

# Science Program Direction

## Program Mission

The mission of Science Program Direction is: to provide and support a skilled, highly motivated Federal workforce to manage a broad set of scientific disciplines, programs, projects, and facilities. This program enables a skilled, highly motivated Federal workforce to manage the Office of Science's (SC) research portfolio and facilities in support of new and improved energy, environmental, and health technologies, and provides continuous science education opportunities.

Science Program Direction consists of three subprograms: Program Direction, Science Education, and Field Operations. Beginning in FY 2003, Program Direction and Field Operations are realigned to include all functions performed in the Office of Science (SC) Field complex in the Field Operations subprogram. With this change, the Program Direction subprogram becomes the single funding source for the SC Federal staff in Headquarters responsible for directing, administering, and supporting the broad spectrum of SC scientific disciplines. The Science Education subprogram supports four educational human resource development programs. The Department is committed to programs that train students to enter careers in Science, Mathematics, Engineering, and Technology (SMET). Each of the development activities within the Science Education subprogram targets a different group to attract a broad range of students and faculty to the programs and to expand the pipeline of students who can enter the SMET workforce. In this fashion the activities should help our national laboratories and the nation meet the demand for a well-trained scientific/technical workforce and strengthen the national security. The Field Operations subprogram is the centralized funding source for the Field Federal workforce responsible for the management and administrative functions at the Chicago and Oak Ridge Operations Offices and program management oversight provided by the site offices supporting SC laboratories and facilities, e.g., Argonne, Brookhaven, Fermi, and Lawrence Berkeley National Laboratories; the Princeton Plasma Physics Laboratory; the Thomas Jefferson National Accelerator Facility; the Stanford Linear Accelerator Center; and the Spallation Neutron Source.

## Strategic Objective

**SC-8:** Ensure efficient SC program management of research and construction projects through a re-engineering effort by FY 2003 that will support world class science through systematic improvements in SC's laboratory physical infrastructure, security, and ES&H.

Progress toward accomplishing these Strategic Objectives will be measured by Program Strategic Performance Goals, Indicators and Annual Targets, as follows:

## Program Strategic Performance Goals

**SC8-3:** Provide and support a world class Federal workforce with the capability to manage basic and applied research and development in support of new and improved energy, environmental, and health technologies by focusing on human capital management, strategic management systems, e-commerce initiatives, and providing efficient information management products and services. (Program Direction subprogram)

### Performance Indicators

Number of completed workforce actions; research proposals received electronically.

### Performance Standards

As discussed in Corporate Context/Executive Summary.

### Annual Performance Results and Targets

FY 2001 Results	FY 2002 Targets	FY 2003 Targets
Establish and fill 10 Excepted Service (EJ) positions. Implement process improvements and automated recruitment methods to expedite filling critical vacancies. [Met Goal]	Prepare a 5-Year Workforce Restructuring Plan. Recruit for all scientific and technical positions via the automated DOE Job On-line to reach a more diverse candidate pool and decrease the time to fill positions. Implement simplified position classification process/system to reduce administrative burdens and processing times. (SC8-3)	Implement actions netting near-term results as identified in 5-Year Workforce Plan. Initiate actions netting long-term culture and process changes. (SC8-3)
Implement the Procurement Module of the SC integrated system for internal grants administration processing. [Met Goal]	Initiate receipt of research proposals electronically through the Procurement Module of the SC integrated system; establish benchmark at 25% - currently at zero. (SC8-3)	Initiate receipt of research proposals electronically through the Procurement Module of the SC integrated system; establish benchmark at 50%. (SC8-3)
Develop and implement corporate application "Execution Work Management" supporting e-receipt/distribution of proposals. 100% roll out of Windows 2000. [Met Goal]	Initiate 2 major enhancements to the corporate application "Execution Work Management" package to include organization and tracking of electronic grants, proposals and abstracts. Implement Intranet Portal to provide a single login to all SC HQ corporate applications; establish benchmark of 100% - currently zero. Implement 2 corporate applications; "Worksheet Exchange" capability to export/import data from the Financial Management Information System for use in budget formulation and "Abstract Tracking" capability to create, modify, manage, view, and publish SC's project abstracts. (SC8-3)	Implement 2 additional functionalities within the "Support Services" administrative functions package supporting SC's concurrence process and procedures. Provide 10 new functionalities within the "Intranet" and "Execution Work Management," packages to include electronic concurrence routing, mechanisms to release and receive field work proposals, etc. (SC8-3)

**SC8-4:** Expand the number and diversity of the applicant pool in the Office of Science undergraduate research internship programs; establish outside evaluation to assess the quality of the program as measured by student deliverables and evaluations; and develop a tracking system to monitor the long-term impact on career choices. (Science Education subprogram)

**Performance Indicator**

Number and quality of applicants.

**Performance Standards**

As discussed in Corporate Context/Executive Summary.

**Annual Performance Results and Targets**

FY 2001 Results	FY 2002 Targets	FY 2003 Targets
<p>More than 1,000 applicants for undergraduate laboratory research internships were received. 479 students were selected for summer 2001. 479 students were placed. [Met Goal]</p>	<p>Increase the number and/or diversity of the applicants by 20%. (SC8-4)</p>	<p>Increase the number and/or diversity of the applicants by 10%. (SC8-4)</p>
<p>80% of the student's research abstracts were acceptable for printing in the Undergraduate Research Journal. 15 full research papers are being published along with about 450 abstracts. [Met Goal]</p>	<p>90% of students submit acceptable abstracts. (SC8-4)</p>	<p>90% of students submit acceptable abstracts. (SC8-4)</p>
<p>Begin tracking employment of Participants at National labs and associated institutions. The Center for Workforce Development has begun the tracking of the students that are placed as interns. The database has been created at PNNL and all applicant students have been compiled and waiting for acceptance. After acceptance, the placed students will be tracked. [Met Goal]</p>	<p>Track career choices of at least 25% of the participating students. (SC8-4)</p>	<p>Track career choices of at least 25% of the participating students. (SC8-4)</p>

**SC8-5:** Support a world class Federal workforce within the SC Field structure that (1) takes federal program and project management actions, (e.g., approvals, permits, self assessments, budgeting, etc.) to ensure safe, secure and efficient mission accomplishment in the field; (2) manages cradle to grave acquisition processes from strategy development to solicitation and award through closeout; (3) takes actions to preserve and protect DOE resources, provide for security of people, property and information, and conduct stakeholder interactions; and (4) maintains internal operations such as human resources, training, payroll and travel, legal counsel and information management, that enable the workforce to successfully perform. (Field Operations subprogram)

**Performance Indicator**

Percent costs avoided; number of accidents and incidents per year.

## Performance Standards

As discussed in Corporate Context/Executive Summary.

### Annual Performance Results and Targets

FY 2001 Results	FY 2002 Targets	FY 2003 Targets
	<p>Take actions appropriate to the Headquarters and Field organizations to reduce SC's cost of doing business. Through re-engineering, areas of improvement will be identified where work could be taken out of the system by process improvements or the elimination of unnecessary requirements, thereby lowering the cost of doing business and improving SC's performance and accountability. These actions will result in Federal staffing changes. (SC8-5)</p> <p>Using the standard DOE metrics to track security incidents and trends and safety and health performance, take contractual and federal actions to reduce incidents and accidents by at least 20% compared to last year with the goal of zero security infractions and zero accidents. (SC8-5)</p>	<p>Continue to take actions appropriate to Headquarters and Field organizations to reduce SC's cost of doing business. Through re-engineering, areas of improvement will be identified where work could be taken out of the system by process improvements or the elimination of unnecessary requirements, thereby lowering the cost of doing business and improving SC's performance and accountability. These actions will result in Federal staffing changes. (SC8-5)</p> <p>Using the standard DOE metrics to track security incidents and trends and safety and health performance, take contractual and federal actions to reduce incidents and accidents by at least 20% compared to last year with the goal of zero security infractions and zero accidents. (SC8-5)</p>

## Significant Accomplishments and Program Shifts

### SCIENCE ACCOMPLISHMENTS

#### Program Direction

- Achieved technical excellence in SC programs despite managing one of the largest, most diversified, and complex basic research portfolios in the Federal Government with a relatively small Federal and contractor support staff.
- Aligned Federal safeguards and security activities at Oak Ridge Operations Office under Program Direction commencing in FY 2002.
- In FY 2001, established a partnership with the Office of Management, Budget and Evaluation that resulted in expediting the position classification and recruitment processes.

#### Science Education

- The Energy Research Undergraduate Laboratory Fellowship (ERULF) program has implemented an innovative, interactive Internet system to receive and process hundreds of student applications for summer, fall, and spring semester research appointments at participating DOE laboratories. The automated system is virtually paperless and provides an excellent example of how the Internet can be used to streamline the operation of the Department's research participation programs. The on-line application system is linked with an SC laboratory central processing center called EducationLink.

This system will enhance communication with the participants regarding their internships, contain pre- and post-surveys that quantify student knowledge, performance and improvement, and allow SC to measure program effectiveness and track students in their career path, and be a hosting site for publishing student papers and abstracts.

- Through special recruitment efforts, the Energy Research Undergraduate Laboratory Fellowship Program has attracted a diverse group of students using the electronic application. Nearly 20 percent of those submitting applications were from under-represented groups. Approximately 40 percent of the applicants were females, and more than 25 percent were from low-income families. In the summer of 1999, more than 400 appointments were made through the new application process and in the summers of 2000 and 2001 more than 500 appointments were made each year through the new application process.
- An undergraduate student journal was recently created which publishes full-length peer-reviewed research papers and abstracts of students in the program.
- Program Guidebooks were developed for the student participants in ERULF and the Community College Initiative (CCI) which provided formats and instructions for the written requirements, including scientific abstract, research paper, oral presentation, poster and education module.
- One additional regional competition was held in conjunction with DOE's National Science Bowl®. More than 11,000 high school students participated in the 61 regional science bowl tournaments.
- Saturday morning science seminars were added to the National Science Bowl weekend, introducing students to many contemporary issues and findings in scientific research.
- National Science Bowl awards were expanded to include a wide variety of academic awards to the top 18 teams and a Civility Award sponsored by IBM.
- The Albert Einstein Distinguished Educator Fellowship Program placed four outstanding K-12 science, math, and technology teachers in Congressional offices and one at DOE, as directed by legislation. The National Aeronautics and Space Administration and the National Science Foundation contributed funds to place seven additional Einstein Fellows in those agencies.
- In FY 2001, SC piloted for the third year, its DOE Community College Institute of Science and Technology. In the summer of 2001, more than 100 community college students attended a 10-week scientific research experience at several DOE multipurpose laboratories. Almost 60 percent of the participating students came from underrepresented groups in SMET; many were "non-traditional" students.

### **Field Operations**

- Completed Phase I of an electronic-based document system to electronically distribute and track documents and records. Mail handlers now use one common system to log and scan both incoming and outgoing correspondence.
- Successfully implemented the Electronic Commerce–Web Based (EC Web) system. EC-Web is used for simplified acquisition requisitions and credit card purchases.
- Implemented the Employee Self Service (ESS) feature of the Corporate Human Resources Information System (CHRIS). Federal employees can now view payroll, benefits, and other personal information at their desktops via Internet access.

- The Oak Ridge Financial Service Center (ORFSC) successfully completed the migration of financial systems of satellite offices into Oak Ridge; one system now serves all offices: Oak Ridge Operations Office; Office of Scientific and Technical Information; Ohio Field Office; Savannah River Operations Office; Rocky Flats; Richland Operations Office; Strategic Petroleum Reserve Project Office; and the National Energy Technology Laboratory.
- Oak Ridge Operations Office is continuing both the development and the deployment of a budget execution and formulation system that supports funds control, financial plan distribution, and budget formulation. Oak Ridge, Chicago and two other offices, Savannah River and the Strategic Petroleum Reserve, are currently using this web-based system. The system provides a variety of report options used for analysis and funds tracking.
- Two acquisition process improvement activities that affected the closeout process and cost/price analysis at the Chicago Operations Office were conducted. Their implementation resulted in the saving of time and productive labor hours, as well as expediting the closeout process and the award process for Small Business Innovation Research and Small Business Technology Transfer program agreements.
- In response to SC's emphasis on the timely award of assistance instruments, the Chicago Acquisition and Assistance Group established a team to concentrate on processing and administering SC actions. In FY 2000, the team processed 1,149 actions, with an on-time award percentage of 91, which is considered outstanding.
- The Chicago Financial Services Group successfully converted all grants under the Department of Health and Human Services Payment Management System to the Automated Standard Application for Payments (ASAP) during the period May 2000 to February 2001. A schedule is in place to convert all remaining grants to ASAP by March 2002.
- The Chicago Intellectual Property Center of Excellence processed a significant portion of the inventions reported to DOE on innovations made under DOE contracts.
- The Brookhaven Area Office has established the first Small Business Development Center. The center aids small businesses in obtaining financial assistance, and also provides access for small businesses to the scientific staff at the Brookhaven National Laboratory to help advance technologies for marketing.
- In FY 2001, the Chicago Operations Office incorporated the results of the Information Architecture Plan completed in FY 2000. The plan addresses their business needs and are consistent with Chicago's strategic goals as well as the Clinger-Cohen Act of 1996.
- The Chicago Operations Office successfully supported DOE's science and technology mission at our laboratories through the negotiation and execution of five-year performance-based management and operating contracts. New contracts have been negotiated for Ames Laboratory (December 1999) and Argonne National Laboratory (June 2000). DOE has signed a five-year extension of its contract with Princeton University for management and operation of the Princeton Plasma Physics Laboratory in New Jersey. The new agreement will run from October 1, 2001, to September 30, 2006, and is valued at approximately \$350,000,000 based on current funding.
- Initiated action to make the Field Operations subprogram the central funding source for all SC-funded Federal Field activities and take on additional resource requirements beginning in FY 2003, including the transfer of support service activities previously budgeted in the Science Laboratories Infrastructure program (Oak Ridge Landlord activity), and safeguards and security responsibilities at the Chicago Operations Office previously budgeted by the Office of Security and Emergency Operations.

## PROGRAM SHIFTS

- Beginning with FY 2003, the Program Direction and Field Operations subprograms are restructured to align all functions performed in the SC Field complex within the Field Operations subprogram. With this change, Program Direction is the funding source for only SC Federal staff in Headquarters. In FY 2003, the Field Operations subprogram becomes the central funding source for all SC sponsored Federal field employees and the cost of administration within the field structure. In addition, support service activity previously budgeted under the Science Laboratories Infrastructure program (Oak Ridge Landlord activity) will be funded under the Field Operations subprogram in FY 2003. Line management responsibility for safeguards and security at both Oak Ridge and Chicago will be funded in the Field Operations subprogram. Funding for Chicago safeguards and security staff is transferred to SC from the Office of Security and Emergency Operations. This approach supports the thrust to reduce overhead by centralizing resources, properly aligning support service and line management responsibilities.
- In addition, SC is in the process of conducting a workforce reengineering study to address fundamental issues and functions within the Office. The study will design ways to maintain or improve SC's performance while reducing the cost of conducting its work. Phase I of the study—underway now—focuses on defining the principles by which a fully integrated Office of Science will operate, and on clarifying roles, responsibilities, authorities and accountabilities across the entire SC organization. Among the principles anticipated to emerge from the study are: use of consensus-based or industry standards rather than agency-specific orders wherever possible, reliance on external performance reviews instead of transactional oversight, tailoring DOE requirements to individual laboratories or programs as appropriate, and creating one seamless Office of Science regardless of geographic location. In anticipation of this, the FY 2003 budget request of \$139,479,000 is significantly less than comparable budget requests in prior years. Consistent with the requested dollars, there is a net decrease of 203 full-time equivalents, mostly associated with downsizing the Federal workforce in the Field. The budget request for the Science Education subprogram is \$5,460,000.
- The functions within the Environmental Management Science Program previously sponsored by the Office of Environmental Management and associated full-time equivalents (9) are transferred to SC in FY 2003. These resources are included as comparable adjustments in this budget. The Federal staff will become part of the Office of Biological and Environmental Research in Headquarters and thus are funded in the Program Direction subprogram.

## Funding Profile

(dollars in thousands)

	FY 2001 Comparable Appropriation	FY 2002 Original Appropriation	FY 2002 Adjustments	FY 2002 Comparable Appropriation	FY 2003 Request
Science Program Direction					
Program Direction.....	47,831	72,500	-15,494	57,006	58,224
Science Education .....	4,460	4,460	0	4,460	5,460
Field Operations.....	87,570	63,000	+28,009	91,009	75,795
Subtotal, Science Program Direction .....	139,861	139,960	+12,515	152,475	139,479
General Reduction.....	0	-100	+100	0	0
Total, Science Program Direction.....	139,861 <sup>a b</sup>	139,860	+12,615	152,475 <sup>a b</sup>	139,479
Total Excluding Full Funding for Federal Retirements, Science Program Direction .....	132,865	132,862	+12,615	145,477	133,847
Staffing (FTEs)					
Headquarters (FTEs).....	268	284	+9	293	299
Field (FTEs) .....	0 <sup>c</sup>	107 <sup>c</sup>	-107	0 <sup>c</sup>	0
Field Operations (FTEs) .....	621	551	+125	676	467
Total, FTEs .....	889	942	+27	969	766

**Public Law Authorization:**

Public Law 95-91, "Department of Energy Organization Act"

Public Law 103-62, "Government Performance and Results Act of 1993"

<sup>a</sup> Excludes \$1,050,000 transferred to Science Safeguards and Security program in an FY 2001 reprogramming. Includes \$1,100,000 in FY 2001 for transfer of Oak Ridge Landlord safeguards and security responsibility from Science Safeguards and Security program; includes \$3,047,000 in FY 2001 and \$2,880,000 in FY 2002 transferred from the Science Laboratories Infrastructure program for Oak Ridge Landlord activities; includes \$1,533,000 in FY 2001 and \$1,598,000 in FY 2002 for Chicago Safeguards and Security staff transferred from the Office of Security and Emergency Operations; and includes \$1,329,000 in FY 2001 and \$1,139,000 in FY 2002 for the transfer of the Environmental Management Science Program function to SC from the Office of Environmental Management.

<sup>b</sup> The FY 2001 and FY 2002 columns of the FY 2003 Congressional Request include funding in the amount of \$6,996,000 and \$6,998,000, respectively, for the Government's share of increased costs associated with pension and annuitant health care benefits. These funds are comparable to FY 2003 funding of \$5,632,000.

<sup>c</sup> FY 2001 and FY 2002 FTEs are displayed comparable to the FY 2003 Request, where all Field FTEs are budgeted in Field Operations. The FY 2002 original appropriation column displays FTEs noncomparable.



## Funding by Site

(dollars in thousands)

	FY 2001	FY 2002	FY 2003	\$ Change	% Change
Albuquerque Operations Office					
National Renewable Energy Laboratory.....	0	0	150	+150	--
Chicago Operations Office					
Argonne National Laboratory.....	430	430	615	+185	+43.0%
Brookhaven National Laboratory.....	420	430	615	+185	+43.0%
Fermi National Laboratory.....	50	20	100	+80	+400.0%
Princeton Plasma Physics Laboratory.....	110	125	100	-25	-20.0%
Chicago Operations Office.....	35,517	36,025	29,854	-6,171	-17.1%
Total, Chicago Operations Office.....	36,527	37,030	31,284	-5,746	-15.5%
Idaho Operations Office					
Idaho National Engineering and Environmental Laboratory.....	40	10	0	-10	--
Idaho Operations Office.....	35	0	0	0	--
Total, Idaho Operations Office.....	75	10	0	-10	--
Oakland Operations Office.....					
Lawrence Berkeley National Laboratory.....	445	480	750	+270	+56.3%
Stanford Linear Accelerator Center.....	125	150	150	0	--
Berkeley and Stanford Site Offices.....	3,279	3,452	3,110	-342	-9.9%
Total, Oakland Operations Office.....	3,849	4,082	4,010	-72	-1.8%
Oak Ridge Operations Office					
Oak Ridge Institute for Science and Education.....	714	1,230	1,250	+20	+1.6%
Thomas Jefferson National Accelerator Facility.....	45	50	100	+50	+100.0%
Oak Ridge Operations Office.....	49,634	52,067	43,406	-8,661	-16.6%
Total, Oak Ridge Operations Office.....	50,393	53,347	44,756	-8,591	-16.1%
Richland Operations Office					
Pacific Northwest National Laboratory.....	185	555	740	+185	+33.3%
Richland Operations Office.....	764	130	220	+90	+69.2%
Total, Richland Operations Office.....	949	685	960	+275	+40.1%
Washington Headquarters.....	48,068	57,321	58,319	+998	+1.7%
Total, Science Program Direction.....	139,861 <sup>d</sup>	152,475	139,479	-12,996	-8.5%

<sup>d</sup> Excludes \$1,050,000 transferred to Science Safeguards and Security program in an FY 2001 reprogramming. Includes \$1,100,000 in FY 2001 for transfer of Oak Ridge Landlord safeguards and security responsibility from Science Safeguards and Security program; includes \$3,047,000 in FY 2001 and \$2,880,000 in FY 2002 transferred from the Science Laboratories Infrastructure program for Oak Ridge Landlord activities; includes \$1,533,000 in FY 2001 and \$1,598,000 in FY 2002 for Chicago Safeguards and Security staff transferred from the Office of Security and Emergency Operations and includes \$1,329,000 in FY 2001 and \$1,139,000 in FY 2002 for the transfer of the Environmental Management Science Program function to SC from the Office of Environmental Management.

## **Site Description**

### **Ames National Laboratory**

Ames Laboratory (Ames), located in Ames, Iowa, is an integrated part of Iowa State University. Ames was formally established in 1947, by the Atomic Energy Commission, because of its successful development and efficient process in producing high-purity uranium metal in large quantities for atomic energy. Today, Ames pursues a broad range of priorities in the chemical, materials, engineering, environmental, mathematical and physical sciences. Educational activities supported at the laboratory are directed towards providing hands-on research experiences for undergraduate students and faculty participants on state-of-the-art equipment while engaging them in important issues at the forefront of scientific inquiry.

### **Argonne National Laboratory**

Argonne National Laboratory (ANL) in Argonne, Illinois, is a multi-program laboratory located on a 1,700-acre site in suburban Chicago. Argonne research falls into 4 broad categories: basic science, scientific facilities, energy resources, and environmental management. ANL has a satellite site located in Idaho Falls, Idaho. This site, referred to as Argonne-West, occupies approximately 900 acres and is the home of most of Argonne's major nuclear reactor research facilities. Educational activities supported at the laboratory are directed towards providing hands-on research experiences for undergraduate students and faculty participants on state-of-the-art equipment while engaging them in important issues at the forefront of scientific inquiry.

### **Berkeley Site Office**

The Berkeley Site Office provides institutional program management oversight in the execution of science programs contracted through Lawrence Berkeley National Laboratory and with US industries and universities.

### **Brookhaven National Laboratory**

Brookhaven National Laboratory is a multi-program laboratory located on a 5,200-acre site in Upton, New York. Brookhaven creates and operates major facilities available to university, industrial, and government personnel for basic and applied research in the physical, biomedical, and environmental sciences, and in selected energy technologies. Educational activities supported at the laboratory are directed towards providing hands-on research experiences for undergraduate students and faculty participants on state-of-the-art equipment while engaging them in important issues at the forefront of scientific inquiry.

### **Chicago Operations Office**

Chicago supports the programmatic missions performed in support of science and technology, national security, energy research, and environmental management. They are responsible for the integrated, performance-based management of five major management and operating (M&O) laboratory sites-- Argonne National Laboratory, Brookhaven National Laboratory, Fermi National Accelerator Laboratory, Princeton Plasma Physics Laboratory, and Ames Laboratory; and two government-owned and government-operated federal laboratories--Environmental Measurements Laboratory and New

Brunswick Laboratory. Chicago has oversight responsibility for more than 9,500 contractor employees located at various site offices across the Nation. This responsibility includes ensuring the security and safety of the taxpayer's investment in research facilities and other physical plant worth \$4 billion and approximately 16,000 acres of land. Chicago hosts four major DOE Centers of Excellence, and as such, elements throughout the Department rely on Chicago for services and expertise within these areas: Center for Risk Excellence; the Grants Center of Excellence; the Intellectual Property Center of Excellence; and the Center of Excellence in Nuclear Material Measurement Science.

### **Fermi National Accelerator Laboratory**

Fermi National Accelerator Laboratory (Fermilab) is located on a 6,800-acre site in Batavia, Illinois. It is the largest U.S. laboratory for research in high-energy physics and is second only to CERN, the European Laboratory for Particle Physics, in the world. About 2,500 scientific users, scientists from universities and laboratories throughout the U.S. and around the world, use Fermilab for their research. Fermilab's mission is the goal of high-energy physics: to learn what the universe is made of and how it works. Fermilab builds and operates the facilities that high-energy physicists need to do forefront research, and develops new accelerator technology for the experiments of the future. Fermilab is operated by Universities Research Association, a consortium of 89 research universities. Educational activities supported at the laboratory are directed towards providing hands-on research experiences for undergraduate students and faculty participants on state-of-the-art equipment while engaging them in important issues at the forefront of scientific inquiry.

### **Idaho National Engineering and Environmental Laboratory**

The Idaho National Engineering and Environmental Laboratory (INEEL) is located on 890 square miles in the southeastern Idaho desert. Other INEEL research and support facilities are located in nearby Idaho Falls. Within the laboratory complex are nine major applied engineering, interim storage and research and development facilities, operated by Bechtel, B&W Idaho for the U.S. Department of Energy. Today, INEEL is solving critical problems related to the environment, energy production and use, U.S. economic competitiveness, and national security. Educational activities supported at the laboratory are directed towards providing hands-on research experiences for undergraduate students and faculty participants on state-of-the-art equipment while engaging them in important issues at the forefront of scientific inquiry.

### **Lawrence Berkeley National Laboratory**

Lawrence Berkeley National Laboratory is a multi-program laboratory located in Berkeley, California, on a 200-acre site adjacent to the Berkeley campus of the University of California. The Laboratory is dedicated to performing leading-edge research in the biological, physical, materials, chemical, energy, and computer sciences. The Laboratory also operates unique user facilities available to qualified investigators. Educational activities supported at the laboratory are directed towards providing hands-on research experiences for undergraduate students and faculty participants on state-of-the-art equipment while engaging them in important issues at the forefront of scientific inquiry.

## **National Renewable Energy Laboratory**

The National Renewable Energy Laboratory (NREL) is located on a 300-acre campus at the foot of South Table Mountain in Golden, Colorado. It is the world leader in renewable energy technology development. Since its inception in 1977, NREL's sole mission has been to develop renewable energy and energy efficiency technologies and transfer these technologies to the private sector. Educational activities supported at the laboratory are directed towards providing hands-on research experiences for undergraduate students and faculty participants on state-of-the-art equipment while engaging them in important issues at the forefront of scientific inquiry.

## **Oak Ridge Institute for Science and Education**

Oak Ridge Institute for Science and Education (ORISE) is located on a 150-acre site in Oak Ridge, Tennessee. ORISE conducts research into modeling radiation dosages for novel clinical, diagnostic, and therapeutic procedures. In addition, ORISE coordinates several research fellowship programs and the peer review of all Basic Energy Sciences funded research. ORISE manages and administers ORNL undergraduate research opportunities for students and faculty.

## **Oak Ridge National Laboratory**

Oak Ridge National Laboratory (ORNL) is a multi-program laboratory located on a 24,000-acre site in Oak Ridge, Tennessee. Scientists and engineers at ORNL conduct basic and applied research and development to create scientific knowledge and technological solutions that strengthen the nation's leadership in key areas of science; increase the availability of clear, abundant energy; restore and protect the environment; and contribute to national security.

## **Oak Ridge Operations Office**

Oak Ridge is responsible for implementing elements of almost every major Departmental mission in science, energy resources, an environmental quality. They have oversight responsibility for ORNL, Thomas Jefferson National Accelerator Facility, Spallation Neutron Source, East Tennessee Technology Park (ETTP), Paducah Gaseous Diffusion Plant, Portsmouth Gaseous Diffusion Plant, and the Oak Ridge Institute for Science and Education (ORISE). Oak Ridge also supports the recently established Y-12 Area Office under the National Nuclear Security Administration. Oak Ridge has oversight responsibility for more than 15,000 contractor employees located at these sites, as well as responsibility for over 43,000 acres of land and approximately 46,000,000 square feet of facility space, valued at over \$12 billion. Other major initiatives at Oak Ridge include the successful transition of Portsmouth to cold standby; equipping facilities needed to support the DOE missions; developing and maintaining a trained, capable workforce; issuing a contract for the Uranium Depleted Uranium Hexafluoride (DUF<sub>6</sub>) Conversion Center; accelerating cleanup activities at all sites; expanding and maintaining prominence as a resource for advance neutron science; focusing on reindustrialization and asset management; revitalizing ORNL; and using the Joint Institute for Biological Sciences and other resources to move ahead to the next phase of human genome research. Oak Ridge is also recognized as one of the Department's three Financial Centers of Excellence.

## **Pacific Northwest National Laboratory**

Pacific Northwest National Laboratory (PNNL) is a multi-program laboratory located on 640 acres at the Department's Hanford site in Richland, Washington. The Laboratory conducts research in the area of environmental science and technology and carries out related national security, energy, and human health programs. Educational activities supported at the laboratory are directed towards providing hands-on research experiences for undergraduate students and faculty participants on state-of-the-art equipment while engaging them in important issues at the forefront of scientific inquiry.

## **Princeton Plasma Physics Laboratory**

Princeton Plasma Physics Laboratory (PPPL) is a program-dedicated laboratory (Fusion Energy Sciences) located on 72 acres in Princeton, New Jersey. The primary mission of PPPL is to develop the scientific understanding and the innovations, which will lead to an attractive fusion energy source. Associated missions include conducting world-class research along the broad frontier of plasma science and providing the highest quality of scientific education. Educational activities supported at the laboratory are directed towards providing hands-on research experiences for undergraduate students and faculty participants on state-of-the-art equipment while engaging them in important issues at the forefront of scientific inquiry.

## **Richland Operations Office**

Richland is responsible for and manages all environmental cleanup and science and technology development at the 560 square mile Hanford Site, coordinating closely with contractor companies hired to manage and complete the work of the world's largest cleanup project. The primary contractors are Fluor Daniel Hanford and its subcontractors, the Bechtel Hanford, Inc, the Hanford Environmental Health Foundation, and the Battelle Memorial Institute, which serves as the contractor for Laboratory operations of the Pacific Northwest National Laboratory. Richland also manages the cooperative agreement with Associated Western Universities to administer research appointments at National Laboratories and universities, for undergraduate students and faculty, as part of the Office of Science funded Education Programs.

## **Stanford Linear Accelerator Center**

Stanford Linear Accelerator Center (SLAC) is a program-dedicated laboratory (High Energy Physics) located on 426 acres in Menlo Park, California. SLAC is a national basic research laboratory, probing the structure of matter at the atomic scale with x-rays and at much smaller scales with electron and positron beams. SLAC scientists perform experimental and theoretical research in elementary particle physics using electron beams, plus a broad program of research in atomic and solid state physics, chemistry, biology, and medicine using synchrotron radiation. There are also active programs in the development of accelerators and detectors for high-energy physics research and of new sources and instrumentation for synchrotron radiation research. Educational activities supported at the laboratory are directed towards providing hands-on research experiences for undergraduate students and faculty participants on state-of-the-art equipment while engaging them in important issues at the forefront of scientific inquiry.

## **Stanford Site Office**

The Stanford Site Office provides institutional program management oversight in the execution of basic research at the Stanford Linear Accelerator Center, a national laboratory operated under a contract with Stanford University.

## **Thomas Jefferson National Accelerator Facility**

Thomas Jefferson National Accelerator Facility (Jefferson Lab) is a program-dedicated laboratory (Nuclear Physics) located on 273 acres in Newport News, Virginia. Jefferson Lab is a basic research laboratory built to probe the nucleus of the atom to learn more about the quark structure of matter. The Laboratory gives scientists a unique and unprecedented probe to study quarks, the particles that make up protons and neutrons in an atom's nucleus. Educational activities supported at the laboratory are directed towards providing hands-on research experiences for undergraduate students and faculty participants on state-of-the-art equipment while engaging them in important issues at the forefront of scientific inquiry.

# Program Direction

## Mission Supporting Goals and Objectives

The Program Direction subprogram provides the Federal staff and associated costs required for overall direction and execution of SC program and advisory responsibilities in Headquarters. The subprogram supports staff in the High Energy Physics, Nuclear Physics, Basic Energy Sciences, Biological and Environmental Research, Fusion Energy Sciences, Advanced Scientific Computing Research, Science Laboratories Infrastructure, and Energy Research Analyses programs, including management, resource, policy, and technical support staff. The staff includes scientific and technical personnel as well as program support personnel in the areas of budget and finance; general administration; grants and contracts; information technology; policy review and coordination; infrastructure management; construction management; safeguards and security; and environment, safety and health. Program Direction also includes resources to cover the costs of centrally provided goods and services procured through the Working Capital Fund at Headquarters, such as supplies, rent, telecommunications, desktop infrastructure, etc.

### Funding Schedule

(dollars in thousands, whole FTEs)

	FY 2001	FY 2002	FY 2003	\$ Change	% Change
Headquarters					
Salaries and Benefits .....	32,369	37,527	38,136	+609	+1.6%
Travel .....	1,534	1,534	1,534	0	--
Support Services .....	7,408	7,275	6,384	-891	-12.2%
Other Related Expenses.....	6,520	10,670	12,170	+1,500	+14.1%
Total, Headquarters.....	47,831 <sup>a</sup>	57,006 <sup>a</sup>	58,224 <sup>a</sup>	+1,218	+2.1%
Total Excluding Full Funding for Federal Retirements, Program Direction	45,771	54,936	55,984	+1,048	+1.9%
Full Time Equivalents .....	268	293	299	+6	+2.0%

<sup>a</sup> The FY 2001 and FY 2002 columns of the FY 2003 Congressional Request include funding in the amount of \$2,060 and \$2,070, respectively, for the Government's share of increased costs associated with pension and annuitant health care benefits. These funds are comparable to FY 2003 funding of \$2,240.

## Detailed Program Justification

(dollars in thousands)

FY 2001	FY 2002	FY 2003
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<b>Salaries and Benefits .....</b>	<b>32,369</b>	<b>37,527</b>	<b>38,136</b>
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This supports 299 Full Time Equivalents (FTEs) in Headquarters, six more than the FY 2002 comparable appropriation. The success of the Department’s basic research programs is directly dependent on the viability of its scientific and technical workforce. By FY 2003, 33 percent of the SC workforce will be eligible to retire and increases to 45 percent by the end of FY 2005. SC is taking steps to preserve its technical, research, and scientific management capabilities. SC strives to attract highly qualified applicants to its workforce by offering these extraordinary candidates recruitment bonuses and using existing Federal personnel authorities to provide salaries comparable with the private sector. The justification for the six additional FTEs is as follows:

One FTE (1 of 6) is requested for a computer scientist to serve as the program manager for the Advanced Scientific Computing Research Scientific Discovery through the Advanced Computing (SciDAC) program. Currently there is one program manager who is managing two full-time efforts, the base computer science program in Mathematical, Information, and Computational Sciences and the computer science component of the SciDAC program. To ensure effective leadership of the computer science research portfolio for SC, an additional FTE is needed.

One FTE (2 of 6) is requested to support developments in the nanoscale arena. Funding and emphasis for nanoscale science will increase substantially in the future. In prior fiscal years, aspects of this research were included in many Basic Energy Science (BES) Core Research Activities, and a number of BES program managers administered this research. This diffused management worked until now. However, with the start of construction of three Nanoscale Science Research Centers (NSRCs) a dedicated program manager is required to coordinate the research, facility construction, and the eventual operation of the three research centers.

One additional FTE (3 of 6) is requested for a program manager with expertise in x-ray and neutron scattering. SC is experiencing increased activity in these areas that necessitates an additional FTE. The Stanford Synchrotron Radiation Laboratory at the SLAC will be upgraded to a third-generation light source thus increasing its capabilities and attracting a larger user population. Other areas of increased activity include, the High Flux Isotope Reactor at the ORNL that will be upgraded and result in one of the world’s best steady-state neutron source. Instrument construction/upgrades will occur at the Manuel Lujan, Jr. Neutron Scattering Center at Los Alamos National Laboratory. Instruments for the Spallation Neutron Source at ORNL will also be purchased. Other workload aspects include international activities with Japan and Europe and interactions with other agencies through standing Office of Science and Technology Policy interagency committees on synchrotron radiation and neutron scattering.

One FTE (4 of 6) is also requested for an additional program manager to support Chemical Reactivity and Chemical Theory/Modeling/Simulation activities. This is one of the largest Core Research Activities in BES. The emphasis has grown out of new directions in nano- and supramolecular chemistry and the need to understand and control chemical reactivity because of its impacts on the agency missions. Additional challenges involve complex gas phase reactions in the presence of surfaces and particulates and reactions in water and other solvents.



(dollars in thousands)

FY 2001	FY 2002	FY 2003
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An additional senior level, meteorologist/physical scientist FTE (5 of 6) is requested to support Climate Change Research within the Environmental Sciences Division of Biological and Environmental Research. This research directly underpins the DOE mission in National Energy Security and the Secretary’s mission and priority to support the President’s Climate Change Initiatives by developing models that predict what concentrations of trace atmospheric gases and aerosols result in unacceptable climate change. Advanced models will also provide enhanced capabilities necessary to detect and defend against the intentional release of hazardous chemical and biological agents to the atmosphere.

Lastly, a senior level geneticist/biological scientist (6 of 6) is needed to develop, implement, and manage the SC Genomes to Life Research program. This research directly underpins the DOE mission in National Energy Security and the Secretary’s priorities by identifying and characterizing the structure and regulation of multiprotein complexes that carry out the biological functions of cells. This research will also help determine the functional capacity of complex microbial communities needed to develop biotechnology solutions for clean energy, carbon sequestration, environmental cleanup, and bioterrorism detection and defeat.

**Travel..... 1,534 1,534 1,534**

Travel includes all costs of transportation of persons, subsistence of travelers, and incidental travel expenses in accordance with Federal travel regulations.

**Support Services..... 7,408 7,275 6,384**

Provides funding for general administrative services and technical expertise provided as part of day-to-day operations and information technology (IT) maintenance and enhancements.

- Continue day-to-day operations within SC, e.g., mailroom operations; travel management; environment, safety and health support; security and cyber security support, and administering the Small Business Innovation Research program.

Standardize, integrate, and invest in IT that will best support improved mission accomplishment and promote IT efficiencies consistent with the provisions of the Information Technology Management Reform Act of 1996. SC provides a real-time computer Helpdesk, incorporates new technologies and maintains corporate systems that support grants management and other major business functions, e.g., improve Internet tools and make information and corporate systems more easily accessible; enhance cyber security capabilities; continue planned enhancements; and retire legacy systems – all as outlined in SC’s Five-Year Information Management Strategic Plan.

**Other Related Expenses..... 6,520 10,670 12,170**

Provides funds for a variety of tools, goods, and services that support the Federal workforce, including acquisitions made through the Working Capital Fund (WCF), computer and office equipment, publications, training, etc and continue support for the Corporate Research and Development (R&D) Portfolio Management Environment (PME).

For FY 2003, funding for PME is increased by \$1,500,000. In total, \$5,500,000 is requested in FY 2003 to proceed with modernizing and streamlining the Department's R&D management processes. Several modules are being developed in stages, e.g., R&D tracking, reporting, and program execution. In FY 2003, the requirements definition, design, and software for tracking and reporting (Module III) will be implemented (\$4,000,000). The complete production environment will be in place (hardware, software, and communications) and will have an annual maintenance cost (\$1,300,000). In addition, an Architectural Assessment Study is planned, to ensure compliance with DOE's Information Architecture as well as integration of the Corporate PME with existing information systems in the field and headquarters that will be supplying data (\$200,000). Full PME implementation is to occur over a three-year period. DOE will be able to extract energy-related research data funded by various sources from a central reliable repository. The PME will become the technology infrastructure, providing information integration methodologies, and process enhancement that will enable electronic cradle-to-grave tracking of research projects, information sharing across programs, and snapshots of the Department's R&D. In the end, DOE will improve its management of R&D data, provide a corporate view across the complex, align with applicable laws and report information to Congress.

<b>Total, Program Direction .....</b>	<b>47,831</b>	<b>57,006</b>	<b>58,224</b>
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### Explanation of Funding Changes from FY 2002 to FY 2003

FY 2003 vs. FY 2002 (\$000)
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**Salaries and Benefits**

- Supports 299 FTEs, 6 FTEs more than the comparable FY 2002 budget, includes the government's share of increased costs associated with pension and annuitant health care benefits, and factors a 2.6 percent pay adjustment in personnel compensation. .... +609

**Support Services**

- Restructure support for information management activities. .... -891

**Other Related Expenses**

- Continue Corporate Research & Development (R&D) Portfolio Management Environment (PME) efforts..... +1,500

Total Funding Change, Program Direction .....	+1,218
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## Support Services

(dollars in thousands)

	FY 2001	FY 2002	FY 2003	\$ Change	% Change
Technical Support Services					
Test and Evaluation Studies.....	750	750	750	0	--
Total, Technical Support Services .....	750	750	750	0	--
Management Support Services					
ADP Support .....	5,538	4,975	4,084	-891	-17.9%
Administrative Support.....	1,120	1,550	1,550	0	--
Total, Management Support Services .....	6,658	6,525	5,634	-891	-13.7%
Total, Support Services .....	7,408	7,275	6,384	-891	-12.2%

## Other Related Expenses

(dollars in thousands)

	FY 2001	FY 2002	FY 2003	\$ Change	% Change
Training .....	65	65	65	0	--
Working Capital Fund.....	4,004	4,205	4,205	0	--
Information Technology Hardware and Software/Maintenance Acquisitions .....	951	0	0	0	--
Other .....	1,500	6,400	7,900	+1,500	+23.4%
Total, Other Related Expenses .....	6,520	10,670	12,170	+1,500	+14.1%

# Science Education

## Mission Supporting Goals and Objectives

The **Science Education** subprogram supports four educational/human resource development programs. The Department is committed to programs that train students to enter careers in **Science, Mathematics, Engineering, and Technology (SMET)**. Each of the subprograms targets a different group in order to attract as broad a range of students to the programs and to expand the pipeline of students who can enter the SMET workforce. In this fashion, the programs should help our National Laboratories and the nation meet the demand for a well-trained scientific/technical workforce. Because of the partnership between the Department and the National Science Foundation (NSF), research opportunities will be extended to community college faculty, enabling a broader and lasting impact on community college programs.

- The *Energy Research Undergraduate Laboratory Fellowship Program (ERULF)*, formerly known as the Laboratory Cooperative Program, is designed to provide workforce development through research experiences at DOE laboratories for highly motivated undergraduate students from any two or four year accredited college or university. These opportunities complement the students' academic training and introduce them to the unique intellectual and physical resources present at the DOE laboratories. Appointments are available during the spring, summer, and fall terms. These research opportunities have also been extended in collaboration with the National Science Foundation (NSF) to undergraduate students in NSF programs, including those who are preparing for teaching careers in science, mathematics or technology.
- The *National Science Bowl® Program* is a highly publicized academic competition among high school students who answer questions on scientific topics in astronomy, biology, chemistry, mathematics, physics, earth, computer and general science. This program was created to encourage high school students across the Nation to excel in math and science and to pursue careers in those fields. Since its inception, more than 70,000 high school students have participated in regional tournaments leading up to the national finals. This program provides the students, and teachers who have prepared them, a forum to receive national recognition for their talent and hard work.
- The *Albert Einstein Distinguished Educator Fellowship Program* supports outstanding science and mathematics teachers, who provide insight, extensive knowledge, and practical experience to the Legislative and Executive branches. This program is in compliance with the Albert Einstein Distinguished Educator Act of 1994 (signed into law in November 1994). The law gives DOE responsibility for administering the program of distinguished educator fellowships for elementary and secondary school mathematics and science teachers.
- The *DOE Community College Institute (CCI) of Science and Technology* provides a 10-week human resource development program through research experience at several DOE National Laboratories for highly motivated community college students. The CCI is targeted at underserved community college students who have not had an opportunity to work in an advanced science research environment. It incorporates both an individually mentored research component and a set of enrichment activities which include: lectures, classroom activities, career guidance/planning, and field trips. Appointments are available during the summer. These research opportunities have also been extended in collaboration with the National Science Foundation (NSF) to community college students and faculty in NSF programs.

## Funding Schedule

(dollars in thousands)

	FY 2001	FY 2002	FY 2003	\$ Change	% Change
Energy Research Undergraduate Laboratory Fellowships .....	2,447	2,669	2,900	+231	+8.7%
National Science Bowl® Program .....	597	660	660	0	--
Albert Einstein Distinguished Educator Fellowship Program .....	810	460	500	+40	+8.7%
Community College Institute of Biotechnology, Environmental Science, and Computing .....	606	671	1,400	+729	+108.6%
<b>Total, Science Education.....</b>	<b>4,460</b>	<b>4,460</b>	<b>5,460</b>	<b>+1,000</b>	<b>+22.4%</b>

## Detailed Program Justification

(dollars in thousands)

FY 2001	FY 2002	FY 2003
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### Energy Research Undergraduate Laboratory

**Fellowships..... 2,447 2,669 2,900**

The Energy Research Undergraduate Laboratory Fellowship (ERULF) Program is the oldest of the Science Education programs. The ERULF program supports a diverse group of students at our National Laboratories in individually mentored research experiences. Through these unique and highly focused experiences these students will comprise a repository of talent to help the DOE meet its science mission goals. The paradigms of the program are: 1) students apply on a competitive basis and are matched with mentors working in the students' fields of interest; 2) students spend an intensive 10-16 weeks working under the individual mentorship of resident scientists; 3) students must each produce an abstract and formal research report; 4) students attend seminars that broaden their view of career options and help them understand how to become members of the scientific community; and 5) program goals and outcomes are measured based on students' research papers, students' abstracts, surveys and outside evaluation. An undergraduate student journal was recently created which publishes selected full research papers and all abstracts of students in the program. The National Science Foundation (NSF) began a collaboration with this program as of FY 2001.

The program will ensure a steady flow of students with technical expertise into the Nation's pipeline of workers in both academia and industry. A system is being created to track students in their academic career paths.

A sub-component of the ERULF Program is the Pre-Service Teacher Program. The paradigms of the program are: 1) students apply on a competitive basis and are matched with mentors working the student's field of interest; 2) students spend an intensive 10 weeks working under the mentorship of master teachers and laboratory scientists to help maximize the building of content, knowledge, and skills through the research experience; 3) students must produce an abstract and an educational module

(dollars in thousands)

FY 2001	FY 2002	FY 2003
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related to their research and may also produce a research paper or poster or oral presentation; 4) students attend professional enrichment activities, workshops and seminars that help students apply what they learn to their academic program and the classroom, and also to help them understand how to become members of the scientific community, and enhance their communication and other professional skills; and 5) program goals and outcomes are measured based on students' abstracts, education modules, surveys and outside evaluation. An undergraduate student journal was recently created which publishes selected full research papers and education modules and all abstracts of students in the program. The National Science Foundation entered into a collaboration with this program in FY 2001.

**National Science Bowl ® Program ..... 597 660 660**

SC will manage and support the National Science Bowl® for high school students from across the country for DOE. Since its inception, more than 70,000 high school students have participated in this event. The National Science Bowl® is a highly publicized academic competition among teams of high school students who answer questions on scientific topics in astronomy, biology, chemistry, mathematics, physics, earth, computer, and general science. In 1991, DOE developed the National Science Bowl® to encourage high school students from across the Nation to excel in math and science and to pursue careers in those fields. The National Science Bowl® provides the students and teachers a forum to receive national recognition for their talent and hard work. Saturday seminars in the latest scientific topics have been added to the National Science Bowl® weekend. Students participating in the National Science Bowl ® will be tracked to see the long-term impact on their academic and career choices.

**Albert Einstein Distinguished Educator Fellowship Program..... 810 460 500**

The Albert Einstein Fellowship Awards for outstanding K-12 science, math, and technology teachers continues to be a strong pillar of the program for bringing real classroom and education expertise to our education programs and outreach activities. This Congressional initiative, established by the Albert Einstein Distinguished Educator Fellowship Act of 1994, has enabled the Department to maintain an enriching relationship with the Triangle Coalition for Science and Technology Education. The Triangle Coalition administers the program for the Department of Energy through the recruitment, application, selection and placement of the Einstein Fellows and evaluation of the program.

**DOE Community College Institute of Biotechnology, Environmental Science, and Computing..... 606 671 1,400**

The DOE Community College Institute (CCI) of Science and Technology was originally a collaborative effort between DOE and its National Laboratories with the American Association of Community Colleges and specified member institutions. Through a recent Memorandum of Understanding with the NSF, undergraduate students in NSF programs are participating in this program and in FY 2002 the program will be open to students from all community colleges. This program is designed to address shortages, particularly at the technician and paraprofessional levels and will help develop the human resources needed to continue building the Nation's capacity in critical areas for the next century. The

(dollars in thousands)

FY 2001	FY 2002	FY 2003
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Institute provides a ten-week research fellowship for highly qualified community college students at a DOE National Laboratory. The paradigms of the program are: 1) students apply on a competitive basis and are matched with mentors working in the students' field of interest; 2) students spend an intensive 10 weeks working under the individual mentorship of resident scientists; 3) students must each produce an abstract and formal research report; 4) students attend professional enrichment activities, workshops and seminars that broaden their view of career options, help them understand how to become members of the scientific community, and enhance their communication and other professional skills; and 5) program goals and outcomes are measured based on students' research papers, students' abstracts, surveys and outside evaluation. An undergraduate student journal was recently created which publishes selected full research papers and all abstracts of students in the program. The National Science Foundation entered into a collaboration with this program in FY 2001. This allows NSF's undergraduate programs to include a DOE community college internship in their opportunities they provide to students.

<b>Total, Science Education</b> .....	<b>4,460</b>	<b>4,460</b>	<b>5,460</b>
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**Explanation of Funding Changes from FY 2002 to FY 2003**

	FY 2003 vs. FY 2002 (\$000)
■ Additional students and faculty will be supported under the ERULF program.....	+231
■ Increase stipends for the Einstein Fellows and administrative expenses.....	+40
■ Increase the number of students and faculty participating in the CCI program.....	+729
<b>Total Funding Change, Science Education</b> .....	<b>+1,000</b>

# Field Operations

## Mission Supporting Goals and Objectives

The Field Operations subprogram enables the SC Field complex to manage programs, projects, laboratories, facilities, grants and contracts in support of science and technology, energy research, and environmental management activities under their purview.

In FY 2003, this Field Operations subprogram is the central funding source for all SC sponsored Federal field employees and the cost of administration within the field structure. The workforce manages and serves many different departmental missions at the Chicago and Oak Ridge Operations Offices and provides program management oversight for SC laboratories and facilities, e.g., Argonne, Brookhaven, Fermi, and Lawrence Berkeley National Laboratories; the Princeton Plasma Physics Laboratory; the Thomas Jefferson National Accelerator Facility; the Stanford Linear Accelerator Center; and the Spallation Neutron Source. Program oversight and safeguards and security functions performed in the Field were funded in the Program Direction subprogram prior to this FY 2003 realignment. In addition, several functions requiring technical support that were funded in the Oak Ridge Landlord activity in the Science Laboratories Infrastructure program are supported in this Field Operations subprogram: emergency management, directives management, training and development, and the Financial Service Center at Oak Ridge.

This subprogram provides Federal salaries and benefits for the following: financial stewardship, personnel management, contract and procurement acquisition, labor relations, security, legal counsel, public and congressional liaison, intellectual property and patent management, environmental compliance, safety and health management, infrastructure operations maintenance, information systems development and support, and reindustrialization.

In addition, this subprogram provides funding for the fixed requirements associated with rent, utilities, and telecommunications. Other requirements such as information technology maintenance, administrative support, mail services, document classification, personnel security clearances, emergency management, printing and reproduction, travel, certification training, vehicle acquisition and maintenance, equipment, classified/unclassified data handling, records management, health care services, guard services, and facility and ground maintenance are also included. These infrastructure requirements are relatively fixed. The Operations Offices are also responsible for supplying office space and materials for the Office of Inspector General located at each site. Other operational requirements funded include occasional contractor support to perform ecological surveys, cost validations, and environmental assessments; ensure compliance with Defense Nuclear Facilities Safety Board safety initiatives; abide by site preservation laws and regulations; and perform procurement contract closeout activities. Departmental and programmatic initiatives influence these requirements.

Integrating Headquarters functions with those of the Field, moving accountability from SC to the contractors through contracts that stipulate increased reliance on national standards and clarifying line management accountability offer the greatest opportunity for gains in efficiency and cost savings over the next few years. In broad terms, SC hopes to readjust its skills mix to reduce the number of positions required to provide contractor oversight. The optimum skill mix to support a streamlined office will depend upon SC's reengineering effort and the Department's ability to continue to move from a compliance-based oversight approach to one of performance-based.



## Funding Schedule

(dollars in thousands, whole FTEs)

	FY 2001	FY 2002	FY 2003	\$ Change	% Change
<b>Chicago Operations Office</b>					
Salaries and Benefits .....	28,364	28,910	22,653	-6,257	-21.6%
Travel .....	699	639	639	0	--
Support Services .....	2,505	2,888	2,934	+46	+1.6%
Other Related Expenses.....	3,139	3,128	3,128	0	--
<b>Total, Chicago Operations Office .....</b>	<b>34,707</b>	<b>35,565</b>	<b>29,354</b>	<b>-6,211</b>	<b>-17.5%</b>
Full Time Equivalents .....	278	291	215	-76	-26.1%
<b>Berkeley/Stanford Site Offices</b>					
Salaries and Benefits .....	2,549	2,722	2,380	-342	-12.6%
Travel .....	130	130	130	0	--
Support Services .....	0	0	0	0	--
Other Related Expenses.....	600	600	600	0	--
<b>Total, Berkeley/Stanford Site Offices.....</b>	<b>3,279</b>	<b>3,452</b>	<b>3,110</b>	<b>-342</b>	<b>-9.9%</b>
Full Time Equivalents.....	19	26	23	-3	-11.5%
<b>Oak Ridge Operations Office</b>					
Salaries and Benefits .....	33,482	36,056	27,395	-8,661	-24.0%
Travel .....	524	524	524	0	--
Support Services .....	10,858	10,789	10,789	0	--
Other Related Expenses.....	4,720	4,623	4,623	0	--
<b>Total, Oak Ridge Operations Office .....</b>	<b>49,584</b>	<b>51,992</b>	<b>43,331</b>	<b>-8,661</b>	<b>-16.7%</b>
Full Time Equivalents.....	324	359	229	-130	-36.2%
<b>Total Field Operations</b>					
Salaries and Benefits .....	64,395	67,688	52,428	-15,260	-22.5%
Travel .....	1,353	1,293	1,293	0	--
Support Services .....	13,363	13,677	13,723	+46	+0.3%
Other Related Expenses.....	8,459	8,351	8,351	0	--
<b>Total, Field Operations .....</b>	<b>87,570<sup>a</sup></b>	<b>91,009<sup>a</sup></b>	<b>75,795<sup>a</sup></b>	<b>-15,214</b>	<b>-16.7%</b>
<b>Total Excluding Full Funding for Federal Retirements, Field Operations</b>	<b>82,634</b>	<b>86,081</b>	<b>72,403</b>	<b>-13,678</b>	<b>-15.9%</b>
Full Time Equivalents.....	621	676	467	-209	-30.9%

<sup>a</sup> The FY 2001 and FY 2002 columns of the FY 2003 Congressional Request include funding in the amount of \$4,936 and \$4,928, respectively, for the Government's share of increased costs associated with pension and annuitant health care benefits. These funds are comparable to FY 2003 funding of \$3,392.

## Detailed Program Justification

(dollars in thousands)

	FY 2001	FY 2002	FY 2003
<b>Salaries and Benefits</b> .....	<b>64,395</b>	<b>67,688</b>	<b>52,428</b>
<p>Supports 467 FTEs within the SC field complex, 209 FTEs less than the comparable FY 2002 budget. Past forced and mostly unstructured downsizing across SC, combined with the recent reorganizations of DOE and its Field Offices, has left SC with under-staffing in some areas and over-staffing in others. To address this, SC is in the process of conducting a workforce reengineering study to address fundamental issues and functions within the Office. This study will design ways to maintain or improve SC's performance while reducing the cost of conducting its work, and will guide SC's plans for FTE reductions over the next two years. Some FTE reductions can be achieved through a combination of attrition, buyout and early retirement incentives, however, the majority must occur through involuntary separations. Funding is included to offset costs anticipated with these workforce reductions.</p>			
<b>Travel</b> .....	<b>1,353</b>	<b>1,293</b>	<b>1,293</b>
<p>Enables field staff to participate on task teams, work various issues, conduct compliance reviews, and perform contractor oversight to ensure implementation of DOE orders and regulatory requirements at the facilities under their purview. Also provides for attendance at conferences and training classes, and permanent change of station relocation, etc.</p>			
<b>Support Services</b> .....	<b>13,363</b>	<b>13,677</b>	<b>13,723</b>
<p>The field uses a variety of administrative and technical assistance services that are critical to their success in meeting local customer needs. The services provided support information technology (IT) routine computer maintenance, specific improvements, operating systems upgrades, and cyber security, network monitoring, firewalls, and disaster recovery tools. Other areas include staffing 24-hour emergency and communications centers, safeguarding and securing assets (guards, processing security clearances, classifying records, protecting assets and property, etc.), processing/distributing mail, travel management centers, contract close-out activities, copy centers, trash removal, directives coordination, facility and grounds maintenance, filing and retrieving records, etc.</p> <p>The request includes support service activity previously budgeted under the Science Laboratories Infrastructure program (Oak Ridge Landlord account) and funding for SC's safeguards and security responsibilities at the Chicago Operations Office transferred from the Office of Security and Emergency Operations.</p>			
<b>Other Related Expenses</b> .....	<b>8,459</b>	<b>8,351</b>	<b>8,351</b>
<p>Funds day-to-day requirements associated with operating a viable office, including fixed costs associated with occupying office space, utilities, telecommunications and other costs of doing business, e.g., postage, printing and reproduction, copier leases, site-wide health care units, records storage assessments, etc. Employee training and development and the supplies and furnishings used by the Federal staff are also included.</p>			
<b>Total, Field Operations</b> .....	<b>87,570</b>	<b>91,009</b>	<b>75,795</b>

## Explanation of Funding Changes from FY 2002 to FY 2003

FY 2003 vs. FY 2002 (\$000)
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### Salaries and Benefits

- Supports 467 FTEs, 209 FTEs less than the comparable FY 2002 budget, as a part of a focused effort to restructure the Field Federal workforce; includes the government's share of increased costs associated with pension and annuitant health care benefits; and factors a 2.6 percent pay adjustment in personnel compensation.....
 -15,260

### Support Services

- Reflects the transfer of the safeguards and security function at Chicago from the Office of Security and Emergency Operations to SC.
 +46

Total Funding Change, Field Operations .....	-15,214
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## Support Services

(dollars in thousands)

	FY 2001	FY 2002	FY 2003	\$ Change	% Change
<b>Technical Support Services</b>					
Economic and Environmental Analysis .....	0	0	0	0	--
<b>Total, Technical Support Services .....</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>--</b>
<b>Management Support Services</b>					
ADP Support .....	5,500	5,271	5,271	0	--
Administrative Support.....	7,863	8,406	8,452	+46	+0.5%
<b>Total, Management Support Services .....</b>	<b>13,363</b>	<b>13,677</b>	<b>13,723</b>	<b>+46</b>	<b>+0.3%</b>
<b>Total, Support Services .....</b>	<b>13,363</b>	<b>13,677</b>	<b>13,723</b>	<b>+46</b>	<b>+0.3%</b>

## Other Related Expenses

(dollars in thousands)

	FY 2001	FY 2002	FY 2003	\$ Change	% Change
Training .....	620	620	620	0	--
Printing and Reproduction .....	336	255	255	0	--
Rent & Utilities & Telecommunication .....	4,430	4,620	4,620	0	--
Information Technology Hardware, Software, and Maintenance .....	847	577	577	0	--
Working Capital Fund.....	177	400	400	0	--
Other .....	2,049	1,879	1,879	0	--
<b>Total, Support Services .....</b>	<b>8,459</b>	<b>8,351</b>	<b>8,351</b>	<b>0</b>	<b>--</b>