterize, and prioritize new scientific studies for “Science Assessments” of criteria air pollutants, as a mandated prerequisite to EPA’s review of the NAAQS and to effectively meet court ordered deadlines to provide these assessments (R&D Criteria: Relevance, Performance); and
- Delivering revised Science Assessments for Sulfur Dioxide and Nitrogen Oxides to contribute to EPA’s Air and Radiation program’s review of the NAAQS and creation of state-of-the-science methods for continuous evaluation of assessments of new scientific information on criteria air pollutants (R&D Criteria: Relevance, Performance).

In calendar year 2006, the Human Health Risk Assessment Program (HHRA) received a “moderately effective” rating in its first PART review. This rating was supported by findings that the program has long-term and annual performance measures with ambitious targets, as well as a set of results indicating that the program is on track to meet its goals. As a follow-up to the PART, the program must: (1) expand its efficiency measure to include all major work products; (2) implement a new IRIS review process; (3) engage in regular, independent evaluations that assess the program’s effectiveness; and (4) investigate alternative approaches for measuring progress related to providing timely, high quality scientific assessments. It also will be reviewed by a BOSC subcommittee every three to four years, with mid-cycle reviews occurring midway between the comprehensive reviews.

Performance Targets:

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Output	Percentage of planned outputs delivered in support of Air Quality Criteria/Science Assessment documents.	100	-	90	90	Percent

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Output	Percentage of planned outputs delivered in support of HHRA	100	-	90	90	Percent

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
	health assessments.					

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Output	Percentage of planned outputs delivered in support of HHRA Technical Support Documents.	81	-	90	90	Percent

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Efficiency	Average cost to produce Air Quality Criteria/Science Assessment documents.	7,282K	-	5,386K	3,796K	\$ Average Cost

In 2008, the program plans to accomplish its goals of completing and delivering 100% of its planned outputs in support of: (1) Air Quality Criteria/ Science Assessment documents, (2) human health risk assessments, and (3) HHRA technical support documents. Additionally, the program plans to meet its efficiency goal of reducing the average cost to produce Air Quality Criteria/ Science Assessment documents. In achieving these targets, the program will contribute to EPA's goal of providing scientifically sound guidance and policy decisions related to the health of people, communities, and ecosystems.

FY 2008 Change from FY 2007 President's Budget (Dollars in Thousands):

- (+\$3,168.4) This reflects an increase to support: 1) the development of quantitative risk assessment methods to allow improved analysis of uncertainty in human health risk assessment so that risk managers and the public better understand the range of potential risk values and 2) the development and implementation of a process to identify, compile, characterize, and prioritize new scientific studies for "Science Assessments" of criteria air pollutants (formerly Air Quality Criteria Documents), as a mandated prerequisite to EPA's review of the NAAQS, and to meet court ordered deadlines to provide these assessments. The scientific findings from the Clean Air Program inform "Science Assessments" funded under the Human Health Risk Assessment Program.
- (+\$974.0) This reflects an increase for payroll and cost of living for existing FTE.
- (+\$402.4) This technical adjustment realigns workforce support costs (such as capital equipment and repairs and improvement) across the research program to better reflect FY 2008 priorities. There will be no programmatic impacts.
- (+\$10.6) This increase is associated with increased programmatic laboratory fixed costs.

- (-\$143.6) This reduction reflects savings from improvements to the Agency's small administrative IT Systems.
- (-\$42.4) This reduction reflects efficiencies gained in Agency administrative or contract management services.
- (-\$1.1) This is part of an Agencywide effort to reduce travel, including international travel.
- (-\$0.8) This is a technical adjustment to realign travel resources across the research program to better reflect FY 2008 programmatic priorities. There will be no programmatic impact.
- (-1.7 FTE) This change reflects EPA's workforce management strategy that will help the Agency better align resources, skills and Agency priorities. This reduction reflects efficiencies gained in EPA's Research and Development IT and administrative activities and will not impede Agency efforts to maximize efficiency and effectiveness in carrying out its programs.

Statutory Authority:

CAA; SDWA; CWA; TSCA; FIFRA; CERCLA; SARA; FQPA.

Research: Computational Toxicology

Program Area: Research: Human Health and Ecosystems

Goal: Healthy Communities and Ecosystems

Objective(s): Enhance Science and Research

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Science & Technology	\$13,264.5	\$14,983.1	\$15,103.0	\$119.9
Total Budget Authority / Obligations	\$13,264.5	\$14,983.1	\$15,103.0	\$119.9
Total Workyears	29.4	34.3	34.3	0.0

Program Project Description:

Computational Toxicology is the application of mathematical and computer models to assess the risk chemicals pose to human health and the environment. Computational biology offers the possibility that, with advances in computational biology's sub-disciplines (e.g., genomics, proteomics, and metabonomics), scientists may have the ability to develop a more detailed understanding of the risks posed by a much larger number of chemicals.

EPA's Computational Toxicology Research Program (CTRP) has three objectives: 1) improving the linkages in the source-outcome paradigm; 2) providing tools for screening and prioritization of chemicals under regulatory review; and 3) enhancing quantitative risk assessment. The National Center for Computational Toxicology (NCCT) was specifically created to play a critical coordination and implementation role in these activities across the Agency.

The Agency has developed a peer-reviewed Framework for a Computational Toxicology Research Program,¹ which identifies the research needs and unique capabilities of EPA and provides the basis for a more focused and integrated research program in the future. This research effort also supports *Understanding Complex Biological Systems*, one of the Administration's FY 2008 R&D priorities.

A subcommittee of EPA's Board of Scientific Counselors (BOSC)—a Federal advisory committee comprised of qualified, independent scientists and engineers— has been established to provide guidance to the newly formed NCCT. In April 2005, this subcommittee met to review the proposed directions for the NCCT. Their report is available on the BOSC web site at <http://www.epa.gov/osp/bosc/subcomm-ctox.htm>.

The report praised the early efforts of the NCCT and encouraged its further development. A formal response was prepared and submitted to EPA and the BOSC. In FY 2006, the NCCT drafted an implementation plan for its research program, which was submitted to the BOSC for

1 U.S. EPA, Office of Research and Development. *A Framework for a Computational Toxicology Research Program*. Washington, DC: EPA. Accessed August 4, 2005. Available at: http://www.epa.gov/comptox/publications/comptoxframework06_02_04.pdf.

review and comment in June 2006. This implementation plan details the outputs and outcomes expected of the program over FYs 2006–2008 (R&D Criteria: Quality).

FY 2008 Activities and Performance Plan:

The CTRP will focus on four areas in FY 2008: 1) information technology; 2) chemical prioritization and categorization tools; 3) systems biology models; and 4) cumulative risk assessment. (R&D Criteria: Relevance)

Information Technology: New technologies are needed to mine existing data for patterns to appropriately place new chemicals of unknown hazard in the context of existing data. In addition, new technologies will allow the integration of data from different domains of toxicology and newer “omics” experiments to look beyond traditional means for classifying chemicals (R&D Criteria: Relevance). As a result, more chemically annotated, publicly available datasets will be posted on the Internet through the Distributed Structure-Searchable Toxicity Database project (DSSTox), and these will be linked to the broader chemical information database in PubChem. Working in conjunction with EPA’s Pesticide Program, a database is being created that will contain the outcomes of the developmental, reproductive and chronic bioassay data for registered pesticides (R&D Criteria: Performance).

Chemical Prioritization and Categorization Tools: Having the capability to predict which chemicals are in greatest need of toxicology testing and which endpoints would be the most important to examine is a pressing problem for multiple regulatory offices in EPA. Knowledge of the key steps in a chemical’s potential mechanisms of action provides a template for developing models for these predictions. The ToxCast program, which was initiated in FY 2006, will obtain high-throughput screening data on 200–400 chemicals of known toxicological profiles. Fingerprints of biological activity associated with differing toxicological profiles will be developed from this database, which is being developed in conjunction with the National Institutes of Health (NIH) Molecular Libraries Initiative (R&D Criteria: Relevance). In FY 2008, plans are to expand beyond the proof of concept phase of ToxCast and begin to examine the activities of target groups of chemicals such as anti-microbials, pesticidal inerts and high-production volume chemicals. Examples of outputs in this area include:

- Construction of *in silico* models for identifying chemicals that can interact with nuclear hormones (e.g., estrogen, androgen, peroxisome proliferation) receptors (R&D Criteria: Performance);
- Sample procurement, preparation and distribution to contractors providing high-throughput bioassay data using genomic, proteomic or metabonomic tools;
- Construction of a relational database of high-throughput bioassay results, physical chemical properties and interpretive toxicological information for 200–400 active pesticides; and
- Establishment of common bioassay-derived fingerprints for key toxicological outcomes to support the needs of the EPA program offices (R&D Criteria: Performance).

Systems Biology Models: Modeling now plays a crucial role in practically all areas of biological research. Systems models integrate information at all levels of organization and aid in bridging

the source-to-outcome gap and in conducting quantitative risk assessments (R&D Criteria: Relevance). In FY 2008 the CTRP will:

- Provide standards for developing, documenting, archiving, and accessing quantitative mathematical models that will foster both the development and linkages of these models and their regulatory acceptance (R&D Criteria: Performance);
- Utilize systems-modeling approaches for the latest biological, chemical, and exposure data for quantitative risk assessment (R&D Criteria: Performance);
- Develop guidance on best practices for the construction, analysis and reporting of toxicological models that link pharmacokinetic information with the dynamic responses of target organs; and
- Begin developing a computational model of the liver by integrating biological information across multiple levels of organization in order to achieve an improved understanding of how susceptibility to toxicant exposure depends on environmental, behavioral and genetic factors, and on age and health status. The first phase will describe normal biological processes.

Cumulative Risk Assessment: Computational tools offer the potential to reduce uncertainties in cumulative risk by focusing on aspects of data compilation, integration, and analysis (R&D Criteria: Relevance).

The CTRP will explore mathematical approaches for analyzing the effects of dietary exposure throughout the day to pesticides that act via the same mechanism (e.g., the methyl carbamates and pyrethroids) (R&D Criteria: Performance). Research will also build conceptual frameworks that consider how biomonitoring data can be used to characterize cumulative risk and how psycho-social factors can be incorporated into cumulative risk assessments using tools of the new field of visual analytics. These new tools offer the promise of integrating different types of data representing physical, chemical, and psycho-social aspects (R&D Criteria: Performance). The CTRP will also work with the Centers for Environmental Bioinformatics, established through the Agency's Science to Achieve Results (STAR) program, to enhance predictive linkages between the components of the source-outcome paradigm and to better understand the relationships between genetic and environmental influences on adverse outcomes. In FY 2008, the Agency will perform a demonstration of the application of visual analytics to children's cohort data.

EPA is continually working to develop appropriate annual and long-term output and outcome measures for this program that meet the standards of the OMB PART. Additionally, EPA is working to develop useful efficiency measures to guide program management decisions and improvement strategies.

Performance Targets:

Work under this program supports EPA's Science and Research objective. Currently, there are no PART performance measures for this specific program.

FY 2008 Change from FY 2007 President's Budget (Dollars in Thousands):

- (+\$51.5) This reflects an increase for payroll and cost of living for existing FTE.
- (+127.8) This reflects technical adjustments that will have no programmatic impacts. Adjustments include realignment of IT, telecommunications, travel, and workforce support resources.
- (+\$1.3) This increase is associated with increased programmatic laboratory fixed costs.
- (-\$30.5) This reduction reflects efficiencies gained in Agency administrative or contract management services.
- (-\$30.0) This represents a reduction to research support focused on predictive tools. There will be no programmatic or performance impacts as a result of the reduction.
- (-\$0.2) This is part of an Agencywide effort to reduce travel, including international travel.

Statutory Authority:

TSCA; FIFRA; FQPA; SDWA.

Research: Endocrine Disruptor

Program Area: Research: Human Health and Ecosystems

Goal: Healthy Communities and Ecosystems

Objective(s): Enhance Science and Research

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Science & Technology	\$11,234.3	\$9,081.2	\$10,131.0	\$1,049.8
Total Budget Authority / Obligations	\$11,234.3	\$9,081.2	\$10,131.0	\$1,049.8
Total Workyears	54.0	54.8	54.4	-0.4

Program Project Description:

Research in direct support of EPA's screening and testing programs (mandated under the Food Quality Protection Act (FQPA) of 1996 and the Safe Drinking Water Act Amendments¹ (SDWAA) of 1996) evaluates current testing protocols and develops new protocols to evaluate potential endocrine effects of environmental agents. Other research develops and applies methods, models, and measures to evaluate real-world exposures to endocrine disruptors and characterize related effects resulting from these exposures for humans and wildlife; and develops risk management tools to prevent or mitigate exposures. Research assists decision makers in working toward reducing and preventing exposure of humans and ecosystems to endocrine disruptors that pose an unreasonable risk.

Research is guided by the Research Plan for Endocrine Disruptors, which was developed with participation from major clients and outlines research needs and priorities.² The Agency also maintains a multi-year plan (MYP)³ for Endocrine Disruptors that outlines steps for meeting these needs, as well as annual performance goals and measures for evaluating progress (R&D Criteria: Quality, Performance).

In December 2004, the Endocrine Disruptors research program was reviewed by a subcommittee of EPA's research oversight body, the Board of Scientific Counselors (BOSC), which commended the progress and direction of the research and provided recommendations for further partnerships.⁴ Consistent with BOSC recommendations, EPA will take a leadership role in the application of "omics" technologies, focusing research on understanding mechanisms of action and extrapolation across species by applying "omics" approaches.

¹ SDWA Section 1457.

² U.S. EPA, Office of Research and Development, *Research Plan for Endocrine Disruptors*. Washington, D.C.: EPA (1998). Available at: <http://www.epa.gov/ord/htm/documents/ORD-EDR-Feb1998.pdf>.

³ U.S. EPA, Office of Research and Development, *Multi-Year Plan for Endocrine Disruptors*. Washington, D.C.: EPA (2003). Available at: www.epa.gov/osp/myr/edc.pdf.

⁴ U.S. EPA, Office of Research and Development, EDC Research Program Review. Washington, D.C. (2004). Available at: <http://www.epa.gov/osp/bosc/pdf/edc0504rpt.pdf>.

FY 2008 Activities and Performance Plan:

In FY 2008, EPA will continue to develop, evaluate, and apply innovative DNA microarray and other state-of-the-art analytical methods for endocrine disrupting chemicals (EDCs). EPA's Endocrine Disruptors research program has developed and refined assays, and improved other screening tools using genomics and high-speed computing capabilities so that the Agency has the necessary protocols to validate for use in the Endocrine Disruptors Screening Program. Using genomics and related approaches in the continued development of improved molecular and computational tools that can be used to prioritize chemicals for screening and testing will lead to a reduction of animal testing, and is within the "Understanding Complex Biological Systems" category highlighted as a priority for Federal investment by the Office of Management and Budget (OMB) and Office of Science and Technology Policy (OSTP)⁵. Other important areas of research to be continued in FY 2008 include:

- Developing/improving *in vivo* and *in vitro* assays to provide the Agency the methods it needs to implement the Congressionally mandated Endocrine Disruptor Screening Program – a high priority for the Agency;
- Developing the next generation of assays by applying newer computational and molecular approaches to develop models that predict a chemical's ability to cause endocrine disruption;
- Determining classes of chemicals that act as endocrine disruptors and their potencies; characterizing modes of action and the shape of the dose-response curve; developing approaches for assessing cumulative risk and extrapolating results across species which would lead to reduced animal testing;
- Developing molecular indicators of exposure and analytical methods for detecting certain EDCs; identifying the key factors that influence human exposures to EDCs; identifying sources of EDCs entering the environment, focusing on: wastewater treatment plants, concentrated animal feeding operations (CAFOs), and drinking water treatment plants; developing tools for risk reduction and mitigation strategies; and
- Applying methods, models, and tools developed by EPA and other research organizations to characterize the impact of environmental mixtures of EDCs on environmental media and aquatic organisms. Sources of EDCs to be examined include wastewater treatment plants, CAFOs, and drinking water plants. Field studies will be conducted to document the spatial and temporal variability of EDC exposures in the environment and characterize their magnitude.

In 2004, the Endocrine Disruptors research program and EPA's Prevention, Pesticides and Toxic Substance's Endocrine Disruptors Screening Program were assessed and jointly received an "adequate" rating. The assessment found the program was free of major design flaws, had a clear purpose, and was reasonably well-managed.

The program's long-term performance measures are shared with EPA's Prevention, Pesticides and Toxic Substances program: (1) to determine the extent of the impact of endocrine disruptors on humans, wildlife, and the environment to better inform the Federal and scientific

⁵ FY 2007 Administration Research and Development Budget Priorities memo by J.Marburger and J. Bolten; July 8, 2005.

communities; and (2) to reduce the uncertainty regarding the effects, exposure, assessment, and management of endocrine disruptors so that EPA has a sound scientific foundation for environmental decision-making. The research program also has developed performance indicators that monitor research activities and outputs. Targets for these include screening and testing protocols that the Prevention, Pesticides and Toxic Substances program will validate for use in evaluating the potential for chemicals to cause endocrine-mediated effects. To improve performance, the programs are currently working to develop baseline data for efficiency measures that compare dollars and labor hours for validating chemical assays.

Performance Targets:

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Output	Improved protocols for screening and testing	1	1	6	1	Reports

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Output	Effects and exposure milestones met	9	9	4	3	Reports

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Output	Risk management milestones met	3	3	3	2	Reports

In 2008, the program plans to accomplish its goals of completing: (1) one report relating to improved protocols for screening and testing; (2) three reports related to effects and exposure; and (3) two reports related to risk management. In achieving these targets, the program will contribute to EPA’s goal of providing scientifically sound guidance and policy decisions related to the health of people, communities, and ecosystems, with regard to chemical toxicology.

FY 2008 Change from FY 2007 President’s Budget (Dollars in Thousands):

- (+\$796.1) This reflects an increase for payroll and cost of living for existing FTE.
- (+\$292.3) This realignment of resources will support IT, data quality assurance and science review, operation of mission critical facilities, and technical support for scientists evaluating current testing protocols.
- (+\$37.4) This technical adjustment realigns workforce support costs (such as capital equipment and repairs and improvement) across the research program to better reflect FY 2008 priorities. There will be no programmatic impacts.
- (+\$3.2) This increase is associated with increased programmatic laboratory fixed costs.

- (-\$77.2) This reduction reflects efficiencies gained in Agency administrative or contract management services.
- (-\$2.0) This is part of an Agencywide effort to reduce travel, including international travel.
- (-0.4 FTE) This change reflects EPA's workforce management strategy that will help the Agency better align resources, skills and Agency priorities. This reduction reflects efficiencies gained in EPA's Research and Development IT and administrative activities and will not impede Agency efforts to maximize efficiency and effectiveness in carrying out its programs.

Statutory Authority:

CAA; ERDDA; FIFRA; TSCA; FQPA; SDWA; CWA; RCRA; CERCLA; PPA.

Research: Fellowships

Program Area: Research: Human Health and Ecosystems

Goal: Healthy Communities and Ecosystems

Objective(s): Enhance Science and Research

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
<i>Science & Technology</i>	<i>\$15,609.9</i>	<i>\$8,383.0</i>	<i>\$8,438.0</i>	<i>\$55.0</i>
Total Budget Authority / Obligations	\$15,609.9	\$8,383.0	\$8,438.0	\$55.0
Total Workyears	4.4	2.8	2.7	-0.1

Program Project Description:

To help ensure an educated and trained scientific workforce for the future, EPA offers five programs that encourage promising students to obtain advanced degrees and pursue careers in environmentally related fields.

*Science to Achieve Results (STAR) Fellowship Program:*¹ EPA provides stipends, tuition assistance, and research support to graduate students in environmentally related fields for up to three years. In addition to conducting quality environmental research, fellows agree to maintain contact with the Agency for at least five years after graduation.

*Greater Research Opportunities (GRO) Fellowship Program:*² EPA provides stipends, tuition assistance, and research support to undergraduate and graduate students in environmentally related fields for up to two (undergraduate) or three (graduate) years. The GRO program serves higher education institutions that receive less than \$35 million annually in Federal science and engineering funds. In addition to conducting quality environmental research, fellows agree to maintain contact with the Agency for at least five years after graduation.

*Environmental Science and Technology Policy Fellowship Program:*³ In conjunction with the American Association for the Advancement of Science, EPA hosts scientific and technical professionals who have completed a Ph.D. or equivalent degree for up to two years at EPA's Headquarters. Recipients work independently with support from Agency mentors on self-designed projects that enable them to work at the interface of science and environmental public policy.

*Environmental Public Health Fellowship Program:*⁴ In conjunction with the Association of Schools of Public Health, EPA hosts individuals who have attained master's degrees from accredited U.S. schools of public health for up to two years. Recipients work on issues with environmental public health implications.

¹ For more information, see <http://es.epa.gov/ncer/fellow>.

² For more information, see <http://es.epa.gov/ncer/fellow>.

³ For more information, see http://fellowships.aaas.org/01_About/01_Partners.shtml#EPA.

⁴ For more information, see http://www.asph.org/document.cfm?page=751&JobProg_ID=1.

*EPA Marshall Scholarship Program:*⁵ In conjunction with the British Marshall Scholarships, EPA offers scholarships for U.S. students for environmentally related graduate study. The program gives priority to students whose work is global or international in nature. Funded by the British government, scholars spend two years at a British university. EPA may support eligible scholars for up to three additional years as they work toward a doctoral degree in either the United Kingdom or U.S.

The fellowship programs coordinate their activities with other Federal and nonprofit organizations through the National Academies' Fellowships Roundtable, which meets biannually.⁶ EPA is the only Federal agency that focuses on higher education assistance and career development in the environmental sciences. The program is also participating in the review of Federal science, technology, engineering, and mathematics education programs led by the Academic Competitiveness Council, which was established by Congress in the Deficit Reduction Act of 2005.

A subcommittee of EPA's Board of Scientific Counselors (BOSC)—a Federal advisory committee comprised of qualified, independent scientists and engineers—conducted a review of the STAR and GRO fellowship programs in March, 2006. The subcommittee reported that “the fellows funded by the STAR and GRO programs have made excellent contributions in environmental science and engineering, and a number of them continue to be employed in the environmental field ... the EPA programs clearly are of value to the Agency and the nation in helping to educate the next generation of environmental scientists and engineers.”⁷ EPA is working to develop appropriate annual and long-term output and outcome measures for this program that meet the standards of OMB's PART. Additionally, EPA is working to develop useful efficiency measures to guide program management decisions and improvement strategies.

FY 2008 Activities and Performance Plan:

EPA will review and award new STAR and GRO fellowships and support fellows who received awards in earlier fiscal years. Fellowship recipients will complete progress and exit reports, and the Agency will maintain contact information and follow-up data on former fellows. The STAR and GRO fellowship programs will host a biennial conference in Washington, D.C., for fellows to meet and exchange research results. The program will also select and arrange hosting for AAAS and ASPH recipients and support eligible Marshall Scholarship recipients.

Performance Targets:

Work under this program supports EPA's Enhance Science and Research objective. Currently, there are no PART performance measures for this specific program.

⁵ For more information, see <http://www.marshallscholarship.org/applicationepa.html>.

⁶ For more information, see <http://www7.nationalacademies.org/fellowships/roundtable.html>.

⁷ EPA, Board of Scientific Counselors, *Review of the Office of Research and Development's Science To Achieve Results (STAR) and Greater Research Opportunities (GRO) Fellowship Programs at the U.S. Environmental Protection Agency*. Washington, D.C.: EPA (2006), 1–2. See <http://epa.gov/osp/bosc/pdf/star0609rpt.pdf>.

FY 2008 Change from FY 2007 President's Budget (Dollars in Thousands):

- (+\$36.7) This reflects an increase for payroll and cost of living for existing FTE.
- (+\$18.5) This reflects technical adjustments that will have no programmatic impacts. Adjustments include realignment of IT, telecommunications, travel, and workforce support resources.
- (−0.1 FTE) This change reflects EPA's workforce management strategy that will help the Agency better align resources, skills and Agency priorities. This reduction reflects efficiencies gained in EPA's research and development IT and administrative activities and will not impede Agency efforts to maximize efficiency and effectiveness in carrying out its programs.
- (−\$0.2) This reduction reflects efficiencies gained in Agency administrative or contract management services.

Statutory Authority:

CAA; CWA; FIFRA; NCA; RCRA; SDWA; TSCA.

Research: Human Health and Ecosystems

Program Area: Research: Human Health and Ecosystems

Goal: Healthy Communities and Ecosystems

Objective(s): Enhance Science and Research

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Science & Technology	\$169,126.0	\$161,312.7	\$145,046.0	(\$16,266.7)
Total Budget Authority / Obligations	\$169,126.0	\$161,312.7	\$145,046.0	(\$16,266.7)
Total Workyears	512.0	509.3	497.0	-12.3

Program Project Description:

The Agency conducts human health and ecosystems research to: 1) identify and characterize environment-related human health problems and determine exposures to and sources of agents responsible for these health concerns; and 2) understand the condition of ecosystems, the stressors changing that condition, the consequences of those changes, and how to prevent, mitigate, or adapt to those changes. The Human Health and Ecosystems program also supports mercury research, advanced monitoring research, nanotechnology research, exploratory research, and the Agency’s Report on the Environment.

Research is guided by the “Human Health Research Strategy”¹ and the “Ecological Research Strategy,”² which were developed in collaboration with major clients (e.g., program offices and Regional Offices). These strategies outline the program’s research needs and priorities. Under this program, several multi-year plans (MYPs)³ (e.g., human health, ecological research, and mercury) convey research priorities and approaches for achieving goals and objectives. MYPs outline the steps for meeting client research needs, as well as annual performance goals and measures for evaluating progress.

The Human Health research program and the Ecological research program both underwent successful reviews by EPA’s research oversight body, the Board of Scientific Counselors (BOSC) in March of 2005. The BOSC stated, “The research of the human health research program is of high quality and appropriately focused, it is multidisciplinary, yet coherent and coordinated, and the research benefits from managerial excellence across all aspects of the program.”⁴ The BOSC review of the ecosystem protection program found “the ecosystem research program to be a high-quality scientific program that is providing essential technical information to the regulatory offices within EPA as well as to state, local, and Tribal

¹ U.S. EPA, Office of Research and Development. *Human Health Research Strategy*. Washington, DC: EPA. Available at: http://www.epa.gov/nheerl/humanhealth/HHRS_final_web.pdf.

² For more information, see <http://www.epa.gov/ord/htm/documents/eco.pdf>.

³ For more information, see <http://www.epa.gov/osp/myp>.

⁴ *Report of the Subcommittee on Health*, revised July 27, 2005, Board of Scientific Counselors, pg 9. For more information, see <http://www.epa.gov/osp/bosc/pdf/hh0507rpt.pdf>.

governments to assist these entities in addressing novel problems of environmental management.”⁵ The BOSC conducted a mid-cycle review of the program in January 2007.

FY 2008 Activities and Performance Plan:

Human Health Research

In FY 2008, EPA will continue to support research to develop a commonly accepted set of principles defining how mode of action information can be used in chemical risk assessments, particularly as it relates to extrapolation from animals to humans and from high to low dose. Such research will inform the re-evaluation of acceptable levels of arsenic in drinking water, as well as the risk assessments of cancer and non-cancer effects of conazole fungicides. Additional research efforts will develop emerging molecular methods and approaches and identify critical toxicity pathways, *e.g.*, oxidative stress, for characterizing the effects of chemicals (such as particulate matter, metals, pesticides, and chemical contaminants in drinking water) on human health (R&D Criteria: Performance).

Research will develop tools for identifying communities (*e.g.*, localities, populations, groups) at greatest risk, identifying and quantifying the factors influencing these exposures, and developing and implementing appropriate risk reduction strategies. Research on intervention and prevention strategies will ultimately reduce human risk associated with exposures to single and multiple environmental stressors. Cumulative risk research will develop approaches for restructuring exposures from biomarker data generated in large-scale exposure and epidemiological studies and linking these exposures to their primary sources, and for using exposure, biomarker, and pharmacokinetic data in cumulative risk assessments (R&D Criteria: Performance).

Other human health research will continue to focus on exposures to environmental contaminants during critical lifestages, such as early development, childhood, or aging. Efforts related to children’s health include identification of the key factors influencing children’s exposures to environmental toxicants (including chemical exposure in schools) and the production of high quality children’s exposure data to reduce current uncertainties in risk assessment. Exposure research will also determine if older individuals are differentially exposed to environmental stressors. Human health research focused on physiological and biochemical changes during critical lifestages will be used as a basis for understanding susceptibility and the role of environmental stressors in the exacerbation or pathogenesis of disease (R&D Criteria: Performance).

EPA also will continue to support and collaborate with the EPA-sponsored Centers for Children’s Environmental Health and Disease Prevention Research, which study whether and how environmental factors play a role in children’s health. These unique Children’s Centers perform targeted research in children’s environmental health and translate their scientific findings into intervention and prevention strategies by working with communities. The Children’s Centers have established long-term birth and school age cohorts that follow participants over many years to consider the full range of health effects resulting from exposure to environmental chemicals. Additionally, the Children’s Centers are tracking a wide range of

⁵ Available at: <http://www.epa.gov/osp/bosc/reports.htm>.

environmental exposures at multiple stages of development to evaluate relationships between these exposures and observed health effects.

Research on public health outcomes in FY 2008 will include a study on assessing the cumulative impact of a suite of air pollution reduction programs on environmental public health indicators for children and older populations in New Haven, Connecticut. This research will provide guidance on models useful in assessing public health impacts in response to provisions of the Clean Air Act (R&D Criteria: Performance).

In 2005, the Human Health Research program received an “adequate” rating on its first PART assessment. This rating was supported by findings that the program’s research results were being used to reduce uncertainty in risk assessment. However, reviewers also noted that the program needed more data and clearer long-term targets to demonstrate continued progress. To this end, the program continues to address its PART follow-up actions and improve program performance. For instance, in order to improve the linkage between budget resources and long-term performance targets in FY 2008, the Agency created financial tracking codes in its accounting system to allow for better distinction between the ecosystems and human health programs. Additionally, OMB, EPA, and members of the BOSC formed a workgroup to discuss long-term measurement of research and development programs. The workgroup is tasked with developing a system by which an independent panel can measure programs' progress toward long-term goals. The Human Health Research program is currently developing program-specific questions to be used to assess the program on a long-term basis. Finally, the program developed and submitted for peer review a multi-year implementation plan incorporating action items from its BOSC review.

Ecological Research

The Ecological Research Program is a multi-media program consistent with the integrated, multi-endpoint perspectives of the Healthy Communities and Ecosystems goal. As such, it provides essential information which complements research conducted under other Agency Goals, such as those focused on air, land and water. The Ecological Research Program is comprised of three elements: (1) assessment of the condition of aquatic ecological resources; (2) the development of methods and tools for causal diagnostics and environmental forecasting, and (3) ecological services and restoration research.

Historically, EPA has monitored and assessed the condition of aquatic ecological resources through the Environmental Monitoring and Assessment Program (EMAP). The goal of EMAP is to develop the scientific understanding for translating environmental monitoring data from multiple spatial and temporal scales into assessments of ecological condition and forecasts of the future risks to the sustainability of our natural resources. Initially, EMAP was focused on developing a systematic framework for data collection methods in order to accurately assess the state of the nation’s waters. In FY 2008, EMAP will transition to become a data analysis program that focuses on analyzing cumulative data generated by EMAP’s coastal and freshwater monitoring programs. These analyses will generate new hypotheses to be tested, create new statistical models for investigating relationships among EMAP variables (e.g., landcover and biological integrity), and suggest new opportunities to improve Agency-wide monitoring using a

common, EMAP-like, framework. The Ecological Research Program also will continue to support EPA's Water program as it implements a probabilistic survey approach in various waterbody types (*i.e.*, streams, lakes, wetlands, estuaries and rivers) in support of EPA's Clean and Safe Water goal.

The second element of ecosystems research is based on improving scientific understanding of causal linkages between stressors and changes in ecosystem processes. In FY 2008, research in this area will continue to focus on developing tools and methods to diagnose causes of ecological impairment, including forecasting models. In FY 2008, the research program will apply the Community Multi-scale Air Quality Model (CMAQ) to support studies of the ecological effects related to changes in ecosystem exposures to air pollutants, as a result of the Clean Air Interstate Rule (CAIR) and the Clean Air Mercury Rule (CAMR).

The Agency is developing DNA identification methods to more rapidly and cost-effectively identify benthic organisms contained in ballast water, the primary transport route for aquatic invasive species, which are a significant stressor on aquatic ecosystems. EPA will continue this work in FY 2008, applying these techniques to the monitoring of invasives in the Great Lakes and on the Pacific coast. In addition, EPA will investigate the efficacy of using this same technology to identify benthic organisms in streams and rapidly assess stream conditions based on previously-determined indices of biotic integrity.

In its 2005 review of the Ecological Research Program, the BOSC identified ecosystem services as a key area for further development, stating *"...provision of ecosystem services and the communication of these to decision-makers...is a highly relevant activity that is central to EPA's mandate of improving environmental quality and protecting and restoring the health of the nation's ecosystems."* EPA's FY 2008 plan includes some initial steps towards addressing this third element of the ecological research program.

In FY 2008, the Ecological Research Program will emphasize development of methods to optimize the services provided by the ecosystem as a whole. This approach has several interrelated objectives: quantification of ecosystem services in space and time; determining how management strategies affect the type, quality, and amount of services available to society; developing tools to analyze trade-offs among services received; and predicting ecological thresholds. The program will continue development of a decision-support tool that enables managers to balance ecosystem requirements with human needs, using optimization theory coupled to existing GIS models. In FY 2008, work also will continue to develop methods to restore large floodplain rivers. This research is quantifying how natural river features can be used to cool industrial thermal discharges, provide non-structural flood control, enhance riparian and riverine habitat, and provide recreational opportunities, all while working within biophysical and economic constraints.

Multiple natural and human stressors have already degraded some ecosystem functions and their related services to the point that restoration is difficult and costly. In FY 2008, ecosystem restoration research will continue to evaluate the cost-effectiveness of restoring streams and their associated ecosystem services. In order to proactively avoid loss of ecosystem functions and services, research will continue on methods for predicting ecological thresholds in rivers, lakes,

wetlands, and estuaries that are subjected to or impacted by multiple human stressors. This research will also create decision-support tools for managing resources in ways that improve their resilience to disturbance, thus reducing the need for future costly restoration efforts.

The Ecosystem Protection Research program received an “ineffective” rating in its most recent PART review in 2005, and received a “results not demonstrated” rating in its initial PART review in 2003. EPA continues to make progress toward meeting its PART follow-up actions and improving program weaknesses identified in these reviews. First, OMB, EPA, and members of the BOSC have formed a workgroup to develop a system by which an independent panel can measure a program’s utility and performance in relation to research outcomes. This workgroup will refine the questions used in the Agency’s independent scientific review of the program in order to better relate research elements to environmental outcomes. Second, the Agency has begun to develop a program-specific customer survey to improve the program’s utility to the Agency. EPA met with OMB in May 2006 to present its survey methodology and is currently working to revise and refine the survey specifically for application to ecological research. Finally, in order to improve the linkage between budget resources and long-term performance targets, the Agency created sub-program-projects in the FY 2008 budget to allow for better distinction between the ecosystems and human health research programs. EPA will continue to make progress in these areas, as it prepares for its re-PART, scheduled for the spring of calendar year 2007.

Additionally, EPA recognizes that, while the Ecosystem Protection Program is a vital and integral part of its mission, critiques received during the review process were largely focused on deficiencies in strategic planning and performance measures. In response, the Ecological Research Program is completing a draft of its fourth revision of its Multi-Year Plan (MYP) to ensure the strategic vision of the program is current and outcome-oriented. This request will support the implementation of the revised MYP.

Nanotechnology Research and Exploratory Grants

EPA is increasingly focused on both nanotechnology’s potential applications for protecting the environment and its implications for environmental health and safety. The Agency’s efforts are coordinated with other Federal agencies through the National Nanotechnology Initiative (NNI),⁶ which the Administration has identified as a FY 2008 research and development budget priority.⁷ EPA’s nanotechnology research also is guided by a nanotechnology white paper⁸ prepared by the Agency and a draft research needs document being prepared by the Nanotechnology Environmental and Health Implications Working Group⁹ of the National Science and Technology Committee’s (NSTC) Subcommittee on Nanoscale Science, Engineering and Technology.

⁶ For more information, see <http://www.nano.gov/>.

⁷ Executive Office of the President, Office of Management and Budget and Office of Science and Technology Policy, *FY 2008 Administration Research and Development Budget Priorities*. Washington, D.C.: OMB (2006), 5. See <http://www.whitehouse.gov/omb/memoranda/fy2006/m06-17.pdf>.

⁸ For more information, see <http://www.epa.gov/osa/nanotech.htm>.

⁹ For more information, see <http://www.nano.gov/html/society/NEHI.htm>.

In FY 2008, the Agency's Science to Achieve Results (STAR) program will continue to fund exploratory grants on the implications of manufactured nanomaterials on the environment and human health, in collaboration with other Federal agencies.¹⁰ The Agency also will continue in-house nanotechnology research initiated in FY 2007. The integrated programs will focus on assessing the potential ecological and human health exposures and effects from nanomaterials likely to be released into the environment; studying the lifecycles of nanomaterials to better understand how environmental releases may occur; developing methods to detect releases of nanomaterials; and using nanotechnology to detect, control, and remediate traditional pollutants. Other facets of nanotechnology research will also be supported by the Research: Land Protection and Restoration program and, to a lesser extent, other programs.

Indicators Research to support the Report on the Environment (ROE)

In 2007, the Agency plans to release EPA's ROE following the external review by the Science Advisory Board. The ROE is considered in strategic planning activities as EPA works to develop and implement more transparent and outcome-oriented measures and indicators. In FY 2008, EPA will continue mission-based research that will help support this triennial report.

Advanced Monitoring Initiative

In FY 2008, the Advanced Monitoring Initiative (AMI) will continue to bring together information technology advancements with advances in remote sensing and *in-situ* monitoring to improve the interface between research products and environmental and health decision-making. EPA and its partners will continue to integrate socioeconomic, human health, and ecosystem databases and models, to monitor the health of humans and the environment over greater expanses, in less time, and more cost-effectively than ever before, supporting decision-making processes that provide clear societal benefits in the near term. In addition to improving collaborative capabilities focused on decision-making, EPA will begin building a knowledge base of the accumulated AMI learning experience. This effort is linked with the interagency U.S. Global Earth Observations (USGEO) initiative and with the international community through the Global Earth Observation System of Systems (GEOSS) 10-Year Implementation Plan. Each year since 2003, the annual OMB/Office of Science and Technology Policy (OSTP) Memorandum on Research and Development Budget Priorities¹¹ has encouraged agency efforts align with USGEO and GEOSS.

Mercury Research

EPA has developed a multi-year plan for studying mercury, including its sources, control and treatment, environmental fate and behavior, impacts on ecological resources, and potential

¹⁰ For more information, see <http://es.epa.gov/ncer/nano/>.

¹¹ OMB/OSTP FY 2008 Administration Research and Development Budget Priorities Memorandum for the Heads of Executive Departments and Agencies, June 2006.

effects on human health.¹² In FY 2008, the program will continue to support the Agency's recent CAMR.¹³

To better understand the implications of CAMR, the program will continue to collect and analyze mercury deposition data to study whether mercury "hot spots" exist. In coordination with the United States Geological Survey (USGS), EPA will also study the aquatic fate and transport of mercury in order to better understand the relationship between emissions and mercury concentrations in fish tissue, an important pathway to human exposure.

In collaboration with the Department of Energy and others, research will focus on source emissions monitors, which power plants use to report emissions for CAMR's trading program. The program also will provide information on the cost and performance of mercury control technologies, with an emphasis on technologies that can control multiple pollutants.

Performance Targets:

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Outcome	Number of states using a common monitoring design and appropriate indicators to determine the status and trends of ecological resources and the effectiveness of national programs and policies.	25	25	30	35	States

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Outcome	Percentage of planned outputs delivered in support of public health outcomes long-term goal.	100%	100	100	100	Percent

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Outcome	Percentage of planned outputs delivered in support of mechanistic data long-term goal.	92%	100	100	100	Percent

¹² EPA, Office of Research and Development, *Mercury Research Multi-Year Plan*. Washington, D.C.: EPA (2003). See <http://www.epa.gov/osp/myr/mercury.pdf>.

¹³ For more information, see <http://www.epa.gov/air/mercuryrule/>.

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Output	Percentage of planned outputs delivered in support of aggregate and cumulative risk long-term goal.	100%	100	100	100	Percent

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Output	Percentage of planned outputs delivered in support of the susceptible subpopulations long-term goal.	100%	100	100	100	Percent

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Efficiency	Average time (in days) to process research grant proposals from RFA closure to submittal to EPA's GAD, while maintaining a credible and efficient competitive merit review system	Data Lag	307	292	277	Average Days

In 2008, the Human Health research program plans to accomplish its goals of completing and delivering 100% of its planned outputs. Additionally, the program plans to meet its efficiency goal of reducing the average time for processing research grants to 277 days. In achieving these targets, the program will contribute to EPA's goal of providing scientifically sound guidance and policy decisions related to the human health.

FY 2008 Change from FY 2007 President's Budget (Dollars in Thousands):

- (+\$126.5) This technical adjustment realigns workforce support costs (such as capital equipment and repairs and improvement) across the research program to better reflect FY 2008 priorities. There will be no programmatic impacts.
- (+\$114.8) This reflects an increase in funding for mercury research to support the Agency's recent Clean Air Mercury Rule (CAMR) through efforts such as investigation of mercury deposition, transport, and fate.
- (+\$75.0) This increase provides funds for program evaluations in the Ecosystem Protection Research program.

- (+\$57.2) This increase is associated with increased programmatic laboratory fixed costs.
- (+\$47.5) This is a technical adjustment to realign travel resources across the research program to better reflect FY 2008 programmatic priorities. There will be no programmatic impact.
- (-\$8,800.0) This reflects reductions to lower priority extramural components of the human health and ecosystems research program. Specific details are as follows:
 - (-\$5,750.8) This reflects a reduction to the extramural component of the EMAP program, inhouse research associated with major areas of EMAP, such as Coastal and Central Basin, will continue in FY 2008.
 - (-\$2,549.2) This reflects a reduction of funding for web-based systems to deliver research products (e.g., ECOTOX), While the extramural resources supporting these efforts are being reduced or eliminated, inhouse research related to these programs will continue in FY 2008.
 - (-\$500.0) This reflects a reduction of support for human health exposure models and research related to interpretation of exposure paths/routes.
- (-\$5,886.5) This redirection from human health and ecosystems research reflects a shift to support high priority research in several areas, including Clean Air, Human Health Risk Assessment (HHRA), and Sustainability, as described below:
 - (-\$3,206.6) A redirection out of human health research will reduce lower priority projects to allow greater emphasis in related problem-driven efforts in HHRA and Clean Air. In addition, EPA will continue to fund critical core research to address health risks of susceptible subpopulations, (such as mechanistic work, aggregate and cumulative risk assessments, and the Children's Environmental Health Centers) and will meet critical performance commitments.
 - (-\$2,679.9) A redirection out of ecosystem protection research will reduce efforts to evaluate the effectiveness of stream riparian restoration actions, assistance for the development of watershed management plans, and support for the use of probability designs to evaluate ecological improvements. However, this shift will allow greater emphasis in related problem-driven efforts in water quality, clean air, and sustainability research. In addition, EPA will continue to fund its critical core research needs to provide the scientific underpinning for assessing the chemical, physical and biological threats to ecosystems and will meet critical performance commitments.
- (-\$878.3) This reflects a decrease for payroll and cost of living for existing FTE.
- (-\$424.0) This reflects a reduced investment in information technology (IT), which will be made possible through standardization, consolidation, and centralization of some IT

services, and replacing some local administrative support systems with Agency or organization-wide solutions.

- (-\$690.4) This reflects efficiencies in administrative processes resulting from consolidation of Headquarters administrative functions (*e.g.*, processing of training, travel, personnel action, procurement, etc.) and staff.
- (-\$8.5) This is part of an Agencywide effort to reduce travel, including international travel.
- (-12.3 FTE) This change reflects EPA's workforce management strategy that will help the Agency better align resources, skills and Agency priorities. This includes realignment of 5.5 total workyears from core research in the human health and ecosystems program to support related problem-driven efforts in pesticides and toxics focused on developing and evaluating a metabolic simulator, exposure methods and models, and potential low cost lead test kit methods. 4.8 FTE of this reduction reflects efficiencies gained in EPA's Research and Development's IT and administrative activities. 2.0 FTE of this reduction is a realignment of support for the development of watershed management plans, including TMDLs and the prioritization of watershed restoration activities, and wildlife vulnerability assessments of the stresses associated with habitat loss and alteration. These reductions will not impede Agency efforts to maximize efficiency and effectiveness in carrying out its programs.

Statutory Authority:

CAA; SDWA; ERDDA; CWA; FIFRA; FFDCA; RCRA; FQPA; TSCA.

Program Area: Research: Land Protection

Research: Land Protection and Restoration

Program Area: Research: Land Protection

Goal: Land Preservation and Restoration

Objective(s): Enhance Science and Research

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Science & Technology	\$12,101.5	\$10,552.8	\$10,737.0	\$184.2
Leaking Underground Storage Tanks	\$617.2	\$651.3	\$660.0	\$8.7
Oil Spill Response	\$828.4	\$903.1	\$901.0	(\$2.1)
Hazardous Substance Superfund	\$22,210.2	\$21,963.9	\$20,081.0	(\$1,882.9)
Total Budget Authority / Obligations	\$35,757.3	\$34,071.1	\$32,379.0	(\$1,692.1)
Total Workyears	141.6	142.8	141.3	-1.5

Program Project Description:

Research performed under this program supports scientifically defensible and consistent decision-making for Resource Conservation and Recovery Act (RCRA) waste management and corrective action by providing a tested multimedia modeling system and technical support to those who use the model to make environmental decisions. Research and support within this program address resource conservation, corrective action, hazardous waste treatment, multimedia modeling, alternative landfills, leaching, modeling, landfill bioreactors, and nanomaterial fate, transport, and life cycle assessment.

Research is guided by the long term *Waste Research Strategy*¹, which was developed with participation from major clients and outlines research needs and priorities. These research efforts are guided by the Land Multi-Year Plan (MYP)², developed with input from across the Agency, which outlines steps for meeting the needs of the Research and Development program’s clients and for evaluating progress through annual performance goals and measures. Specific human health risk and exposure assessments and methods are discussed and conducted under the Human Health Risk Assessment Program.

The Land Protection and Restoration research program was reviewed by EPA’s Board of Scientific Counselors (BOSC)—a Federal advisory committee comprised of qualified, independent scientists and engineers—in FY 2006 (December 2005). The BOSC found that the program generates high quality products and conducts appropriately focused multi-disciplinary research.

¹ EPA, Office of Research and Development, *Waste Research Strategy*. Washington, D.C.: EPA. For more information, see <http://www.epa.gov/ord/htm/documents/wastepub.pdf>.

² For more information, see <http://www.epa.gov/osp/myp>.

The *Waste Research Strategy* outlines the research needs and priorities at the time it was prepared. To guide these research efforts as progress is made and new needs emerge, EPA develops multi-year research plans that are revised periodically. EPA merged the Contaminated Sites and RCRA Multi-Year Plans (MYPs) into one cohesive Land Research MYP, with input from across the Agency, to ensure research conducted continues to support the Agency’s mission to protect human health and the environment. The new plan will be posted when peer review comments are addressed in the second quarter of FY 2007.

In addition, EPA's Science Advisory Board (SAB) conducted an independent review of the Contaminated Sites and RCRA multi-year plans in 2004 and released its final report in May 2005. The report is available on the EPA website at http://www.epa.gov/science1/pdf/contaminated_sites_rcra_sab-05-009.pdf. The review panel found the plans to be programmatically and scientifically sound (R&D Criteria: Quality) and commended the research and development program's close coordination with the program office (R&D Criteria: Relevance) and use of leveraging opportunities. The panel endorsed EPA's proposal to merge the two plans, which in part address closely related research needs.

FY 2008 Activities and Performance Plan:

In response to a BOSC recommendation to shift part of the research program to emerging issues and the strategic priority of nanomaterial environmental and human health issues, a shift in the research program to address nanotechnology fate and transport research issues will be made for FY 2008. Additional suggestions from both the SAB review and the BOSC review also are being incorporated into the research program.

For nanotechnology fate and transport research, the primary objective will be to determine the physicochemical properties controlling the movement of nanomaterials through soil and aquatic ecosystems. Research questions include the identification of system parameters that alter the surface characteristics of nanomaterials through aggregation (*e.g.*, pH effects), complexation (*e.g.*, surface complexation by dissolved organic carbon) or changes in oxidation state (*e.g.*, chemical- or biological-mediated electron transfer). Lifecycle issues also will be addressed. This work will provide the basis for prioritizing potential ecological exposure pathways that warrant further exploration and complement funded Science to Achieve Results (STAR) grants in the Human Health and Ecosystems program.

The Agency's efforts are coordinated with other Federal agencies through the National Nanotechnology Initiative (NNI),³ which the Administration has identified as a FY 2008 research and development budget priority.⁴ EPA's nanotechnology research is also guided by a draft research needs document being prepared by the Nanotechnology Environmental and Health Implications Working Group.⁵ EPA will move to become a Federal leader for environmental fate and transport research as outlined in the NNI draft research needs document.

EPA also will continue to collaborate with the private sector to conduct field sampling. In addition, EPA will work with states to optimize operations and monitoring of several landfill bioreactors and determine their potential to provide alternative energy in the form of landfill gas while increasing the nation's landfill capacity (R&D Criteria: Relevance, Performance). Recovering landfill space by accelerating waste degradation is an alternative approach to meeting EPA's Solid Waste and Emergency Response program's draft strategic target of

³ For more information, see <http://www.nano.gov/>.

⁴ Executive Office of the President, Office of Management and Budget and Office of Science and Technology Policy, *FY 2008 Administration Research and Development Budget Priorities*. Washington, D.C.: OMB (2006), 5. See <http://www.whitehouse.gov/omb/memoranda/fy2006/m06-17.pdf>.

⁵ For more information, see <http://www.nano.gov/html/society/NEHL.htm>.

decreasing landfill disposal and incineration by 11 million tons (R&D Criteria: Relevance, Performance). The Association of State and Tribal Solid Waste Management Officials (ASTSWMO) helps transfer research results on landfill bioreactors to the states (R&D Criteria: Relevance), who issue the permits under the recent Research, Development, and Demonstration (RD&D) rule. FY 2008 products will include a leach testing methodology to improve predictions of chemical mobilization due to various disposal and use scenarios.

In 2006, the Land Protection and Restoration Research Program received an “adequate” rating in its first PART review. EPA and OMB continue to work to finalize appropriate ambitious performance measures, develop and implement a protocol for improved budget-performance integration, and develop a new efficiency measure that captures the cost effectiveness of research activities. To this end, OMB, EPA, and members of the Board of Scientific Counselors formed a workgroup to discuss long-term measurement of EPA’s research and development programs. As part of the workgroup, EPA has devised program-specific questions to be addressed by the BOSC and used in support of long-term measurement. To identify appropriate outcome-oriented efficiency measures for research programs, EPA is soliciting input from the National Academy of Sciences.

Performance Targets:

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Efficiency	Avg. time (in days) for technical support centers to process and respond to requests for technical document review, statistical analysis and evaluation of characterization and treatability study plans		32.5	30.5	29	Days

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Output	Percentage of planned outputs delivered in support of the manage material streams, conserve resources and appropriately manage waste long-term goal.	100	100	100	100	Percent

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Output	Percentage of planned outputs delivered in support of the mitigation, management and long-	96	100	100	100	Percent

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
	term stewardship of contaminated sites long-term goal.					

Work under this program supports EPA's Enhance Science and Research objective. Performance measures for this specific program project are included under the Superfund Land Protection and Restoration program.

FY 2008 Change from FY 2007 President's Budget (Dollars in Thousands):

- (+\$685.5) This realignment will support research in nanotechnology fate and transport and research to develop a leach testing methodology to improve predictions of chemical mobilization.
- (+\$131.9) This reflects an increase for payroll and cost of living for existing FTE.
- (+\$4.1) This increase is associated with increased programmatic laboratory fixed costs.
- (+\$0.9) This is a technical adjustment to realign travel resources across the research program to better reflect FY 2008 programmatic priorities. There will be no programmatic impact.
- (-\$466.1) This technical adjustment realigns workforce support costs (such as capital equipment and repairs and improvement) across the research program to better reflect FY 2008 priorities. There will be no programmatic impacts.
- (-\$117.3) This reduction reflects savings from improvements to the Agency's small administrative IT Systems.
- (-\$54.4) This reduction reflects efficiencies gained in Agency administrative or contract management services.
- (-\$0.4) This is part of an Agencywide effort to reduce travel, including international travel.
- (-0.4 FTE) This change reflects EPA's workforce management strategy that will help the Agency better align resources, skills and Agency priorities. This reduction reflects efficiencies gained in EPA's Research and Development IT and administrative activities and will not impede Agency efforts to maximize efficiency and effectiveness in carrying out its programs.

Statutory Authority:

SWDA; HSWA; SARA; CERCLA; RCRA; OPA; BRERA.

Program Area: Research: Sustainability

Research: Economics and Decision Science(EDS)

Program Area: Research: Sustainability

Goal: Compliance and Environmental Stewardship

Objective(s): Enhance Societies Capacity for Sustainability through Science and Research

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Science & Technology	\$2,487.6	\$2,494.6	\$0.0	(\$2,494.6)
Total Budget Authority / Obligations	\$2,487.6	\$2,494.6	\$0.0	(\$2,494.6)
Total Workyears	3.3	3.0	0.0	-3.0

*In FY 2006, Program/Project Research: Pollution Prevention (B6) was eliminated and Program/Projects Research: Economics and Decision Science (EDS) (H7) and Research: Sustainability (H8) established.

Program Project Description:

Economics and Decision Science (EDS) research is designed to improve EPA’s decision making, cost-benefit analyses, and implementation strategies.¹ EDS research focuses on areas such as:

- How people value their health and the environment;
- Corporate and consumer environmental behavior; and
- Market mechanisms and incentives.

Since its inception, the EDS program has produced dozens of published, peer-reviewed articles that have contributed to the field of environmental decision making and have been used in crafting state and Federal environmental policies. For example, EPA’s Agencywide guidelines for cost-benefit analyses cite 10 peer-reviewed, academic articles sponsored by the EDS program² (R&D Criteria: Quality).

FY 2008 Activities and Performance Plan:

In FY 2008, EPA’s resources for Economics and Decision Science will move to the Office of Policy, Economics, and Innovation under the Regulatory and Economic Analysis program. Refer to the Regulatory and Economic Analysis program for a discussion of activities in FY 2008.

Performance Targets:

Work under this program supports EPA's Enhance Science and Research objective. Currently, there are no PART performance measures for this specific program.

¹ For more information, see <http://es.epa.gov/ncer/science/economics>.

² EPA, Office of the Administrator, *Guidelines for Preparing Economic Analyses*. Washington, D.C.: EPA (2000). Available at: [http://yosemite.epa.gov/ee/epa/eed.nsf/webpages/Guidelines.html/\\$file/Guidelines.pdf](http://yosemite.epa.gov/ee/epa/eed.nsf/webpages/Guidelines.html/$file/Guidelines.pdf).

FY 2008 Change from FY 2007 President's Budget (Dollars in Thousands):

- (-\$1,070.8) This reduction represents a redirection from the Office of Research and Development's (ORD's) Science to Achieve Results (STAR) program for Economics and Decision Science research to the Office of Policy, Economics, and Innovation's Regulatory and Economic Analysis program. Beginning in FY 2008, EDS activities will be directed at critical applied research needs of EPA. The selection of research areas to be funded will draw on EPA's Environmental Economics Research Strategy.
- (-\$994.6) This reduction represents a discontinuation of the Economics and Decision Science research program in FY 2008.
- (-\$429.2/-3.0 FTE) This change reflects EPA's workforce management strategy that will help the Agency better align resources, skills and Agency priorities. This represents the transfer of this program's personnel and related payroll resources to the Office of Policy, Economics, and Innovation. These reductions will not impede Agency efforts to maximize efficiency and effectiveness in carrying out its programs.

Statutory Authority:

CAA; CWA; PPA; RCRA; SDWA; SARA; TSCA.

Research: Sustainability

Program Area: Research: Sustainability

Goal: Compliance and Environmental Stewardship

Objective(s): Enhance Societies Capacity for Sustainability through Science and Research

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Science & Technology	\$27,042.4	\$21,404.9	\$22,478.0	\$1,073.1
Hazardous Substance Superfund	\$292.0	\$0.0	\$0.0	\$0.0
Total Budget Authority / Obligations	\$27,334.4	\$21,404.9	\$22,478.0	\$1,073.1
Total Workyears	86.8	77.3	76.2	-1.1

*In FY 2006, Program/Project Research: Pollution Prevention (B6) was eliminated and Program/Projects Research: Economics and Decision Science (EDS) (H7) and Research: Sustainability (H8) established.

Program Project Description:

EPA’s Science and Technology for Sustainability (STS) program is designed to advance sustainability goals. Specifically, this program is linked to supporting Agency-identified sustainability goals in the areas of air, ecosystems, energy, land, materials, and water.

Sustainable and preventive approaches to health and environmental problems have increasingly become the Agency’s focus since the Pollution Prevention Act of 1990. Sustainable approaches require innovative design and production techniques that minimize or eliminate environmental liabilities; integrated management of air, water, and land resources; and changes in the traditional methods of creating and distributing goods and services. In addition to conducting research related to human health and environmental threats, EPA is committed to promoting sustainability—achieving economic prosperity while protecting natural systems and quality of life.

The Science Advisory Board’s (SAB) Environmental Engineering Committee reviewed EPA’s Sustainability Research Strategy and Science for Technology Multi-Year Plan in June 2006. While the STS research program contains several new elements as a result of this review, such as the development of metrics and systems-based environmental management practices, it also draws upon ongoing efforts that include: 1) a multi-disciplinary Sustainable Environmental Systems program; 2) a decision support tools program which has championed the use of life cycle assessment methods and developed the Tool for Reduction and Assessment of Chemical and Other Environmental Impacts (TRACI), an environmental impact tool; and 3) a successful grant program: the People, Prosperity, and the Planet (P3) Student Design Competition for Sustainability.

Specific sustainability research areas include:

- *Sustainability Metrics:* As sustainable solutions to environmental problems are developed and implemented, there is a need to measure the progress and impact of these

efforts. The research in this area is focused on developing scientifically-based sustainability metrics and indices that will provide policy makers and citizens with a suite of measurement tools that are both readily accessible and easily understood. The long-term objective is to develop sustainability metrics that are suitable for use in the Agency's Report on the Environment. The initial suite of metrics is scheduled to be available in FY 2011.

- *Decision Support Tools*:¹ This research creates tools and methods for use by public and private sector decision makers to support the achievement of sustainable outcomes. This effort is built on the foundation of Life Cycle Analysis (LCA) techniques that address the sustainability of alternative policy options, production pathways, and product usage by describing the full environmental impact of each alternative.
- *Small Business Innovation Research (SBIR) Program*:² As required by the Small Business Act as amended,³ EPA sets aside 2.5% of its extramural research budget for contracts to small businesses to develop and commercialize new environmental technologies. Funds for this program are allocated to specific programs based on final resource levels in the appropriated budget. Examples of completed programs include development of a membrane technology for reducing NOx emissions from diesel engines, a novel hybrid sorbent to remove arsenic from drinking water systems, and a safe, effective new technology for detecting and removing lead paint.
- *National Environmental Technology Competition (NETC)*:⁴ The People, Prosperity, and the Planet (P3) Award⁵ is a student competition to develop solutions to sustainability challenges. For example, a joint student team from Oberlin College and Brown University created a low-cost system that students can use to monitor energy and water consumption at various scales, from individual dormitory floors to their entire college campus.
- *Sustainable Environmental Systems (SES)*:⁶ The SES program develops methodologies for understanding and managing large, complex environmental systems such as metropolitan areas and watersheds. For example, one of the projects uses an auction-based market incentive approach to harness the deliberative decision process of local property owners to address water quality problems stemming from urban stormwater runoff.

It is the long term goal of the STS Program to promote and support national and regional sustainability policies and initiatives by ensuring that decision-makers within the EPA and at the

¹ For more information, see <http://www.epa.gov/ord/NRMRL/std/sab>.

² For more information, see <http://es.epa.gov/ncer/sbir>.

³ U.S. Public Law 219. 79th Congress, 2nd session, 22 July 1982. *Small Business Innovation Development Act of 1982*. More information is available at: <http://thomas.loc.gov/cgi-bin/bdquery/z?d097:s.881>.

⁴ For more information, see <http://www.epa.gov/etop/netc>.

⁵ For more information, see <http://es.epa.gov/ncer/p3>.

⁶ For more information, see <http://www.epa.gov/ord/NRMRL/std/seb>.

local, regional and national levels have a scientifically sound set of management tools that promote stewardship and sustainability outcomes.

FY 2008 Activities and Performance Plan:

FY 2008 will mark the first year of a new research effort that is aimed at creating a suite of science-based sustainability metrics that are readily understood by the public. This work will address both large and small systems. Research on large scale systems will be aimed at the sustainable management of a regional ecosystem that includes a National Park. Small system research will focus on the development of sustainability metrics for use in the design and creation of new chemicals of commerce. Ultimately, this body of work will be extended to include the validation of these measures in real world settings with outside collaborators.

In FY 2008, the People, Prosperity, and Planet (P3) Award will support up to 50 student design projects from around the country, focusing on challenges in areas such as materials and chemicals, energy, resources, and water. In addition, EPA will issue a new solicitation to support this effort, as well as a solicitation under the SBIR program that will be directed toward the support of environmental technology needs identified by EPA program and regional offices.

In FY 2008, the *Environmental Technology Verification (ETV)*⁷ program will operate using funding from external sources such as vendors, other Federal programs, states and local government, and trade organizations. Expected products in FY 2008 include additional test protocols and verifications in several technology areas: biomass co-fired boilers; remote optical imaging technology for chemical leak detection; pesticide spray drift reduction; and microbial resistant wallboard.

In 2003, EPA's sustainability research program, under the program title "Pollution Prevention and New Technologies Research" received a "results not demonstrated" in its PART review. The program was rated "results not demonstrated" due to its lack of adequate strategic planning and performance measures. However, EPA has taken steps to address these deficiencies through the development of a new Multi-Year Plan as well as annual and long term performance and efficiency measures that will be finalized in consultation with OMB.

Performance Targets:

Work under this program supports EPA's Enhance Science and Research objective. Currently, there are no PART performance measures for this specific program project.

FY 2008 Change from FY 2007 President's Budget (Dollars in Thousands):

- (+\$677.2) This increase will support the P3 Student Design Competition for Sustainability program. This annual program supports over 500 college students in 50 to 70 teams and will issue its next solicitation in FY 2008. The additional funding for the P3 program will be used to support additional P3 awardees (currently 42 awards at \$10 thousand each or less) and Phase II grant recipients (currently 6 awards up to \$75

⁷ For more information, see <http://www.epa.gov/etv>.

thousand each). The program also will benefit from increased activities to enhance the efforts of the P3 Award recipients to commercialize and implement their projects realizing environmental and human health benefits. Building upon the successful designs of past P3 awardees, the STS Multi-Year Plan expects to foster/facilitate the commercialization of several innovative technologies to address sustainability issues beginning in FY 2010.

- (+\$480.2) This reflects an increase for payroll and cost of living for existing FTE.
- (+\$125.0) This increase provides funds for program evaluations in the Sustainability research program.
- (+\$11.1) This increase is associated with increased programmatic laboratory fixed costs.
- (-\$90.2) This reduction reflects savings from improvements to the Agency's small administrative IT Systems.
- (-\$44.1) This reduction reflects efficiencies gained in Agency administrative or contract management services.
- (-\$31.2) This technical adjustment realigns workforce support costs (such as capital equipment and repairs and improvement) across the research program to better reflect FY 2008 priorities. There will be no programmatic impacts.
- (-\$54.9) This is part of an Agencywide effort to reduce travel, including international travel.
- (-1.1 FTE) This change reflects EPA's workforce management strategy that will help the Agency better align resources, skills and Agency priorities. This reduction reflects efficiencies gained in EPA's Research and Development IT and administrative activities and will not impede Agency efforts to maximize efficiency and effectiveness in carrying out its programs.

Statutory Authority:

CAA; CWA; FIFRA; PPA; RCRA; SDWA; SBA; SARA; TSCA.

Program Area: Toxic Research and Prevention

Research: Pesticides and Toxics

Program Area: Toxic Research and Prevention

Goal: Healthy Communities and Ecosystems

Objective(s): Enhance Science and Research

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
<i>Science & Technology</i>	\$28,343.3	\$26,223.7	\$24,795.0	(\$1,428.7)
Total Budget Authority / Obligations	\$28,343.3	\$26,223.7	\$24,795.0	(\$1,428.7)
Total Workyears	131.1	122.2	126.3	4.1

Program Project Description:

The Pesticides and Toxics research program is a multidisciplinary program that examines risks resulting from exposure to pesticides and toxic chemicals. The research is designed to support the Agency's efforts to reduce current and future risks to the environment and to humans by preventing and/or controlling the production of new chemicals and products of biotechnology that pose unreasonable risk, as well as assessing and reducing the risks of chemicals and products of biotechnology already in commerce. This research complements work conducted under the Human Health and Ecosystem Research, the Human Health Risk Assessment, and the Endocrine Disruptors Research programs. The development and validation of methods and assessments for predicting risks from pesticides, toxic substances, and products of biotechnology to human health and ecosystems are conducted under the Pesticides and Toxics research program (R&D Criteria: Relevance).

Research is guided by the Biotechnology Research Strategy¹ and the Wildlife Research Strategy,² both of which were developed with participation from major clients (e.g. EPA's Prevention, Pesticides and Toxic Substances program and the Regional Offices). The strategies outline the research needs and priorities. The Agency also maintains a Safe Pesticides/Safe Products (SP2) multi-year plan (MYP)³ that outlines steps for meeting these needs, as well as annual performance goals and measures for evaluating progress.

The Pesticides and Toxics research program is scheduled to undergo an external peer review by EPA's research oversight body, the Board of Scientific Counselors (BOSC), in February 2007.

¹ U.S. EPA, Office of Research and Development. *Biotechnology Research Strategy*. Washington, DC: EPA. Available at: http://www.epa.gov/nheerl/publications/files/biotechnology_research_program_4_8_05.pdf.

² U.S. EPA, Office of Research and Development, *Wildlife Research Strategy*. Washington, D.C.: EPA. Available at: http://www.epa.gov/nheerl/publications/files/wildlife_research_strategy_2_2_05.pdf.

³ U.S. EPA, Office of Research and Development, *Safe Pesticides/Safe Products Multi-Year Plan*. Washington, D.C.: EPA (2003). Available at: <http://www.epa.gov/osp/myp/safecomm.pdf>.

FY 2008 Activities and Performance Plan:

In FY 2008, research will continue to provide the scientific foundation for three major areas of the Pesticides and Toxics research program.

- 1) EPA will provide research on methods, models, and data to support prioritization of testing requirements, enhanced interpretation of data to improve human health and ecological risk assessments, and decision-making regarding specific individual or classes of pesticides and toxic substances that are of high priority. This research will develop/validate: 1) predictive biomarkers of neurotoxic effects for major classes of pesticides; 2) alternative test methods for the hazard identification of developmental neurotoxicants; 3) virtual chemical screening methods for risk-based prioritization and ranking needs for chronic non-cancer effects; and 4) quantitative structure activity relationships (QSARs) to relate various structural descriptions of molecules to toxicity endpoints. EPA will use the results of this research to make decisions about which chemicals should undergo more definitive toxicological testing by industry and, subsequently, to help interpret the industry-submitted data for use in risk assessments. EPA scientists will work collaboratively with scientists from the two Environmental Bioinformatic Research Centers that were awarded under the Computational Toxicology Research program in FY 2006 to develop and apply novel computational approaches to integrate data from genomics, proteomics, and metabonomics studies. Integrating data from genomics and related approaches is consistent with the “Understanding Complex Biological Systems” category highlighted as a priority for Federal investment by the Administration⁴. Research in response to EPA’s more immediate needs for decision-making includes: 1) characterizing toxicity and pharmacokinetic profiles of perfluoroalkyl chemicals; 2) examining the potential for selected perfluorinated telomers to degrade to perfluorooctanoic acid or its precursors; and 3) developing methods and models to forecast the fate of pesticides and byproducts from source waters through drinking water treatment systems and ultimately to the U.S. population (R&D Criteria: Relevance, Quality, Performance).

- 2) Research conducted in FY 2008 will support the development of probabilistic risk assessments to protect natural populations of birds, fish, other wildlife, and non-target plants. This research directly supports Agency efforts to assure that endangered species are protected from pesticides while making sure farmers and communities have the pest control tools they need. Four key components of this research are: 1) extrapolation among wildlife species and exposure scenarios of concern; 2) population biology to improve population dynamics in spatially-explicit habitats; 3) models for assessing the relative risk of chemical and non-chemical stressors; and 4) models to define geographical regional/spatial scales for risk assessment. Methods for characterization of population-level risks of toxic substances to aquatic life and wildlife also will be developed. Results of this research will help the Agency meet the long-term goal of developing scientifically valid approaches for assessing spatially-explicit, population-

⁴ FY 2007 Administration Research and Development Budget Priorities memo by J. Marburger and J. Bolten: July 8, 2005.

level risks to wildlife populations from multiple stressors (R&D Criteria: Relevance, Quality, Performance).

- 3) Additionally, EPA will provide biotechnology research to support decision-making related to products of biotechnology. In FY 2008, the Agency is initiating a limited cross-laboratory effort to implement a cost-effective monitoring program designed to assess changes in pesticide exposure and associated environmental effects accompanying genetically engineered crop adoptions. In addition, within EPA's research laboratories and through its Science to Achieve Results (STAR) program, methods are being developed to assess the potential allergenicity of genetically engineered plants (R&D Criteria: Relevance, Quality, and Performance).

The Safe Pesticides/Safe Products research program is scheduled to be assessed in the spring of calendar year 2007. EPA is continually working to develop appropriate annual and long-term output and outcome measures for this program. Additionally, EPA is working to develop useful efficiency measures to guide program management decisions and improvement strategies.

Performance Targets:

Work under this program supports EPA's Enhance Science and Research objective. Currently, there are no approved performance measures for this specific program.

FY 2008 Change from FY 2007 President's Budget (Dollars in Thousands):

- (+\$763.8) This reflects an increase for payroll and cost of living for existing FTE.
- (+\$5.6) This increase is associated with increased programmatic laboratory fixed costs.
- (+4.1 FTE) This change reflects EPA's workforce management strategy that will help the Agency better align resources, skills and Agency priorities. This includes a 5.5 FTE realignment of total workyears from core research in the human health and ecosystems program to support related problem-driven efforts in pesticides and toxics focused on developing and evaluating a metabolic simulator, exposure methods and models, and potential low cost lead test kit methods. This total also includes a 1.4 FTE reduction that reflects efficiencies gained in EPA's Office of Research and Development's IT and administrative activities. These changes will not impede Agency efforts to maximize efficiency and effectiveness in carrying out its programs.
- (-\$1,101.6) Resources are being redirected to support priorities in the Clean Air and Human Health Risk Assessment research programs. While this shift will affect progress in some areas, such as the development of a High Throughput approach to screening compounds, FY 2008 resources will continue to support the most critical pesticides and toxics research needs.

- (-\$796.0) This reduces funding for research to assess the impacts of genetically modified plants and to provide data on degradation products and treatment studies of pesticides in drinking water.
- (-\$179.8) This reduction reflects efficiencies gained in Agency administrative or contract management services.
- (-\$91.7) This reduction reflects savings from improvements to the Agency's small administrative IT Systems.
- (-\$27.4) This technical adjustment realigns workforce support costs (such as capital equipment and repairs and improvement) across the research program to better reflect FY 2008 priorities. There will be no programmatic impacts.
- (-\$1.6) This is part of an Agencywide effort to reduce travel, including international travel.

Statutory Authority:

FQPA; FIFRA; TSCA; CWA; CAA.

Program Area: Water: Human Health Protection

Drinking Water Programs

Program Area: Water: Human Health Protection

Goal: Clean and Safe Water

Objective(s): Protect Human Health

(Dollars in Thousands)

	FY 2006 Actuals	FY 2007 Pres Bud	FY 2008 Pres Bud	FY 2008 Pres Bud v. FY 2007 Pres Bud
Environmental Program & Management	\$90,252.9	\$99,121.0	\$96,967.0	(\$2,154.0)
<i>Science & Technology</i>	<i>\$3,101.9</i>	<i>\$3,243.1</i>	<i>\$3,416.0</i>	<i>\$172.9</i>
Total Budget Authority / Obligations	\$93,354.8	\$102,364.1	\$100,383.0	(\$1,981.1)
Total Workyears	581.5	583.9	584.1	0.2

Program Project Description:

These resources provide technical support to drinking water programs through the Technical Support Center (TSC), which evaluates engineering and scientific data, collects and evaluates contaminant occurrence data, evaluates treatment technologies, develops and evaluates monitoring approaches and analytical methods, and develops and disseminates treatment plant performance improvement mechanisms to affect development and implementation of National Primary Drinking Water Regulations (NPDWRs) that ensure the safety of drinking water. The Center also provides external technical assistance in support of EPA Regional and state drinking water programs. (See <http://www.epa.gov/safewater/> for more information.)

FY 2008 Activities and Performance Plan:

In FY 2008, the drinking water technical support program will:

- Provide technical and scientific support for the development and implementation of drinking water regulations. This includes the development of methods for updating rules and responding to technical implementation questions regarding the entire range of NPDWRs, including the Surface Water Treatment Rule; Long Term 1 and 2 Enhanced Surface Water Treatment Rules (“LT1” and “LT2,” respectively); Stage 1 and 2 Disinfectants and Disinfection Byproducts Rules (“Stage 1” and “Stage 2,” respectively); Total Coliform Rule; Lead and Copper Rule; and Arsenic Rule. TSC also manages the Quality Assurance and Laboratory Approval programs that support implementation of the LT2 Rule.
- Continue to implement EPA’s Drinking Water Laboratory Certification Program. This program sets standards and establishes methods for EPA, state, and privately-owned labs that are analyzing drinking water samples. Through this program, EPA will also conduct three Regional program reviews during FY 2008. TSC visits each regional office on a triennial basis and evaluates their oversight of the state labs and the state laboratory certification programs within their purview.

- Support small drinking water systems' efforts to optimize their treatment technology under the drinking water treatment Area Wide Optimization Program (AWOP). AWOP is a highly successful technical assistance and training program that enhances the ability of small systems to meet existing and future microbial, disinfectant, and disinfection byproducts standards. By the end of 2008, EPA expects that 30 states and 6 regional office will be working with the Agency to establish, strengthen, and enhance AWOPs. By 2008, EPA will develop and pilot a performance-based training approach to facilitate systems treating groundwater sources to obtain key skills specific to groundwater systems. The performance-based training brings together a group of public water supply operators from different localities for a series of sessions where they learn key operational and problem solving skills. Each skill is needed to enable operators to address the factors limiting optimized performance of their plant.
- Manage the implementation of Unregulated Contaminant Monitoring Rules (UCMR2). This involves the coordination and review of sampling plans, certification of laboratories, and review and validation of data.
- Support the Partnership for Safe Water, a national voluntary collaborative effort between the water industry and EPA to pursue optimization of the drinking water treatment infrastructure to maximize public health protection.
- Provide analytical method development/validation to enable implementation of the Nation's drinking water compliance-monitoring and occurrence data gathering.

Performance Targets:

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Outcome	Percent population served by CWS that receive drinking water that meets all applicable health-based DW standards through approaches including effective treatment and source water protection.	89	93	94	90	Percent Population

Measure Type	Measure	FY 2006 Actual	FY 2006 Target	FY 2007 Target	FY 2008 Target	Units
Outcome	Percent community water systems that provide drinking water that meets all applicable health-based drinking water standards.	89.4	93	94	89.5	Percent Systems

The two performance measures displayed above are representative of the work carried out under this program. These measures were developed in related Program Assessment Rating Tools (PART): the Drinking Water State Revolving Fund, Public Water System Supervision Grant program and Underground Injection Control Grant program. There are no current PART measures specifically for this program.

FY 2008 Change from FY 2007 President's Budget (Dollars in Thousands):

- (+\$85.0) This request redirects funds from the Drinking Water program in the EPM appropriation to the same program within the S&T appropriation. This change is an administrative correction for fixed costs associated with the Cincinnati Technical Support Center.
- (+\$87.0) This reflects an increase for payroll and cost of living for existing FTE.
- (+\$0.9) Change due to rounding in the FY 2008 President's Budget.

Statutory Authority:

SDWA.