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U.S. DEPARTMENT OF ENERGY

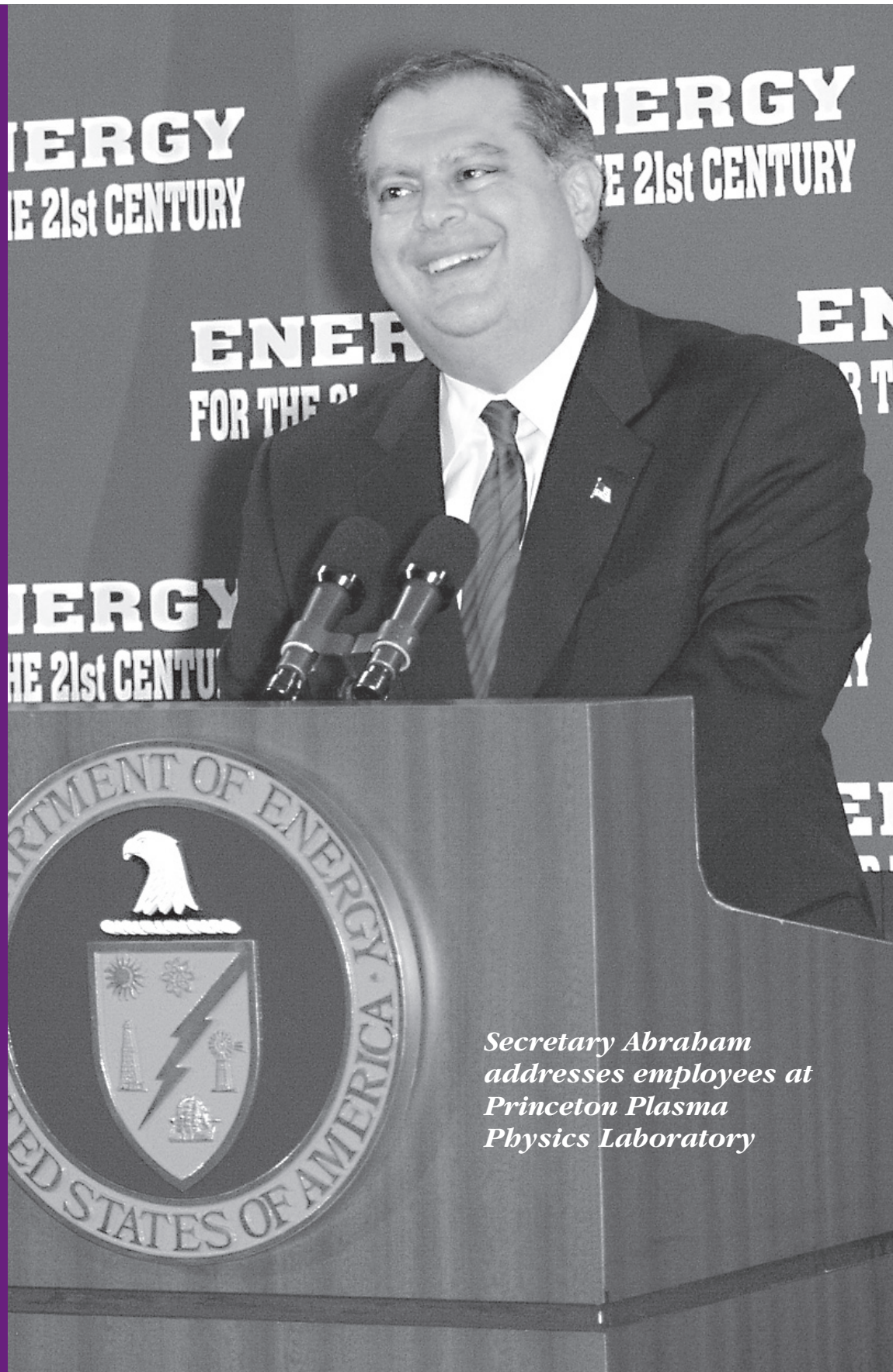
This Month

FEBRUARY 2003

Department requests \$23.4 billion for Fiscal Year 2004

Administration committed to hydrogen fuel for future

U.S. to join ITER negotiations



Secretary Abraham addresses employees at Princeton Plasma Physics Laboratory

U.S. Department of Energy



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On our cover

Secretary of Energy Spencer Abraham visited the Department of Energy's Princeton Plasma Physics Laboratory (PPPL) on Jan. 30, 2003. The Secretary toured the National Spherical Torus Experiment (NSTX) and the former site of the record-breaking Tokamak Fusion Test Reactor.

In remarks to laboratory employees, Secretary Abraham announced the decision by President George W. Bush that the United States will join the negotiations for the construction and operation of the International Thermonuclear Experimental Reactor (ITER), a major international magnetic fusion research project. He praised PPPL staff for advancing the promise of fusion energy and stressed that "it is imperative we maintain and enhance our strong domestic research program" and that "critical science needs to be done in the U.S., in parallel with ITER." Secretary Abraham's remarks are available at <http://www.energy.gov/HQDocs/speeches/2003/janss/PPPLAllHands.html>.

For more on the visit and ITER project, see page 4. ❖

FY 2004 budget reflects commitment to advance energy, national security

On Feb. 3, Secretary of Energy Spencer Abraham released the Department of Energy's (DOE) Fiscal Year (FY) 2004 budget request to Congress. "We are submitting an '04 budget request for approximately \$23.4 billion," Secretary Abraham said. "Our FY 2004 budget will allow us to move forward aggressively toward our energy objectives, at the same time that we continue to strengthen our defense programs, expand our non-proliferation efforts, accelerate our environmental cleanup programs, and increase our investment in the promise of scientific research."

"Taking into account the DOE activities that are now the responsibility of the Homeland Security Department, DOE's budget will have grown by about 25 percent over the last three years. I believe this reflects very well on our Department, its programs and its people," Secretary Abraham continued. "This Administration and Congress recognize the critical contribution our work on defense, energy security, the environment, and world-leading science and technology makes to a peaceful and prosperous future."

The funding priorities for the FY 2004 budget focus on the National Nuclear Security Administration (NNSA), energy, environment, and science.

The total FY 2004 funding request of \$8.8 billion for NNSA includes \$6.4 billion for weapons activities, a 9.1 percent increase over the FY 2003 budget request. Continued funding for stockpile stewardship includes \$320 million to support the manufacture of certifiable plutonium pits and to allow NNSA to proceed with a conceptual design for a modern pit manufacturing facility.

The FY 2004 Defense Nuclear Nonproliferation request of \$1.3 billion is a 30 percent increase over the FY 2003 request. The increase includes funding for construction startup of a mixed oxide (MOX) fuel fabrication facility in the U.S. and



Secretary Abraham responds to a reporter's question at the Fiscal Year 2004 budget press briefing. At left is Deputy Secretary Kyle McSlarrow.

assistance to Russia with the start of construction of an industrial scale MOX fuel fabrication facility.

A total of \$2.5 billion is requested in FY 2004 for energy programs. This includes a commitment of \$272.2 million for the new Hydrogen Fuel Initiative and the FreedomCAR program and \$288 million to fulfill the President's commitment to increase funding for the Weatherization Assistance Program over the next 10 years.

The Department is seeking \$321 million to continue the President's Coal Research Initiative, including \$130 million for the second round of competition for clean coal power projects. The budget request includes \$38 million for the Nuclear Power 2010 initiative and about \$10 million for the Generation IV Nuclear Energy Systems program.

The FY 2004 proposed funding request for environment is \$8 billion, an increase of \$354 million over the FY 2003 request. This includes \$7.2 billion for Environmental Management to continue the accelerated cleanup of DOE sites.

The budget request maintains the FY 2003 level of \$591 million for the Yucca Mountain high-level nuclear waste repository to enable DOE to complete work for a license application to the Nuclear Regulatory Commission. Funding also is requested in the amount of \$138 million for the Office of Environment, Safety and Health and \$15 million for the Office of Worker and Community Transition.

The total FY 2004 budget request for science programs is \$3.3 billion. The request includes \$197 million in funding to support nano-science research and design and construction of five new nano-science research centers. Also requested is \$173.5 million for the Advanced Scientific Computing Research program, \$59 million for the Genomes to Life program, and \$257.3 million for fusion science. Included in the fusion budget is \$12 million to support preparations for the ITER project (see article, page 4).

The entire FY 2004 budget is available at <http://www.mbe.doe.gov/budget/04budget/>. The Secretary's remarks and budget press release are available at <http://www.energy.gov>, click on "Press Room." ❖

Eight new clean coal projects selected

Eight projects have been selected by the Department of Energy (DOE) in the first phase of President Bush's Clean Coal Power Initiative. The projects, valued at more than \$1.3 billion, are expected to help pioneer a new generation of innovative power plant technologies that could help meet the President's Clear Skies and Climate Change initiatives.

The projects are the first in a series of competitions to be run by DOE. If all upcoming negotiations are successful, the Department expects to award approximately \$316 million to these initial projects. Private sector participants would

contribute just over \$1 billion, well in excess of DOE's requirement for 50 percent private sector cost-sharing.

Three projects are directed at new ways to comply with the President's Clear Skies initiative, which calls for dramatic reductions in air pollutants from power plants over the next 15 years. The projects were proposed by the City of Colorado Springs, Colo.; LG&E Energy Corporation, Louisville, Ky.; and Wisconsin Electric Power Company, Milwaukee.

Contributing to President Bush's Climate Change initiative to reduce greenhouse gases are three projects

proposed by Great River Energy, Underwood, N.D.; NeuCo, Inc., Boston, Mass.; and University of Kentucky Research Foundation, Lexington. Two additional projects will reduce air pollution through coal gasification and multi-pollutant control systems. They were proposed by Waste Management and Processors Inc., Gilberton, Penn.; and Western Greenbrier Co-Generation LLC, Rainelle, W. Va.

More information on each project is available from the Department's Office of Fossil Energy web site at <http://www.fossil.energy.gov>. ❖

U.S. to join ITER fusion project negotiations

The United States will join the negotiations for the construction and operation of the International Thermonuclear Experimental Reactor (ITER), a major international magnetic fusion research project. The mission of ITER, which means "the way" in Latin, is to demonstrate the scientific and technological feasibility of fusion energy.

Secretary of Energy Spencer Abraham announced the decision of President Bush during remarks to employees at the Department of Energy's (DOE) Princeton Plasma Physics Laboratory (PPPL), following a tour of the facility on Jan. 30, 2003. The Bush Administration believes that fusion is a key element in U.S. long-term energy plans because it offers the potential for plentiful, safe, and environmentally benign energy.

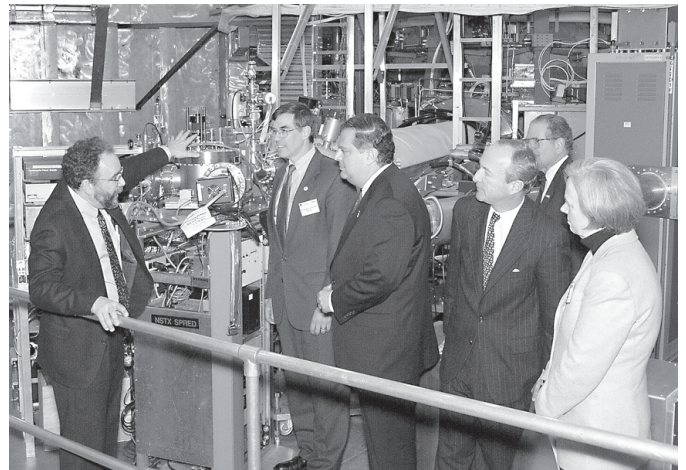
"This international fusion project is a major step towards a fusion demonstration power plant that could usher in commercial fusion energy," Secretary Abraham said. "ITER also provides a cost-effective way to proceed with fusion research worldwide with the collaborating parties sharing in the project's cost of construction and operation."

DOE commissioned three reviews of ITER in preparation for a Presidential decision on the U.S. entering negotiations to participate. A National Research Council report

endorsed the ITER effort as an essential next step in the U.S. fusion energy research program.

Canada, the European Union, Japan, and the Russian Federation are the current members of the ITER collaboration. China recently joined the negotiations. The negotiating members will select from offered candidate sites in Canada, the European Union, and Japan. DOE's Office of Science is leading the U.S. negotiations on ITER and Department officials attended the latest ITER meeting in St. Petersburg, Russia.

The U.S. proposes to provide a number of hardware components for ITER construction, to be involved in the project construction management, and to participate in the ITER scientific research and technology development. The nature and details of the U.S. participation and contributions would be determined during the negotiations.



Rob Goldston (left), Director, Princeton Plasma Physics Laboratory (PPPL), shows the National Spherical Torus Experiment to (l-r) Congressman Rush Holt, Secretary Abraham, Congressman Rodney Frelinghuysen, DOE Office of Science Director Raymond Orbach, and Princeton University President Shirley Tilghman.

The construction cost is expected to be about \$5 billion in constant 2002 dollars. Since the cost will be shared among all parties, who will provide most of the components "in kind," the actual construction cost will be a combination of different amounts in different currencies. The U.S. share of the construction cost is expected to be about 10 percent of the total. Construction could begin in 2006 and operations, in 2014. Fusion research would last for up to 20 years. ❖

Future U.S. energy independence goal of new Hydrogen Fuel Initiative

In his State of the Union address on Jan. 28, 2003, President George W. Bush announced a \$1.2 billion Hydrogen Fuel Initiative to reverse America's growing dependence on foreign oil by developing the technology needed for commercially viable hydrogen-powered fuel cells. The new program will complement the FreedomCAR (Cooperative Automotive Research) Initiative, which was launched in 2002.

A total of \$720 million in new funding will be invested over the next five years to develop the technologies and infrastructure needed to produce, store, and distribute hydrogen for use in fuel cell vehicles and electricity generation. Combined with FreedomCAR, President Bush is proposing a total of \$1.7 billion over the next five years to develop hydrogen-powered fuel cells, hydrogen infrastructure, and advanced automotive technologies.

The Department of Energy's Fiscal Year 2004 budget request, which was released on Feb. 3, includes a commitment of \$272.2 million for the Hydrogen Fuel Initiative and the FreedomCAR program. Additional information about the initiatives and the Department's hydrogen, fuel



L-r, White House Chief of Staff Andrew Card, Secretary Abraham, President Bush, and EPA Administrator Christine Todd Whitman look at the Chrysler Natrium fuel-cell minivan on display at the National Building Museum, Washington, D.C.

cells, and infrastructure technologies program is available at <http://www.eren.doe.gov>.

On Feb. 6, President Bush, Secretary of Energy Spencer Abraham, and other members of the President's Cabinet toured hydrogen fuel cell technologies at the National Building Museum in Washington, D.C. The President spoke to those assembled about the importance of energy independence to our nation and the role hydrogen plays in reaching that goal.

"One of the greatest results of using hydrogen power...will be energy independence for this nation," President Bush said. "If we develop

hydrogen power to its full potential, we can reduce our demand for oil by over 11 million barrels per day by the year 2040. That would be a fantastic legacy to leave for future generations of Americans."

In an address to the Economic Club of Detroit on Feb. 7, Secretary Abraham discussed the Hydrogen Fuel Initiative and challenged the city to mobilize its skills and talents to devise energy solutions for our nation's future. "We believe that hydrogen economy is our future. The questions we face are how fast this effort

should proceed, and whether it will be led by America or by others," Secretary Abraham said. "The President's answer is clear. He wants this to happen in our lifetime—sooner rather than later. And he believes that the United States and Detroit should lead the way."

The President's remarks on Feb. 6 are available at <http://www.whitehouse.gov>, click on "Current News," then click on "February 2003" under "News By Date." Secretary Abraham's Feb. 7 remarks are available at <http://www.energy.gov/HQDocs/speeches/2003/febss/DetroitEconomicClub.html>. ❖

Bonneville approves new transmission line

The Department of Energy's Bonneville Power Administration (BPA) has approved the first transmission line construction project under the agency's infrastructure expansion program to relieve congested transmission paths in the Pacific Northwest. The 84-mile Grand Coulee-Bell 500-kilovolt transmission line project will connect Spokane with Grand Coulee, Wash.

"The President's National Energy Policy calls for an increase in the nation's energy infrastructure. I am pleased BPA is building this

transmission line, which is essential to delivering energy reliably and safely to homes and businesses in the Pacific Northwest," said Secretary of Energy Spencer Abraham.

Since the mid 1990's, the transmission corridor west of Spokane, Wash., has become increasingly constrained. In early spring and summer, the amount of power needed to pass through this path can exceed the carrying capacity of the existing lines.

"Our ability to fulfill our supply obligations to our customers and to

deliver power exactly where it's needed will markedly improve once this line is completed," said Mark Korsness, BPA project manager.

Construction of the line will begin this month with completion expected in November 2004. The \$152 million project is financed by BPA and completely paid for through BPA sales of transmission services.

For more information on the record of decision and the project, visit BPA's web site at <http://www.transmission.bpa.gov/projects> or call 888-276-7790. ❖

Department launches I-MANAGE initiative

On Jan. 8, 2003, a new cost-saving program was officially kicked off that will move the Department of Energy (DOE) from manual, paper-based management to automated, web-based management. The Integrated Management Navigation System (I-MANAGE) is a cornerstone of the Department's efforts to achieve improved financial performance, integrated budget and performance, and expanded electronic government in support of the President's Management Agenda.

"Our vision for I-MANAGE is that each manager will have real time information to make management decisions and manage problems," Deputy Secretary of Energy Kyle McSlarrow said at the kick-off meeting of the I-MANAGE Integration Team. "Each manager will have access to all the data in their area of responsibility and turn to this web-based system to get current information on their budgets, on

people, procurement, projects, performance, and spending."

Joining Deputy Secretary McSlarrow at the meeting were Bruce Carnes, Director of Management, Budget and Evaluation/Chief Financial Officer, DOE; Karen Evans, Chief Information Officer, DOE; and Mark Forman, Associate Director for Information Technology and e-Government, Office of Management and Budget.

"DOE's commitment to improving management through electronic government practices is impressive," said Forman. "E-government is about delivering results that matter to citizens. Using technology to make DOE more efficient and effective is an important means to success in e-Government. This is what I-MANAGE will do."

I-MANAGE will integrate the Department's business management systems for financial and cost accounting, travel, payroll, budget

formulation and execution, procurement and contracts management, facilities management, human resources, and research and development portfolio management. Several corporate system components are part of the initiative. These include the Standard Accounting and Reporting System (STARS), the I-MANAGE Data Warehouse, the Standard Budget System, E-Procurement, and the Corporate Human Resource Information System (CHRIS).

"This program will streamline the way the Department of Energy operates," Deputy Secretary McSlarrow said. "The Department is committed to expanding e-Government to secure greater services at lower costs and to meet the public demand for a more efficient, effective government."

Additional information on I-MANAGE is available at <http://www.mbe.doe.gov/>, click on "I-MANAGE News." ❖

New system tracks Department's performance

Performance management has been identified as one of the Department of Energy's (DOE) major management challenges. In response, the Department is implementing new tools and processes to support both programs and DOE decision makers with the task.

The Office of Program Analysis and Evaluation (ME-20) in the Department's Office of Management, Budget, and Evaluation is responsible for tracking and reporting DOE's overall program performance to the President, Congress, and the Office of Management and Budget. The office has officially launched Joule—a new performance measurement system to replace SOLOMON, the tracking system currently in use at the Department.

Joule allows all levels of management to get a timely snapshot of ongoing progress on their program performance measures to help assess the effectiveness of their organizations. Managers will be able to identify quickly where performance

is not meeting established targets and make necessary adjustments before small problems become large ones.

A Joule users working group was established in November 2002. The group meets once a month to discuss issues and share information related to:

- technical problems with the Joule system;
- best practices in Joule reporting;
- the latest technology, hardware and software updates for Joule;
- user ideas and concerns;
- systemic issues related to data input, reporting, and analysis; and
- time lines and schedules for updating information.

In 2003, ME-20 expects Joule to significantly streamline the collection, reporting, and evaluation of



Dr. Bruce Carnes, Director of Management, Budget and Evaluation/Chief Financial Officer, received a demonstration of the Joule performance measurement system from Lynette Bandy, Joule Systems Manager, in January 2003.

performance data for the Department. More information on Joule can be accessed by DOE employees at <http://www.mbe.doe.gov/crOrg/me20.htm>. Questions regarding the system may be directed to Lynette Bandy, Joule Systems Manager, 202-586-2019. ❖

Department celebrates life of Dr. King

On Jan. 22, 2003, the Department of Energy (DOE) paid tribute to the life of Dr. Martin Luther King, Jr., with a commemorative program in the Headquarters Forrestal Building Auditorium. The annual event is sponsored by the Department's Office of Economic Impact and Diversity. The program was simulcast to Headquarters employees in Germantown, Md.

Secretary of Energy Spencer Abraham spoke to employees about the accomplishments and life of Dr. King. "Dr. King's life and legacy demand that we recognize that although we may have differences, we are all bound together as Americans. It is time to look at those ways in which we, as a nation, are better for his efforts," Secretary Abraham said.

The Secretary reaffirmed the principles of the Department's Equal Employment Opportunity and Diversity Policy. He pledged his full support toward implementing that agenda throughout the Department,



Secretary Abraham listens to Dr. Dorothy Height's speech at the Martin Luther King, Jr. Day observance.

including DOE's contractor workforce. The full text of Secretary Abraham's remarks is available at <http://www.energy.gov/HQDocs/speeches/2003/janss/MLKingBDayObservance.html>.

Dr. Dorothy Height, Chairwoman Emerita of the National Council of Negro Women Inc. (NCNW), was the keynote speaker. An advocate for civil rights since the 1930's, Dr. Height worked for both the

YWCA and NCNW for several decades. She served as NCNW President from 1957 to 1998. Dr. Height was intensely involved in the civil rights battles of the 1960's and became Director of the Center for Racial Justice in 1965. She is the recipient of numerous awards, including induction in the National Women's Hall of Fame in 1993 and the Presidential Medal of Freedom in 1994.

In her remarks, Dr. Height chronicled the civil rights movement and her association with Dr. King, whom she first met at age 15 after he entered Morehouse College in Atlanta, Ga. Throughout her speech, Dr. Height stressed the significance of eliminating racism and sexism that permeates our society, that we need to build a beloved community, and that respect and honor should be placed above all.

Following her remarks, Secretary Abraham presented the Department of Energy's Special Recognition Award to Dr. Height. ❖

Shoshone-Bannock representatives brief Nuclear Energy staff

At the invitation of William Magwood, Director of the Department of Energy's (DOE) Office of Nuclear Energy, Science and Technology (NE), Shoshone-Bannock tribal representatives Diana Yupe, at right, and Willie Preacher recently addressed an NE "all-hands" meeting in Germantown, Md. Appropriately, their visit coincided with the observance of National American Indian Heritage Month.

Yupe and Preacher discussed how the tribes, whose Fort Hall Indian Reservation is located near DOE's Idaho Site, coexist and interact with the Idaho National Engineering and Environmental Laboratory (INEEL). With NE preparing to assume management and oversight responsibility



for the laboratory, Magwood requested the representatives discuss the tribes' customs and history and how the tribes and INEEL work together amicably to resolve problems, especially those arising when the needs of the laboratory's scientific programs conflict with sensitive Indian cultural issues.

Yupe said that a carefully defined consultation process between INEEL and the tribes helps to avoid and resolve any problems. "We have many success stories to report in our dealings with the Idaho laboratory, and we hope to have many more such stories as we work together with Nuclear Energy to protect the environment at INEEL," she said.

The tribal representatives noted that, after extensive renegotiation with the tribes, the Agreement in Principle between the DOE Idaho Operations Office and the Shoshone-Bannock Tribes was renewed on Dec. 10, 2002, for five years. This document prescribes the formal relationship and agreements between the Department and the tribes. ❖

Fernald reducing radon levels in waste silos



The Department of Energy's Fernald Environmental Management Project put into operation a new radon control system in December 2002 that is reducing the concentration of radon gas in two concrete waste storage silos by 95 percent. Radon concentrations were reduced from 20 million picocuries per liter to one million picocuries/liter within eight hours. The aging K-65 Silos contain 8,900 cubic yards of low-level, radium-bearing waste dating back to the 1950's.

The closed-loop Radon Control System, at left, stands about 40 yards from the earthen-bermed silos. Fans draw the radon-bearing air into the facility via a series of valves and piping connected to manways on top of the silos. The air is passed through activated carbon filters to remove radon gas and HEPA filters to remove any remaining particulate.

In June 2003, Fernald cleanup crews will begin installing waste retrieval equipment around the silos. Waste treatment and disposal operations are scheduled for completion in 2006. ❖

Hazmat Cam helps emergency teams see better



Engineer Kevin Young of the Department of Energy's Idaho National Engineering and Environmental Laboratory has designed a new tool to help emergency responders see a little better. Hazmat Cam is a portable, wireless video camera system housed in a tough, waterproof flashlight body about eight inches long. The system sends back real-time images to a video monitor or computer at a command post located up to several miles from the incident area.

Hazmat Cam's triple-antenna, true-diversity receiver seeks and locks in the strongest signal from each of its three antennas, completing the scan over 1,000 times per second. A clear, reliable image is received even under less-than-perfect conditions, such as within metal buildings or concrete tunnels. Hazmat Cam includes optional encryption to prevent unauthorized transmission pickup. However, agencies on the scene with properly configured Hazmat Cam receivers are able to receive the same video transmission.

At left, a National Guard Civil Support Team uses a HazMat Cam in a simulated contaminated exercise area. ❖

Laboratory Web developers and managers meet



The Department of Energy's (DOE) National Renewable Energy Laboratory (NREL) hosted the 8th InterLab Conference for DOE laboratory Web developers Dec. 4-6, 2002, in Golden, Colo. The event drew more than 100 Web developers and managers from 13 different laboratories, DOE Headquarters, and six other research institutions.

NREL initiated InterLab in 1994 in conjunction with DOE's other national laboratories. The InterLab 2002 Program Committee included (l-r) Bebo White, Stanford Linear Accelerator Center; Cara Corey, Lawrence Livermore National Laboratory; Jim Pearce, Oak Ridge National Laboratory; and Joe Chervenak, NREL.

Traditionally, the conference covers Internet issues and Web applications that support research and development, business systems, and public outreach. The focus in 2002 was on content management, enterprise portals, Web Site accessibility, and Section 508 compliance for disabled users. An important outcome was agreement by the laboratories to collaborate on Web site standards. For more information, contact interlab@nrel.gov. ❖

New container improves neutron source management

A new pipe overpack container has been developed by the Department of Energy's (DOE) Los Alamos National Laboratory (LANL) for the Offsite Source Recovery (OSR) Project at DOE's Albuquerque Operations Office. The OSR Project uses the S100 drum to consolidate and store hundreds of neutron sources containing americium-141 and plutonium-238 and -239.

The S100 drum, prepared for loading at right, is approved to transport waste to DOE's Waste Isolation Pilot Plant in TRUPACT II containers for disposal. The overpack container has high-density polyethylene neutron shielding. The stainless steel pipe component is 27.5 inches high, with a 6.7-inch outside diameter. With top and bottom shielding plugs in place, 17 inches of payload is available. The complete assembly weighs 328 pounds.

Commercial manufacturing of the container is underway. Performance or procurement details are available from Cristy Abeyta, LANL, 505-667-4711 or cabeyta@lanl.gov; or Stephen Nance, Westinghouse Engineered Products Department, 505-234-5641 or stephen.nance@wgint.com. ❖



LAMP lights the way for rapid prototyping

A process that could revolutionize mechanical part fabrication is being refined at the Department of Energy's Kansas City Plant, a National Nuclear Security Administration facility. Laser Applied Metal Processing (LAMP) is a fully functional, multi-axis system that uses powdered metal alloys and laser energy to produce rapid prototype metal parts. The process is capable of providing prototypes and production hardware faster and cheaper than current technology.

A product definition stored in the computer and converted to process control code directs the powder distribution nozzle/laser beam inside the LAMP fabrication chamber, seen at right. Simultaneously, the laser beam creates a "weld pool" of molten metal on a metal plate or disc and the nozzle inserts prescribed amounts of additional powder metal into the weld pool. The system continuously moves the weld pool under the laser beam, and a continuous build-up of material creates a part, one layer at a time.

When fully developed, LAMP has the potential to attract new reimbursable projects to the Kansas City Plant. ❖

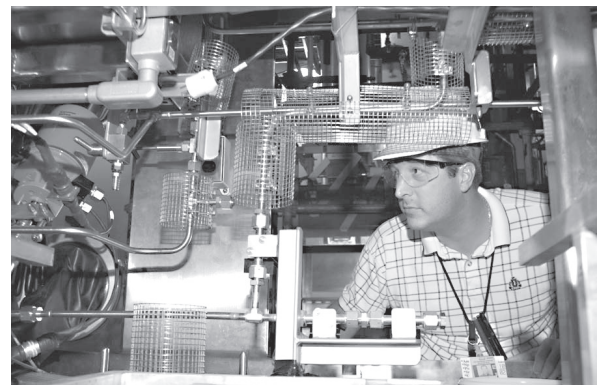


'Ship in the bottle' project construction complete

The Department of Energy's Savannah River Site (SRS) recently completed design, procurement, and construction activities for the major portion of the \$142 million Tritium Facility Modernization and Construction (T-CON) project. The project is designed to consolidate capabilities and update tritium processing and stockpile support.

One portion of the project is to design and build an above ground laboratory facility, 234-7H. The larger portion was to fill up the last remaining empty room in the underground 233-H facility. The work was referred to as a "ship in the bottle," because all required processing equipment had to be lowered through a 9 foot by 16 foot hatch opening on the roof. Also, inside construction had to be done with minimal impact since the 233-H facility had to continue to operate. At right, SRS Tritium Testing Manager Paul Bandola inspects T-CAP Column C in Room 44, the last remaining room in T-CON's 233-H facility.

Finalization of the entire T-CON project will allow deactivation of 232-H, a 50-year-old tritium processing facility. ❖



The Dual Axis Radiographic Hydrotest (DARHT) flash X-ray facility at the Department of Energy's **Los Alamos National Laboratory** has passed the major technical hurdles needed to complete the second axis of its final requirements. Researchers achieved the milestone when the facility generated and transported an electron beam that met all the major technical criteria. About 20 more months of commissioning will be required to achieve full X-ray hydrotest capability. When operational in fall 2004, DARHT will provide time-resolved, three-dimensional radiographs of non-nuclear weapons primaries at the moment of implosion. This is done by producing x-rays with a pair of electron beam accelerators set at right angles to one another. (Sandra Embry, 505-667-7000)

Scientists at the Department of Energy's **Brookhaven National Laboratory** are continuing their quest for an elusive form of matter. Instead of colliding gold ions at nearly the speed of light in the Relativistic Heavy Ion Collider (RHIC), they are colliding gold ions with deuterium ions in an attempt to help unravel the mystery. These new collisions of very heavy gold nuclei with relatively light deuterons (nuclei consisting of one proton and one neutron) are scheduled to continue through late March. They will provide a complementary view of these complex interactions and give physicists deeper insights into the forces that bind all nuclei together. RHIC experimenters are seeking additional evidence for the existence of quark-gluon plasma. (Peter Genzer, 631-344-3174)

Two scientists at the Department of Energy's **Idaho National Engineering and Environmental Laboratory**, in collaboration with Miragen, Inc., have developed a new method of drug detection that promises to crack down on cheaters. Vicky Thompson and Diane Key explain that with just a few drops of saliva, the method signals drug test results along with the donor's identity. The key ingredient is a test strip that highlights individual-specific auto-antibodies—a barcode like pattern of proteins unique to each person. The researchers are working to shorten the processing time of samples. The research may provide law enforcement with a new weapon to combat crime and an investigative tool that may enhance national security. (John Walsh, 208-526-8646) ♦

Brookhaven Lab delivers first U.S.-built component for Large Hadron Collider

On Jan. 21, 2003, the first U.S.-built contribution to the Large Hadron Collider (LHC) was received at CERN, the European Particle Physics Laboratory in Geneva, Switzerland. The superconducting magnet, built at the Department of Energy's (DOE) Brookhaven National Laboratory, is one of several advanced accelerator elements the United States will provide for the Collider under the terms of a 1998 agreement among CERN, DOE, and the National Science Foundation.

"I congratulate the Brookhaven team on this milestone for international collaboration in scientific research," said Dr. Raymond L. Orbach, Director, Office of Science. "It is tangible evidence of the successful fulfillment of the commitment we have made to provide advanced U.S. magnet technology and accelerator

expertise for the next step in worldwide particle physics research at the energy frontier. And it is exciting to be a party to the future accomplishments of the LHC."

The 25-ton Brookhaven magnet, the first of 20 that the laboratory ultimately will provide, took nine months to construct, with more than 100 scientists, engineers, and technicians working on its completion. The remaining 19 magnets are scheduled to be shipped to CERN later this year.

To reach the highest energy ever produced by an accelerator, the LHC will use more than 6,000 superconducting magnets, most of which are being built by CERN's industrial partners in Europe. The 27-kilometer rings of the Collider will circulate two counter-rotating beams of protons at nearly the speed of light while maintaining the protons

precisely at the center of the beam pipe containing them. The Collider is scheduled for startup in 2007.

As part of the total \$531 million U.S. contribution, Brookhaven Lab agreed to develop and manufacture the LHC's interaction-region dipole magnets, which will guide the two counter-rotating beams of protons into collision. Other U.S. partners in the LHC project include the Department's Fermi National Accelerator Laboratory (Fermilab), which is constructing 18 superconducting quadrupole magnets, and DOE's Lawrence Berkeley National Laboratory, which is working on superconducting cable and utility boxes for the magnet assemblies. In December 2002, Fermilab announced it had completed highly successful tests of the first quadrupole assemblies. ♦

ORNL developing 'smart' inventory controls

A system to enhance inventory and tracking of laboratory chemicals and other similar high-risk assets is under development and testing at the Department of Energy's (DOE) Oak Ridge National Laboratory (ORNL). The system uses antenna-based passive radio frequency identification tag technology to replace traditional bar codes on inventory items.

The "smart cabinet" will track the placement of laboratory chemicals used in a typical research environment inside a small enclosed storage area. The cabinet uses special shelves that have radio frequency reader capability. A smart tag, carrying an antenna and computer chip with bar code information, is placed on each laboratory chemical container. The smart shelves emit a signal that energizes the tags, allowing their digital data to be recorded and monitored through a computer database.

Laboratory personnel will be able to check the status of the smart cabinet contents through the inventory database without having to view the chemicals. Placement changes or removal of the cabinet contents would

be recorded through the computer system. Any discrepancies would be reported to designated personnel through electronic mail or pager.

This system will ensure greater safety and security in managing potentially hazardous chemicals, particularly those with dated shelf lives and those unsafe to mix. The process will lead to more efficient record keeping for all laboratory materials and overall cost savings from a more effective inventory process.

ORNL researchers also plan to develop smart racks to track the movement of computer hardware and components into and out of the laboratory's central computing facility. More than 400 items in the room, ranging in value from \$1,000 to \$20 million per system, currently are inventoried manually and tracked through bar codes and inventory numbers.

The smart cabinet and smart racks projects are being conducted with



Richard Hopf, Director, Office of Procurement and Assistance Management, DOE Headquarters (left), and Bill Madia, Director, Oak Ridge National Laboratory, examine chemical material undergoing storage monitoring in the "smart cabinet."

assistance from DOE and the Department of Veterans Affairs as part of a larger program examining the use of this technology for remote monitoring and tracking of organizational assets. Specific applications are being explored within all aspects of DOE's property management. The technology also may offer long-term advantages to chemical, pharmaceutical, medical, and other industries with sensitive or high-risk inventory items. ❖

NEW Publications

Energy Information Administration (EIA) reports: **Annual Energy Outlook 2003 With Projections to 2025** (DOE/EIA-0383-2003) projects that U.S. net petroleum imports, which accounted for 55 percent of total petroleum demand in 2001, could range from a low of 65 percent of petroleum demand to a high of 70 percent of demand by 2025. The report is available on the Internet at [http://www.eia.doe.gov/oiaf/aeo/pdf/0383\(2003\).pdf](http://www.eia.doe.gov/oiaf/aeo/pdf/0383(2003).pdf). **Renewable Energy Annual 2001** (DOE/EIA-0603-2001) reports that renewable energy's share of U.S. energy consumption declined modestly to under six percent in 2001 and biomass

overtook hydroelectric power as the most important source of renewable energy for the first time since 1992. The report is available at http://www.eia.doe.gov/cneaf/solar.renewables/page/rea_data/rea_sum.html. Additional information on these and other EIA reports is available from the National Energy Information Center, EI-30, Room 1E-238 Forrestal Building, USDOE, Washington, DC 20585; phone: 202-586-8800, e-mail: infoctr@eia.doe.gov.

Office of Inspector General (IG) reports: **Planned Characterization Capability at the Waste Isolation**

Pilot Plant (DOE/IG-0577); **Inspection of Explosives Safety at Selected Department of Energy Sites** (DOE/IG-0578); **The Department's Unclassified Foreign Visits and Assignments Program** (DOE/IG-0579); **Management Challenges at the Department of Energy** (DOE/IG-0580); **National Nuclear Security Administration's Nuclear Explosive Safety Study Program** (DOE/IG-0581). The reports are available from the U.S. Department of Energy, IG Reports Request Line, 202-586-2744, or at <http://www.ig.doe.gov/>. ❖

Fernald rail operation on track to end in 2004

The Department of Energy's Fernald Environmental Management Project in Ohio is less than two years from completing the remediation and disposition of a 37-acre waste pit area that contains over one million tons of low-level radioactive waste. The Waste Pits Project is one of five remediation projects at the site.

The waste pit area contains six waste pits ranging in size from one to five acres and varying in depth from 10 to 40 feet, a burn pit, and clearwell. During uranium production operations, Fernald disposed of solid and liquid processing material and refining residues in the waste pits and incinerated materials, such as laboratory chemicals and refining residues, in the burn pit. The clearwell served as a settling basin for process water.



The rail yard at the Fernald Environmental Management Project is the most extensive rail operation in the Department of Energy complex.

Prior to initiating full-scale remediation of the waste pits, Fernald constructed an 11-track rail yard and procured 170 gondola railcars and three locomotives to safely move railcars on site and ship material offsite for disposal. As the waste

is excavated, cleanup workers haul it by truck to on-site remediation facilities, where the waste is processed and treated to remove excess moisture; load it into double-lined railcars with secure lids; and assemble the cars into a unit train for shipment to Envirocare, a licensed commercial disposal facility near Clive, Utah. Each train contains about 60 railcars that hold approximately 6,000 tons of waste.

Since the first train left the site in April 1999, Fernald has maintained a steady shipping cycle of one train every two to three weeks. In January 2003, Fernald workers shipped the 75th train of material to Envirocare. Fernald is on schedule to complete waste processing operations by the end of 2004. ❖

Hanford spent nuclear fuel project near halfway point

The Spent Nuclear Fuel Project at the Department of Energy's (DOE) Hanford Site in Washington passed a critical juncture Jan. 7, 2003, when it finished moving more than two million pounds (957 metric tons) of highly radioactive spent fuel out of the K Basins. In meeting the milestone, the Project moved about 25 million curies of radioactivity contained in the fuel away from the shoreline of the Columbia River.

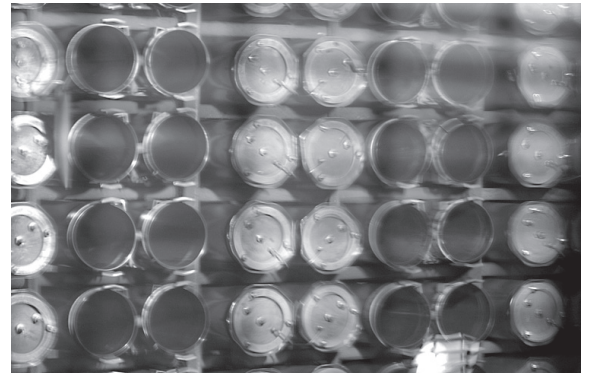
The spent fuel was moved from underwater storage in the aging K Basins to dry storage in specially designed, vacuum-dried canisters, called multi-canister overpacks. The overpacks are being stored in a dry, underground vault miles away from the river until their final disposition in a national repository.

The 957 metric tons represent the amount of spent nuclear fuel stored in the K-West Basin when DOE's contractor Fluor Hanford began moving fuel in late 2000. According to the Tri-Party Agreement that guides Hanford's cleanup, the fuel was to

have been moved by Dec. 31, 2002. The Project is just about at the halfway point of removing all the spent fuel—2,100 metric tons, more than four million pounds—from both the K-West and K-East Basins by 2004.

"The safe achievement of this milestone is the result of super-human efforts by hundreds of workers," said Larry Gadbois, K-Basins Project Manager for the U.S. Environmental Protection Agency. "Removing the first one-third of the K-West Basin fuel used three-fourths of the schedule. Kudos to so many people who sacrificed so much of their personal time in the long push to come from behind and complete this phase of the project."

"Our critics said we'd be months or even years behind schedule, but we knew we had to stay the course and let our performance prove them wrong," said Keith Klein, Manager,



The K-West Basin's capped spent nuclear fuel canisters.

DOE Richland Operations Office. "Getting to this point has taken the dedication and innovation of a whole lot of people to overcome all that could go wrong and did go wrong."

Although the milestone has been met, the K-West Basin is not empty, because fuel from the K-East Basin continues to be processed using K-West equipment. The fuel is being moved from K-East to K-West using a transfer system conceived and developed by Project employees. ❖

2003 Community Service Program kicks off

The Secretary of Energy's Community Service Awards Program is designed to promote community service among Department of Energy (DOE) Federal employees. The Office of Economic Impact and Diversity (ED) at DOE Headquarters in Washington, D.C., kicked off the 2003 community service effort with contributions to the Capital Area Foodbank. The office, which coordinates the awards program, donated food for complete meals to serve more than 20 families.

Throughout the years, DOE Headquarters and field employees have participated in many volunteer community service activities, such as elementary school literacy programs, clothing drives, and assistance to homeless shelters. Employees are encouraged to continue their volunteer services to our DOE communities and to learn more about the awards program. For more details, visit <http://www.hr.doe.gov/ed/MAIN/FrameSet.html>. ❖



Eddie Spradlen, Wackenhut Services Inc., and Ala Montgomery, President, Y-12 Employees Society, carry items to a tractor trailer being loaded with supplies. The employee organization coordinated the relief collection.

Salvation Army. "Together, we have made a difference in the lives of hundreds of people who suffered losses of all kinds."

Employees at the Y-12 National Security Complex responded quickly and collected and donated several truckloads of bottled water, food, and other needed items for the disaster relief effort. The supplies were delivered to a relief supply collection center set up in Knoxville, Tenn., and directly to the affected communities. BWXT Y-12, Wackenhut Services Inc., and National Nuclear Security Administration employees also collected more than \$10,500 in just two days for the American Red Cross effort to assist tornado victims. ❖

COMING Events

March

18 11th Annual National Energy Modeling System/Annual Energy Outlook Conference, Washington, D.C. Sponsored by the Department of Energy's Energy Information Administration (EIA). The conference includes speakers and attendees from Federal and State governments, private industry, and trade associations. To register or for more information, contact Peggy Wells, 202-586-0109 or peggy.wells@eia.doe.gov, or visit <http://www.eia.doe.gov/oiaf/aec/conf/index.html>.

25-26 DOE Software Quality Forum 2003, Arlington, Va.; a triennial conference sponsored by the Software Quality Assurance Subcommittee of the Quality Managers within the Department of Energy's (DOE) nuclear weapons complex. The event is cohosted by DOE's Office of the Chief Information Officer and the Office of Advanced Simulation and Computing, Office of Defense Programs, National Nuclear Security Administration. To register or for more information, contact Brenda Coblenz, 301-903-4632 or brenda.coblenz@hq.doe.gov, or visit <http://sqf.energy.gov>.

September

11-14 NATO Science Program, Advanced Research Workshop, Radiation Safety Problems in the Caspian Region, Baku, Azerbaijan. Topics include radiation environmental monitoring, natural and artificial sources of radioactivity in the Caspian Region, radiotherapy and radiodiagnostics, radiation safety problems in the oil industry, and other areas. The deadline for abstract submission, up to 250 words, is **March 31, 2003**. If interested, contact Mohammed K. Zaidi, Physicist; Co-Director, NATO ARW AZ 2003; DOE Radiological and Environmental Sciences Laboratory; 850 Energy Drive, MS-4149; Idaho Falls, Idaho 83401-1563; phone, 208-526-2132; fax, 208-526-2548. ❖

People IN ENERGY

Robert Harrison of the Computer Science and Mathematics Division at the Department of Energy's Oak Ridge National Laboratory is the recipient of the Sidney Fernbach Award from the Institute of Electrical and Electronics Engineers. The award recognizes outstanding contributions in the application of high-performance computers using innovative approaches. Harrison was recognized for his lead role in the development of the NWChem computational chemistry package while working at the Environmental Molecular Sciences Laboratory at DOE's Pacific Northwest National Laboratory.



Dr. Walter J. Apley was named Interim Director of the Department of Energy's Pacific Northwest National Laboratory (PNNL), effective Jan. 1, 2003. He will serve as Interim Director until a permanent director is selected and on board. Apley has served in various capacities since joining PNNL in 1977. Most recently, he was Associate Laboratory Director, overseeing PNNL's Environmental Technology Directorate. Previously, Apley served as Deputy for Laboratory Operations and Director of Facilities and Operations.

Brian Fiscus, of the Department of Energy's (DOE) Richland Operations Office, and **Gerald Schlapper**, of the Los Alamos Site Office, National Nuclear Security Administration, are the recipients of the DOE Price-Anderson Coordinator of the Year Award for 2002. The Office of Price-Anderson Enforcement in the Department's Office of Environment, Safety and Health awards the honor annually to one or more DOE Coordinators who have made outstanding efforts to promote nuclear safety at their sites.

Three longtime researchers at the Department of Energy's Los Alamos National Laboratory (LANL) have been named Senior Laboratory Fellows:

Greg Canavan, Physics Division, for attaining national recognition for his research in remote sensing, missile defense

systems, and national security related issues; **Hans Fraunfelder**, Center for Nonlinear Studies, for his exceptional work in biological physics and leadership of the center; and **Geoffrey West**, Elementary Particles and Field Theory Group, for his contributions to the studies of high-energy physics and universal scaling laws in biology.

Rokaya Al-Ayat has been named Associate Deputy Director for Science and Technology at the Department of Energy's Lawrence Livermore National Laboratory (LLNL). Al-Ayat will work with the Deputy Director to help develop LLNL's near- and long-term science and technology investment strategy. In addition to her new position, Al-Ayat will continue in her role as Director of LLNL's Laboratory Science and Technology Office.

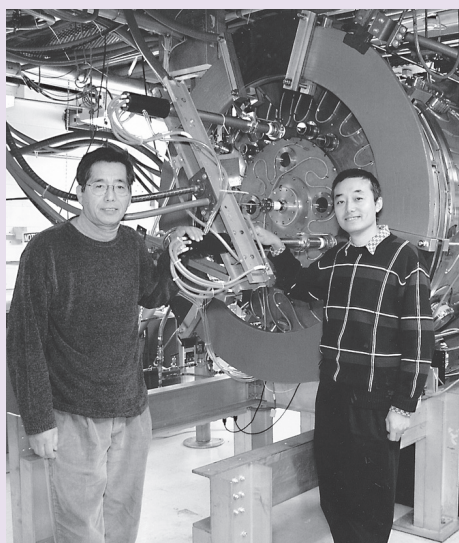
Engineers **Erik Perry** and **Ronald Strykowski** of the Department of Energy's Princeton Plasma Physics Laboratory (PPPL) have received the Kaul Prize for Excellence in Plasma Physics Research and Technology Development from Princeton University. The two were recognized for managing the Tokamak Fusion Test Reactor Decommissioning and Decontamination Project, which was completed safely, on schedule, under budget, and without significant

radiological exposure to workers or harm to the environment.

Jill E. Morgenthaler recently was appointed Chief of Staff at the Department of Energy's Argonne National Laboratory. Her responsibilities include ensuring Argonne's directorate and management council have necessary resources, assisting with staff projects, reporting staff progress to the laboratory director, and identifying concerns. Previously, Morgenthaler was a business development officer in the laboratory's Electronics and Computing Technologies Division.



Two scientists at the Department of Energy's Pacific Northwest National Laboratory are the recipients of national awards from the American Chemical Society (ACS). **David Dixon**, a Battelle Fellow, has received the ACS 2003 Award for Creative Work in Fluorine Chemistry. **Richard D. Smith**, chief scientist and a Battelle Fellow, has won the 2003 ACS Award in Analytical Chemistry. ♦



Masaaki Yamada (left) and **Hantao Ji**, scientists at the Department of Energy's Princeton Plasma Physics Laboratory (PPPL), are standing next to the Magnetic Reconnection Experiment at PPPL. Yamada and Ji, along with former PPPL graduate students **Troy Carter** and **Scott Hsu**, are the recipients of the American Physical Society's 2002 Award for Excellence in Plasma Physics Research. The researchers were recognized for their experimental investigation of driven magnetic reconnection in a laboratory plasma, a fundamental process of plasma physics with important relevance to fusion research.

Milestones

YEARS OF SERVICE

February 2003

Headquarters

Chief Information Officer - Nancy C. Peltz (25 years). **Economic Impact & Diversity** - Frank J. Vaccarella (25). **FERC** - Linda M. Lynch (35), Joseph R. Nancy (35), John E. Pazmino (35), John S. Duckworth (30), Michael P. Miller (30), Cheryl L. Lloyd-Bey (25). **General Counsel** - Darlene L. Downing (35), Joseph L. Gibson (25).

Hearings & Appeals - Virginia A. Lipton (25). **Management, Budget & Evaluation** - Linda E. Cameron (35), William M. Reynolds (35), Ava D. Cappello (30), Mary R. Anderson (25), Shirley J. Cambrel (25), Stephanie A. Daugherty (25), Mark H. Napoli (25), Robert A. Nelson (25), Steven M. Scott (25). **Policy & International Affairs** - Carolyn M. Haylock-White (30).

NNSA - Michael A. Connor (30), James E. Fairbent (30), Winifred B. Lehman (30), Rosann T. Werner (30), Stephen W. Zuck (30), Jamie M. Beitz-Heard (25), Lynn A. Pincumbe (25), Gregory P. Rudy (25). **Radioactive Waste** - Vincent F. Iorii (25). **Science** - Arnold M. Edelman (30), Sue Ellen Walbridge (25). **Security** - Beverly J.N. Foley (30).

Field

Chicago - Alice E. Kloc (30), Debra A. Marcantonio (30), Vincent Martin (30), Richard J. Larsen (25). **Golden** - Matthew A. Barron (25). **Idaho** - Christina M. Pennal (25), Kathleen B. Whitaker (25). **NETL** - James J. Grabulis (30), William F. Lawson, Jr. (30). **Nevada Site/NNSA** - Theresa H. Beall (35). **NNSA Service Center** - Mark R. Clark (30), Brenda L. Carroll (25).

Oak Ridge - Carolyn W. Fuller (35), Bobby W. Price (35), Robert C. Sleeman (30), Ralph M. Skinner, Jr. (25), Pamela S. Thompson (25), Peggy J. Wilson (25). **Pittsburgh**

Naval Reactors/NNSA - Anthony J. Denapoli (25). **Richland** - Anita B. Farrell (30), Lewis F. Miller, Jr. (30), Ronald L. Higgins (25). **Sandia Site/NNSA** - Frank L. White (30).

Savannah River - James M. Gaver (30). **Southeastern Power** - Brenda J. Langston (25), Robert E. Parker (25). **Western Area Power** - Lazaro M. Romero (40), Kenneth W. Furlow (35), Eugene F. Medina (35), James E. Clark (30), Victoria L. Anderson (25), Timothy J. Michaelis (25), James R. Potts (25), Joann M. Wagner (25), Archie D. Wickman (25).

Bonneville Power - Richard B. Spence (35), Michael Buckingham (30), Stephen D. Dunne (30), Victoria Groshong (30), Darrell E. Hansen (30), Patricia G. Lundy (30), Kenneth E. Martin (30), Robert H. Mulligan (30), Cynthia K. Stenberg (30), William D. Beebe (25), Shepard C. Buchanan (25), Karen H. Currier (25), Margaret E. Deacon (25), Debbie I. Denmark (25), Robert L. Dooms, Jr. (25), Lloyd E. Fowler (25), Robert W. Molt (25), Mary H. Owings (25), Allan F. Paschke (25), Frances J. Petersen (25), Angelina Y. Quinata (25), Debra A. Van Acker (25), Jadene L. Young (25).

RETIREMENTS

December 2002

Headquarters

EIA - Jacqueline A. Caples (31 years). **Energy Efficiency & Renewable Energy** - Audrey D. Newman (39). **Envir. Management** - Charles M. Smith (32). **Inspector General** - William R. Gibson (33). **Management, Budget & Evaluation** - James M. Cayce (30). **Security** - William Van Dyke, Jr. (12).

Field

Bonneville Power - Michael G. Ary (25), Jennifer G. Brenden (29), Timothy S. Casey (21), David L. Driver (13), Charles W. Eastwood (31),

John L. Elizalde (33), Gordon R. Erickson (16), Ora L. Griffiths (32), David F. Lundeen (32), Joseph L. Pence (20), Sandra M. Rapozo (27), Barbara A. Schulenberg (20), Milton W. Stokke (32), James H. Strobeck (22), Samuel M. Zeller (29). **NNSA Service Center** - Sheila L. Barnes (15), Judson R. Hightower (33). **Oak Ridge** - Shirley A. Levenhagen (24), Thomas L. Townsend (35). **Southwestern Power** - Raymond Harris (35). **Western Area Power** - Stephen J. Mandt (20).

January 2003

Headquarters

EIA - John C. Geidl (29), James M. Todaro (30), Dolly D. Tolson (28). **Envir., Safety & Health** - John A. Yoder (37). **FERC** - Houshang Emami (26), Randolph E. Mathura (37), Jerie P. O'Connor (27), Robert H. Schroeder (34), Charlton C. Ward (28), Linwood A. Watson (26). **Fossil Energy** - Margie D. Biggerstaff (34), Patrick J. Fleming (32), John C. Pryor III (33). **Independent Oversight & Performance Assurance** - Ronald A. Stolberg (11). **Inspector General** - John E. Endlich (38), Judith D. Gibson (32), Edward Sanchez (31), Sandra L. Schneider (29).

Management, Budget & Evaluation

- James W. Brown, Jr. (32), Nancy H. Canody (30), Thomas W. Knox III (31). **NNSA** - Thomas D. Cousins (26), William J. Danker, Jr. (34), Donald P. Doherty (41), Willie F. Hensley, Jr. (32), Craig M. Johnson (31), James C. Landers (35), William E. Langston (30), David M. Shannon (21), Philip L. Sibert (35). **Nuclear Energy** - Norton Haberman (35). **Radioactive Waste** - John T. Sullivan (27). **Science** - Sarah E. Goldman (36), Allan H. Laufer (38), Manfred Leiser (27), Carolyn A. Magers (42), Francis J. Wobber (28). ❖

(Field January retirements will appear next month.)

DynMcDermott to continue as oil reserve contractor

DynMcDermott Petroleum Operations Company of New Orleans, La., has won the Department of Energy competition to continue operating the nation's Strategic Petroleum Reserve (SPR). The company will receive an estimated \$120 million a year to maintain the readiness of the Reserve's facilities in Louisiana and Texas. The new five-year contract takes effect April 1, 2003, and has provisions for a five-year extension.

"DynMcDermott has done a superb job in every facet of operating the Strategic Petroleum Reserve," Secretary of Energy Spencer Abraham said. "All four of its oil storage sites have been named STAR facilities by the Occupational Safety and Health Administration, a designation that only one in 10,000 eligible sites in the United States has received. Plus, they have been responsible for increasing the SPR to 599 million barrels of oil, its highest level ever."

Secretary Abraham specifically noted DynMcDermott's outstanding worker safety record since becoming the Reserve operating contractor in 1993. By 2002, the company had decreased the number of recordable accidents from 57 in 1994 to seven, the number of lost workdays from 1,721 to 14, and the estimated cost from \$1.1 million to \$95,000.

February 2003

AROUND DOE

Western trains power customers on their turf

The Electric Power Training Center (EPTC) at the Department of Energy's Western Area Power Administration teaches grounding and hazard recognition. The class addresses electrical shock hazards that exist on and in the vicinity of high-voltage transmission lines and substations.

The training center takes the class on the road to Western's utility customers when needed. "Customized on-site training is a service the EPTC offers to help utilities meet their safety and regulatory requirements. When customers have so many employees with the same training needs, it makes economical sense for us to go to the site," said EPTC Manager Dennis Schurman. Recently, more than 60 North Dakota and Wyoming maintenance staff members of Basin Electric received the training.

Laser beams power up in NIF energy test runs

The National Ignition Facility (NIF) at the Department of Energy's Lawrence Livermore National Laboratory reached a major milestone in mid December 2002, when the first four of its 192 laser beams were activated 18 months ahead of schedule. "This important milestone marks the transition of the NIF from a construction project to an integrated light producing facility," said Linton Brooks, Acting Administrator, National Nuclear Security Administration (NNSA).

Scientists and engineers powered up the laser beams in a series of increasing energy test runs. At the end of the test runs, the four laser beams generated a total of more than 43 kilojoules of infrared light in a pulse lasting five-billionths of a second. This corresponds to a power level of over 8,000 gigawatts, about 10 times more power than the entire U.S. electrical generating capacity.

The laser beams will be transported into the NIF target chamber this spring. This will mark the beginning of commissioning of scientific diagnostic instruments for NIF experiments. The experiments will be key to NNSA's mission to maintain and certify the safety, security, and reliability of the nation's nuclear deterrent without underground nuclear testing. ❖

**United States
Department of Energy (PA-40)
Washington, DC 20585**

Official Business