

Graphic by Andy Sproles

With world's eye on carbon, CDIAC keeps eye on the data

are part of the mix cited by the International Panel on Climate Change, which shared this year's Nobel Peace Prize.

Far beyond database administration, the scientific expertise of the CDIAC staff gives them insight into which information is credible, what data exist but are not readily available and what are the weaknesses of certain data sets. They can fix problematic data as well as acquire new information the scientific community needs.

For example, problems often arise with confusion over units of measure and inexplicable breaks in the data. Recently, while updating their well-known fossil fuel databases, CDIAC scientists found inconsistencies in data coming from the United Nations. They alerted their U.N. colleagues and began a search for the cause, which was determined to be the result of a change in categorization for certain fossil fuels—but they did not know exactly what.

CDIAC went to DOE, the data's originator, and eventually discovered that subbituminous coal—a key fossil fuel—had been reclassified from a hard coal to a soft coal. They were then able to fix the data set.

The most cited study in the center's archive is the Mauna Loa curve, a set of measurements of atmospheric carbon dioxide from an observatory in

Hawaii. Developed by the Scripps Institution of Oceanography, the data set, which goes back to 1958, is available through CDIAC and much in demand.

"If I had a nickel for every time that data set has been downloaded from our data center, I probably wouldn't be sitting here. I'd be Bill Gates," Tom says.

When Tom came to CDIAC 20 years ago, the center handled about 2,000 data requests a year, a large number considering the manpower required to fulfill them. Someone had to make paper copies of information from the databases, hike down to Building 4500 to copy the files onto 150 megabyte magnetic

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Tom Boden at the carbon flux tower on Chestnut Ridge, which is part of the Ameriflux network of sensors that measure atmospheric carbon and other global vital signs.

Tom Boden gazes from a second-story window and points to an oak tree. "Take that oak tree," he says. "If a scientist measures the nitrogen in one of its leaves, how do you get that information from the scientist's lab into a database anyone can use?"

As director of ORNL's Carbon Dioxide Information Analysis Center, Tom is always looking for answers to such questions. The center is known worldwide as a storehouse of credible data about climate change.

"Other climate centers are more discipline-centered—something like meteorology or oceanography—but we are issue-centered, which gives us an advantage in that we are able to bring in people from different fields," Tom says.

Tom is an ecologist by trade. The CDIAC staff includes a geologist, two meteorologists, an oceanographer, a soil chemist, a geographer and a computer scientist.

"I think it really reflects the collection of multidisciplinary talents that the late Alvin Weinberg envisioned national labs to be," Tom says.

The center also embodies the national laboratories' public service goal since all of its information is in the public domain and available for free to anyone. CDIAC's data

Record chill in Tennessee

Early tests show HFIR's new cold source may be best & brightest

Just a few months after the Spallation Neutron Source announced a new world record for beam power, its sister neutron facility, the High Flux Isotope Reactor, can boast a record of its own.

Time-of-flight tests of the HFIR's new cold source showed that the neutron flux—or number of cold neutrons produced—was higher than expected and probably exceeds the current top reactor-based cold source, located at the *Institut Laue-Langevin* in Grenoble, France.

"The cold source has exceeded our expectations," says an obviously delighted Kelly Beierschmitt, who directs ORNL's Nuclear Operations and is executive director of HFIR.

"In the design phase they thought they might possibly match the ILL's brightness. Turns out it's five to nine percent brighter," Kelly says.

The cold source, which uses liquid hydrogen to chill the high-energy neutrons that emanate from the reactor core, was a highly sought facet of the \$70 million renovation and upgrade that culminated in the reactor's successful restart in May. The time-of-flight tests were performed by the Neutron Facilities Development Division's Instrument Development group led by Lee Robertson.

Unchilled, or thermal, neutrons are short-wavelength, chargeless particles that are use-

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Chill

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ful for studying hard materials such as metals and ceramics. The chilled neutrons, because they come in longer wavelengths, offer researchers an analytical tool for studying the molecular structures of soft materials, such as polymers and biological samples.

Two huge, cadmium-lined cylinders in the Cold Source Experimental Hall adjacent to the reactor contain detectors for the small-angle neutron scattering, or SANS, instruments. HFIR will eventually have 15 instruments for neutron experiments, with seven of them dedicated to cold-source experiments.

Greg Smith, who leads ORNL's Low Q Neutron Scattering group, says the cold beam

area detectors and extended Q-range (which refers to the range of distances that can be measured) will help researchers examine the finer details of polymer organic structures, obtain much improved data and statistics and even study the properties of industrially relevant metallic alloys and high-temperature superconducting materials. The cold source also enables researchers to work with smaller samples of often expensive and hard to obtain experimental materials.

HFIR is set up for basic science, but the work is results driven, Kelly says.

"Switchgrass is under SANS study to better understand its biostructure, which is part of the campaign to optimize the biomass for cellulosic ethanol production. Cold neutrons are also useful

for studying polymers toward the development of so-called superplastics, and can reveal much about protein interaction toward new drug treatment therapies," he says.

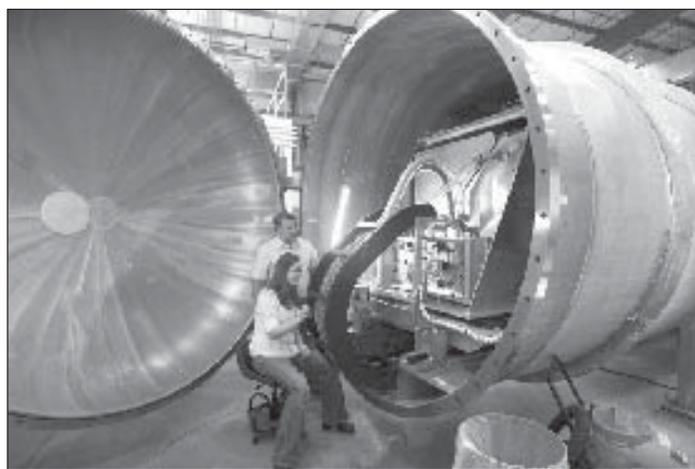
"It's soft materials work, which is outcome oriented," he says.

Steve Nagler, chief scientist for the Neutron Scattering Science Division, says the HFIR cold source's performance represents a valuable new resource for U.S. scientists in particular.

"We had great expectations but couldn't ver-

ify how it would perform until it was built. We know now that we have a world-class continuous cold source that's at least as good as the best. And that's fantastic," Steve says.

"The important point is that we have a bright beam of cold neutrons in North America, and with that comes scientific opportunities that have not been available to us."—*Bill Cabage* 🍀



The Neutron Scattering Sciences Divison's Doug Jones and Katherine Atchley check instrumentation in one of the cold source's small angle neutron scattering tanks located in the HFIR's Cold Source Experimental Hall.

lines will enable users to pursue a wide variety of research projects.

"This opens up new investigations on the large-scale structures of smaller samples in less time than previously possible. Now that this instrument is operational, we envision several new areas of scientific research," Greg says.

Greg says the higher neutron flux combined with the SANS instruments' large-

CDIAC

Continued from page 1

tapes and then mail them, often to Europe, which could take weeks.

Now, virtually all requests are filled electronically. The center easily handles gigabyte-sized requests for data. In 2006 CDIAC fulfilled about 350,000 requests.

They still do a couple a day manually—often for the politically motivated.

"I deal with the radical right-wingers who are trying to deny climate change and radical left-wingers, too," Tom says. "I just try to remain neutral and show them what the data say."

Along with increasing the efficiency of CDIAC's operations, the Internet has opened the information to new groups of people.

"The scientific community has always used us and found us to be a good source of credible data, and now the general public can find us," Tom says.

Many requests are from students, ranging from graduate students working on theses to kids working on science fair projects.

But the big change, Tom says, is in the number of requests from public policymakers—economists and demographers—which he interprets as a fundamental shift in the way climate change data are being used.

In CDIAC's early years, Tom says, scientists wanted to know basic issues about the carbon cycle, such as how much carbon dioxide was being produced and how much is stored in the oceans. Now that those numbers have been well-established, there is a move toward how policy should change in light of that evidence.

As climate change continues to grow as a policy issue and as a scientific field of study, Tom wants CDIAC's databases to expand with it. That means obtaining remote-sensing satellite data that are as reliable as the rest of their information, data from infrequent and their nonstandardized biological sources (remember that oak leaf?) and information about the geochemical cycles of elements other than carbon such as phosphorous and nitrogen.

He says Hurricane Katrina and the 2003 drought in Europe brought climate change popular credibility. Although Tom says those catastrophes have not been proven to be caused by global climate change, in the public mind they were concrete demonstrations of what scientists had been saying could happen.

"Climate models predicted these types of things in a greenhouse-gas type of environment. It's been clear that our predictive abilities are not too bad. The general public is seeing that these guys are pretty good."—*Charlie Smith* 🍀

Reporter

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Lab Notes

Holifield Facility's physicists help capture fleeting nuclei in the act

Research at the Holifield Radioactive Ion Beam Facility contributed to a study that may shed light on a mystery that goes back practically to the discovery of radiation: How do nuclei spontaneously eject certain particles?

One of the challenges confronting physicists studying the problem has been the

inability to precisely measure exotic nuclei that often exist for only microseconds.

A team led by Marek Pfitzner of Poland's Warsaw University recently published a study showing the measurement of two-proton emissions from the rare isotope iron-45.

While the Holifield Facility cannot produce iron-45, a digital detection system developed there played a part in the first-ever imaging of the double-proton decay.

"The main contribution of ORNL to the 45Fe research is in developing measurement methods based on digital spectroscopy," says Robert Grzywacz, a co-author on the November 5 *Physical Review Letters* paper.

"Our group led by Krzysztof Rykaczewski developed an experimental detection

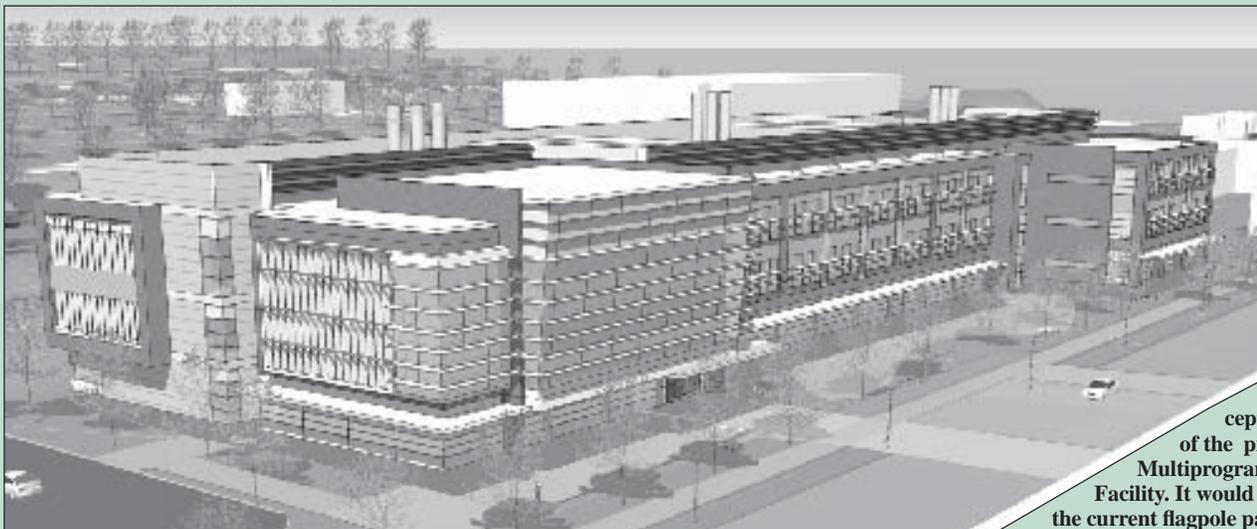
system using digital electronics and used it extensively and successfully in proton decay experiments using the Holifield Facility's Recoil Mass Spectrometer," Robert says. "We used these electronics in the experiment at GSI, Darmstadt, that discovered that 45Fe is a two-proton emitter. At the time, the lifetime of this nucleus was still unknown."

Iron-45 is characterized as "extremely neutron deficient." The recent experiment provides insight into understanding how the exotic nucleus sheds protons in pairs and the nuclear structures that underlie the phenomenon.

Robert says the Holifield team hopes to perform experiments on less exotic nuclei, as well as on the doubly magic nickel-48 and zinc-54.

"The 45Fe result makes such measurements much more relevant and desirable," Robert says.

Reported by Bill Cabage



A conceptual drawing of the proposed Multiprogram Laboratory Facility. It would be located in the current flagpole parking lot.

Another new building on the drawing board

Here's a sneak peek at a building that's on the drawing board. The Multiprogram Laboratory Facility will be located on the eastern end of the current flagpole parking lot, with a main entrance just across Central Avenue from Building 4500-North's flagpole entrance. The three-story facility will replace some of the labs in the 4500 complex.

The Facilities Development Division's Jack Stellern says the new building emerged as being preferable to renovating existing 4500 lab space, which would have encountered high upgrade costs and 50-year-old utility systems.

"The 4500 complex, while structurally sound, is outdated for the intense demands of modern chemistry materials research. Vacated space in 4500 will be renovated for less rigorous uses like offices, storage and maintenance support space. The resulting new office space will likely help ORNL realize its goal of bringing staff members stationed off-site back to the main Lab campus," Jack says.

Currently in the conceptual design phase, the federally funded laboratory facility would be LEED gold-certified as an energy-efficient facility, with from 140,000 to 170,000 gross square feet of floor space. This provides approximately 60 modern flexible laboratories and offices for up to 215 people. Funding for the design start is being pursued for Fiscal Year 2008.

The MLF will meet the most recent industry codes and be designed for maximum flexibility in the use and storage of chemicals. Modular labs will provide flexibility and the ability to quickly and inexpensively accommodate changes in research focus. The building will have state-of-the-art central ventilation and filters for nanotechnology research.

"The new facility will allow interdisciplinary research teams to co-locate with experimentalists, theorists, students and support staff, which is so important for future research programs at ORNL," Jack says.

Awards Night 2007



Vinod Sikka



Ron Crone



Jeff Christian

Sikka, Crone, Christian, poplar team take Director's Awards

At each Awards Night, the ORNL director presents Director's Awards in three categories to three individuals and one team from among the Awards Night category winners.

The Materials Science & Technology Division's **Vinod Sikka** received the Director's Award for Outstanding Individual Accomplishment in Science and Technology for his materials research that has resulted in 41 patents and commercial products with sales in the billions of dollars.

The Director's Award for Outstanding Team Accomplishment went to the team that participated in the international effort to sequence the poplar tree genome. That team includes **Stan Wullschleger, Udaya Kaluri, Lee Gunter, Frank Larimer, Philip LoCascio, Tongming Yin, Gwo-Liang Chen, Ed Uberbacher** and team leader **Gerald Tuskan**.

The Director's Award for Laboratory Operations went to the Research Reactor Division's **Ron Crone** for his leadership in the High Flux Isotope Reactor's recent successes.

The Engineering Science & Technology Division's **Jeff Christian** received the Director's Award for Community Service, for his effective communication of building technologies research and development—most notably, Near-Zero Energy housing—to the public.



Poplar Genome Team: From left, team leader Gerald Tuskan, Tongming Yin, Stan Wullschleger, Udaya Kaluri, Gwo-Liang Chen, Lee Gunter, Frank Larimer and Ed Uberbacher. Not pictured is Philip LoCascio.

This year's Awards Night was held on November 16 at the Knoxville Convention Center. The event honors the year's outstanding ORNL contributors and names the winners of the four Director's Awards. Congratulations to all.

Laboratory Operations

Secretarial Support

Linda Terry Malone, Computing & Computational Sciences Directorate. For significant contributions in providing logistical support of two unique teams in their business travel to India and for sustained, exemplary professional administrative support to the Computing and Computational Sciences Directorate.

Administrative Support, Nonexempt

Brenda Darlene Hickman, Materials Science & Technology Division. For exceptional management of division vehicles that resulted in significant cost reduction fuel savings, and a safer, newer fleet for the Materials Sciences and Technology Division.

Administrative Support, Exempt or Team

Bonnie Hébert, Michael J. Fietze, Jeff Guilford, Regina Loy, Craig S. Parker and Titonia Sawyer. For outstanding administrative support to the U.S. ITER Project Office by developing the Long-Term Foreign Assignment Policy, approved at the direction of the DOE Under Secretary for Science.

Excellence in Safety Leadership

Randall B. Ogle, Center for Nanophase Materials Sciences. For dedication to the health and safety of ORNL staff and guests and for national and international leadership in the area of nanosafety.

Integrated Safeguards and Security Management

W. Mark Logan, Mike Aaron, Janie A. Blackwell, Jennifer Chambers, David Hamrin, Jamie M. Johnson and Cynthia Nageotte, Laboratory Protection Division. For providing outstanding Integrated Safeguards and Security Management service to programs, organizations, and individual tenants of the Multiprogram Research Facility by integrating themselves within the MRF and setting the example for the conduct of classified operations at the facility.

Administrative and Operational Leadership at the Group Level

David Milan, Laboratory Protection Division. For outstanding leadership that has resulted in the development of a model Emergency Management Program.

Administrative and Operational Leadership at the Director Level

Ronald A. Crone, Research Reactors Division. For outstanding leadership in suc-

cessfully establishing, once again, ORNL's High Flux Isotope Reactor as a world-class research tool.

Bargaining Unit Support by a Team

David Adaline, Zachary Hardy, Donald V. Johnson, Bob Johnston, Kenneth E. McNabb, Lloyd Robinette, Todd Starnes and Leslie T. Wells. For successfully completing the fabrication of the east end bayonet box, input, output, and duplex cans for the Central Test Facility transfer line at the Spallation Neutron Source.

Operations Support by a team

Keith Dempsey, Mark W. Dobbs, Jon Bartlett, Robert Beane, Randy Burnett, D.A. Fye, Richard Griffey, Richard C. Griffin, Bart A. Hammontree, Sheila R. Holbert, Swati Kirpekar, Mark A. Klein, Peter R. Kulesza, Jim Mathys, Debbie D. McCoy, Melessa Ogan, Antonio A. Rucci, Vicky H. Wallace, John H. Watson and Don E. Williams. For outstanding execution of design and construction of the Multiprogram Research Facility and for world-class technical support to create a secure supercomputing center for a new customer in eight months in support of a critical national security mission.

Community Service

Exceptional Community Outreach by an Individual

Kofi Korsah, Engineering Science & Technology Division. For exceptional sustained service to people and organizations in East Tennessee through prison ministry, counseling, mentoring, teaching, spending time with the elderly and infirm, and for serving on two boards of directors.

Exceptional Community Outreach by a Team

Katherin L. Goluoglu and Julie G. Ezold. For conceiving of and implementing the Science Club to supplement early science education for primary school children.

Esprit de Corps

Johney Green Jr., Faye Snipe Brewer, Johnnie B. Cannon, Ella Hawkins DuBose, Joyce B. Echols, Marilyn Langston, John A. Mayo Jr., Will Minter, Valentina Moore and Regina R. Parks. For significant contributions in the successful launch of the African American Affinity Resource Council, which has fostered and promoted the Laboratory as an attractive and inclusive workplace for African-Americans.

Community Leadership

Becky J. Verastegui, Information Technology Services Division. For serving as an out-

standing ambassador for Oak Ridge National Laboratory as an information technology advisor for the state of Tennessee, Roane State Community College, Oak Ridge High School, and other state and local entities.

Science Communicator

Jeff Christian, Engineering Science & Technology Division. For sustained and extraordinary communication skills, and passionate, visionary advocacy of the Zero Energy Home concept.

Science and Technology

Technical Support

Donald Todd, Environmental Sciences Division. For both recent and sustained excellence in the support of environmental change research, including the design, installation, operation, and disassembly of the world's largest and longest-running precipitation experiment, and for his commitment to understanding basic mechanisms affecting forest biogeochemical cycles.

Early Career Award for Engineering Accomplishment

Jeremy T. Busby, Materials Science & Technology Division. For excellence in engineering materials research leading to timely identification of irradiation-induced segregation and phase instabilities in candidate structural refractory alloys for critical application to the DOE Space Reactor Program, and to the development of high-performance cast stainless steels for critical application in ITER.

Early Career Award for Scientific Accomplishment

Vincent Meunier, Computer Science & Mathematics Division. For advancing the fields of nanoscience and nanotechnology through application of innovative theory and advanced computation.

R&D Leadership at the Group Level

Thomas C. Schulthess, Computer Science & Mathematics Division. For outstanding scientific leadership and major achievements through the integration of research groups within two divisions: Computer Science and Mathematics and the Center for Nanophase Materials Sciences.

R&D Leadership at the Director Level

Arthur S. Bland, Center for Computational Sciences. For exemplary leadership in the start-up of supercomputing centers, providing world-class resources to scientific communities.

Excellence in Technology Transfer

Philip J. Maziasz, Neal D. Evans, D.

Ray Johnson and John P. Shingledecker, Materials Science & Technology Division. For the commercialization of new heat-resistant CF8C-plus cast austenitic stainless steel for high-temperature diesel engine and gas-turbine component applications.

Inventor of the Year

Vinod K. Sikka, Materials Science & Technology Division. For sound, commercially viable inventions in a broad field of materials development and processing methods.

Engineering Research and Development

Ronald A. Crone, Donald H. Abercrombie, John Bumgardner, Stephen E. Burnette, Mike B. Farrar, Young Soo Kwon, L.D. Proctor, Ronald J. Reagan, Kevin Arthur Smith and Regina M. Stinnett, Research Reactors Division. For management and completion of the installation of the cold source reactor, followed by successful commissioning and full-power operation in May 2007.

Scientific Research

Gerald A. Tuskan, Gwo-Liang Chen, Lee E. Gunter, Udaya C. Kalluri, Frank W. Larimer (retired), Philip F. LoCascio, Edward C. Uberbacher, Stan Wullschlegler and Tongming Yin. For scientific and technical leadership provided during a five-year period leading up to the DOE-sponsored sequencing of the first tree genome, the assembly and annotation of that genome, and the publication of those results.

Distinguished Engineer

B. Richard Bass, Computational Sciences & Engineering Division. For outstanding sustained and far-reaching contributions to fracture mechanics engineering and structural safety in nuclear power plant technology.

Distinguished Scientist

Brian C. Sales, Materials Science & Technology Division. For sustained contributions in condensed matter and materials physics, especially in the areas of intermediate valence compounds, nuclear waste forms, and advanced thermoelectric materials.

ORNL Benefit Plan Summary Annual Report

Summary Annual Report for SAVINGS PROGRAM FOR EMPLOYEES OF CERTAIN EMPLOYERS AT THE U.S. DEPARTMENT OF ENERGY FACILITIES AT OAK RIDGE, TENNESSEE

This is a summary of the annual report for the SAVINGS PROGRAM FOR EMPLOYEES OF CERTAIN EMPLOYERS AT THE U.S. DEPARTMENT OF ENERGY FACILITIES AT. (Employer Identification No. 54-1987297, Plan No. 009) for the period January 1, 2006 to December 31, 2006. The annual report has been filed with the Employee Benefits Security Administration, as required under the Employee Retirement Income Security Act of 1974 (ERISA).

BASIC FINANCIAL STATEMENT

Benefits under the plan are provided by a trust (benefits are provided in whole from trust funds). Plan expenses were \$99,315,307. These expenses included \$715,294 in administrative expenses and \$98,600,013 in benefits paid to participants and beneficiaries. A total of 11,704 persons were participants in or beneficiaries of the plan at the end of the plan year, although not all of these persons had yet earned the right to receive benefits.

The value of plan assets, after subtracting liabilities of the plan, was \$1,457,831,483 as of December 31, 2006 compared to \$1,339,786,023 as of January 1, 2006. During the plan year the plan experienced an increase in its net assets of \$118,045,460.

This increase includes unrealized appreciation or depreciation in the value of plan assets; that is, the difference between the value of the plan's assets at the end of the year and the value of the assets at the beginning of the year, or the cost of assets acquired during the year. The plan had total income of \$217,360,767, including employer contributions of \$20,804,427, employee contributions of \$57,684,878, gains of \$4,660,016 from the sale of assets and earnings from investments of \$131,504,056.

The plan has a contract with which allocates funds toward individual policies.

MINIMUM FUNDING STANDARDS

Enough money was contributed to the plan to keep it funded in accordance with the minimum funding standards of ERISA.

YOUR RIGHTS TO ADDITIONAL INFORMATION. You have the right to receive a copy of the full annual report, or any part thereof, on request. The items listed below are included in that report:

1. An accountant's report;
2. Assets held for investment;
3. Insurance information including sales commissions paid by insurance carriers; and
4. Information regarding any common or collective trust, pooled separate accounts, master trusts or 103-12 investment entities in which the plan participates.

To obtain a copy of the full annual report, or any part thereof, write or call the office of the Plan Sponsor BWXT Y-12, L.L.C., 602 Scarboro Rd., MS 8258 Oak Ridge, TN 37830

54-1987297 (Employer Identification Number)
865-574-9110

You also have the right to receive from the plan administrator, on request and at no charge, a statement of the assets and liabilities of the plan and accompanying notes, or a statement of income and expenses of the plan and accompanying notes, or both. If you request a copy of the full annual report from the plan administrator, these two statements and accompanying notes will be included as part of that report. These portions of the report are furnished without charge. You also have the legally protected right to examine the annual report at the main office of the plan:

BWXT Y-12, L.L.C., 602 Scarboro Rd., MS 8258 Oak Ridge, TN 37830 and at the U.S. Department of Labor in Washington, D.C., or to obtain a copy from the U.S. Department of Labor upon payment of copying costs. Requests to the Department should be addressed to: U.S. Department of Labor, Employee Benefits Security Administration, Public Disclosure Room, 200 Constitution Avenue, NW, Suite N-1513, Washington, D.C. 20210.

Summary Annual Report for RETIREMENT PROGRAM PLAN FOR EMPLOYEES OF CERTAIN EMPLOYERS AT THE U.S. DEPARTMENT OF ENERGY FACILITIES AT OAK RIDGE, TENNESSEE

This is a summary of the annual report for the RETIREMENT PROGRAM PLAN FOR EMPLOYEES OF CERTAIN EMPLOYERS AT THE U.S. DEPARTMENT OF ENERGY, (Employer Identification No. 54-1987297, Plan No. 001) for the period January 1, 2006 to December 31, 2006. The annual report has been filed with the Employee Benefits Security Administration, as required under the Employee Retirement Income Security Act of 1974 (ERISA).

BASIC FINANCIAL STATEMENT

Benefits under the plan are provided by a trust (benefits are provided in whole from trust funds). Plan expenses were \$180,189,534. These expenses included \$18,712,775 in administrative expenses and \$161,476,759 in benefits paid to participants and beneficiaries. A total of 20,846 persons were participants in or beneficiaries of the plan at the end of the plan year, although not all of these persons had yet earned the right to receive benefits.

The value of plan assets, after subtracting liabilities of the plan, was \$3,113,889,517 as of December 31, 2006 compared to \$2,943,401,507 as of January 1, 2006. During the plan year the plan experienced an increase in its net assets of \$170,488,010. This increase includes unrealized appreciation or depreciation in the value of plan assets; that is, the difference between the value of the plan's assets at the end of the year and the value of the assets at the beginning of the year, or the cost of assets acquired during the year. The plan had total income of \$350,677,544, including gains of \$11,035,225 from the sale of assets and earnings from investments of \$360,617,588.

The plan has contracts with MetLife, The Prudential Insurance Company of America, Prudential Insurance Company of America, MetLife, and MetLife which allocate funds toward individual policies.

MINIMUM FUNDING STANDARDS An actuary's statement shows that enough money was contributed to the plan to keep it funded in accordance with the minimum funding standards of ERISA.

YOUR RIGHTS TO ADDITIONAL INFORMATION. You have the right to receive a copy of the full annual report, or any part thereof, on request. The items listed below are included in that report:

1. An accountant's report;
2. Assets held for investment;
3. Transactions in excess of 5 percent of the plan assets;
4. Insurance information including sales commissions paid by insurance carriers;
5. Information regarding any common or collective trust, pooled separate accounts, master trusts or 103-12 investment entities in which the plan participates; and
6. Actuarial information regarding the funding of the plan.

To obtain a copy of the full annual report, or any part thereof, write or call the office of the Plan Sponsor BWXT Y-12, L.L.C.

602 Scarboro Rd., MS 8258
Oak Ridge, TN 37830
54-1987297 (Employer Identification Number)
865-574-9110

You also have the right to receive from the plan administrator, on request and at no charge, a statement of the assets and liabilities of the plan and accompanying notes, or a statement of income and expenses of the plan and accompanying notes, or both. If you request a copy of the full annual report from the plan administrator, these two statements and accompanying notes will be included as part of that report. These portions of the report are furnished without charge.

You also have the legally protected right to examine the annual report at the main office of the plan:

BWXT Y-12, L.L.C.
602 Scarboro Rd., MS 8258

Oak Ridge, TN 37830
and at the U.S. Department of Labor in Washington, D.C., or to obtain a copy from the U.S. Department of Labor upon payment of copying costs. Requests to the Department should be addressed to: U.S. Department of Labor, Employee Benefits Security Administration, Public Disclosure Room, 200 Constitution Avenue, NW, Suite N-1513, Washington, D.C. 20210.

Summary Annual Report for GROUP WELFARE BENEFIT PLAN FOR EMPLOYEES OF CERTAIN EMPLOYERS AT THE U.S. DEPARTMENT OF ENERGY FACILITIES AT OAK RIDGE, TENNESSEE

This is a summary of the annual report for the GROUP WELFARE BENEFIT PLAN FOR EMPLOYEES OF CERTAIN EMPLOYERS AT THE U.S. DEPARTMENT OF ENERGY, (Employer Identification No. 54-1987297, Plan No. 506) for the period January 1, 2006 to December 31, 2006. The annual report has been filed with the Employee Benefits Security Administration, as required under the Employee Retirement Income Security Act of 1974 (ERISA).

BASIC FINANCIAL STATEMENT

The value of plan assets, after subtracting liabilities of the plan, was \$-1,003,846,180 as of December 31, 2006 compared to \$-1,080,014,050 as of January 1, 2006. During the plan year the plan experienced an increase in its net assets of \$76,167,870.

This increase includes unrealized appreciation or depreciation in the value of plan assets; that is, the difference between the value of the plan's assets at the end of the year and the value of the assets at the beginning of the year, or the cost of assets acquired during the year. During the plan year, the plan had total income of \$113,926,811. This income included employer contributions of \$133,439,661 and employee contributions of \$56,655,020. Plan expenses were \$190,094,681.

These expenses included \$10,238,263 in administrative expenses and \$179,856,418 in benefits paid to participants and beneficiaries.

YOUR RIGHTS TO ADDITIONAL INFORMATION. You have the right to receive a copy of the full annual report, or any part thereof, on request. The items listed below are included in that report:

1. An accountant's report; and
2. Insurance information including sales commissions paid by insurance carriers.

To obtain a copy of the full annual report, or any part thereof, write or call the office of the Plan Sponsor BWXT Y-12, L.L.C., Employer 602 Scarboro Rd., MS 8258 Oak Ridge, TN 37830 54-1987297 (Employer Identification Number) 865-574-9078

You also have the right to receive from the plan administrator, on request and at no charge, a statement of the assets and liabilities of the plan and accompanying notes, or a statement of income and expenses of the plan and accompanying notes, or both. If you request a copy of the full annual report from the plan administrator, these two statements and accompanying notes will be included as part of that report. These portions of the report are furnished without charge.

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602 Scarboro Rd., MS 8258
Oak Ridge, TN 37830

and at the U.S. Department of Labor in Washington, D.C., or to obtain a copy from the U.S. Department of Labor upon payment of copying costs. Requests to the Department should be addressed to: U.S. Department of Labor, Employee Benefits Security Administration, Public Disclosure Room, 200 Constitution Avenue, NW, Suite N-1513, Washington, D.C. 20210.



Love a parade? The Roane County High School band came to ORNL on November 8 for the annual Veterans Day ceremonies, which included this march down Central Avenue.

Lab giving spirit gears up for the holidays

ORNL employees' volunteerism and charity experienced the usual surge as the holidays approached. Staff members' efforts for the needy included several Team UT-Battelle-sponsored events and activities.

Team UT-Battelle volunteers raised more than \$16,000 for the local Memory Walk for Alzheimer's disease, which was one-fourth of the area campaign's record total for the event. Team UT-Battelle was also the largest corporate team in Knoxville's Komen Race for the Cure, raising more than \$12,000.

A group of Team UT-Battelle volunteers collected and sent the 30 residents of the Divine Children's Home in India a holiday gift box of personal items and school supplies. The orphanage was selected by UT-Battelle for assistance in the wake of the 2004 tsunami that devastated several Asian countries.

ORNL staff members once again selected more than 200 needy children's names from the annual Angel Tree, providing clothing and gifts for kids who probably would have done without on Christmas morning.

New Staff Members

Craig Allan Bridges, Chemical Sciences
 Gregory Charles Flickinger, Tech Transfer & Econ. Dev. Dir.
 Enrique Jesus Robles, Rex Alan Hogan, Brian Gregory Plante and Joseph Milton Schalte, Jr., NScD Neutron Facilities Development
 Haifa Carmel Abbott, Allison Decker Orcutt, Tabitha Collins Mase and Kimberly Jones Poston, Human Resources Dir.
 Beverly Christene Beaty, Biosciences
 Richard Wayne Dickson and Karen Sue White, NScD Research Accelerator
 Michael Owen Williams, NScD Research Reactors
 Mark Faine Fioravanti, Sherri Lynn Schumacher and John Thomas Slankas, Global Initiatives Dir.
 Janice Lynn Kneiser, Legal Dir.
 Raouf Abdelhadi, Safety Services
 Jason White Craig, Fabrication, Hoisting & Rigging
 Jason Davidson Fowlkes, Center for Nanophase Matls Sciences
 Christopher Howard Griffin, Computational Sciences & Engineering
 William Christopher Lenhardt, Environmental Sciences

Club ORNL: Ice skating, Lady Vols



December 21: Ice Skating. Back by popular demand, Club ORNL is sponsoring a night of ice skating at Knoxville's Ice Chalet on Friday, Dec. 21, starting at 5:30 p.m. Club ORNL has exclusive use of the Ice Chalet rink until 7:15. Event participants may continue skating during the public skating session that starts at 7:30. ORNL group discount tickets will be available while they last at the Main Street Branch of the ORNL Credit Union starting Nov. 28. Tickets are \$6 per person, with a limit of 6 tickets per employee family. Ticket price includes skate rental and a catered soup buffet by Soup Kitchen. All children must have a ticket, regardless of age. Retirees interested in purchasing tickets may contact Ross Toedte (574-1912 or toedterj@ornl.gov).

VOLS basketball tickets on sale now. Purchase tickets on-line through the Group Ticket Window for some exciting University of Tennessee basketball games this year. On January 20, the Lady Vols play Vanderbilt; on February 3, the Lady Vols play Kentucky. When you purchase through the group ticket window, you will receive your reserved ticket at the discounted rate of \$7, plus a \$1 per ticket handling fee. Regular price for reserved tickets is \$15 per ticket. See the Club ORNL website (<https://home.ornl.gov/general/clubornl>) for information on the Group Ticket Window.

Service Anniversaries

December 2007

35 years: Stephen Kirk Combs, Fusion Energy; David E. McMillan, Engineering Science & Technology

30 years: Gwen T. Scudder, Legal Dir.; Stephen Dirk Van Hoesen, Nuclear Operations Dir.; Tommy R. Nelson, Computational Sciences & Engineering; Carol J. Cromwell, Business & Information Services Dir.; Brenda J. Smith, Communications & External Relations Dir.; Dewey L. Foulk Jr., Fabrication, Hoisting & Rigging; Gary Webb Ownby, Materials Science and Technology; Deborah Suzanne Brown, Nuclear Science & Technology; Patricia K. Lankford and Karen L. Popham, Biosciences; Douglas Warren Edwards, Facilities Management

25 years: Linda H. White, Biosciences; Jerry G. Arnwine, Fabrication, Hoisting & Rigging; Virginia Louise Lynch, Business & Information Services Dir.; Debbie D. McCoy, Computing & Computational Sciences Dir.; Jonathan Zachary Tischler, Materials Science and Technology; Garry T. Lee, Logistical Services; Roger Allen Hunt, Utilities

20 years: Carlton Ray Brittain and Juan J. Carbajo, Nuclear Science & Technology; R. Wes Wysor, Engineering Science & Technology; Tony E. Haynes and Arthur P. Baddorf, Center for Nanophase Matls Sciences; Marsha K. Savage, Communications & External Relations Dir.; Kathy P. Bugbee, Facilities Development; Teressa L. McKinney, Global Security & Nonproliferation Prog.; Raymond E. Flanery Jr., Computational Sciences & Engineering; Bryan C. Chakoumakos, NScD Neutron Scattering Science; Eric L. Fogel and Paul Philip Guertin, NScD Research Reactors



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Mason, Rykaczewski, Budai elected APS fellows

The American Physical Society has elected three researchers from ORNL—including the Lab director—as new fellows.

Laboratory Director Thom Mason was cited by the APS's Division of Condensed Matter Physics for his career in condensed matter physics with a focus on neutron scattering science. As leader of the Spallation Neutron Source from 2001 to 2007, he oversaw the successful construction and startup of one of the nation's largest science projects. He was named laboratory director this summer.

**Mason**

In his research career Thom has studied the magnetic fluctuations in superconductors and novel magnetic materials and the application of neutron scattering to measuring residual strain in engineering materials.

A native of Nova Scotia, Canada, Thom received his degree in physics from Dalhousie University in Halifax and his doctorate in physics from McMaster University in Hamilton, Ontario. He has co-authored more than 100 papers and has given more than 30

invited talks at international conferences.

He lives in Oak Ridge with his wife, Jennifer McGillivray, and two sons.

Krzysztof Piotr Rykaczewski's research in ORNL's Physics Division, cited by the APS's Division of Nuclear Physics, has focused on studies at the Holifield Radioactive Ion Beam Facility on the behavior of radioactive nuclei far from stability, including investigations of the strongly bound "doubly magic" nuclei.

His identification of the doubly magic nucleus tin-100 was named 1994's experiment of the year in nuclear physics by the APS. Krzysztof's experiments, including those at the Holifield Facility, have led to the identification of more than 60 new nuclei.

Krzysztof, a native of Poland, received his masters, doctorate and habilitation in physics from Warsaw University, and a professor title from the President of Poland. He has co-authored more than 100 papers and given more than 40 invited talks at international conferences.

**Rykaczewski**

He resides in Oak Ridge with his artist wife, Anna. He has two children.

The Materials S&T Division's John Budai was cited by the APS's Division of Materials Physics "for seminal materials physics contributions to the structure and synthesis of quasicrystals, nanocrystals formed by ion-implantation, and epitaxial high-temperature superconductors using advanced synchrotron x-ray techniques."

Among John's research accomplishments are the origination of a new concept for fabricating high-temperature superconducting materials, and more recently, co-development of synchrotron x-ray microscopy techniques with submicron spatial resolution. He shared an R&D 100 Award in 1999 for his part in the invention and development of roll-textured metal substrates for making superconducting wire.

He is the author of more than 275 publications and has given many invited talks. The former Eugene P. Wigner fellow received his bachelor's degree as salutatorian from Dartmouth College, and his master's degree and doctorate from Cornell University.

**Budai**