DOE This Month

U.S. DEPARTMENT OF ENERGY

APRIL 2004

Under Secretary Robert Card resigns

U.S., Canada release final power outage report

Office of Science implements reorganization

Student teams show FutureTrucks at DOE Headquarters

DOE This Month

U.S. Department of Energy

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Inside

On our cover

Seven student-designed, energy-efficient sport utility vehicles were showcased at the Department of Energy's (DOE) Forrestal Building in Washington, D.C., March 24, 2004, highlighting the FutureTruck 2004 engineering competition cosponsored by DOE and Ford Motor Company. A total of 15 university teams have reengineered Ford Explorers for the competition, developing hybrid electric vehicles, with two teams adapting an internal combustion engine to run on hydrogen.

Virginia Tech student Henning Lohse Busch (top photograph) and student Katie Orgish, University of Wisconsin-Madison (bottom photograph), were among the students who gave presentations on their schools' vehicles to Secretary of Energy Spencer Abraham. The FutureTruck vehicle designed by Virginia Tech uses a hydrogen-powered engine.

For more on the event and FutureTruck 2004, see page 3. ❖

DOE showcases FutureTruck 2004 teams

On March 24, 2004, the Department of Energy (DOE) and Ford Motor Company showcased seven student-designed, energy-efficient sport utility vehicles at DOE's Forrestal Building in Washington, D.C., as part of the FutureTruck 2004 engineering competition. The student teams reengineered the Ford Explorers to achieve lower emissions and at least 25 percent higher fuel economy, without sacrificing the performance, utility, and safety that consumers want in vehicles.

DOE and Ford jointly sponsor FutureTruck 2004, which challenges 15 teams of university engineering students to build cleaner, more efficient sport utility vehicles. All 15 teams developed hybrid electric vehicles; two teams adapted an internal combustion engine to run on hydrogen for their vehicles.

Schools represented at the showcase event were Ohio State University, Pennsylvania State University, University of Maryland, University of Tennessee, University of Wisconsin-Madison, Virginia Tech, and West Virginia University. Other schools participating in the FutureTruck competition are California Polytechnic State University, San Luis Obispo; Cornell University; Georgia Institute of Technology; Michigan Technological University; Texas Tech University; University of Alberta; University of California-Davis; and University of Idaho.

The FutureTruck vehicle designed by Virginia Tech uses a hydrogen-powered engine.

"Developing the advanced technologies that reduce our country's dependence on imported oil is critical to the future prosperity of our country," Secretary of Energy Spencer Abraham said. "Our outstanding collaboration with Ford has shown what industry and government can do when working together to develop energy-efficient technologies for future vehicles.

"I am especially proud of the skills these students developed in making the energy-efficient SUVs a reality. More than just technology, America needs the engineers trained in bringing that technology into production."

The FutureTruck competition will conclude in June 2004 at Ford's Michigan Proving Ground. The SUVs first will undergo a comprehensive safety evaluation followed by dynamic testing and static design events. The teams and their vehicles will be judged in more than a dozen events that evaluate their acceleration, trailer towing, off-road handling, on-road fuel economy, consumer acceptability, engineering design, and oral technical presentation. Approximately $40,000 and more than a dozen awards will be presented.

DOE's Office of Energy Efficiency and Renewable Energy, Ford Motor Company, and others sponsor FutureTruck. The Center for Transportation Research at DOE's Argonne National Laboratory manages the competition. For more information, visit **http://www.futuretruck.org/**. ❖

Under Secretary Card tenders resignation

Under Secretary of Energy Robert Card submitted his resignation to Secretary of Energy Spencer Abraham April 2, citing personal family reasons. The resignation is effective April 18.

"I have deeply appreciated the opportunity to serve the American public through the President's and Secretary Abraham's outstanding leadership," Under Secretary Card said. "Enormous improvements have been achieved in the Department in management, environmental protection, worker safety, cost savings, energy security, and science.

"Many new initiatives, such as the hydrogen program and zero emissions coal, have been successfully launched which will benefit the Nation for generations to come. Having had the benefit of being closely associated with DOE for many years prior to my service, I could not have imagined these achievements becoming a reality. Our achievements have been made possible by the work of the thousands of dedicated employees of the Department. I am honored to have been part of the exceptional team that delivered these accomplishments.

"I had planned from the beginning to serve the full term, but pressing family issues overtook by plans early this year. I am very grateful to the Secretary and White House for their support since I discussed my thoughts with them several weeks ago."

"Bob's broad knowledge of the energy industry, his executive-level business management experience and long-term understanding of the Department were vital assets for us in the accomplishments that we have achieved," Secretary Abraham said. "We will certainly miss him, but he leaves behind a strong team and management infrastructure that will be able to seamlessly carry on the reforms and initiatives that we have launched."

President Bush announced on April 2 that he intends to designate Assistant Secretary for Energy Efficiency and Renewable Energy David Garman as Acting Under Secretary (see related article, page 4). ❖

U.S.-Canada task force presents final report on August 2003 blackout

U.S. Secretary of Energy Spencer Abraham and the Honorable R. John Efford, Minister of Natural Resources Canada, released the Final Report of the U.S.-Canada Power System Outage Task Force on April 5. The report identifies the causes of the power outage and why the outage was not contained. It also presents comprehensive technical and policy recommendations to prevent or minimize the likelihood of future blackouts and reduce the scope of those that do occur.

"I wish to thank the Task Force, and all those on both sides of the border, who contributed their hard work, skill and dedication," Secretary Abraham said. "Their recommendations provide a roadmap for solving this critical international challenge."

"The Final Report is a thorough examination of the electricity system before and during the blackout," Minister Efford said. "It is very important that these recommendations be implemented. I am looking forward to working with Secretary Abraham, my provincial colleagues, and industry in both Canada and the U.S. as we move to implement changes to reinforce the reliability of the North American electricity system."

The recommendations include:

- Implementing mandatory and enforceable electricity reliability standards in both the United States and Canada, with penalties for noncompliance, backed by appropriate government oversight;
- Strengthening the institutional framework of the North American Electric Reliability Council (NERC) and its initiatives on compliance;
- Developing a funding mechanism approved by regulators for NERC and the regional reliability councils;
- Addressing deficiencies identified in FirstEnergy and some reliability organizations in the United States by June 30, 2004;
- Strengthening the technical recommendations made by NERC Feb. 10, 2004;
- Improving near-term and long-term training and certification requirements for operators, reliability coordinators, and operator support staff; and
- Increasing the physical and cyber security of the network.

The report identifies four groups of causes of the blackout: inadequate system understanding, inadequate situational awareness, inadequate tree trimming, and inadequate reliability coordinator diagnostic support. Seven violations of the voluntary reliability standards administered by NERC also are identified.

"The report makes clear that this blackout could have been prevented and that immediate actions must be taken in both the United States and Canada to ensure that our electric system is more reliable," Secretary Abraham said. "Failure to implement the final report's recommendations could threaten the reliability of the electricity supply that is critical to the economic, energy, and national security of our countries.

"The work of the Task Force has been an outstanding example of close and effective cooperation between the U.S. and Canadian governments. Such work will continue as we strive to help assure better electric service for the people of both our nations."

The Task Force reviewed previous major North American power outages and found that the causes of the Aug. 14, 2003, blackout were strikingly similar to those of earlier outages. As a result, the Task Force mandate has been extended by one year, underscoring the two governments' commitment to ensuring that the recommendations are acted upon.

The final report is comprehensive and covers all work done through the three Working Groups: electric system, security, and nuclear. The Working Groups drew substantially on the work of NERC and input from three public forums, two technical workshops, and electronic submissions to the U.S. Department of Energy and Natural Resources Canada. The report is available at **http://www.energy.gov** and **http://www.nrcan.gc.ca**. ❖

Garman tapped for Acting Under Secretary

On April 2, President Bush announced his intent to designate Assistant Secretary for Energy Efficiency and Renewable Energy David Garman to serve as Acting Under Secretary of Energy. This action follows the resignation of Under Secretary Robert Card (see related article, page 3).

"David Garman brings an outstanding public policy and government service track record to his current position as Assistant Secretary and now in serving as the Acting Under Secretary," Secretary of Energy Spencer Abraham said. "David spent 20 years in the U.S. Senate dealing with a variety of issues related to the Department and his broad understanding of our various programs makes him the logical choice to fill the job pending confirmation of a permanent nominee.

"David will continue to carry out his duties as Assistant Secretary for Energy Efficiency and Renewable Energy while serving as the Acting Under Secretary of the Department."

Assistant Secretary Garman was sworn in to his current position following unanimous approval by the U.S. Senate on May 31, 2001. ❖

Assistant Secretary Cook resigns from office

On April 2, Assistant Secretary for Environment, Safety and Health Beverly Cook submitted her resignation, effective April 16, to be closer to family members in the Southwest. "My family needs me now and this is where I need to be," Assistant Secretary Cook said.

Secretary of Energy Spencer Abraham praised Assistant Secretary Cook's commitment to safety and her pivotal help in making significant improvements at the Department of Energy (DOE). "Bev Cook is a talented and dedicated individual and devoted her civil service career to the Department of Energy. She did a fine job and her exemplary service is a testament to the dedication of career Federal employees who choose to serve their country."

"My job was made rewarding due to the Secretary's commitment that safety was his top priority," Assistant Secretary Cook said. "I am very proud of the safety gains as a result of his support. We have strengthened our safety institutions, processes, and line executive oversight which has resulted in a 50 percent reduction in OSHA injury rates since the beginning of the Administration."

Assistant Secretary Cook was sworn in on Feb. 5, 2002, moving up from her job as Manager of DOE's Idaho Operations Office. While at Idaho, she managed a turnaround of site safety, establishing the Idaho complex as a "VPP Star" site. ❖

Annual small business conference set for July

The Department of Energy (DOE) will host its Fifth Annual National Small Business Conference, July 6-9, 2004, in Philadelphia, Pa. The purpose of the conference is to reach out to small businesses—including small disadvantaged, women-owned, 8(A), HUBZone, and service-disabled veteran-owned businesses—to assist them in contracting with DOE. DOE purchases over $19 billion in goods and services annually and is committed to increasing contracting opportunities awarded to small businesses.

"Small businesses have my personal commitment to increase the level of prime contracts and expand the type of subcontracts awarded to small business by the Department's facility contractors," Secretary of Energy Spencer Abraham said.

Features of this year's conference include plenary sessions with prominent government, corporate, and business leaders; a business exposition that will allow companies to showcase their products and services; and a matchmaking forum that provides an opportunity to schedule one-on-one meetings with procurement representatives from DOE's prime contractors. For more information and to register for the conference, visit **http://www.smallbusiness-outreach.doe.gov**. ❖

New Glass Waste Storage Building to be built at Savannah River Site

The Krog Corporation of Orchard Park, N.Y., has been awarded a small business contract by the Department of Energy (DOE) for the construction of a new Glass Waste Storage Building (GWSB) at the Department's Savannah River Site (SRS). The DOE direct-managed, fixed price contract is valued at about $55 million and covers a contract period from March 29, 2004, through June 30, 2006. This will be the second glass waste storage facility at the site.

"We continue to make significant progress in cleaning up the Cold War legacy sites and we need the infrastructure to support this ongoing priority," Assistant Secretary for Environmental Management Jessie Roberson said. "We are also pleased that we were able to select a highly qualified small business for this project."

The award demonstrates DOE's continued support of the Administration's initiative to increase the number of direct contracts awarded to small businesses. The Krog Corporation is a small engineering and construction firm experienced in challenging construction projects incorporating quality assurance and safety considerations into its performance. Key personnel are experienced in working at SRS on projects such as the Tritium Extraction Facility and the Consolidated Incineration Facility.

Savannah River's Defense Waste Processing Facility (DWPF) vitrifies stored high-level waste and seals it in stainless steel canisters. These canisters are stored in nearby Glass Waste Storage Building #1 for safe, temporary storage until their permanent transfer to a repository. Over 1,500 canisters have been filled since DWPF began radioactive operations in 1996 and the storage building is nearing capacity. A second storage building is required to achieve the Department's accelerated cleanup goals and meet the DWPF canister production rates.

GWSB #2 will be constructed to meet Federal and DOE nuclear safety design requirements, ensuring protection of future facility workers, the public, and the environment. It will consist of four underground vaults with a footprint of about 200 feet by 200 feet, store 2,340 canisters, and, at current DWPF production rates, provide storage capabilities until 2015. At peak construction, the project could generate as many as 150 to 200 new jobs for the local economy. ❖

Secretary helps launch 'Utility Report Card'

Secretary of Energy Spencer Abraham joined forces with the Florida Department of Environmental Protection, Orange County Public Schools, and Walt Disney World Co. on April 5 to launch a new energy-savings initiative that helps schools reduce utility bills and save money. Secretary Abraham unveiled the nation's first on-line "Utility Report Card" during a visit with fifth graders working on energy projects at Citrus Elementary School in Ocoee, Fla.

"The ability to pinpoint energy use in our nation's schools will give school districts the tool to assess where they can save energy, and save money," Secretary Abraham said. "Not only will energy be saved, but the students will have the opportunity to learn more about the cost of energy and smart energy use."

Florida's schools are the first in the nation to demonstrate the web-based "Utility Report Card," which tracks, evaluates, and charts energy consumption. The modified software tool was first implemented by Walt Disney World Resort to track energy consumption throughout the parks and resorts. The Florida Energy Office funded the pilot program for Orange County Public Schools.

"Currently, Orange County Public Schools spends about $55 million a year on energy," School Board Chairman Bert Carrier said. "Ultimately, our goal is to direct our limited resources where they are most needed—in the classrooms."

Secretary Abraham (left) and Kim Murphy, Walt Disney Company, unveil the "Utility Report Card" at Citrus Elementary School.

The information system helps school districts to monitor energy used by individual schools during everyday activities. Teachers and students also can examine on-line data to learn more about smart energy use and efficiency as a complement to the Department of Energy's EnergySmart Schools education program.

The "Utility Report Card" is available at **http://www.utilityreportcards.com**. ❖

Office of Science implements reorganization

Dr. Raymond L. Orbach, Director of the Department of Energy's (DOE) Office of Science (SC), officially launched a new complex-wide SC organizational structure that eliminates a layer of management, redefines roles and responsibilities for Headquarters and field managers, and clarifies lines of authority and accountability. Dr. Orbach announced the reorganization April 5 in a "town meeting" originating from SC offices in Germantown, Md., and broadcast to all 1,000 of the organization's employees at 10 other locations around the country. The restructuring changes mark the completion of the first phase of the OneSC Project, which now will turn to reengineering the office in phase two.

"As stewards of more than $3 billion of the taxpayer's money, we are taking these steps to streamline and integrate our operations because we understand that, in order to produce discoveries vital to the Nation's economy and security, we must employ 'best in class' management practices," Dr. Orbach said. "I am convinced that the Office of Science will be a better organization, a better place to work, and a better investment for the nation as a result of the changes we officially begin implementing today as part of OneSC."

The restructuring will "flatten" the SC organization by removing a layer of management between the Director and the Site Managers at the 10 Office of Science national laboratories. It also will provide a set of integrated roles, responsibilities, authorities, and accountabilities encompassing the Headquarters organization, nine laboratory site offices, and the Oak Ridge and Chicago Offices.

The SC executive leadership team consists of the Director, the Principal Deputy Director, and the Chief Operating Officer. The Principal Deputy Director serves in a dual capacity as the Deputy Director for Programs. Program development and management come from SC program offices located in Headquarters headed by six Associate Directors. Implementation is accomplished by SC field elements, which include the National Laboratory Site Offices and the Oak Ridge and Chicago Offices, all of which report to the SC Chief Operating Officer.

The restructuring includes provision of administrative, business, and technical services to all SC by the Integrated Support Center (ISC) operated in partnership by the Chicago and Oak Ridge Offices. Personnel from the Richland Operations Office who have provided oversight of DOE's Pacific Northwest National Laboratory were transferred to SC from the Assistant Secretary for Environmental Management on Dec. 5, 2003, becoming the Pacific Northwest Site Office.

The new SC organization is effective immediately, although full implementation and all necessary administrative actions will still require several more months. SC will continue to rely on the Internet to keep employees and stakeholders informed about the OneSC Project. The website address is **http://www.screstruct.doe.gov/indexrollout.html**. ❖

New industry partnerships to expand U.S. wind energy potential

The Department of Energy (DOE) will open negotiations for 21 public-private partnerships to greatly expand potential United States wind development through advances in cost-effective low wind speed technology. The value of the cost-shared projects is expected to total $60 million over the next four years.

"The nation's vast wind energy resources can play a much larger role in our energy supply portfolio," Deputy Secretary of Energy Kyle McSlarrow said when he announced the partnerships at the Global WINDPOWER 2004 Conference in Chicago, Ill., on March 29, 2004. "These industry and university partnerships will help develop next generation wind technology and open the door to wind power at many locations around the country that otherwise would not be cost-competitive."

Much of the commercial wind power development has occurred to date at high wind sites, but many of these sites are located in remote areas that do not have ready access to transmission lines. And, easily accessible prime high wind sites are becoming limited.

The Administration's National Energy Plan specifically cited low wind speed technology as an opportunity to significantly expand use of wind energy. The new low wind speed projects will focus on technology improvements for making more widespread low wind speed sites cost competitive with high wind sites.

The new partnerships are being launched under a three phase technology development project aimed at DOE's goal of reducing wind powered electricity generation costs at low speed sites (annual average wind speeds approximately 13 miles per hour measured at a height of 10 meters) to three cents per kilowatt-hour. The comprehensive program includes:

- conceptual design studies to explore new configurations and design approaches;
- component developments for inclusion in next generation designs or existing machines; and
- full system developments incorporating the best of proposed innovations.

The 21 new partnerships were selected under the second phase of this project, and the 18 private-sector partners from 12 states plan to share 50 percent of the project costs. The private-sector partners are AWS Scientific, Albany, N.Y.; Behnke, Erdman, and Whitaker, Livermore, Calif.; Chinook Power Technologies, Wilsonville, Ore.; Clipper Windpower, Carpinteria, Calif.; Concept Marine Associates, Long Beach, Calif.; General Electric Global Research, Niskayuna, N.Y.; Genesis, Horsham, Pa.; Global Energy Concepts, Kirkland, Wash.; HITCO Carbon Composites, Gardena, Calif.; Knight and Carver, National City, Calif.; Massachusetts Institute of Technology, Cambridge; Native American Technologies, Lakewood, Colo.; New Generation Motors; Ashburn, Va.; Northern Power Systems, Waitsfield, Vt.; QinetiQ, Arlington, Va.; Tennessee Valley Infrastructure, Chattanooga; TPI Composites, Inc., Warren, R.I.; and Valmont Industries, Omaha, Neb. ❖

Native American-owned institution selected as DOE 'Trustee' Bank

Fort Gibson State Bank—a Native American-owned financial institution in Fort Gibson, Okla.—has been selected by the Department of Energy (DOE) to manage $6.1 million in deposits for its Bank Deposit Financial Assistance Program. The partnership with the bank will assist DOE in maximizing the amount of working capital that can be deposited with women- and minority-owned financial institutions, thereby increasing lending opportunities for urban and rural small businesses, minority-owned business enterprises, and minority communities.

"I am pleased to welcome Fort Gibson State Bank into the ranks of our program as a new 'Trustee' Bank," Theresa Alvillar-Speake, Director, Office of Economic Impact and Diversity, said. "We will continue to be productive and to seek opportunities to support Native American and Alaskan Natives."

The Department's Bank Deposit Financial Assistance Program began in 1980 with $15 million deposited in 79 commercial banks. Currently, the program is comprised of 104 women- and minority-owned financial institutions with deposits totaling $256.5 million in 28 states, the District of Columbia, and Puerto Rico.

The Bank Deposit Financial Assistance Program is the largest program of its kind in the Federal Government. The program provides participating minority-owned banks the use of deposits to support loans for minority and women-owned businesses in their service areas. Participating banks support an entire economic range of needed business loans and various banking services to stimulate economic development and growth in urban and rural communities.

Fort Gibson State Bank is one of four Native American Trustee Banks that participate in the program. The other institutions are Bank 2, Oklahoma City, Okla.; Bank of Cherokee County, Hulbert, Okla.; and Native American Bank, Browning, Mont. ❖

Underwater divers cleaning old INEEL water-storage basins

Specially trained commercial scuba divers, at left, are cleaning four old spent nuclear fuel basins at the Department of Energy's Idaho National Engineering and Environmental Laboratory (INEEL). S.G. Pinney and Associates, Inc., Florida, is providing experienced divers, cleaning equipment, and materials to complete several important steps in closing the basins. The work, which is being done under the Idaho Completion Project's accelerated cleanup plan, will reduce risk to the Snake River Aquifer beneath INEEL.

One of the biggest challenges in closing the basins is the risk of airborne contamination from the basin walls as the water is removed. The divers will remove debris and sludge from the basin bottoms and then apply a fixative coating under water to the walls to trap contamination from escaping into the air as water is drained. The divers have performed similar work at nuclear facilities around the world. Completion of basin closure work is expected in 2004. ❖

Livermore Lab develops explosives test containment vessel

Scientists and engineers at the Department of Energy's (DOE) Lawrence Livermore National Laboratory (LLNL) have successfully tested a prototype composite containment vessel for explosives experiments, seen at left. The vessel may become vital to the future of the National Nuclear Security Administration's effort to ensure the safety and reliability of the Nation's nuclear stockpile without nuclear testing.

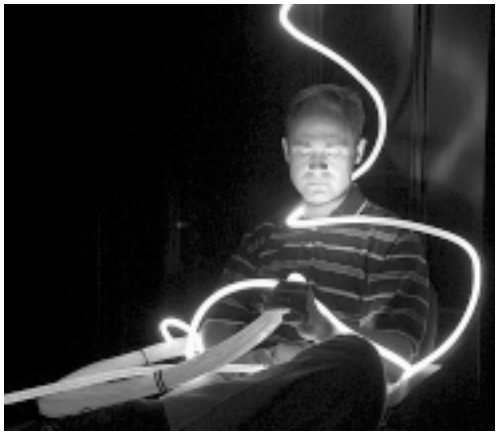
The new-design vessel is built to accommodate the more stringent containment standards that are likely to be in place for all manner of future explosives tests, especially those involving nuclear material. The development of a full-size two-meter vessel has been a joint project with DOE's Los Alamos National Laboratory (LANL), home to the state-of-the-art Dual Axis Radiographic Hydrotest Facility. LANL may house the next generation Advanced Hydrotest Facility—experimental facilities likely to use the newly designed vessel. ❖

Hanford waste drum retrieval steadily increases

The retrieval rate of suspect transuranic waste (TRU) buried in trenches on the Department of Energy's (DOE) Hanford Site in Washington has steadily grown since operations began in October 2003 as workers gain experience and additional resources are mobilized. Workers retrieved 144 drums by the end of December, 435 drums by January's end, 565 drums by the end of February, and 450 drums the first two weeks in March. At left, Fluor Hanford workers safely uncover drums stacked in a trench.

The 55-gallon drums contain contaminated debris, tools, clothing, and other materials. Once workers unearth the drums, each one is visually inspected and storage records are reviewed to determine the waste category. Nondestructive assay is performed for verification of contents if needed. The drums are shipped to Hanford's Central Waste Complex. Drums containing mixed low-level waste are treated for disposal onsite in a lined facility and those with TRU are processed and certified for eventual shipment to DOE's Waste Isolation Pilot Plant in New Mexico. ❖

ORNL pioneering hybrid lighting technology



Hybrid lighting, a technology nearly 10 times more efficient than the most affordable cells now being used, is being developed at the Department of Energy's Oak Ridge National Laboratory. Researcher Jeff Muhs notes that the technology offers additional advantages compared to more traditional approaches of harnessing the sun's light and energy.

"Unlike conventional solar energy approaches that convert sunlight into electricity and pay the price of photovoltaic inefficiency, hybrid lighting uses sunlight directly," Muhs says. "Roof mounted collectors concentrate sunlight into optical fibers that carry the light inside buildings to hybrid light fixtures that also contain electric lamps." As the two light sources work in tandem, control systems keep rooms at a constant lighting level by dimming the electric lights when the sunlight is bright and turning them up as clouds move in or as the sun sets.

At right, Muhs shows how hybrid lighting is transmitted through a long tube. ❖

INEEL ultrasonic probe displayed at Smithsonian

An ultrasonic probe developed at the Department of Energy's Idaho National Engineering and Environmental Laboratory (INEEL) and used during the Three Mile Island (TMI) accident response is on display through April 30 at the Smithsonian Institution's National Museum of American History in Washington, D.C. At right, INEEL engineer Steve Taylor holds a model of the probe and stands behind a Plexiglas model of the interior of the reactor containment vessel after the accident. Both are part of the special TMI display marking the 25th anniversary of the March 28, 1979, accident.

The probe, which operated similar to sonar, helped engineers learn the extent of the TMI core damage so they could plan recovery efforts. INEEL was involved for a decade in the response, recovery, defueling, and shipment of TMI core debris to the laboratory for analysis and interim storage. The core debris is now held in safe, dry storage at INEEL awaiting disposal at a permanent repository outside Idaho. ❖

West Valley completes test run of waste facility

The first fully integrated cold operations run of the Remote-Handled Waste Facility (RHWF) was completed at the Department of Energy's (DOE) West Valley Demonstration Project in New York on March 4, 2004. The facility will be used to remotely size reduce and package large-scale and highly radioactive waste at the DOE site.

Integrated Cold Operations Run One gave operations and management personnel, at right, the opportunity to run equipment using standard operating procedures under nonradiological conditions. The test run allowed personnel to gain experience in a normal configuration, learn the facility's operating sequence, and conduct self-evaluations.

Following the first test run, RHWF was placed in a stand-down outage mode to evaluate lessons learned and address any equipment deficiencies and additional training needs. Three test runs and two Operational Readiness Reviews will take place before the RHWF begins processing radioactive waste this summer. ❖

Kansas City Plant takes a step back in time

After 50 years of being sealed and silent, on Feb. 5, 2004, employees of the Department of Energy's (DOE) Kansas City Plant rolled back the heavy concrete door at one of the Plant's jet engine test cells. The dim, cavernous room still held the machinery used to test the jet engines back when Pratt and Whitney owned the facility; and the scarred walls bear testimony to the results.

The test cell was opened to make way for the construction of an additional fire escape route for current Kansas City Plant employees. Re-exploring the cell presented an opportunity to look back at the historic role the Kansas City Plant played in protecting our nation then—and continues to play today.

Following the attack on Pearl Harbor, Kansas City was selected as the site for a new plant to expand production of the Pratt and Whitney Double Wasp Radian Aircraft Engine. An abandoned racecar speedway was chosen for the plant's location.

Many of Kansas City's leading citizens gave freely of their own hours to help bring the Kansas City Plant facility to completion. Using 20 million wood blocks, many from the old speedway, the facility was finished in only a few months—almost overnight. Harry Truman participated in the groundbreaking on July 4, 1942.

In 1943, engines began rolling off the production line and promptly into battle in Europe and the Pacific. In the crisis of the Battle of the Bulge, it was squadrons of Republic P-47 Thunderbolts, powered with Missouri-built, water-injection equipped R-2800-Cs that provided the aerial support needed to turn the tide.

Kansas City Plant employees enter a historic jet engine test cell for the first time in nearly 50 years.

Until it was closed on V-J Day, the Kansas City Plant shipped approximately 8,000 R-3800 Series D (Double Wasp) engines to the U.S. Navy, with each engine containing 14,000 parts. The Double Wasp powered three of the nation's five key fighter aircraft in the decisive years of World War II—the P-47 for the Army and the Navy's F4U-4 and F6F. Without the Kansas City Plant, the Navy's air program would have been beyond the scope of possibility.

From Pratt and Whitney's Double Wasp Radian Aircraft Engine, to Westinghouse's J-34 jet engine, the site where the Kansas City Plant now stands has continuously served to protect national security. Today, under DOE ownership, the Plant continues that legacy by producing diverse material defense components that help make our nation—and our world—a safer place to live. ❖

COMING Events

May

18-20 Annual Department of Energy (DOE) Pollution Prevention (P2) Televideo Conference for Headquarters and field sites. Sponsored by DOE's Office of Pollution Prevention and Resource Conservation Policy and Guidance (EH-43), Office of Environment, Safety and Health. The conference schedule is May 18 and 20, 10 am to 5 pm EST, and May 19, 10 am to 12 noon. Topics include environmentally preferable purchasing, waste reduction, pollution prevention reporting, and research and development for pollution prevention. Interactive field panel discussions, individual presentations, and question and answer sessions will be featured. For more information, contact Beverly Whitehead, 202-586-6073 or beverly.whitehead@eh.doe.gov.

19-20 Annual Users' Meeting, Center for Functional Nanomaterials (CFN), Upton, N.Y. Sponsored by the Department of Energy's Brookhaven National Laboratory. The CFN, one of DOE's five national Nanoscale Science Research Centers, provides state-of-the-art capabilities for the fabrication and study of nanoscale materials. Participants from universities; research institutions; and commercial, government, and industrial organizations will have the opportunity to provide input and feedback on the CFN science and user programs. Additional information and registration available at **http://www.cfn.bnl.gov/user/meeting/2004/register.asp**. ❖

Research DIGEST

Using a laser guide star adaptive optics system created by researchers at the Department of Energy's **Lawrence Livermore National Laboratory** (LLNL), scientists for the first time have observed that distant large stars formed in flattened accretion disks, just like our own sun. The research appeared in the Feb. 27, 2004, edition of *Science*. Adaptive optics systems enable astronomers to minimize the blurring effects of the Earth's atmosphere, producing images with unprecedented detail and resolution. Adaptive optics uses light from a relatively bright star to measure the atmospheric distortions and to correct for them using a deformable mirror. However, only about one percent of the sky contains stars sufficiently bright to be of use. The laser in a laser guide star adaptive optics system produces an artificial star in the sky to use instead. The only laser guide star systems in the world currently being used regularly for astronomy are at the Lick and W.M. Keck Observatories. Both systems were built at LLNL. (Gordon Yano, 925-423-3117)

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Department of Energy (DOE)-funded researchers at the Institute for Biological Energy Alternatives (IBEA) have sequenced microbes in the Sargasso Sea and discovered at least 1,800 new species and more than 1.2 million new genes. The discoveries include 782 new rhodopsin-like photoreceptor genes. Only a few dozen have been characterized in microorganisms to date. DOE's **Office of Science** has awarded $12 million to IBEA since 2001 for microbial genomics research as part of its Genomics: GTL program. More information on the research is available at **http://www.sorcerer2expedition.org**. Information on DOE's genomics program is available at **http://www.doegenomes.org**.

Researchers at the Department of Energy's **Argonne National Laboratory**, in collaboration with colleagues at the University of Chicago, Washington University, and the Universita di Torino in Italy, have examined stardust from a meteorite and found remnants of now-extinct technetium atoms made in stars long ago. The stardust grains are tiny bits of stars that lived and died before the solar system formed. Each grain is many times smaller than the width of a human hair and carries a chemical record of nuclear reactions in its parent star. "Finding traces of technetium decay product in stardust provides a very precise confirmation of the theories of how atoms are made inside stars," said Argonne scientist and lead researcher Michael Savina. "The fact that we can both predict and measure very tiny effects in the chemistry of these grains gives us a lot of confidence in our models of how stars work." The work was made possible by a specialized instrument at Argonne called CHARISMA that is designed to analyze very tiny samples. (Donna Jones Pelkie, 630-252-5501)

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Scientists at the Department of Energy's **Lawrence Berkeley National Laboratory** (LBNL) have discovered a new way to improve the versatility and sensitivity of magnetic resonance imaging (MRI) and nuclear magnetic resonance (NMR), the technology upon which MRI is based. The latest details of the new technique, known as remote detection, are reported by LBNL Faculty Senior Scientist Alexander Pines and others in the *Journal of Magnetic Resonance*. Remote detection depends on physically separating the two basic steps of NMR, signal encoding and detection, which are normally carried out in the same instrument, in order to customize each step for the best results. Using laser-polarized xenon gas as the medium for "remembering" the encoded information and carrying it to the remote detection site, the researchers have achieved orders-of-magnitude improvement in MRI image resolution, plus manifold increases in NMR sensitivity. (Paul Preuss, 510-486-6249)

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More accurate global climate models are in the forecast because of a memorandum of understanding between the Department of Energy's **Oak Ridge National Laboratory** (ORNL) and the National Center for Atmospheric Research (NCAR). The agreement makes official a long-standing research relationship between ORNL's Center for Computational Science and NCAR. An important task for ORNL and NCAR will be to perform climate change simulations in support of the Intergovernmental Panel on Climate Change Fourth Assessment. (Ron Walli, 865-576-0226).

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Researchers at the Department of Energy's **Lawrence Berkeley National Laboratory** (LBNL) have completed the first successful test to evaluate automated demand response at five large building facilities. Demand-response technology manages electrical use in buildings over the Internet whenever high prices, blackouts, or overloaded electrical demand threaten the power grid. A fictitious electricity price was used to trigger the demand-response event. When an XML signal broadcast over the Internet indicated that the price of electricity hit 30 cents per hour, the buildings automatically began to lower demand by reducing lights, air conditioning, and other activities. When the price reached 75 cents an hour, the buildings automatically took additional preplanned actions to further reduce electrical demand. (Allan Chen, 510-486-4210) ❖

Sandia begins major test capabilities upgrade

New construction is in progress at the Department of Energy's Sandia National Laboratories, a National Nuclear Security Administration facility, on a $110 million, five-year program to revitalize Sandia's large-scale test capabilities. The project, known as Test Capabilities Revitalization, will provide the equipment and associated scientific capabilities to allow Sandia to continue its role in stockpile stewardship, new weapon design, and modeling and simulation science. Sandia's test capabilities also are used in mission work related to energy and infrastructure issues, homeland security, military technologies and applications, and other projects of national interest.

Scott Rowland of Sandia National Laboratories' planning organization studies blueprints for work at the Aerial Cable Test Site.

Work began on the first of two phases in February 2004 with a groundbreaking ceremony for Sandia's new Thermal Test Complex. Construction also has begun at the Aerial Cable Test Site in the Manzanito Mountains.

The Thermal Test Complex is designed to be a multi-laboratory, office, and test facility. With the ability to test full-scale weapons systems indoors, it offers three thermal modes—gas fire, liquid fire, and radiant heat—with systems to accurately control test conditions and analyze the fires.

The complex will feature a seven-story, 60-foot diameter test cell, called the FLAME cell, for fire testing, with water-cooled walls and airflow equipment. A central facility with control room, office space, shop, assembly areas, smaller labs, and test areas will adjoin the FLAME cell. The third part of the complex is the Cross Flow Fire Test Facility, or XTF. The 25-foot-high by 25-foot-wide facility will be 84 feet long and include a low-speed wind tunnel for testing objects with hazardous components, including explosives. An important feature for the Thermal Test Complex is a state-of-the-art air-cleaning system.

Sandia's Aerial Cable Test Site will be revitalized as part of Phase I to improve capabilities for pull-down and gravity drop tests and simulated flights along a cable. The site features two large cables strung across a narrow canyon where objects can be hoisted up to 600 feet in the air and dropped. Pull-down tests are conducted by connecting the test object to a rocket on a rail. The revitalization will include new cable systems, anchors, pulleys, control winches, and a rocket sled catch box. A 4,890-square-foot control building will be located just beyond the canyon where test staff will be able to observe the drop site from six camera stations. ❖

Human chromosome 19 sequence completed

The Department of Energy's (DOE) Joint Genome Institute (JGI) and Stanford University report they have completed the sequencing of human chromosome 19, the most gene-rich of all the human chromosomes. The achievement is described in the April 1 edition of *Nature*.

Chromosome 19, at 55.8 million bases or letters of genetic code, although representing only about two percent of the human genome, features nearly 1,500 genes. They include genes that code for such diseases as insulin-dependent diabetes; myotonic dystrophy; migraines; and familial hypercholesterolemia, which increases the risk of cardiovascular disease.

DOE originally selected chromosome 19 as a sequencing target because of its abiding mission of investigating the link between DNA damage from radiation exposure and human cancer. Embedded in the sequence information are critical regulatory networks of genes tasked with controlling such functions as repairing DNA damage caused by exposure to radiation and to other environmental pollutants. Studies of DNA-repair genes, initiated at DOE national laboratories, are yielding insights into the development of certain cancers, many of which appear to be caused by defects in DNA-repair pathways.

DOE's Lawrence Berkeley, Lawrence Livermore, and Los Alamos National Laboratories established the JGI, located in Walnut Creek, Calif., in 1997. In addition to its human genome sequencing activities, JGI has whole genome sequencing programs devoted to other vertebrates, microbes, and plants. Funding for the JGI is predominantly from the Office of Biological and Environmental Research in DOE's Office of Science. Additional information is available at **http://www.jgi.doe.gov**. ❖

DOE senior officials give students a glimpse of a hydrogen economy

Top Department of Energy officials have been traveling across the country to explain and demonstrate new hydrogen technologies and give middle and high school students a glimpse of the future hydrogen economy. This education effort supports the Administration's FreedomCAR and Hydrogen Fuel Initiative.

"Instead of burning gasoline, the cars of tomorrow will operate on hydrogen, the most abundant element in the universe," William D. Magwood IV, Director, Office of Nuclear Energy, Science and Technology, told students at Timberline High School in Boise, Idaho, on March 18, 2004, and students at Idaho Falls High School on March 19. Magwood explained that the hydrogen fuel cell process can produce electricity to operate cars and other vehicles and devices with no pollution.

"The only byproduct is pure water," he said, explaining that fuel cell technology could someday replace the gasoline-fueled internal combustion engines that power the cars and trucks of today. "No gasoline means no imported oil and no problems with pollution or greenhouse gas emissions from automobiles."

Guy F. Caruso, Administrator, Energy Information Administration, taught a science class and demonstrated a hydrogen-powered model car at Blendon Middle School in Westerville, Ohio, on March 11, 2004. "As adults you will be entering the most technically challenging living and work environment the world has ever known," he told the students. "Math is the gateway and science is the key."

"It's important that we prepare and inspire the next generation of scientists and engineers who will lead the transition to a hydrogen-based economy and build the machines and infrastructure that will make it a reality," Caruso said. "The coming hydrogen economy will offer many different careers and jobs—including the technical, educational, administrative and marketing areas, to name a few."

"There will be many different avenues for you who will be working in the hydrogen economy," Theresa Alvillar-Speake, Director, Office of Economic Impact and Diversity, told science students at Everett Middle School in San Francisco, Calif., Feb. 20, 2004. "We believe the cars of the future will run on hydrogen instead of gasoline. The transition to this new, cleaner form of energy depends on new technologies which will be developed in the coming years by young people who are in school today." Alvillar-Speake said she welcomed the opportunity to teach a bilingual science class that "reflects the richness of cultures that define America today." ❖

In observance of "National Engineers Week," the Department of Energy's Lawrence Livermore National Laboratory (LLNL) hosted "Engineers Day" on Feb. 27, 2004, for local students between the ages of 10 and 14 to promote careers in engineering. Students participated in hands-on demonstrations such as LEGO Mindstorms, Sunspots, and "What's in a Computer," and other activities.

The students also met and talked with engineers from various programs at LLNL. At left Kathy Fritz of LLNL's Engineering Directorate discusses how a remote controlled car operates with some of the more than 600 students who attended "Engineers Day." ❖

People IN ENERGY

Julie A. Riel is the new Director of the Department of Energy's Seattle Regional Office, an organization that deploys Office of Energy Efficiency and Renewable Energy (EERE) projects, technologies, and practices across the region's eight western states and three territories. Riel was Deputy Director of the office for the past 12 years. She previously served as a Contracting Officer, Administrative Officer, and a Project Manager for EERE programs.

Staff engineer **Richard Johanson** of the Department of Energy's Pacific Northwest National Laboratory recently passed an examination administered by the American College of Microbiology to become a certified specialist microbiologist in biological safety, which merits membership in the National Registry of Microbiologists, and a certified biological safety professional, issued by the American Biologist Association. Johanson is one of 105 professionals to be certified in the United States.

Alan A. Foley has been named Associate Laboratory Director for National Security at the Department of Energy's Argonne National Laboratory (ANL). Associated with the U.S. Central Intelligence Agency (CIA) for 26 years, most recently Foley was Director of the CIA's Center for Weapons Intelligence, Nonproliferation and Arms Control. He will head ANL's $40 million research effort in national security programs.

Senior scientist **Ivan Bozovic** of the Materials Science Department at the Department of Energy's Brookhaven National Laboratory is the recipient of the 2004 Technology Achievement Award presented by the International Society for Optical Engineering. He has been recognized for constructing a next-generation molecular beam epitaxy oxide system and for developing a technology to deposit atomically smooth films and multilayers of complex oxides.

Tammy Jernigan, Principal Deputy Associate Director in the Physics and Advanced Technologies Directorate at the Department of Energy's Lawrence Livermore National Laboratory, recently was entered into the Alameda County (California) Women's Hall of fame as the 2004 Outstanding Woman of the Year in the science category. Jernigan, a former astronaut, is a veteran of five Space Shuttle missions. In her last space mission in 1999, the crew completed the first docking to the International Space Station and Jernigan performed an eight-hour space walk to attach equipment to the station.

Roy Lebel has been named Manager of the new Quality Management Office at the Department of Energy's Brookhaven National Laboratory (BNL). The new office was formed as part of an overhaul of the laboratory's support operations to increase efficiency. Most recently, Lebel was Manager of BNL's Quality Programs and Services Office. Previously, he was manager of quality operations for the laboratory's Waste Management Division.

Andrew Post-Zwicker has been appointed Head of the Science Education Program at the Department of Energy's Princeton Plasma Physics Laboratory (PPPL). He will oversee educational programs for teachers and kindergarten through college undergraduate students and the implementation of new educational initiatives at PPPL. Post-Zwicker joined PPPL's Science Education program in 1997 as a Senior Program Leader and became Lead Scientist for the program in 2000.

Mark R. Maddox has been named Acting Assistant Secretary for Fossil Energy, replacing **Carl Michael Smith** who recently resigned from the position to return to the private sector. Since September 2003, Maddox has served as Principal Deputy Assistant Secretary for Fossil Energy. **Vincent DeVito** has been designated Acting Assistant Secretary for Policy and International Affairs, succeeding **Vicky Bailey**, who recently left the Department. DeVito was Principal Deputy Assistant Secretary to Bailey.

Tom Wilbanks and **David Greene**, UT-Battelle corporate fellows at the Department of Energy's Oak Ridge National Laboratory (ORNL), have been designated lifetime national associates of the National Academies of Science in recognition of extraordinary service to the National Academies and advising the nation in matters of science, engineering, and health. Also at ORNL, **C.T. Liu**, senior UT-Battelle corporate fellow and a researcher in the Metals and Ceramics Division, has been elected to the National Academy of Engineering. ❖

Milestones

YEARS OF SERVICE
April 2004
Headquarters

Chief Information Officer – Colleen C. Perry (30 years), Julee B. Karp (25). **EIA** – Paula L. Altman (40), George L. Baker (35), Lamar Gowland (30), David F. Morehouse (30), Robert J. Schmer (30). **Energy Efficiency & Renewable Energy** – Eileen I. Yoshinaka (30), Linda D. Gilstrap (25), Alan C. Schroeder (25). **Environment, Safety & Health** – James P. Daniel (30). **Environmental Management** – Hoyt C. Johnson (30).

FERC – Edward M. Silverstein (35), Ursula L. Epps (30), Wanda B. Freeman (30), James T. Griffin (30), Thomas R. Herlihy (30), Ellen K. Schall (30), Vedula Y. Sarma (25). **Inspector General** – Marjorie C. Ouzts (35). **Intelligence** – Rebecca Y. Watson (30). **Legacy Management** – Cheryl L. Dinkins (25). **NNSA** – Amos H. Burton (30), Bonnie S. Giampietro (30), Clarence P. Marquez (30), Mary A. Pineda (30), Karen D. Summers (30), Beverly J. Berger (25).

Management, Budget & Evaluation – Stephen J. Michelsen (35), Dorothy M. Van Steinburg (35), Martha A. Mitchell (30), Joanne C. Whitman (30), Virginia M. Hawley (25), Robin D. Henderson (25). **Policy & International** – Moustafa M. Soliman (30). **Radioactive Waste** – William J. Arthur III (25), Saralyn Bunch (25). **Science** – John W. Willis (35), Sharon M. Jordan (30), Devaughn R. Nelson (30), Michael P. Osinski (25). **Security** – Audrey L. Dixon (35).

Field
Albany Research Center – James P. Bennett (25), Alton H. Hunt (25). **Bonneville Power** – Thomas J. Wolf (40), Robert J. Broillet (35), Sarah J. Fikes (35), John L. Godfrey (35), Geoffrey B. Moorman (35), Nancy L. Pluid (35), David H. Ross (35), James H. Curtis (30), Thomas K. Hannon (30), Gordon L. Markley (30), Thomas E. Sawyer (30), Alexandra B. Smith (30), Jacqueline M. Sparks (30), Gary L. Van Bemmel (30), Gerard C. Bolden (25), Ellis Daniel, Jr. (25), Mark S. Danley (25), Francis C. Kelly (25), James R. Meyer (25), Michael W. Mucha (25), Judy E. Rothrock (25), Harry N. Speropulos (25), Barbara J. Shafer (25), Louis J. Villalovoz (25).

Chicago – Janet M. Bluis (35), Barbara J. Lewandowski (35), Shirley A. Krenkel (30), Melba E. Acciari (25). **Idaho** – Ladonna R. Foster (25). **Los Alamos Site/NNSA** – Ralph E. Erickson (30). **Nevada Site/NNSA** – Terry L. Wallace (30), Paul J. Niemann (25). **NNSA Service Center** – Iva L. Shelton (35), Gloria J. Medina (30), Jerome R. Gallegos (25), Priscilla C. Norton (25).

Oak Ridge – Jerry M. McKeehan (35), Kenneth W. Wingo (35), Charlene K. Battison (30), Peggy J. Jackson (30). **Pacific Northwest Site** – Charles R. Briggs (25). **Pittsburgh Naval Reactors/NNSA** – Lynn Kocur (30). **Sandia Site/NNSA** – William T. Mullen (35). **Savannah River** – Michael F. McDerment (30), Charles W. Borup (25), Donna W. Germany (25). **Western Area Power** – Alan P. Marshall (30), Susan M. Holden-Baker (25), Ray E. Manspeaker (25).

RETIREMENTS
February 2004
Headquarters

Chief Information Officer – William G. Sylvester (30 years). **EIA** – Linda M. Bromley (30), Webster C. Kilgore (29), Mary E. Northup (28). **FERC** – Richard F. Armstrong (24). **Intelligence** – Ralph M. Hitchens (32). **Management, Budget & Evaluation** – Charles F. Drummond (30), Wayne L. Evelhoch (31), Barbara A. O'Connor (21), Linda R. Strand (26). **NNSA** – Marion J. Stout (27). **Nuclear Energy** – Hilde S. Young (29). **Radioactive Waste** – Robert J. White (14). **Science** – Leona J. Cowan (28), Kathleen R. Cumberledge (38), William H. Kirchhoff (40).

Field
Bonneville Power – Robert E. Comer (18), Joseph P. Sullivan (31), Sharon R. Zenner (33). **Carlsbad** – Jere R. Galle (19). **NNSA Service Center** – Fabienne R. Freeman (22). **Southeastern Power** – Jim B. Lloyd (42).

March 2004
Headquarters

FERC- Dennis L. Vasapoli (21). **Inspector General** – Susan M. Price (23). **Management, Budget & Evaluation** – Doris M. Bishop (22). **NNSA** – Daniel E. Dominguez (31). **Science** – H. Stanley Staten (37).

Field
Bonneville Power – Gregory E. Drais (35), Ronnie E. Gabbard (40), Kathryn S. Kinish (35), Orla R. Kirking-Kahl (30). **Chicago** – Dorothy A. Kerr (45). **NNSA Service Center** – James S. Hirahara (31). **Southwestern Power** – Colin E. Kelley (35). **Western Area Power** – David E. Gaul (34). ❖

NEW Publications

Office of Inspector General (IG) reports: ***The Department's Basic Protective Force Training Program*** (DOE/IG-0641); ***Depleted Uranium Hexafluoride Conversion*** (DOE/IG-0642); ***Design of the Uranium Storage Facility at the Y-12 National Security Complex*** (DOE/IG-0643); ***Management Controls over Subcontract Administration by the Argonne National Laboratory*** (OAS-M-0401) 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**. ❖

April 2004

AROUND DOE

Los Alamos legacy cleanup to accelerate by 20 years

The Department of Energy (DOE) and the New Mexico Environment Department have reached an agreement on accelerated cleanup projects at the Department's Los Alamos National Laboratory (LANL). Environmental legacy cleanup at LANL will be accelerated by 20 years. The agreement covers over 800 cleanup sites and 43 square miles and focuses cleanup on the highest priority areas first. DOE Headquarters has released $43 million for the accelerated cleanup.

"We have made significant progress with our accelerated cleanup programs and we look forward to significant improvements in cleanup operations at Los Alamos," Assistant Secretary for Environmental Management Jessie Roberson said. "We are pleased that a tentative agreement has been reached to continue that progress at Los Alamos."

DOE's Accelerated Cleanup Program, launched in 2002, streamlines cleanup operations by working with states and regulators to clearly target and reduce the greatest health and environmental cleanup risks at the nation's Cold War nuclear weapons production facilities, while assuring compliance with all applicable legal and regulatory requirements. Revised plans to accelerate cleanup, with regulator agreement, have now been put in place at 18 sites.

DOE awards $128.2M in weatherization grants

Thirty states and the Navajo Nation that begin their weatherization year on April 1 have been awarded a total of $128.2 million to improve the energy efficiency of low-income family homes. "These weatherization assistance grants will save energy, lower energy costs and increase the health and comfort of thousands of families," Secretary of Energy Spencer Abraham said.

The Weatherization Assistance Program, a priority of President Bush, is administered by the Department of Energy and delivered through the states and 970 local agencies. Every state, the District of Columbia, the Navajo Nation, and the Inter-Tribal Council of Arizona will receive weatherization grants this fiscal year (FY).

The FY 2004 funding for the program is $227.166 million, which is expected to assist approximately 94,450 homes.

INEEL designing prototype system for Yucca Mountain

The prototype of the system that will close the waste packages of spent nuclear fuel for final disposal in the proposed Yucca Mountain high-level waste repository is being designed, built, and tested at the Department of Energy's Idaho National Engineering and Environmental Laboratory (INEEL). The Waste Package Closure System will be a key element of the facility's operation. The prototype will be constructed and operated at INEEL. A full-scale demonstration is expected in 2006.

"We have a proven history of spent fuel canister welding process development, and this expertise will help the Yucca Mountain Project and the nation's need for safe storage of nuclear waste," said Phil Wheatley, INEEL's Yucca Mountain relationship manager.

In developing the closure system, INEEL engineers faced a number of technical challenges. The waste package is two containers, one inside another, with three lids. The package can be various diameters and heights. Engineers are integrating off-the-shelf equipment as much as possible, but the team had to develop new or modified equipment for some parts of the operation. The task becomes more challenging and complex because the high radiation fields require the entire operation to be done remotely. ❖

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

Official Business