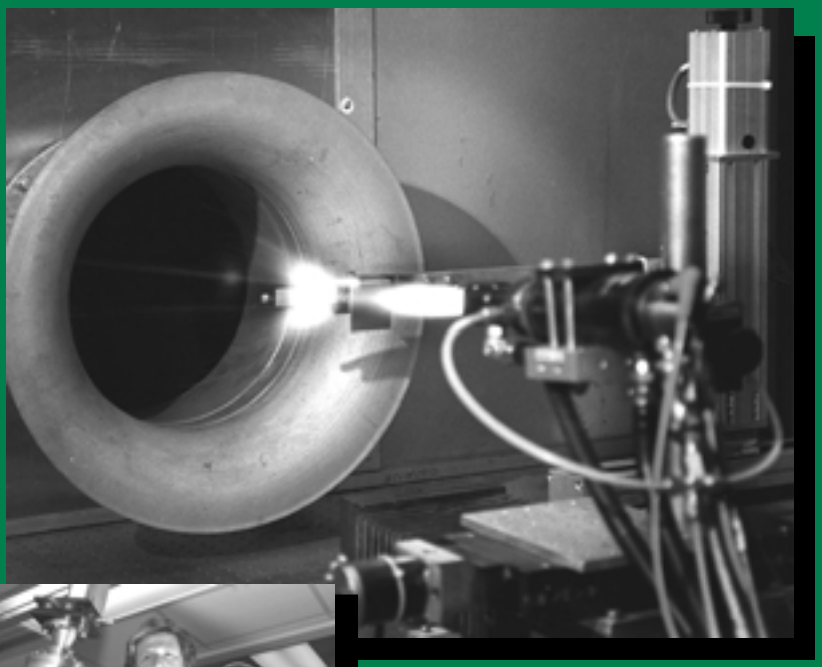
DOE This Month

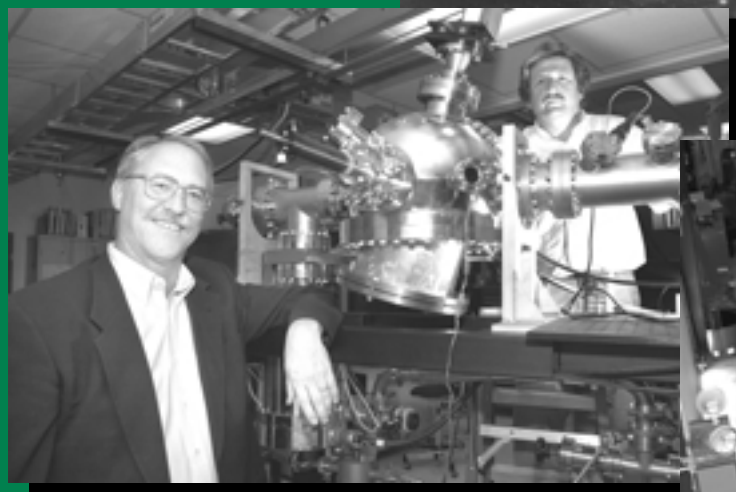
U.S. DEPARTMENT OF ENERGY

NOVEMBER 2001

Secretary outlines Department missions, priorities

Winter fuels outlook encouraging





R&D 100 Awards honor DOE-funded research

DOE This Month

U.S. Department of Energy

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Inside

On our cover

Department of Energy (DOE)-funded research won 26 of the R&D 100 Awards presented this year by *R&D Magazine* for the most outstanding technology developments with commercial potential. Counter-clockwise from the top are three of the winning technologies.

The Super Hard Steel metallic glass coating, developed by Idaho National Engineering and Environmental Laboratory, can be sprayed onto a wide variety of metal surfaces, like the coupon pictured, and is extremely wear-, corrosion-, and impact-resistant.

The Ion Electron Emission Microscope, invented by Sandia National Laboratories researchers Barney Doyle (left) and George Vizkelethy, is the first device that allows scientists and engineers to microscopically study the effects of single ions on semiconductors, integrated circuits, and biological specimens.

Oak Ridge National Laboratory researchers Van Baxter (left) and Rick Murphy display the Drop-In Residential Heat Pump Water Heater they developed. The 50-gallon water heater consumes one-third as much electricity as a conventional electric water heater by using a small heat pump to extract heat from surrounding air.

For more on the R&D 100 Awards, see page 6.

Secretary outlines missions, priorities

At the recent Quarterly Leadership Meeting of senior Department of Energy officials, Secretary of Energy Spencer Abraham set out his views of what he expects from all employees in terms of the Department's missions and priorities. Following are his remarks:

"Most of you have heard me describe a very general vision of the Department of Energy as one in which the Department enjoys a reputation for excellence, such that every other Cabinet member would wish they were the Secretary of Energy and employees of other Departments wished they worked here. This vision is the product of expectations I have for our people, our management, and our missions.

"Perhaps the most important part of achieving excellence is acquiring and retaining the best people and the best managers. Therefore, I have asked Deputy Secretary Frank Blake, Under Secretary John Gordon, and Under Secretary Bob Card to begin implementing the kind of management changes that attract and retain the highest caliber people.

"The flip side, of course, is that I also expect measurable performance objectives and accountability. Where performance does not measure up, I have made clear to my entire leadership team that changes will be made.

"I also have three specific expectations for every manager:

• I expect managers to understand that they are responsible for ensuring the safety of our employees and of those communities surrounding our facilities;

• I expect every manager to understand that they should instill a respect for and the observation of the highest standards of security; and

• I expect every manager to help build a culture where merit determines promotion and hiring, and diversity is viewed as a key to recruiting and retaining the best people.

"As I just mentioned, excellence must be achieved by setting the highest standards of performance. That requires that we set priorities, discipline our focus, and measure everything we do by reference to our missions and priorities.

"I know we are all well aware that the Department is widely viewed as unmanageable and unfocused. There is no question that the history of how this Department was put together does not obviously suggest an overarching mission that applies to each and every program. And the nature of the relationship of Federal management and contractor run sites is an added complexity that all of us deal with every day.

"But I don't accept this characterization and I think it should change. We are one Department; we do have some common, overarching objectives. And I want us to think of ourselves in that way.

"In my view, the starting place is to understand that our overarching mission is national security.

"Quite obviously, the defense side of the building fits well within that mission. But so should our other programs. I think it is time for all of us to understand that our energy and science programs should be judged by whether they advance this nation's energy—and hence, national—security. And I think it is time for us to understand that cleanup of our sites is an imperative to ensure that safety legacies of the Cold War are addressed and resolved, and done so in a manner that does not impede future national security missions.

"Viewing our overarching mission as one of national security means that we should focus on certain priorities. Let me take a moment to walk through what that means program by program.

"For our national defense programs, I have four overriding priorities:

• Ensuring that we can guarantee the safety and reliability of the nuclear stockpile;

• Ensuring that our research, development and production plans for the future are geared to the nuclear strategy of this Administration;

• Producing a plan to address and resolve the threat of weapons of mass destruction; and

• Continuing to provide safe, efficient, effective nuclear power plants for the United States Navy.

"For the energy side of our programs, I have three other priorities:

• Ensuring our energy security by strengthening our ability to identify and protect the critical infrastructure that supports the production and delivery of energy in America;

• Implementing the President's National Energy Plan. We need to focus on programs that help America increase its supply of energy by increased domestic production, that revolutionize how we approach conservation and energy efficiency, and that help us identify a wider array of not only the types of sources of energy but also the geographic sources of energy; and

• Directing our research and development budgets at ideas and innovations that are relatively immature in their development, and ensuring the greater application of mature technologies.

"For our environmental programs, I have two priorities:

• Completing the top to bottom review of the entire environmental management program by the end of this year and producing a plan to accelerate the cleanup and closure of all sites where there is no longer a national security mission; and

• Completing the process of determining the suitability of the Yucca Mountain site for permanent storage of this nation's spent nuclear fuel.

"Now, let me turn to the science programs and, in particular, the national laboratories. We all know the high caliber of programs and people who are involved with our science programs. The national laboratories are rightly viewed as a national treasure.

"But the national laboratories and our science programs are not a treasure to be raided regardless of mission, scope, or budget. They are too important to be squandered.

"So, from now on, I will expect us to implement a major change in how we do business. That change means that our science programs and national laboratories work should directly relate to and support the missions I have outlined above. Programs and projects that fall outside those missions will not receive my support for funding without a clarity of mission and compelling circumstances. And it is important to note, for example, that programs like the Human Genome Project, or the President's National Climate Change Technology Initiative, support our mission—whether using what we've learned in genetic sequencing to protect against bio-terrorism, or unleashing our technological genius to ensure a future where our energy security is

(continued on page 4)

Missions, priorities

(continued from page 3)

enhanced, not eroded, by our efforts to understand and address climate change.

"I would add to this list two priorities that deserve special mention.

"The first involves the unique technological contribution we can make to our energy and national security by finding new sources of energy. Whether it is fusion or a hydrogen economy, or ideas that we have not yet explored, I believe we need to leapfrog the status quo and prepare for a future that, under any scenario, requires a revolution in how we find, produce and deliver energy.

"It is not simply because many of our resources are depletable. It is not simply because we are increasingly dependent on energy from areas of the world that are periodically unstable. It is not simply because questions surrounding climate change force us to confront policies that focus on a carbon-free society.

"All of these are factors. But the important point is that success in this mission could well be one of the greatest contributions to our energy and national security for generations to come.

"I intend, therefore, that this Department take a leadership role in exploring how we can identify and use potentially abundant new sources of energy with dramatic environmental benefits.

"The second additional mission is one that obviously flows from the tragic events of September 11. We already do an enormous amount of work on nonproliferation issues. But it is also true that we have a lot to offer our country by training our best minds on the problems presented by homeland defense, and, in particular, the threats posed by terrorism. There are a lot of challenges in front of us. But one priority that requires our focus is the threat of weapons of mass destruction posed either by small groups of terrorists or by nation states.

"It falls to us, therefore, to focus on these two enhanced missions in a way that will likely have far reaching consequences for our budget, our programs, and our organization.

"I have asked Deputy Secretary Blake, working with General Gordon and Under Secretary Bob Card, and all of the directors of the national laboratories, to conduct a strategic missions review with a report to me by the end of next January that addresses two large issues.

"First, identify those programs and projects that do not fall within the missions I have set forth above. I recognize that the Department has an important science mission. But this is the time to sharpen our focus and ensure that our nation's highest priorities are being addressed.

"The second objective of the strategic missions review is to identify what changes are necessary to increase our ability to use every resource at our disposal to support the following missions:

- Identifying new sources of energy for the future;
- Protecting our critical energy infrastructure;
- Implementing the President's energy plan;
- Implementing the President's climate change initiative;
- Ensuring the reliability of our stockpile;
- Addressing proliferation of nuclear weapons and technology;
- Enhancing homeland defense against new terrorist threats; and
- Implementing environmental cleanup faster and cheaper.

"I am convinced that we are more than capable of achieving these objectives, and I am certain that we must address these priorities. This Department, as the Department of Energy, or as a forerunner organization, has for 50 years ensured our national security. This should still be our principal focus. It is the key to ensuring that we have a motivated work force. It is the greatest contribution we can make to our country. I look forward to working with you to make this vision a reality." ❖

Sandia adhesive bonds, detaches with ease

A research team at the Department of Energy's Sandia National Laboratories has developed a removable epoxy adhesive that bonds and detaches with temperature change. The epoxy has the capability to melt—become liquid—and lose its bonding capability at high temperatures and then rebond when the temperature is lowered.

Conventional adhesives become soft at high temperatures, but do not melt and do not lose their ability to bond. To detach two objects, they must be pried apart, which can cause damage.

"Our approach to a removable adhesive relies on the use of a reversible chemistry that breaks apart the adhesive at elevated temperatures, resulting in low adhesive molecular weight and low bond strength," said Sandia scientist and team leader Jim Aubert.

The bond in the Sandia adhesive breaks at 90 to 130 degrees C (roughly 190 to 260 degrees F) depending on the formulation. Minimal force is then required to separate the pieces at this heated state. The adhesive will rebond between room temperature (about 20 to 25 degrees C) and 60 degrees C. Aubert notes, however, that this rebond capability is finite. The adhesive will retain the ability to bond and unbond a number of times but will at some point become nonremovable.

Sandia National Laboratories technologist Patti Sawyer holds a sheet of the unheated epoxy adhesive. In the unheated state, it looks and feels like a rubber band.

The unheated adhesive looks and feels like a large rubber band, having an elastic quality. It can be prepared in any size and thickness. The removable adhesive has been successfully applied to numerous metals and to some foams and polymers.

The relatively low debonding temperature makes for versatile component assembly, easier and cheaper component repair, easy upgrading, and simplified dismantlement and recycling. It allows for upgrading as new technology becomes available or rebuilding components if any defects are discovered after deployment or during the original manufacturing. ❖

Department employees, organizations receive awards for energy efficiency efforts

A highlight of the Department of Energy's (DOE) annual observance of Energy Awareness Month in October is the presentation of the DOE Energy Management Awards and the Federal Energy and Water Management Awards. The awards are sponsored by the Department's Federal Energy Management Program in the Office of Energy Efficiency and Renewable Energy.

David Garman, Assistant Secretary for Energy Efficiency and Renewable Energy, presented the DOE Energy Management Awards Oct. 16, 2001, in a ceremony at DOE Headquarters Forrestal Building. Two organizations, six small groups, one individual, and two "energy champions" were honored for implementing significant energy efficiency and water management improvements at DOE sites around the country in fiscal year 2000.

The 2001 DOE Energy Management Award recipients are:

- **Organizations:** Utility Incentive Program, Fermi National Accelerator Laboratory (Fermilab); Energy Conservation Campaign, Pacific Northwest National Laboratory.
- **Outstanding Individual Effort:** Steve Greenberg, Lawrence Berkeley National Laboratory (LBNL).
- **Small Groups:** CHL Liquid Nitrogen Recovery Retrofit Team, Fermilab; Sitewide Water Efficiency Retrofits in Restrooms Team, LBNL; Building 482 Lighting Retrofit Team, Lawrence Livermore National Laboratory (LLNL); Emergency Electric Load Curtailment Plan Team, LLNL; Chilled Water Thermal Energy Storage System Team, Sandia National Laboratories; ESPC Task One Team, Savannah River Site.
- **Energy Champions:** Michael Shincovich, DOE Headquarters; Idaho National Engineering and Environmental Laboratory.

On Oct. 17, 2001, the Department honored 43 groups and individuals from Federal agencies whose efforts during fiscal year 2000 saved the Federal Government more than $33 million in energy costs. Winners of the 2001 Federal Energy and Water Management Awards represent the Departments of Energy, Health and Human Services, Interior, State, and Transportation; the Environmental Protection Agency; the United States Air Force, Army, Marine Corps, and Navy; the General Services Administration; and the United States Postal Service. Deputy Secretary of Energy Francis Blake and Assistant Secretary Garman presided over the awards ceremony in Washington, D.C.

The DOE winners of the 2001 Federal Energy and Water Management Awards are:

- **Renewable Energy Award, Organizations:** Metcalfe Solar Working Group, Department of Energy, Environmental Protection Agency, and General Services Administration.
- **Energy Efficiency/Energy Management Award, Organizations:** Pacific Northwest National Laboratory.
- **Energy Efficiency/Energy Management Award, Small Groups:** Mt. Zion National Park Visitor Center Design Team, National Renewable Energy Laboratory, and the National Park Service
- **Effective Program Implementation/Management Award, Organizations:** You Have the Power Campaign, interagency effort launched by DOE's Federal Energy Management Program.

Additional information on the 2001 DOE Energy Management Award is available at **http://www.eren.doe.gov/femp/aboutfemp/dept_awards.html**. A complete list of the 2001 Federal Energy and Water Management Award winners is available at **http://www.eren.doe.gov/femp/newsevents.html**. ❖

Fuels outlook encouraging for winter

Fuel costs for the upcoming winter are expected to decline across the board for residential use, lowering heating costs by an average of more than 19 percent. Assuming normal weather patterns, expenses for winter heating bills for residential consumers are expected to be from $170 to $320 lower than last year. The forecast was announced by the Department of Energy's Energy Information Administration (EIA) in its October *Short-Term Energy Outlook* and "Winter Fuels Outlook: 2001/2002."

"This is very good news for consumers," said Secretary of Energy Spencer Abraham. "There is always a measure of uncertainty in the winter oil prices, even more so in the aftermath of the terrorist attacks on September 11, but EIA's analysis gives every indication that home energy prices will be lower this winter, which is good for consumers and for our economy as well."

The main reasons for the lower forecast are:

- demand for space heating fuels is expected to be lower than last winter;
- inventories of key heating fuels—especially natural gas—are above normal levels for this time of year; and
- crude oil and natural gas prices are at lower levels than they were last year.

The *Short-Term Energy Outlook*, available on the Internet at **http://www.eia.doe.gov/steo/**, is published monthly to meet the public's demand for timely energy data and forecasts. The "Winter Fuels Outlook: 2001/2002" is an in-depth look at winter fuel markets based on projections in the "Short-Term Outlook." It is available on the Internet at the above address by selecting "Winter Fuels Outlook" from the menu. ❖

Kansas City Plant engineers Steve Cave (left) and Chris Baumgart examine concrete samples using the R&D 100 Award-winning automated electronic imaging process they co-developed. The process scans concrete and calculates 16 microscopical properties with precision to one-half micron.

Department-funded research wins 26 R&D 100 Awards

Department of Energy (DOE)-funded researchers have won 26 of the 100 awards presented annually by *R&D Magazine* for the most outstanding technology developments with commercial potential. The awards were presented at a ceremony at the Chicago Museum of Science and Industry on Oct. 4, 2001.

"I'm proud of the award-winning work done at DOE national laboratories and facilities," said Secretary of Energy Spencer Abraham. "These accomplishments clearly demonstrate the value of government-funded research to our nation."

Descriptions and information on the DOE winners are available from the public affairs offices or the Internet home pages of the winning laboratories or facilities. Information on all 100 winning technologies is available at **http://www.rdmag.com**.

The winning DOE-funded technologies are listed below.

Ames Laboratory
- Multiplexed capillary electrophoresis, an advanced chemical separation process.

Argonne National Laboratory
- A catalyst and processor that converts conventional fuels into hydrogen for fuel cells.

Brookhaven National Laboratory
- A process to recover commercial-quality silica from geothermal brine. *Joint winner: Caithness Operating Company.*

Idaho National Engineering and Environmental Laboratory
- Super Hard Steel, a tough metallic glass spray coating with extreme wear and abrasion resistance.

Kansas City Plant
- An automated electronic imaging process to scan and analyze concrete. *Joint winners: Honeywell FM&T; Missouri Department of Transportation.*

Lawrence Berkeley National Laboratory
- Gas Filled Panels, a thermal insulation technology using thin polymer films and low-conductivity gas.

Lawrence Livermore National Laboratory
- A continuous melting process to produce high-optical-quality laser glass.
- Lasershot Peening, a system to permanently mark critical metal parts without stress. *Joint winner: Metal Improvement Co. Inc.*
- Gene Recovery Microdissection, a mapping tool for discovering plant or animal genes.

Los Alamos National Laboratory
- SCORR, a computer chip processing method using supercritical carbon dioxide to remove photoresist.
- Solid-state optical limiters that protect the human eye from intense light beams. *Joint winners: U.S. Army; Gel-Tech Inc.; Center for Research and Education in Optics and Lasers.*
- Free-Space Quantum Cryptography, a communication system using tiny bits of light to send "quantum keys" through the air over long distances.

National Renewable Energy Laboratory
- An algorithm that provides a simple approach for charging and extending lead-acid batteries. *Joint winners: Recombination Technologies; Optima Batteries.*
- DRWiN, an affordable commercial electronic scanning antenna. *Joint winners: Paratek Microwave Inc.; St. Petersburg (Russia) State Electrotechnical University.*
- The super-efficient triple-junction (TJ) solar cell. *Joint winner: Spectrolab, Inc.*

Oak Ridge National Laboratory
- PROSPECT, a computer toolkit to predict 3-D structures of proteins from their amino acid sequences.
- A residential heat pump water heater that uses one-third as much electricity. *Joint winners: ECR International; Arthur D. Little.*

Pacific Northwest National Laboratory
- A plasma-catalysis technology that reduces NO_x from vehicle exhaust. *Joint winners: Ford Motor Co.; Delphi Automotive Systems.*
- DSOM™, an online diagnostic system that monitors the overall conditions and efficiencies of facilities.
- A long-range, semi-passive radio frequency identification system.
- A viscosity measurement technology for monitoring hot molten materials. *Joint winners: Massachusetts Institute of Technology; Savannah River Technology Center.*

Sandia National Laboratories
- Ion Electron Emission Microscope for studying the effects of single ions on semiconductors, integrated circuits, and biological specimens. *Joint winner: Staib Instruments Inc.*
- Polymer hydrogen getters that permanently and irreversibly remove unwanted hydrogen.
- Solid state radiation detectors using cadmium zinc telluride. *Joint winners: Yinnel-Tech Inc.; Techion–Israel Institute of Technology; Fisk University.*

Other DOE-funded winners:

Micropyretics Heaters International
- Energy-efficient MOLYCAST Furnace for melting aluminum.

University of Tennessee, Knoxville
- Performance Application Programming Interface software. ❖

Partnership to upgrade Path 15 bottleneck

A consortium of seven public and private organizations have reached a $300 million deal to upgrade the Path 15 electricity transmission lines in California and alleviate the state's major electric transmission bottleneck. Plans call for a 45-45-10 ownership split between the parties, with the Department of Energy's Western Area Power Administration (WAPA) retaining 10 percent in recognition of its role as project manager.

Key participants in the project are Pacific Gas and Electric (PG&E) and the Transmission Agency of Northern California. Other consortium members are Trans-Elect Inc., Kinder Morgan Power Co., PG&E National Energy Group, Williams Energy Marketing and Trading Co., and WAPA.

"Path 15 has plagued Californians for over a decade," said Secretary of Energy Spencer Abraham. "I am extremely pleased that we are taking a major step toward a solution that will relieve the pressure on this choke point in the transmission grid."

Path 15 is an 84-mile stretch of electrical transmission lines in the Central Valley connecting Southern California with the northern part of the state. Capacity in this area is not enough to meet fluctuating consumer demands and carry the necessary electricity load, especially during the winter. A recent assessment by the California Independent System Operator reports that potential overloads could occur again this winter. Building a third transmission line and other upgrades will allow for about an additional 1,500 megawatts of electricity to be transmitted across the state, approximately enough to power 1.5 million households.

WAPA's role as project manager for the upgrade includes completing its environmental studies and working with the other partners to complete the project. Construction is planned to begin in spring 2003. The new 500-kV transmission line is expected to come on line as early as summer 2004. ❖

Spinach protein could help restore eyesight

Researchers at the Department of Energy's Oak Ridge National Laboratory (ORNL) and the University of Southern California hope to learn whether a protein from spinach could replace a non-functioning light receptor in the eye.

People who suffer from age-related macular degeneration or retinitis pigmentosa, diseases that are leading causes of blindness, may benefit from this research. "Although the neural wiring from the eye to brain is intact in people with these diseases, their eyes lack photoreceptor activity," said Eli Greenbaum of ORNL's Chemical Technology Division.

Greenbaum and his colleagues propose replacing these non-functioning photoreceptors with a spinach protein that gives off a small electrical voltage after capturing the energy of incoming photons. The main function of Photosystem I, a photosynthetic reaction center protein, is to perform photosynthesis in leaves using the energy of the sun to make plant tissue.

Greenbaum's collaborator is Mark Humayun, a professor in the University of Southern California's Doheny Eye Institute. Humayun and his research team showed that if retinal tissue is stimulated electrically using pinhead-sized electrodes implanted in the eyes of legally blind patients, many can see image patterns that mimic the effects of stimulation by light.

Greenbaum believes that it might be possible to use Photosystem I protein to restore photoreceptor activity. Experiments by Greenbaum's team showed that Photosystem I protein can capture photon energy and generate electric voltages of up to one volt. "What we need to find out is whether these voltages can trigger neural events and allow the brain to interpret the images," Greenbaum said.

In recent research, Greenbaum's team showed that Photosystem I protein could be incorporated into the membrane of an artificial liposome, a tiny spherical particle formed by a fatty (lipid) membrane enclosing a watery compartment. The artificial membrane mimics that of a living cell. The team also showed that the protein can work inside a liposome, which means it produces the experimental equivalent of a voltage when it comes into contact with light. A liposome will likely be used to deliver Photosystem I protein to a retinal cell.

Greenbaum has long envisioned that his group's research in photosynthesis could have an impact on people in terms of energy production and biomolecular electronics. He is especially excited now that it could also restore vision to some legally blind people. ❖

Oak Ridge National Laboratory researcher Eli Greenbaum is studying a protein from spinach that might help improve the eyesight of people now legally blind.

Laboratory communicators tour Los Alamos burn areas

The Department of Energy's (DOE) Los Alamos National Laboratory (LANL) hosted a three-day meeting of the Department's Laboratory Communications Council in October. The council is comprised of public affairs and communications practitioners from across the DOE complex. The meeting included discussion on numerous communications issues and tours of LANL programs and facilities.

In the photo, LANL ecologist Teralene Foxx (right) talks with a group of the communicators in an area off NM 501 that was burned during last year's Cerro Grande Fire. Foxx discussed the recovery process underway in some areas scarred by the fire. Listening to the briefing are (l-r) Ron Kolb, Lawrence Berkeley National Laboratory; Bob Kinkead, Brookhaven National Laboratory; Bob Noun, National Renewable Energy Laboratory; and Rich Borchelt, DOE Office of Science. ❖

Savannah River turns recycled paper into energy

The Process Engineered Fuel (PEF) Facility at the Department of Energy's Savannah River Site employs an innovative, cost-effective means of turning recycled paper into energy. A shredder and a cubing machine converts paper products and cardboard into cubes to be used as fuel in the Site's stoker boilers.

At the facility, the Site's recyclable paper products are pushed into a hopper which drops the paper onto a conveyor that delivers it to the shredder. The paper is shredded into pieces no larger than 1 1/4 inches. The shredded material is processed through a machine that extrudes it into cubes. The dense paper cubes are combined with coal to feed the boilers at the A-Area steam plant, which provides steam for several areas at the Site. At left, Pat Livengood, SRS Site Utilities Department, displays the recycled paper "fuel pellets."

The facility currently is operating to provide air emission data to state regulatory agencies before receiving a full operating permit. ❖

A tough job successfully completed at Mound Site

Using innovative solutions, the Department of Energy (DOE) and its contractor, BWXT of Ohio, Inc., have safely and successfully dismantled a number of contaminated glove boxes ahead of schedule and below the projected budget. The glove boxes, known as A-Line, were located in Building 38 at the Mound facility in Miamisburg, Ohio. The dismantled equipment will be enclosed in large steel drums and shipped to the DOE Savannah River Site in Aiken, S.C.

The Mound facility was constructed in 1946 by the Federal Government to develop, manufacture, and evaluate explosive components for the Nation's nuclear defense stockpile. The Department is cleaning up the Mound property and transferring it in discrete parcels to the Miamisburg Mound Community Improvement Corporation for reuse as an industry and technology park.

Workforce involvement and the application of new technologies and methods, like the fogging process at left, have produced positive results in the cleanup of the Mound facility. ❖

Secretary encourages 'friendship through education'

On Oct. 26, 2001, Secretary of Energy Spencer Abraham visited students at Patrick Henry School in Arlington, Va., to encourage them to e-mail children in Islamic countries to build mutual understanding and friendship. The visit supported the "Friendship Through Education" initiative announced by President George W. Bush on Oct. 25.

"When we fight a war against terror, we want the boys and girls in other countries to know we don't fight a war against them," Secretary Abraham told the students. "Every letter and e-mail you write to a boy or girl in the Muslim world helps our cause, the cause of America."

The Friendship Through Education initiative provides opportunities for American students to establish e-mail pen pals with students in Bahrain, Egypt, Indonesia, Pakistan, Qatar, Turkey, and Afghanistan refugee camps and to exchange essays about their values and "laws of life." The Patrick Henry School is reaching out to the Al-Raja Elementary School in Manama, Bahrain. Additional information on the initiative is available at **http://www.friendshipthrougheducation.org**. ❖

Idaho Lab has a 'positron' influence on materials

Scientists at the Department of Energy's Idaho National Engineering and Environmental Laboratory (INEEL) have developed a new process that can predict failure and determine the remaining useful life of materials. The technology has the potential of saving money and extending the uninterrupted operation for critical components such as those used in airplanes, bridges, and utilities.

The process involves using positrons to detect and measure subatomic structural defects. Using a portable linear accelerator, a beam of energetic photons is directed at material. Short-lived radiation is produced in the material and positrons—electrons with a positive charge—are emitted. The positrons are attracted to nano-sized defects and, as they decay, release unique gamma rays. The energy spectrum of the gamma rays creates a distinct and readable signature of the size, quantity, and type of defect. Researchers are investigating another process that avoids producing short-lived radiation.

At right, INEEL inventor Doug Akers explains the positron technology during a demonstration for eastern Idaho media. ❖

Livermore opens facility for contained explosions

With the symbolic unsealing and opening of the 22-ton mechanized door, over 200 dignitaries, employees, and community guests witnessed the dedication of the new Contained Firing Facility (CFF) at the Department of Energy's Lawrence Livermore National Laboratory (LLNL). The facility, with its 2,880 cubic meter firing chamber, allows LLNL scientists to conduct indoor high-explosives tests with multiple advanced diagnostics, while containing all waste material from the explosion.

The CFF is attached to the previously existing powerful Flash X-ray and contains 3,100 cubic meters of concrete and 2,000 metric tons of reinforcing steel. The walls of the firing chamber are 5.5 feet thick; the roof is 6.5 feet thick; and the inside surfaces are protected by 50-millimeter-thick steel plates.

At right, General John Gordon, Under Secretary for Nuclear Security and Administrator, National Nuclear Security Administration, shakes an LLNL employee's hand outside the door of the facility. ❖

New research database available on the Web for DOE community

The "DOE Energy Citations Database, 1948 - Present" (DOE ECD) is a new resource available to Department of Energy (DOE) and contractor employees. It provides easier, faster, and improved access to bibliographic records of the Department's scientific and technical information and links to electronic full text when available.

DOE ECD, available on the Internet at **http://www.osti.gov/doeecd**, was developed and designed by the Department's Office of Scientific and Technical Information (OSTI) especially for the DOE community. The database, an expanded version of the publicly available "Energy Citations," **http://www.osti.gov/energycitations**, contains international records not available to the public due to international agreement restrictions.

DOE users will have access to over four million historical records, from the days of the Manhattan Project and the beginning of the Atomic Energy Commission (AEC) to the present day. The database is available without charge to users.

Information in DOE ECD is provided by the Department and its predecessor agencies, AEC and the Energy Research and Development Administration; the contractors of those agencies; other government agencies; and professional societies. Material also is furnished through international exchanges with the International Energy Agency's (IEA) multilateral information program, the Energy Technology Data Exchange, the International Atomic Energy Agency's International Nuclear Information System; and IEA Coal Research - The Clean Coal Centre. Publicly released records from "Nuclear Science Abstracts," "Energy Research Abstracts," and the "Energy Science and Technology Database" are incorporated into the new database.

Today, the Department is the third largest government sponsor of basic research in the United States. Regular updates to the database will provide continued growth and ensure that results of recent research and development are made available.

For more information or to provide comments, contact OSTI Director Walter L. Warnick at 301-903-7996 or ecd@osti.gov. ❖

Reconfigured protected area consolidates, safeguards Rocky Flats nuclear material

Reconfiguration of the Protected Area at the Department of Energy's Rocky Flats Environmental Technology Site is a significant milestone in the cleanup project. Consolidation of the most highly protected nuclear materials from seven buildings to a single building allows safeguards and security measures to be focused in an area 80 percent smaller than was previously necessary. It also provides significant cost savings and releases the other former production buildings for decontamination and decommissioning (D&D) in preparation for their ultimate demolition.

"Shrinking the Protected Area demonstrates the tremendous progress that has been made in our efforts to safely clean up and close Rocky Flats by 2006," said Barbara Mazurowski, Manager, Rocky Flats Field Office. "This achievement is a tribute to all the men and women of Rocky Flats who took on the challenge to get the job done safely."

Alan Parker, Kaiser-Hill President, agreed. "Opening the former Protected Area is one of the most visible signs to date that Rocky Flats is headed toward closure."

Although heightened security measures remain in place, D&D workers no longer are subject to an intensive and expensive security screening process each time they enter or depart the area in which the former production buildings are located. Only the reconfigured area now has a high-security perimeter fence and alarm system, along with special personnel screening procedures.

Reconfiguring the Protected Area, with improved worker and vehicle access, was essential to meeting the accelerated year 2006 site closure schedule. Money saved can now go directly to cleanup projects, and reduced worker delays mean increased productivity. The first estimates of cost savings range from $500,000 to $1,000,000 per month. ❖

Rocky Flats workers remove razor wire from the perimeter of the former Protected Area.

Nuclear safety discussed in Japan, Vietnam

Dr. James Turner, Assistant Deputy Administrator for International Nuclear Safety and Cooperation in the Department of Energy's (DOE) National Nuclear Security Administration (NNSA), recently visited Japan and Vietnam to discuss cooperative efforts in nuclear safety. The visit was in his capacity as Chairman of the International Atomic Energy Agency's (IAEA) extra budgetary program (EBP) on safety of nuclear installations in Southeast Asia, Pacific and Far East countries.

DOE Energy Attaché Giulia Bisconti (left) and Nonproliferation Graduate Program Intern Jane Nakano exchanged greetings with Secretary of State Colin Powell during his visit to the U.S. Embassy Tokyo.

Turner's goal was to build on existing cooperation between the United States and Japan. Discussions focused on the progress and achievements of IAEA's extra budgetary program and how to enhance the capabilities of regulatory and supporting technical bodies in Southeast Asia. Japanese representatives expressed hope that, in the future, other IAEA EBP donor countries might dedicate increased time and resources to Asia safety initiatives.

Secretary of State Colin Powell also was in Japan at the same time of Turner's visit. Secretary Powell gave a presentation at the U.S. Embassy Tokyo and circulated among and greeted Embassy staff, including employees of DOE's permanent office at the Embassy.

Turner's visit to Vietnam was the first by a senior Department official since the reopening of U.S. diplomatic relations with the country. Vietnam currently operates a small research reactor—primarily for isotope production for medical use—but is exploring the development of nuclear power to meet a rapidly growing electricity demand. The importance of a strong safety infrastructure to support development was stressed and Vietnamese officials were encouraged to take full advantage of the IAEA information data base and training designed to ensure safety improvements.

Developing economies increasingly are looking to nuclear power as a viable alternative to existing sources of energy. The IAEA extra budgetary program clearly has had a positive impact on many countries' nuclear research programs, and NNSA hopes that IAEA continues to support Asian countries in improving the safety of nuclear research reactors by establishing a strong safety culture. ❖

Hanford waste tanks off 'watch' list

The Department of Energy (DOE) has completed the difficult, complex, and technically challenging task of resolving safety issues associated with the high-level radioactive waste tanks at the Hanford Site in Washington State. These safety issues had the potential to compromise the integrity of the tanks and release radioactivity into the environment.

Senator Ron Wyden and Representative Doc Hastings of Washington recently visited the Hanford Site to celebrate this significant accomplishment. They praised the Department's Office of River Protection for its hard work and dedication in removing all the high-level waste tanks from a Congressional Watch List.

Ten years ago, Senator Wyden authored a law requiring the Department to watchdog the waste tanks and to identify all tanks that had the potential to release high-level waste from uncontrolled increases in tank temperature or pressure. That list came to be known as the Wyden Watch List. In response, DOE identified four safety issues that could result in the release of high-level waste: generation of flammable gases, presence of flammable organic chemicals, presence of potentially explosive ferrocyanide, and high levels of heat generated by some types of waste.

A total of 70 tanks were included on the Watch List. The ferrocyanide issue was resolved in 1996; the organic issue, in 1999; and the high heat issue, in 2000. Resolution of the flammable gas safety issue in January 2001 removed the remaining 24 tanks from the list. Ventilation and monitoring of tank conditions and ignition source controls will remain in place on all Hanford tanks until the waste is retrieved for treatment in the Waste Treatment Plant which is scheduled to begin hot operations in 2007.

This achievement results in improved efficiencies in day-to-day operations and avoids substantial life-cycle costs in managing and disposing of the waste. ❖

Research DIGEST

Scientists at the Department of Energy's **Lawrence Berkeley National Laboratory**, using information from the Human Genome Project, have identified a new apolipoprotein that appears to play a significant role in controlling triglyceride levels in the blood. Triglycerides are one of the two major blood fats, along with cholesterol, that are important risk factors in the development of heart disease. The new gene—named apoAV—was identified by comparing the DNA sequences of humans and mice. ApoAV's function was tested first in genetically engineered mice, then in human clinical studies, and shown to significantly influence triglyceride levels in both mammals. The results of the study have been published in the Oct. 5, 2001, issue of *Science*. (David Gilbert, 510-486-6096)

Researchers at the Department of Energy's **Sandia National Laboratories** have crafted 2-D and 3-D computer-generated modeling programs of possible micromachines to help designers preview images and choose the device they want fully fabricated. Two-dimensional modeling shows the flat-plane cross sections of devices as they would look if fabricated. The three-dimensional version allows designers to twirl their virtual microdevices like airplane parts modeled in the macroworld, the still-imaginary part viewed from any perspective. Unworkable portions of the design can be modified or eliminated before—not after—fabrication work is paid for at the foundry. A simple microdevice can be simulated in minutes; a complicated device takes longer. (Neal Singer, 505-845-7078)

A neutron spectrometer designed and built at the Department of Energy's **Los Alamos National Laboratory** (LANL) is in orbit around Mars aboard the National Aeronautics and Space Administration's 2001 Mars Odyssey spacecraft. The neutron spectrometer is a key instrument in accomplishing the Mars Odyssey mission to map the mineral and chemical make-up of the Martian surface and the location of water and shallow buried ice, and, for the first time, study the radiation environment of the planet. When the spacecraft is in a tighter orbit for science mapping, on-board instruments, including the LANL neutron spectrometer, will begin sending data about Mars back to Earth beginning early next year for a planned 917 days. (Shelley Thompson, 505-665-7778)

In a recent breakthrough, researchers at the Department of Energy's **Argonne National Laboratory** have demonstrated a technique—called wakefield acceleration—that can power a linear, high-energy particle accelerator by using a low-energy particle accelerator like a booster in a multistage rocket. This could make possible collisions powerful enough to generate particles not seen since the Big Bang. The wakefield approach accelerates groups of electrons using the electromagnetic field generated by another high-current electron beam. Theoretical physicists first proposed this idea in the late 1970's. Eventually, this accelerator technology could mean particle colliders with higher efficiencies, lower operation costs, and greater collision energies. (Evelyn Brown, 630-252-5501) ❖

Scientists at the Department of Energy's Idaho National Engineering and Environmental Laboratory (INEEL) have created a microbial shopping guide to the hardy life inside the hot pools of Yellowstone National Park. The experimental prototype of the Microbial Database and Map Server, **http://remus.inel.gov/ynphome**, is an interactive web-based catalog and search program combined with geographic information systems (GIS) mapping software. The database includes hardy microbes ranging from emerald-green bacteria to fire-red rock slime that have long fascinated microbiologists with their ability to live in the scalding hot water at Yellowstone, the acidic ore deposits of abandoned mines, or the salt pools of Great Salt Lake. Researchers can search by microbe type, location, and characteristics. In the photo, INEEL scientists (l-r) Ron Rope, Daphne Stoner, and Luke White review a GIS map of locations of microbial samples. Their work is introduced on pages 4324-4328 of the September 2001 journal *Applied and Environmental Microbiology*. ❖

Education NOTES

The banks of the Peconic River on the site of the Department of Energy's **Brookhaven National Laboratory** (BNL) became a science laboratory this past summer. Two undergraduate students and future science teachers from the Universities of Massachusetts and Puerto Rico and nine Suffolk County, New York high school students learned scientific field methods by studying the vegetation and geology and examining the forest-fire potential of surrounding woodlands. The data will help BNL plan for cleanup of the river if necessary.

The Department of Energy's **Office of Civilian Radioactive Waste Management** sponsors a Historically Black Colleges and Universities (HBCU) Scholarship Program. The program is administered for the Department by the **Oak Ridge Institute for Science and Education**. Each year, seven to 20 college juniors and seniors participate in an orientation workshop in Las Vegas, Nev., receive funding for the school year, and return to Las Vegas for an internship the following summer. This year, the orientation included a trip to the Department's Yucca Mountain site for seven students.

Who says Halloween can't be educational as well as fun? The Bradbury Science Museum at the Department of Energy's **Los Alamos National Laboratory** presented its seventh annual High Tech Halloween for ghosts and goblins in its community. At "Howling High Tech Halloween," children of all ages learned about the principles of sound as they crawled through tunnels of sound, made their own music, listened to and learned how ghostly tunes are made on a bagpipe, and learned how bats "see" with their ears. Everyone had a "howling" good time. ❖

Marty Domagala, Deputy Manager for the Department of Energy's (DOE) Oakland Operations Office in California, takes a spin on the "Energy Bike" at Oakland Operations' 7th annual DOE Day, Oct. 4, 2001, as Jill Dees from the Department's Lawrence Livermore National Laboratory provides encouragement. The theme for this year's celebration was "Think Conservation—Use Energy and Resources Wisely." Approximately 2,000 citizens joined energy experts and toured science and energy exhibits from DOE, its national laboratories, other Federal agencies, and state and local utilities and organizations to learn more about energy conservation efforts that can be used at home and at work to save money. ❖

PNNL, Oregon universities sign research pact

The Department of Energy's Pacific Northwest National Laboratory (PNNL) has signed a Memorandum of Understanding with the Oregon University System and Oregon Health and Science University (OHSU) to cooperate on research and educational activities. Areas of initial focus include two collaborations in the life and physical sciences fields and one in the economic development arena.

"The Oregon institutions and PNNL have much in common including the mission and desire to advance science and technology through the pursuit of research," said Lura Powell, PNNL Director. "This is an important step forward in realizing our vision of PNNL as a partner and accessible resource for the Northwest."

A new program in functional genomics will be created to link OHSU's advanced technologies for monitoring gene expressions with PNNL's state-of-the-art protein analysis methods. Through the collaboration, advanced computer data mining programs will be developed to allow scientists to examine the information for answers to human health and susceptibility issues. In a second collaborative effort, PNNL and several Oregon research universities with microtechnology and "green chemistry" research programs will develop micro-chemical and -thermal systems in an effort to achieve sustainable processes and products.

The Northwest Virtual Entrepreneurial Support Network will be established to share technology, management, money, and marketing resources in Oregon and Washington in an effort to create successful high-tech businesses. The network will identify, develop, and commercialize intellectual property derived from the partnership. Partners are PNNL and the Oregon Technology Transfer Council, which is comprised of technology transfer officers from Oregon's research universities.

Future collaborations will include educational and training opportunities, staff and faculty development programs, short courses and conferences, visiting scientist programs, and jointly operated research institutions. ❖

People IN ENERGY

Samuel Bader of the Department of Energy's Argonne National Laboratory (ANL) is the recipient of the 2001 John A. Thornton Memorial Award from the American Vacuum Society. The biannual award recognizes outstanding research or technological innovation, especially in the field of thin films. Bader, honored for his contributions to atomic-level understanding of surface and thin-film magnetism, has led the magnetic films group in ANL's Materials Science Division since 1987.

Nuclear engineer **Craig Smith**, leader of the Fission Energy and Systems Safety Program at the Department of Energy's Lawrence Livermore National Laboratory, has been named a Fellow of the American Nuclear Society. Smith was honored for his accomplishments in nuclear health, safety, and regulation, and his work in radiation protection and waste management.

Lori Fritz has been named Deputy Assistant Manager for Environmental Management at the Department of Energy's (DOE) Oak Ridge Operations Office. Fritz will assist in overseeing the Oak Ridge environmental management program, which includes environmental cleanup and waste management activities at DOE energy research, production, and surplus facilities in Tennessee, Kentucky, Ohio, and Missouri.

Researcher **Lloyd Young** of the Department of Energy's Los Alamos National Laboratory is the recipient of the 2001 Particle Accelerator Science and Technology Award from the Institute for Electrical and Electronics Engineers Nuclear and Plasma Sciences Society. Young received the award for his invention, development, and beam line operation of the resonantly-coupled radio-frequency quadrupole structure.

Stephen Shapiro recently was named Director of the Center for Neutron Science at the Department of Energy's Brookhaven National Laboratory (BNL). Shapiro joined Brookhaven in 1971 as a research associate and rose through the ranks to become a senior physicist in 2000. He served as Associate Chair of the Physics Department from 1994 to 2000 and also as head of BNL's Solid State Physics Program.

Ellen Raber has been named Head of the Environmental Protection Department at the Department of Energy's Lawrence Livermore National Laboratory (LLNL). Raber formerly was deputy leader of the department and has been serving as acting department head since July 1, 2001. The 430-employee Environmental Protection Department provides support to LLNL operations through hazardous waste management and environmental monitoring, regulatory compliance, and restoration.

Reinhold Mann is the new Deputy Laboratory Director for Science and Technology at the Department of Energy's (DOE) Pacific Northwest National Laboratory (PNNL). His duties include assuring that key scientific initiatives at PNNL are integrated with the laboratory's other research activities. Mann joined DOE's Oak Ridge National Laboratory (ORNL) in 1981 as a visiting scientist and, most recently, was Director of ORNL's Life Sciences Division.

Lance Snead, senior research staffer in the Fusion Energy Division at the Department of Energy's Oak Ridge National Laboratory, has received the 2001 Excellence in Fusion Engineering Award from Fusion Power Associates. Snead was recognized for his work in developing silicone carbide composites for fusion applications and his material research for inertial confinement fusion.

Alfredo Morales, a researcher and chemist at the Department of Energy's Sandia National Laboratories in Livermore, Calif., has received the 2001 Most Promising Scientist award from the Hispanic Engineer National Achievements Award Conference. Morales is a true "rags-to-riches" tale, arriving in Los Angeles from Nicaragua in 1985, 16 years old, with no money, and speaking no English. Now bilingual, he graduated from California Institute of Technology in Pasadena with a 4.0 grade-point average, received a Ph.D. in chemistry from Harvard University, has applied for eight patents, and has been granted one. His research at Sandia is in the areas of micromachinery and nanotechnology.

Gary Resnick is the new Manager of the Biological Threat Reduction Program at the Department of Energy's Los Alamos National Laboratory. Previously, Resnick was a senior leader within the Defense Threat Reduction Agency and executive manager of the Department of Defense's Chemical and Biological Defense Program.

Michael E. Bartos has been named Chief Financial Officer at the Department of Energy's Argonne National Laboratory (ANL), a position he has held in an acting capacity since January 2001. Bartos previously served as ANL's Assistant Chief Financial Officer, with major emphasis in budget management. ❖

Milestones

YEARS OF SERVICE

November 2001

Headquarters

EIA - Carol K. Bingham (35 years). **Energy Efficiency & Renewable Energy** - Alan G. Gann (40), Fred Glatstein (35), Michael Gurevich (30), Kathleen M. Pierce (25). **Envir. Management** - Craig C. Scott (25). **Envir., Safety & Health** - Lorine E. Cambridge (30), Jerry L. Coalgate (30), Darrell A. Huff (25), Paul Wambach (25). **FERC** - William P. Bushey (40), Julia Bernt (25), John J. Buckley (25).

Fossil Energy - Gracie M. Gordon (30), Richard D. Furiga (25). **Independent Oversight & Performance Assurance** - Alan J. Cerrone (25). **Intelligence** - Harvey B. Jones, Jr. (25). **Management, Budget & Evaluation** - Marilyn G. Greene (35), Wardell Moore (35), Shirley A. Barker (30), Janice R. Stark (30), Terence L. Freese (25), Daniel A. Innamorato (25), Marvin H. Jackson (25), Ina O. Shaw (25).

NNSA - James B. Lambert (25). **Science** - Sarah E. Goldman (35), Roger C. Dahlman (25). **Security & Emergency Operations** - Clarice E. Foreman (35), Anna M. Edwards (30), Odell Bartlett, Jr. (25).

Field

Albuquerque/NNSA - Patrick J. Higgins, Jr. (30), Raymond H. Gann, Jr. (25), Rita Garcia (25), Nicholas T. Morris (25), Dennis A. Olona (25), Helen Y. Ruiz (25). **Chicago** - Thomas A. Gradle (25), Ronald J. Lutha (25), Beverly A. Wilson (25). **Idaho** - Brian S. Anderson (25).

NETL - Bernard M. Avon (35), Francis M. King (30), Janet L. Hogler (25). **Nevada/NNSA** - Thomas J. Conley (35), Michael J. Kiley (30), Jerry R. Truax, Jr. (30), Michael G. Skougard (25). **Oak Ridge** - John S. Ford (30), William M. Belvin (25), Kenneth T. Dziedzic (25), Hughie A. Thomas (25).

Oakland/NNSA - Richard W. Mortensen (30). **Richland** - George Kalman (30), Lynnette R. Downing (25), Pete J. Garcia, Jr. (25), Cindy L. Oliver (25), Connie L. Pierce (25). **Rocky Flats** - Robert B. Williams (30). **Southeastern Power** - Frances S. Deal (30). **Western Area Power** - John S. Coleman (30), David E. Debner (30), Mary M. Oretta (30), Duke J. Charlesworth (25).

Bonneville Power - Donald J. Davey (40), Robert L. Windus (35), James E. Deshirley (30), Joel D. Kress (30), Jean McNeil-Keister (30), Timothy G. Nelson (30), Robert M. Olson (30), Lary A. Benzinger (25), Roger D. Howlett (25), Paul A. Killeen (25), Johnny B. McGhee (25), Jimmy M. McKenzie (25), Daniel W. McMahon (25), Esequiel L. Mendez (25), Richard A. Patterson (25), Richard D. Stearns (25), Robert L. Swedo (25).

RETIREMENTS

September 2001

Headquarters

Inspector General - Donald E. Dodson (24 years), Bob D. Dykes (27), Peggy A. Ireland (30), James K. Richters (28). **Intelligence** - Edward R. Fox, Jr. (27). **NNSA** - Linda L. Heffner (38). **Radioactive Waste** - Linda K. Bauer (20).

Field

Albuquerque/NNSA - William B. Hughes (27), Valentin R. Varela (29), Albert E. Whiteman (29). **Chicago** - William A. Parmley (22), Ruth K. Salach (28). **Nevada/NNSA** - Harold H. Bernheisel (26), Timothy F. Killen (24), John M. McGrail (21). **Oakland/NNSA** - Sharon I. Bobbitt (22), A. Toni Trapp (25). **Schenectady Naval Reactors/NNSA** - Chester A. Watson (17).

October 2001

Headquarters

Envir. Management - Daniel Lillian (25). **FERC** - John M. Hamilton, Jr. (30). **General Counsel** - Paul W. Lewis (33).

Field

Savannah River - Carlos J. Collazo (21). **Western Area Power** - Janet R. Johnson (20). ❖

NEW Publications

Office of Inspector General (IG) reports: ***Peer-Reviewed Scientific Literature Generated at the Department's Light Sources*** (DOE/IG-0520); ***Administration of Small Business Innovation Research Phase II Grants*** (DOE/IG-0521); ***The Plutonium Immobilization Plant at the Savannah River Site*** (DOE/IG-0522); ***Sandia National Laboratories Personal Property Accountability*** (DOE/IG-0523); ***Albuquerque Operations Office's Grant Administration*** (DOE/IG-0524); ***Hazardous Materials Management and Emergency Response Training and Education Center's Marketing Program*** (DOE/IG-0525). 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/**.

Utility Green Pricing Programs: What Defines Success? (NREL/TP.620.29831), a study conducted by the Department of Energy's (DOE) National Renewable Energy Laboratory for DOE's Office of Energy Efficiency and Renewable Energy, details key factors for ensuring the success of "green pricing" programs and ranks the programs nationwide for effectiveness. The report is available at **http://www.eren.doe.gov/greenpower/29831.pdf**. ❖

November 2001

AROUND DOE

Solar homes open doors for energy awareness

On Oct. 13, 2001, more than 800 homes in 43 states and the District of Columbia were open for tours for citizens interested in seeing firsthand how solar energy is being used in today's homes. The National Tour of Solar Homes was co-sponsored by the Department of Energy and the American Solar Energy Society, with support from Xantrex, BP Solar, the Interstate Renewable Energy Council, and others. The tours were a highlight of the October observance of Energy Awareness Month.

The owners of the solar homes welcomed visitors and explained current solar technologies in the marketplace. "A visit to see the practical, everyday use of solar power shows families how they can incorporate these technologies in their homes," said Secretary of Energy Spencer Abraham.

Solar technologies used for generating electricity and/or heating water can be added to existing homes or designed into new construction. Photovoltaic systems can be sized to provide almost any percentage of a home's electricity and can generate enough power to sell back to the utility's grid. And today's solar water heating systems can provide 40 percent to 80 percent of a household's hot water, depending on local climate and system size and type.

NETL receives annual 8(a) support award

As part of the Small Business Administration's (SBA) Minority Enterprise Development Week, Oct. 1-5, 2001, activities in Pittsburgh, Pa., the Department of Energy's National Energy Technology Laboratory (NETL) received an Annual 8(a) Award from SBA District Director Al Jones. The award recognizes NETL's contracting commitment to the business developments of 8(a) firms in the Pittsburgh District Office portfolio.

Accepting the award, Jack Owen, NETL Small Business Coordinator, stated, "NETL continually works to promote its efforts with 8(a) contractors. 8(a) firms perform 100 percent of the construction activities on site. Likewise, DN American and TJR Enterprises, support services contractors for NETL, and K-Ray Security, the security contractor, are all 8(a) firms. We are committed to small business development."

Powerful computer online for unclassified research

Scientists across the country are tapping into the power of the world's largest supercomputer dedicated to unclassified research at the Department of Energy's (DOE) National Energy Research Scientific Computing Center, operated by DOE's Lawrence Berkeley National Laboratory (LBNL). The 3,328-processor IBM RS/6000 SP system—the Center's newest supercomputer—is now open to more than 2,000 researchers at U.S. national laboratories and universities. The IBM SP, named "Seaborg" in honor of Nobel Laureate Glenn Seaborg, is capable of performing five trillion calculations per second (5 teraflop/s).

"Until now, this level of computing power simply has not been available to support research across a broad range of computational science," said LBNL Director Charles Shank. "Scientists who are researching global climate change, exploring how to cut pollution from internal combustion engines, designing power sources for the future, and finding new ways to treat disease have a much more powerful tool at their disposal."

The IBM SP was opened to DOE's research community in late August. Early users already have reported scientific results in astrophysics, climate research, and materials science. ❖

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

Official Business