

Depot for data

Environmental researchers all over the world look to ORNL's storehouses of scientific data—free of charge

They may be simply stashes of numbers to some, but to researchers they are gold in the mine. The Environmental Sciences Division is home to three data centers that store and distribute valuable information to environmental researchers all over the world.

Last fiscal year nearly 700,000 data "products" were accessed through the Atmospheric Radiation Measurement Archive and the Carbon Dioxide Information Analysis Center. ARM and CDIAC are supported by DOE's Office of Biological and Environmental Research. NASA supports the Data Acquisition and Archive Center, or DAAC.

The centers' Web sites are visited continuously. The staff that maintain this information trove are relatively few.

"We're a quiet group," says ESD's Paul Kanciruk, who heads ESD's Environmental Data Systems Program. "But we have a tremendous impact in terms of products that go out."

In fact, the centers, which consume terabytes of computer storage space, are relied upon by researchers around the globe for data

that would be impossible to retrieve otherwise. Kanciruk says 40 percent of the centers' customers are international customers.

And with steady support from OBER, NASA and the scientific community, plus input from researchers, the centers should be reliable keepers of environmental statistics for years to come.

CDIAC

The Lab's most venerable data center, operating since 1982, is CDIAC, which stores information on the presence and effects of carbon dioxide in the environment.

Kanciruk says that scientists who want to study a topic such as how global warming might change coastlines because of polar ice melt might rely on CDIAC's data bases to spot trends. One important aspect of data centers such as CDIAC, Kanciruk says, is that the data are free to researchers.

"One of the neatest experiences I've had was when I was visiting Russia for the National Academy of Sciences and walked up
(See DATA, page 4)



This tower is part of the multiagency Ameriflux project to measure changes in carbon dioxide in the atmosphere. Data from this and countless other environmental experiments are held at ORNL's Carbon Dioxide Information Analysis Center.

Indirect cost cuts aimed at leaner, more competitive Lab

Citing a need to reduce the Lab's cost of doing business if ORNL is to grow and prosper, Director Bill Madia has announced a drive to reduce the Lab's indirect costs. The numbers are significant, and he acknowledged that meeting the goals will probably mean some staff reductions.

Indirect costs generally mean money spent in support of, instead of directly spent on,

"Our laboratory delivers exceptional science and technology solutions to our customers, but we must become far more cost competitive."

actual R&D activities—the "cost of doing business" (see the glossary on page 6). ORNL's indirect costs, Madia wrote in a July 18 e-mail to staff members, put the Lab at a competitive disadvantage when bidding on research projects.

"I have committed to 'delivering the maximum amount of R&D per dollar spent by our customers' as one of UT-Battelle's key

goals for ORNL. In order for us to grow and prosper as a leading research institution, we must reduce our indirect costs to become more competitive," he said.

ORNL's estimated annual indirect operating cost is \$237 million. The Leadership Team wants to reduce that by \$30 million over the next two years. The goals set out in an indirect-cost budget guidance package for FY 2001 calls for a \$20 million reduction in FY 2001 and the remaining \$10 million in FY 2002.

The latest measures are in line with a goal to place ORNL in the lower third of the national labs, costwise. Currently ORNL is one of the most expensive.

Deputy Director for Operations Jeff Smith says that Leadership Team members are working with their managers to recommend cost reductions and assess what effects those reductions will have on their organizations. Different managers and staff members,

depending on the specific type of indirect cost, will be involved in identifying the cost reductions.

"We first need to understand the cost drivers in each of the overhead pools and base our actions accordingly," he says.

"For example," he explains, "the division directors will be key to understanding the cost drivers in the technical divisions' organizational burden pools. We hope that many of these recommendations will be aimed at eliminating cumbersome requirements or rethinking how we implement these requirements."

Some actions may take several months to implement, and several cost-reduction opportunities need further exploration. For example, Smith says that ORNL intends to reduce its fleet of vehicles, which currently numbers about 600 cars and trucks.

"That's a vehicle for every seven employees. It's very costly to maintain that many vehicles. Other labs get by on much fewer," he says.

He also says that ORNL pays more than
(See INDIRECT, page 6)

CEG to help new companies market Lab's technologies

Aspiring entrepreneurs with ORNL technologies have a place to go for advice and other assistance on their long journey to the marketplace. The Center for Entrepreneurial Growth had its formal opening on July 12 at its headquarters in Commerce Park.

The center is a partnership between UT-Battelle and Technology 2020, which will operate the center. The CEG will focus on forming new companies based on technologies developed at ORNL.

ORNL Director Bill Madia called the partnership "an innovative way to use cutting-edge science at the Lab to produce jobs and wealth for Tennessee."

"Our mission at ORNL is to produce great science that will benefit people's lives. What we are doing today is making it easier to move state-of-the-art technology from the laboratory to the marketplace," Madia said.

David Beall of the Lab's Office of Technology Transfer and Economic Development says the CEG will be a place for entrepreneurs to get help in starting their own businesses. Each case, he says, will be handled according to its particular needs.

"We (the tech transfer office) listen to their story," says Beall. "The center makes a step-by-step evaluation. If they choose to do so, they may enter into an agreement with the entrepreneur. That's anything from creating a business plan to providing office space to performing market research.

"The process varies," Beall says. "Everyone's a little different."

Beall says the entrepreneur must handle the real tasks, such as writing the business plan. "It has to be theirs," he says, "but we help them by reviewing and critiquing their work."

The same you-have-to-do-it-yourself theme applies to acquiring venture capital.

"We show them how to go about raising capital. They have to do it, but we make the

introductions."

Entrepreneurs have other resources, including the recently formed Technology Business Alliance, which comprises the former Venture Exchange Forum, Information Technology Business Association, Inventor's Forum and the East Tennessee Entrepreneurial Network.

UT-Battelle is providing \$1 million in financial support to the CEG over the next five years, which includes funds from UT-Battelle's corporate fee and licensing revenues. UT-Battelle is providing an additional \$100,000 to establish a CEG commercialization fund that will be used to help commercialize ORNL technologies.

The CEG represents a re-emphasis on technology transfer and a more hands-on approach to getting Lab technologies to the public.

Technology 2020 President and CEO Tom Rogers said, "Our region has some of the world's best science. What we have never done well is make it easy for scientists to develop their ideas in the marketplace."

In fact, says David Coffey, former fusion energy researcher and state representative, turning government lab technologies into private enterprises was once discouraged outright.

"There was uneasiness across the country. You were taking public property," he told the large crowd at the ceremony. "We got over that."

Coffey said that ORNL was "in the heart"



Curtis Boies

ORNL Director Bill Madia regards a "big check," bearing his equally large signature and supported by Office of Technology Transfer and Economic Development Director Jan Haerer, for \$100,000 toward a fund to help commercialize Lab technologies.

of the technology boom that's driving the current economic prosperity, and that the entrepreneurs are assuming some risk in setting out on their own.

"Technology helps everybody," he said. At the same time, he noted, there will be some failures.

"What you'll see, he nonetheless predicted, "is that this quantum leap is going to open so many opportunities, *Who Wants To Be A Millionaire?* will be passé."

Exhibitors at the CEG ceremony were Machine Kinetics, TurboWave, NucSafe, ImTek (the MicroCAT mouse scanners), Sarcon Microsystems and Digital Multimedia, all spin-offs of Oak Ridge technologies.

Other development programs under UT-Battelle include a business "incubator," where new companies can receive office space at discounted prices while starting out, and a "technopreneurship" program, developed with the Tennessee Technology Development Corp., in which Lab technologies will be licensed to UT graduate students.—B.C. [ornl](#)



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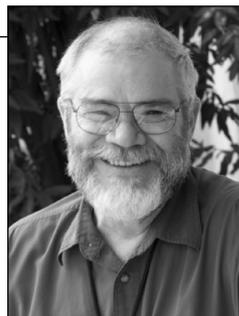
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Curtis Boies

Jerry King, of the Chemical Technology Division's Image Center, also raises wildflowers. He tends a quarter-acre of them at his home in Oak Ridge.

Legislation would let AMSE keep donations

Rep. Zach Wamp introduced a bill in Congress on July 24 to allow the American Museum of Science and Energy to accept and keep private donations. Under current law, monetary donations must go to the U.S. Treasury.

DOE is phasing out federal support of the AMSE, so legislation to allow the museum to keep its contributions is very welcome.

"This is the most important step that we can take to ensure the long-term viability of the museum, which is a key part of the Oak Ridge community," says Kaye Johnson, project manager for the museum.

In fact, the AMSE has hosted more than 10 million visitors since it opened in 1949.

Lab Notes

ORR has its fire plans, too

ORNL Reporter received a letter (box) from Los Alamos National Laboratory Director John C. Browne recently thanking Lab staff for their support after the disastrous Cerro Grande Fire, which destroyed more than 200 homes in that community. Many Lab employees chipped in to relief funds; UT-Battelle donated \$5,000.

In late June it was Pacific Northwest National Laboratory's turn to experience a devastating fire after a traffic accident ignited the sagebrush that covers much of the landscape on the arid and virtually treeless Hanford site. Although nowhere near as much property damage occurred as at Los Alamos, a wilderness reserve was left completely scorched and Hanford officials scrambled to assure the public that the nuclear materials stored there were safe. (Storage areas there are essentially stripped of ignitable vegetation.)

ORNL's wetter and more humid climate, in that respect, comes as a blessing. Pat Parr, who oversees the Oak Ridge Reservation, says that although forest fires aren't as much of a threat in the usually damp Southeast, fire control is an important part of the ORR management plan. An indigenous six-legged resident has recently figured prominently in those plans.

On behalf of the University of California and everyone at Los Alamos National Laboratory, I would like to thank the staff of Oak Ridge National Laboratory for the support and assistance given to us during the Cerro Grande Fire.

Although this was a devastating experience for us, it showed how communities, individuals and organizations can come together to help each other in a time of crisis. We were overwhelmed by the outpouring of aid and support from throughout New Mexico and across the nation.

Your help at this very difficult time was greatly appreciated, and will be remembered as we begin the process of recovery and renewal.

Sincerely

John C. Browne
Director
Los Alamos National Laboratory

The southern pine beetle's recent heyday has ravaged the stately stands of pines on the ORR, and those dead trees represent fuel to burn, particularly during dry spells. Parr says where the beetles have been often determines where the dead trees are first removed.

"We direct our salvage operations along roadways and where the dead trees are near facilities," she says.

The good news is that in the Southeast vegetation tends to spring back pretty quickly. That's not the case out in the dry regions of the West, where plants grow much more slowly. Sage lands on the Hanford site that burned in 1984 are just barely getting reestablished.



The Oak Ridge Reservation's beetle-ravaged pines figure prominently in fire-control plans.

Photos by Curtis Boles

Emergencies: Keep public informed

Much of the news from the Hanford and Los Alamos fires reached the public by way of an apparatus established through DOE's emergency operations procedures. When emergencies and alerts occur at DOE sites, officials may decide to activate Joint Information Centers, or JICs, where news media and the public are provided information from officials from local, state and federal agencies. DOE and contractor employees, largely from the public affairs and facilities management groups, activate and operate the JICs, which receive their information from the Emergency Operations Centers.

The JICs were called together and staffed around the clock at Hanford and Los Alamos. At Los Alamos, where the intensity and proximity of the blaze

caused the center to have to evacuate. If you heard some riveting public radio interviews on the fires, they may have been lab public affairs folks stationed at the JICs.

JICs are also part of the emergency operations and public affairs jobs at Oak Ridge. ORNL frequently practices activations of Oak Ridge's JIC, which is located at the National Guard Armory in Lenoir City, just off Highway 95 at Eaton Crossroad.

A primary goal of the JIC is to always be ready to go into action. To date, no situation has ever necessitated activating, for real, the Oak Ridge JIC. The experiences at Los Alamos and Hanford show why it pays to be ready.

Traffic deaths sadden Lab community

ORNL staff members were shaken and saddened by the deaths of two top Wackenhut managers in a traffic accident near the Lab on Bethel Valley Road July 7. Walt N. Ferguson III and John Johns were killed instantly when a utility trailer detached from an oncoming truck and struck their car.

Ferguson was senior vice president and general manager for Wackenhut Services, which assumed the contract for security operations of the DOE Oak Ridge facilities last year. Johns was the director of personnel security and had also worked as a ranger in the Great Smoky Mountains National Park. Passenger Lynn Calvert, Wackenhut's vice president and deputy general manager, was injured.

The lunchtime accident, which blocked traffic for hours, was a sobering reminder, even with its freakish nature, of the risks drivers face every day. Bethel Valley Road is a normally friendly route that lacks the usual curves and hills of East Tennessee byways. It does, however, bear its share of traffic, including rush-hour and semi-truck traffic. Construction projects have also added to its load.

Operational Safety Services Director Carol Scott says that the safest thing to do when commuting to and from work is to keep your mind on it.

"It's important to use good judgment when you choose to pass another vehicle. Don't follow too closely and always be aware of our bicycling friends who share the road with us," she says. "There is almost an endless list of safe driving tips that we all know, but the most important is the one to be alert as you drive."

Reported by Bill Cabage



Mourners placed flowers where the two Wackenhut officials died.

Data

Continued from page 1

on two students opening a package from CDIAC. They could have never afforded it even if the charge was nominal, and they were very excited to receive it," he recalls.

"It means a lot to the global community. These data are already paid for, not just for those at Harvard, but for a poor graduate student in Brazil or Russia. And the data are useless until somebody analyzes them."

International users include the United Nations and the International Council of Scientific Unions (CDIAC includes a World Data Center for Atmospheric Trace Gases). Users in the United States include DOE, the National Academy of Sciences and the National Research Council.

The center maintains data sets that range from ice-core data going back 420,000 years to trends on the atmospheric effects of fossil-fuel burning in recent decades. Robert Cushman manages the center.

Policymakers also rely on these centers from time to time. Former President George Bush used CDIAC's data during discussions at the Chantilly environmental meeting of about a decade ago. Kanciruk says that Vice President Al Gore's office is a frequent CDIAC "customer." He recalled that Gore's office, while preparing a policy speech, once asked the center what effect raising speed limits would have on carbon dioxide emissions. (The center's answer was "very little.")

ARM

The ARM Archive was established in 1989 by OBER as a concept, says Kanciruk, to provide near-real-time measurements of atmospheric parameters to researchers.

The archive, managed by Raymond McCord, receives and manages the data and information generated during the course of the ARM project and distributes the data and additional information to scientists, who then tailor the information to their project needs.

The World-Wide Web serves as the engine for the ARM Archive, and the center's staff of about half a dozen handle about 50,000 files a month sent from instruments in the field. The archive, Kanciruk notes, is a big user of computing storage space (it currently stores approximately nine terabytes of data) and the operation is highly automated. The ARM Archive, jointly operates with the Center for Computational Sciences ORNL's version of the R&D 100-winning High Performance Storage Center.

ARM has 800 registered users—representing 75 universities, 25 foreign countries and seven federal agencies—and supplies users with 600,000 data products a year. In its decade of existence the archive has distributed nearly two million data files.

"The program was designed for 10 years," Kanciruk says. "We've got the potential for 10 more years of sponsorship. These data will be

useful long after the ARM Archive program ends."

DAAC

NASA, in addition to its space missions, also funds ground-based projects. *ORNL Reporter* described the DAAC's role in the space agency's Terra project in February. Images from instruments on the orbiting satellite will be compared with actual conditions on the ground reported to the DAAC from field scientists.

ORNL's reputation as a keeper of scientific data led NASA to store its Earth Science Enterprise data at the Lab. With access to computer resources and the Internet, the DAAC can provide NASA with an ongoing and steadily updating and improving base of facts to calibrate its space-based instruments.

The DAAC received kudos for its development of the Mercury system, a distributed data

access system. The center, managed by Larry Voorhees, has more than 1,500 customers (40 percent are international) and expects to distribute 10,000 data products this year.

"We're more than a data archive; we're designing data centers to run in real-time, rather than only when a project is finished," Kanciruk says.

Kanciruk says much of the credit for the success of ESD's data centers goes to DOE, for its longstanding support. CDIAC's origins, for instance, go back nearly 20 years—a lifetime in terms of programs. Over the years the programs have weathered new directions and embraced new technologies. The Internet, for instance, came along after CDIAC and the ARM Archive, but the advances in information technology have resulted in a flowering of data generation and a boom in the centers' work and demand.

The data the researchers from all over the world report now will be studied in the future by researchers who need only the means to ask for them, or even to download them.

"These are data you can't reproduce. You can't go back and recreate these data. They have a time stamp on them," Kanciruk says.

"DOE has seen lots of changes in emphasis over the years, but they've been rock steady with these centers. It's a tribute to DOE that they've been so committed to providing data as a resource, free of charge, to the scientific community."—B.C. 



The DAAC supports NASA's Terra satellite.

Service Anniversaries

August 2000

40+ years: John E. Bigelow, Chemical Technology; Patricia R. Hunsicker, Life Sciences; John T. Mihalcz, Instrumentation and Controls

35 years: Emory D. Collins, Chemical Technology

30 years: Lee A. Berry and Dennis O. Sparks, Fusion Energy; Kenneth S. Blakely, Metals & Ceramics; Jerry L. Smith, Plant and Equipment; Kenneth D. Yarborough, Engineering Technology

25 years: Theodore M. Besmann, Metals and Ceramics; Joe D. Foust, Computing, Information, and Networking; Delmar J. Fraysier, Energy; J.C. Glover Jr., Laboratory Protection; Betsy M. Horwedel, Computer Science & Mathematics; James L. Johnson, Office of Laboratory Waste Services; Anthony R. Medley, F & O Strategic Planning; Ronald L. Miller, Research Reactors; Mitchell Olszewski, Engineering Technology; Sylvia Y. Porter, Environmental Sciences; Danny E. Stooksbury, Plant and Equipment

20 years: Susan S. Chang and Richard E. Swaja, Life Sciences; Marvin A. Duncan, Plant and Equipment; Mike B. Farrar, Research Reactors; Robert D. Perlack, Richard L. Schmoyer Jr. and John H. Sorensen, Energy; Jeffery S. Riggs, Instrumentation and Controls-Technical Support Mgmt Systems Section; Peter J. Todd, Chemical & Analytical Sciences

Briefly

Canteen opens in 1000

ORNL has a new canteen in Building 1000, on the west side of the Lab. Manager Chris Fuller says the new place to have lunch has the same menu as the popular spot in Building 4500-South.

Commerce: Exit back way

Because of increased traffic on Scarborough Road caused by road construction detours, Lab safety officials are suggesting that drivers exit Commerce Park the "back way": left onto Highway 62, then left onto Union Valley Road and then left onto Scarborough Road. While a little farther, it's a much safer alternative and may even be quicker.

Awards Night November 9

UT-Battelle has organized its Awards Night; the 2000 celebration is set for Thursday evening, November 9, at the Hyatt Regency Hotel in Knoxville. Nominations were collected last month.

The good in us all

Collaboration with Kazakhstan boosts 'probiotics' for the food supply

ORNL researchers are working with scientists in Kazakhstan on a biotechnological approach to preserving food and preventing food poisoning. It would work by using "good" bacteria to thwart "bad" bacteria that spoil and poison food.

Scientists from the Kazakhstan Academy of Sciences' Ministry of Education and Science in Almaty are working with scientists from ORNL and the Department of Agriculture's Agricultural Research Service to ensure the safety of our diet. It's part of the DOE's Initiatives for Proliferation Prevention program to create non-weapons-related work for scientists of the former Soviet Union.

"Contamination of food and drinking water by 'bad' bacteria can result in serious illness and even death, especially in children and senior citizens," says the Chemical Technology Division's Jonathan Woodward. "This research, guided by U.S. industry and funded by the Initiatives for Proliferation Prevention, is aimed at generating bioproducts—called probiotics—that can be used to prevent contamination of food by pathogenic, or 'bad,' bacteria."

Examples of bad bacteria, Woodward says, include strains of *E. coli*, *Salmonella* and *Campylobacter* species.

Probiotics can be considered "good" bacteria," he says. "Scientists in Kazakhstan have identified several strains of *Lactobacillus*, or the lactic acid bacteria commonly found in yogurt, and *Propionibacterium*, isolated from a variety of sources, that can prevent the growth of the bad bacteria."

Probiotics—a general term for all the good bacteria normally in human beings' intestines—are essential in aiding normal digestion and also as a first line of defense against invading viruses, yeasts, parasites and pathogenic bacteria.

"As they help us digest our food, they secrete certain acidic end-products that are lethal to unfriendly organisms but beneficial to us in normal amounts," Woodward says. "Our friendly

probiotic bacteria are depleted by antibiotics we've taken, chemicals in our food or water—especially chlorine—or even by the large amounts of antibiotics and other chemicals present in meats and poultry. Until we replace the probiotic bacteria, we've left ourselves vulnerable for more yeast, viral and bacterial infections."

Probiotics could be introduced into the diet as simply as by sprinkling them onto food. They also offer an alternative to the use of antibiotics in animal feed to ward off infectious diseases or to prevent spoilage.

"A menacing feature of disease control emerging worldwide is the mounting resistance of pathogenic microorganisms to traditional antibiotics," Woodward says. "In this cooperative project, probiotics are being identified, and also the molecular entities they synthesize, to keep pathogens at bay. This

constitutes the prime project focus."

Kazakhstan scientists have accumulated a rich and so far untapped resource of microorganisms that have antibacterial properties that could prove very valuable to food safety R&D in the United States.

"Because of the collaboration already supported by the Initiatives for Proliferation Prevention program, we now have access to these probiotics," Woodward says.

Woodward said that U.S. government agencies have worked closely together to accelerate the collaboration with Kazakhstan.

Through the efforts of Ruxton Villet of the Agricultural Research Service and Woodward, a formal agreement between DOE and the USDA has been established to determine the usefulness of the good bacteria from Kazakhstan.

"U.S. industry is showing significant interest in this project. Wayne Farms, LLC, of Gainesville, Ga., is joining the effort to develop these products for the U.S. consumer markets, as well as those in Kazakhstan," Woodward says.

"They realize that this could lead to attractive business opportunities in satisfying the U.S. population's demand for safe food."—B.C. [ornl](#)



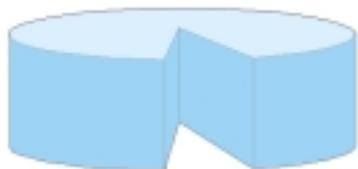
Bringing back the 'friendly flora'

Probiotics are not new. In primitive cultures, probiotics were a normal part of the diet in the form of traditional fermented foods. Europeans had their fermented milk products (yogurt, kefir, soft cheeses) and vegetables (sauerkraut); Asians had their fermented soy products (miso, tamari) and vegetables (Kim Che, pickled Umeboshi plums). African cultures fermented grains or milk.

Typically, fermented foods were used daily in small amounts and were also prescribed in larger amounts in times of sickness. Unfortunately, says Jonathan Woodward, even though some of these fermented products are still available to us in modern society, they are now usually mass produced by means that are very different from traditional culturing methods, and treated with heat, stabilizers and other chemicals to prolong their shelf life, as well as artificial sweeteners or sugars to mask the taste.

"The ratios, amounts and viability—the ability to survive and be effective—of friendly bacteria are therefore drastically altered," he says. "In addition, many people have become allergic to the foods used in fermentation, especially milk and soy. Other people are allergic to the yeasts which are part of the specific fermentation process used to make miso, tamari, and cheeses."

Probiotics could represent a way to reintroduce these friendly flora back into the digestive system.



ORNL people

George J. Malosh has been named assistant manager for laboratories for Oak Ridge Operations. He'll be responsible for the oversight of activities at ORNL, the Oak Ridge Institute for Science and Education, the Thomas Jefferson National Accelerator Facility and the Spallation Neutron Source. George succeeds Ed Cumesty, who recently was named deputy manager for ORO. George comes to the Lab's site office from Brookhaven.

UT graduate student **Eric Yezdimer**, who conducts DOE-sponsored research with UT/ORNL Distinguished Scientist Peter Cummings, was one of 36 American graduate students selected to attend the 50th anniversary meeting of Nobel Laureates held in late June in Lindau, Germany. Eric, assigned to the Chemical Technology Division, was one of 600 students who met with 66 Nobel laureates. The meeting was the first to include a significant number of American students.

Lorie Langley has joined the ORNL Fossil Energy program to lead the Natural Gas Infrastructure, Methane Hydrates, and CO₂ Sequestration programs. Lorie will be principal liaison to the newly created Strategic Center for Natural Gas, located within the National Energy Technology Laboratory, and will be the ORNL program manager for all activities associated with the Strategic Center for Natural Gas. Lorie has been technical assistant to Gil Gilliland, associate director for Energy and Engineering Sciences.

Finance in English

A glossary of budgetspeak

The world of finance has a language practically all to itself, and if you aren't versed in it you can quickly find yourself on the outside of a conversation looking in. What is G&A? What is the composite multiplier rate? What's a pool?

Chief Finance Officer Greg Turner and Business Analysis Section Head Bryan Kendrick offer this brief glossary of finance-ese, at least for how it's spoken around ORNL.

Indirect costs: The money spent in support of, instead of directly spent on, actual R&D activities—the “cost of doing business.”

For instance, a direct cost would be for the researchers' time that went into designing a new widget; indirect costs generally would pay for the host division's management and the upkeep of the facilities where the widget is being designed and built.

Organizational burden: Management and administration costs, at a division level, that are recovered by applying varying hourly rate charges to external clients and internal accounts.

G&A: Stands for *general and administration*—along with Work for Others administration, materials handling and subcontract administrations, these are Lab-level indirect-cost activities that support projects and the management of the Lab.

Stack: The indirect-cost “stack” is the \$237 million sum of all indirect costs of the Lab, including Lab overhead, organizational burden, LDRD, etc.

Pool: A grouping of similar or like

costs; for instance, wage pools or space pools. The cost of an hour of effort is calculated through some of these pools.

Composite multiplier rate: The key figure, currently at a lab-leading 1.95, that needs to come down. It essentially represents how much it really costs to do a dollar's worth of research—in ORNL's case, a buck ninety-five. Three figures make up the composite multiplier: labor, subcontracts, and other indirect costs.

Operational improvements: One-time or substantial process improvements that are intended to enhance the quality, productivity and effectiveness of Lab functions. The Lab will fund selected operational improvements if they result in significant cost savings—“spending a dime to save a dollar.”

Fixed costs: Costs that, in the short run, are set outside the Lab, such as the site usage fee charged by Y-12. Other examples are the contract management fee and taxes.

LDRD: Laboratory-directed R&D activities intended to enhance and expand Laboratory capabilities. Where ideas are nurtured.

Reserve: A fund that is allocated at the discretion of the Leadership Team for program development, hiring new staff, LDRD, or operational activities. Reserves can also be used to cover budget shortfalls, thus providing stable overhead rates for project managers.—B.C. [ornl](#)

Indirect Budget Component	FY 00 Baseline (M)	FY 01 Target (M)	Team Leader
“Fixed” Costs	\$ 18.0	\$ 14.0	Turner
G&A	73.0	67.0	Smith
Space	20.0	18.0	Debban
Material Handling, Subct. OH	9.0	8.0	Turner
Org. Burden	92.0	82.0	Roberto/Harris/Gilliland
LDRD	15.0	15.0	Riedinger
Program Development	6.0	6.0	Riedinger
Operational Improvements	0.0	3.0	Smith
Reserves	4.0	4.0	Madia
Total	\$ 237.0	\$ 217.0	

These working groups have been tasked with recommending \$20 million in indirect cost reductions for FY 2001 and assessing what effects they will have. The remaining \$10 million will come from operational improvements.

Indirect

Continued from page 1

\$200,000 each year for pagers and deals with five separate cellular phone service providers. “I know we can reduce these costs,” he says.

Another example of reducing cost—the just-begun managed hardware program—is aimed at reducing the number of desktop computing configurations that must be maintained. Currently virtually any computer on the market can be ordered, and that prerogative will probably still exist. But under the managed hardware program the Lab will only have to support certain configurations.

Smith told the publication *Inside Energy* that retirements and attrition weren't likely to figure highly in the cost reductions. Current attrition, which is the percentage of staff members who are leaving the Lab, is only at about two percent, he said.

Madia is direct in stating that staff reductions are coming.

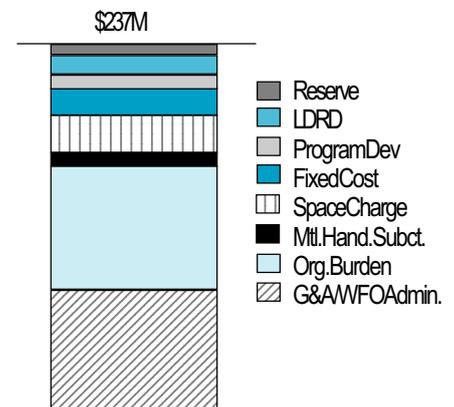
“Although non-labor costs will be examined carefully, there undoubtedly will be staffing impacts from these actions,” he says. Human

Resources will work with DOE on staff impacts, which will be announced in September, and identify options available for affected staff as the process progresses.

“I am firmly convinced that these actions are necessary for ORNL to grow,” he said in the July 18 message. “Our Laboratory delivers exceptional science and technology solutions to our customers, but we must become far more cost competitive, especially during difficult budget times like these.”

Following the \$20 million in cuts for FY 2001, the remaining \$10 million in cost reductions for FY 2002 will be accommodated through planned investments in operational improvements to business processes and systems.

ORNL's costs have been a frequent focus area for the UT-Battelle team. In May, Madia announced that a \$9 million shortfall for the current fiscal year was going to require significant belt-tightening measures. He subsequently reported that, as a result of those measures, progress toward a balanced overhead budget for FY 2000 is on track.—B.C. [ornl](#)



The “stack,” a Dagwood sandwich of indirect costs, now add up to \$237 million at ORNL.

The hope is that many of the recommendations will be aimed at eliminating cumbersome requirements or rethinking how those requirements are implemented.

PADS' progress

HR reengineering proceeds as HR fine-tunes the new system

As most employees who have completed their required self-assessments and performance plans know, reports of the demise of the Performance and Development System, or PADS, were greatly exaggerated. Human Resources reengineering, after being placed on hold during the change in contractors, is proceeding.

Still planned are efforts to eliminate the Hay system, introduce role assignments, reduce the number of job levels and institute broader salary bands, all key components of the original reengineering proposal.

"The implementation of behavioral stages is being reconsidered, but the process for performance planning and assessment has

ORNL Lab Director Bill Madia observed in an April *Reporter* interview that promotions are "a part of our culture, fundamentally ingrained as a way to recognize and reward."

Director of Human Resources and Diversity Programs Darryl Boykins says the proposed job evaluation approach and compensation system was too heavily based toward behavioral traits, such as collaboration, teamwork and mentoring.

"Although team and collaborative efforts are critical individual and organization success factors, individual contributions are equally important to the Laboratory," Boykins says. "We saw a need for a system that was less behavioral-based and brought teamwork and individual effort into better balance. Our pay and recognition systems must recognize the value of both. Redesign of the system is under way and implementation is targeted for mid-2001."

Some employees thought the entire process was on hold and were surprised when they were

asked to submit, as usual, self-assessments and performance plans. Although the job evaluation and compensation systems are being re-evaluated, the performance planning and assessment process itself is proceeding as it always has, with the introduction and use of the new PADS Web tool.

"I think one reason people were confused is because some employees referred to all HR reengineering as 'PADS' and inferred from HR reengineering being on hold that PADS and the associated Web tool was also on hold," Willard says. "The PADS Web tool was designed to support our performance planning and assessment process and will continue to be modified until we've completed a total performance management and compensation system."

Meanwhile, the performance planning assessment process goes on. By now this year's performance ratings have been entered into PADS. Final approvals and performance discussions with employees began in early

August. Salary planning for the next fiscal year also began in early August. All performance discussions will be completed by the end of October.

One of the most marked and obvious changes in the Annual Results Assessment is a set of seven performance ratings. The definitions of the new ratings are available on the PADS Web page, www-internal.ornl.gov/~izu/ara/gen/araTraining11.htm.

In the meantime, the PADS team will continue to adjust the Web tool. "We'll be looking at things that worked well—and things that didn't—and modify the system accordingly," Willard says. "We have either fixed, or documented for future consideration, concerns and problems experienced with PADS during this review period."

Comments and suggestions regarding PADS may be submitted to Willard, willardmc@ornl.gov. Additional information, such as answers to frequently asked questions about PADS, is on the PADS Website at www-internal.ornl.gov/pads.—B.C. 

One reason for confusion is that, because HR reengineering was referred to as 'PADS,' employees thought that the PADS Web tool was also on hold.

continued," says Mike Willard, Compensation section head. "The key competencies were incorporated, and the PADS Web tool is being used. Based on feedback and lessons learned from this year, users will see improvements to the Web tool before the next assessment period."

The Leadership Team put a hold on the career stage assignments, Willard explains. "That's where they had the most reservations. It was essentially behavior-based and promotion-less. They asked us to reevaluate and continue development of a new system that will still meet most of the reengineering objectives, while retaining promotions and job-based criteria."

Retirements

To arrange for a portrait, call Deborah Barnes, 576-0470



Byrum

Bertie F. Byrum, who held the active employee record for length of service at ORNL with 54 years, has retired. Bertie started work at K-25 in 1944 and came to ORNL in 1951. She was secretary for Metallurgy Division Director John H. Frye for 21 years and for

James L. Scott, the Fusion Program manager, for 10 years. In recent years she worked in the Metals and Ceramics Division's Photographic Imaging group for 10 years. Bertie lives in Lenoir City.

ORICL signing up for fall term

It's time to sign up for another year of interesting courses and field trips at the Oak Ridge Institute for Continued Learning. Call the ORICL office at 481-8222 to request your fall catalog. The deadline for registration is August 21, 2000.

ORICL offerings for the fall term include daytime and evening courses taught by college professors, local scientists and computer and other experts. The offerings include courses in art, photography, literature, history, politics, medicine, money management, gardening and a chance to brush up on language skills with

conversational French, Spanish and German.

The low-cost yearly ORICL membership is open to residents of Oak Ridge and the surrounding area of all backgrounds and educational levels. The no-exam courses are given at the new Oak Ridge Roane State Community College building. The institute is sponsored by Roane State Community College and is an affiliate of the Elderhostel Institute Network.

Classes vary in length to accommodate travel schedules. The fall term starts on September 18 and ends December 15.

A modest gift goes a long way

BY LOU DUNLAP,

UNITED WAY CAMPAIGN CHAIR

I am honored to be chair of the ORNL United Way campaign this year. Through many years of involvement with United Way as an active member of the Anderson County organization, I have gained a real appreciation for the differences our gifts to United Way make in the lives of so many people. The money received is thoughtfully and carefully allocated by dedicated volunteers to groups that have passed the rigorous standard of becoming United Way agencies.

United Way is an organization that stretches our dollars to gain the maximum benefit. Did you know that a United Way gift of \$5 per week for a year will

- help the Girl Scouts or Boy Scouts provide service to eight children,
- enable 28 families to receive home furnishings through the Ecumenical Storehouse,
- provide eight hours of counseling through Child and Family Services or
- help the Rescue Squad respond to three emergency calls?

These examples make it pretty clear that every dollar we invest pays real dividends—because giving to United Way is an investment. United Way dollars are an investment in making our communities stronger by sharing what we have with those who are not so fortunate.

Please remember, as you make your United Way pledge this year, that your gift will really make a difference. Many thanks for your generosity and support.



United Way

Each year, United Way volunteers visit area agencies and come away convinced of the value of the work these organizations do and the importance of our support to them. Last month's visits to the Knox County Association for Retarded Citizens and the Cerebral Palsy Center were no exceptions, as ORNL volunteers (in photos, clockwise from upper left) Kahra Gilley, Ann Luffman, Jack McNew, Don Rhodes, Danny Cantrell and Okie Johnson got a chance to meet with agency clients. Lab volunteers also visited Michael Dunn Center in Roane County and Keystone Elder Day Center in Oak Ridge. Activities for this year's campaign, which is scheduled to end August 18, have included a book fair and a visit by UT Lady Vols basketball coach Pat Summitt. Last year's ORNL drive generated \$568,962 for United Way agencies in East Tennessee.



ornl reporter

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