

## Tackling the lead threat

### ORNL and EPA program tests products aimed at detecting and measuring an insidious trace metal

Lead in the environment is a well-known national health problem, particularly where children are concerned. Researchers in ORNL's Chemical Sciences and Computer Science and Mathematics divisions, working with the Environmental Protection Agency's Environmental Technology Verification Program, are coordinating tests of new technologies for detecting and measuring lead.

Those technologies, and the tests that establish that they really work, will help efforts to remove traces of the metal from buildings and other places where people could inadvertently ingest it.

"The detrimental effects of lead poisoning, particularly in children, are well documented," says Chemical Sciences' Amy Dindal. "There is a specific need for faster, better and cheaper technologies for the detection and measurement of lead, particularly those that can be reliably used at the site—such as a home—by a minimally trained operator. And that's where we come in."

For the past several years ORNL, working with the EPA's ETV program, has been testing instru-

ments made by private companies to verify how effective they are at detecting hazardous contaminants, such as PCBs and explosives, in the environment.

"The technologies include a variety of analytical instrumentation, like gas chromatographs, ion-specific electrodes, immunoassay kits, X-ray fluorescence instruments, anodic stripping voltammetry systems and decision-support software packages," says Amy. "The common characteristic of all the technologies we evaluate is that they are field-portable, meaning they are designed for use outside of a laboratory, so that is typically how we test them."

The most recent tests have been with instruments that analyze the lead content picked up in dust wipes. A pad, similar to a baby wipe, is passed over a surface and analyzed for the amount of lead in the surface dust.

Early in the program Amy and Chemical Sciences' Roger Jenkins assembled a nationwide panel of experts in the area of field analytical testing for lead.



*Originating in old painted surfaces, lead dust has been identified as a serious health threat to children*

"The technical panel greatly assisted us in defining the verification test—for instance, focusing on lead in dust rather than lead in paint or soil because that is where the greatest need was—designing the experiment and identifying vendors of technologies," says Amy.

Four technologies participated in a test conducted (See LEAD, page 4)

## F&O's task: Prepare ORNL facilities for demands of emerging science

ORNL Reporter continues its series of guest articles with Facilities and Operations Director Herb Debban.

BY HERB DEBBAN

If someone asks me what the overriding objective of the Facilities and Operations Directorate is, my first response is to say that we're getting ORNL ready for science in the twenty-first century.

We're already well into the twenty-first century, so it's time for us to get cracking.

F&O's part of the Laboratory agenda has three key facets to make ORNL a more efficient and an overall better place to do science. They are modernization, the new facilities operations model, and one all of us have had experience with lately—security. I want to talk briefly about those three.

Modernization is critical. According to a DOE condition assessment model, only one-fourth of the Lab's facilities are considered "adequate." The cost of bringing the other three-fourths of our facilities up to "adequate" would be prohibitive. Old facilities are costly, eating up resources that would otherwise go to research, and they don't serve our emerging missions very well.

To be sure, science today is much different than it was during the Manhattan Project and the Cold War, when much of ORNL was constructed. Today we have electron microscopes that can see at single-angstrom resolutions... that are so sensitive that any slight tremble from a passing vehicle or magnetic field from an electrical line can upset them. To accommodate these new instruments, we are building a new facility adjoining the High Temperature Materials Laboratory, largely because existing facilities just aren't up to the task.



**Herb Debban**

That's just one example of the challenges we intend to meet. There are others. While ORNL is making its reputation as a center for supercomputing, we have no facilities for the next-generation supercomputer. While our Mouse House is legendary, we can't do pathogen-free genetics research. Modernization in the form of a new computing facility and Mouse House will address those concerns.

Safety problems with the old facilities are accelerating. Over 20 percent of all of our corrective actions are associated with facility conditions. Our event reports document falling bricks, unknown electrical circuits, legacy hazardous materials and out-of-code conditions. Modernizing facilities is our highest priority task for improving our safety conditions.

At the same time, we aren't spending enough money to keep our current facilities from deteriorating, and there aren't realistic prospects for getting more funds. Our maintenance strategy, then, is to reduce the total square footage of our facilities, replace old with new, and eventually apply the same maintenance dollars to 1.2 million fewer square feet. We've pledged to reduce the Lab's cost of doing business and to do it while increasing the effectiveness of maintenance. We haven't been spending enough as it is. After modernization we'll have fewer costly old facilities to maintain.

Our plan is to strengthen the Lab through facility modernization but to reduce the cost to FY02 levels at the completion of the first phase of construction in FY06. Major cost reductions will occur in utilities

(See DEBBAN, page 2)

# Debban

Continued from page 1

as we move to much more energy-efficient facilities and eliminate the costs associated with being in Y-12 and reducing legacy waste issues.

Big challenges face us in FY2003 and '04 as we move to the new facilities. Similar to a family moving to a new home, we have overlapping "rent" on the facility we are exiting and on the new house we are moving into. Also, we have the cost of moving and rearranging. Our move plan is being formulated to help us keep this cost to the absolute minimum.

Last year we instituted a new customer-service model for facility operations and maintenance. The resulting new "complexes" are managed by core teams for the east, central and west campuses; ORNL at Y-12; the Spallation Neutron Source; leased facilities and, in FY '03, nuclear facilities (except HFIR).

The new facilities operations model centralizes our services to make us better able to deploy craft resources to the areas where they are needed. Previously, groups were more rigidly structured and tied to certain work areas, which meant it was more difficult to provide services to emerging tasks and, generally, effectively use our resources.

We've retooled our organizational structure toward the objective of enhancing customer satisfaction—reducing the cycle time in the delivery of F&O's crafts services and allowing us to quickly address new work while maintaining older, more routine and established tasks. It's an integrated system that works in conjunction with the Standards-Based Management System.

Key to this new system is a landlord-tenant

approach that involves the development of facility use agreements with the building occupants. The agreements establish the boundary operating conditions and the type and level of maintenance services to be provided in return for funding received from the space pool. It's similar to the arrangement a renter may have with a landlord—"no pets, mow the lawn," or, in the case of a business, whether or how hazardous materials would be involved.

Eventually, this system will enable us to minimize the number of radiological facilities, hazardous materials storage and other specialized types of areas that are currently located in multiple areas. Certain types of work will be done in certain facilities, which will enable us to provide better service at a reduced cost and to better and more uniformly meet the monitoring and safety requirements of these facilities.

Working together, SBMS and the facility-use agreements spell out roles

and responsibilities, helping customers and F&O service providers alike work safer and more efficiently so that more of the Lab's funds can be applied to science.

The most obvious facet of F&O in the last half of the past year was security. The events of September 11 brought home what had already been evolving—changes in protecting the Lab and its staff. We reevaluated our security strategy and realized that we needed to make enhancements based on the terrorist threat.

Most basically, to protect our staff, we needed longer response times. We've achieved that by closing Bethel Valley Road, first to commercial trucks and later to the general public. ORNL is no

*ORNL is no longer easily accessible by vehicle to outsiders who may be less than friendly.*



**Artist's concept of the privately funded facilities, a key element of ORNL's modernization**

longer easily accessible by vehicle to outsiders who may be less than friendly. At the same time, we remain accessible to visitors who have business here—most need only to make the same prior arrangements that were previously required.

Admittedly, the absence of the familiar security officers at the gated vehicle portals bothers some folks. An unattended portal is something new. Some employees say they feel less secure now.

That's more perception than reality. Until October 30, any truck could drive right up to ORNL. Until December 18, anyone in a car could drive by the Lab without restriction. About 40 percent of the Lab's facilities are outside the chain-link fence. And if the fence were breached, most buildings inside that fence stood wide open.

The deployment of the proximity system for the Lab's active, occupied facilities means that we are better able to control who actually gets into the buildings and the specific facilities certain people may enter. The protection we've been accustomed to at the gates is still there; it's simply been expanded to a perimeter that includes the roadway that serves the entire Laboratory. And the security inside that perimeter is more uniform.

Now, instead of stationing security officers in fixed positions, those officers have been redeployed so that they are more capable of rapid response in the unlikely event that some threat does emerge. We now have better control over the entire ORNL site.

We've improved the security of the staff and facilities of ORNL, and at the same cost as before September 11. Also, an important part of our goal has been to enhance security with minimum impact to the scientific staff, and I believe we are achieving that with the recent changes.

Construction on three private facilities in what is now the east parking lot will start in March. In all there will be six new facility starts this year. Twelve new facilities are planned for ORNL's modernization campaign overall, not including the new parking lots to replace the ones we're devoting to the new facilities.

With all of this construction, the next few years are going to be messy. But out of the mud, noise and disarray will come a new ORNL with facilities well equipped for the current and future demands of state-of-the-art science. I'm confident that you will like what you see. [ornl](http://ornl.gov)



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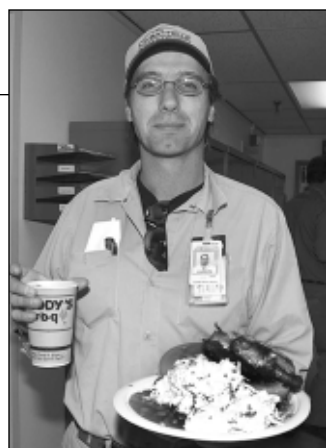
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Curtis Boles

Steve Colburn, a rigger in the Facilities and Operations Directorate, ate lots of well-deserved barbecue at the HFIR restart celebration (story on page 4).

# Lab Notes

## Security's farther frontiers

ORNL experienced one of its most pronounced access changes since the Manhattan Project days shortly before Christmas, when new checkpoints were established on Bethel Valley Road at the approaches to ORNL. The new requirement—vehicle occupants must display at least one DOE badge to proceed on to the Lab—is symbolic of the changed world scene since the end of the Cold War and the events of September 11.

Lab Director Bill Madia explains that the terrorist threat, most notably in the form of a truck bomb, means that security officials need response time to adequately protect Lab facilities and staff. With the perimeters now pushed out to the two Bethel Valley Road entrances, security officials now have that cushion.

But staff members were initially nonplussed by one of the more radical changes—unstaffed vehicle portals. As Herb Debban explains in his front-page article in this issue, staffing the gates through the fence is no longer necessary with the combined security of the Bethel Valley Road entrances and building-based, proximity-activated security system.

Still, it takes some getting used to. About 200 vehicles were turned around on Bethel Valley Road the first day, December 18, but Security's Bill Rich says that number quickly dwindled. Access to ORNL by visitors and others with business at the Lab is essentially the same as it was: By making

prior arrangements through the host, security officers at the Bethel Valley Road checkpoints will be informed to let the visitor proceed to the Visitor Center.

## Marburger: Science serves security

Former Brookhaven National Laboratory Director Jack Marburger visited ORNL just before Christmas in his new role as the head of the Office of Science and Technology Policy. The presidential science advisor told the Wigner Auditorium audience that the new focus on terrorism is not an easy concept to grasp: "Most of the basic science has been done," he says, regarding technical solutions. "We have detector and sensor technologies, for example, but it's difficult to implement them at the scale needed for homeland defense. There is a need for strategic thinking how to implement systems and how to make them affordable."

Marburger says that advances in computing and instrumentation have brought science to a major turning point. "For the first time, we are in a position to connect the atomic-scale structure of matter to the behavior of matter—how it works, what it does and how we can intervene. We are doing science differently than we were just a few years ago," he says.

Central to that ability, he said, is the freedom to do the science, even in the face of the terrorist threat. "We must not go backwards—that would be a capitulation," he says. "President Bush understands that freedom is necessary for science, and strong science is important to the nation."

Soviet Union. "We are reducing the threat to both of us by making sure that nuclear weapons are safe."

Programs such as the Nuclear Cities Initiative are geared toward helping the "very smart people" in Russia's secret nuclear weapons cities convert to peaceful occupations. It's a process, he says, that's much harder there than in the United States.

Concerning another primary threat—terrorism—Brooks says, "The September 11 events were awful. A nuclear event would have been tremendously worse."

Another potential terrorism tactic, biowarfare, represents a new scenario that Brooks admits is different from the nuclear threat that he's spent most of his career managing. But he saw potential countermeasures at ORNL.

"I hadn't fully realized the vast amount of knowledge in biological science—a growth area," he says. "The threat of biological warfare is much more a part of the mainstream security discussion."



Volunteer trainer Vic Pardue tries out one of the ORNL Fitness Center's machines.

Curtis Boles

## Toward more six-pack abs

On a more corporal note, Lab staff members last year clamored on the Quality of Work Life survey for an exercise facility, ranking it third of 75 items. The ORNL Fitness Center opens February 4, with an impressive suite of machines already in place, plus mirrored walls to remind you why you're there (and also to help you make sure your workout form is correct).

Equipment includes a half-dozen each treadmills and elliptical trainers, a rowing machine, upright and recumbent bikes, a multistation gym, a stair-stepper and machines for an assortment of muscles.

Users must undergo an orientation session on the equipment. A cadre of volunteer trainers has been assembled and training sessions are in progress. The facility will then be available to authorized users 24/7. A Web site has been set up with information and the required waiver form at [home.ornl.gov/fitness](http://home.ornl.gov/fitness). Wear it out.

Reported by Bill Cabage

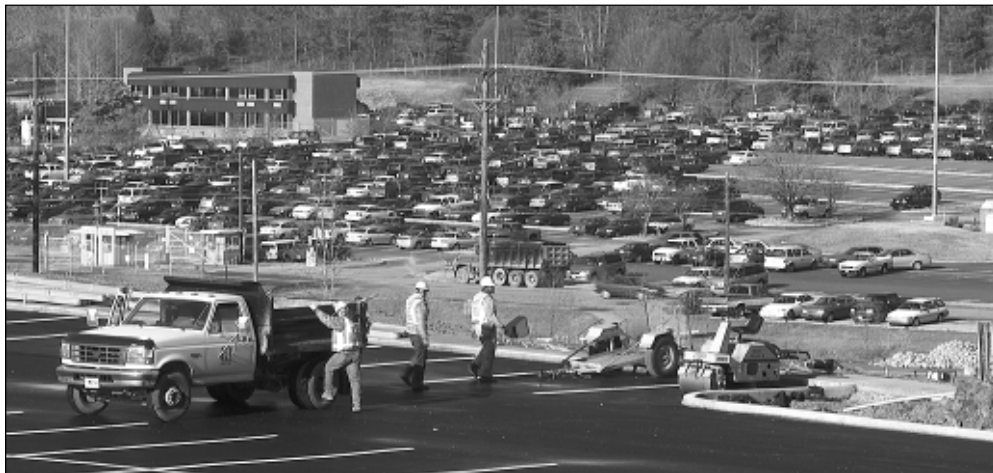


At left, NNSA's Linton Brooks makes a point about nuclear nonproliferation. At right, Presidential Science Advisor Jack Marburger (right) chats with ORNL Director Emeritus Alvin Weinberg.

## NNSA's Brooks: U.S.-Russia concerns similar

Former ambassador and National Nuclear Security Administration official Linton Brooks stopped by ORNL on January 8 as part of a visit to Oak Ridge facilities. Brooks, who negotiated the START1 treaty with the former Soviet Union to limit nuclear weapons caches, described his role in the new homeland defense scenario, as well as in dealing with nonproliferation issues.

"Nonproliferation is not based on the idea that we are enemies," Brooks said of the U.S. relationship with the former



The freshly striped southeast hill lot overlooks the east parking lot, which will soon be a construction site. Building 5002 is in the background.

Jim Richmond

## Parking: Construction looms for the east lot

Staging for construction of ORNL's privately funded buildings—the initial phase of the Lab's modernization—could begin in mid-February. The site for the three buildings is a portion of the east, or main, parking lot. Many of the east lot's spaces will no longer be available when equipment arrives.

To fill the parking gap, new parking areas have been constructed just to the southeast, on and above the site where the 6026 trailer-offices recently sat. The expanded and renovated lots will have approximately 750 spaces.

The new spaces are accessible from Bethel Valley Road by turning onto Melton Valley Access Road (traffic light X-1), then right onto White Oak Avenue and then left at Building 6011.

## Lead

Continued from page 1

by ORNL in Hartford, Conn., during the first week of November 2001. A fifth technology from KeyMaster Technologies, a company based in Kennewick, Wash., was tested at ORNL in early January 2002. The device, which is about the size of a cordless drill, is an X-ray fluorescence spectrometer that uses a small gamma source to activate the sample and obtain a count of lead particles picked up by a dust wipe.

Two of the machines were set up in an office in Building 4500-South. "These are similar to conditions you'd have while performing tests in old apartment buildings or other structures," says KeyMaster's Stephen Price.

Amy and Roger have also been working closely with Chuck Bayne, a statistician in the Computer Science and Mathematics Division. "As you might imagine, there is a lot of emphasis on rigorous experimental design and in-depth data analysis, so Chuck has played a key role in the success of this program," says Amy.

Lead's more subtle uses represent the greatest risk, especially to children, and particularly in paint. One frequently cited pathway of lead into children is paint chips. Lead-containing paint is a particular risk to infants and toddlers, who gnaw on anything within reach. As a young mother, Amy has no problems in perceiving how lead can get into the system of a young person.

But an even more pernicious threat is lead dust. Lead-painted surfaces that have been disturbed, or have just worn away, create fine particles loaded with lead, which can be ingested by anyone.

In children, lead in large doses can cause convul-

sions, coma and death. The element affects every organ in the body. In smaller doses the effects are subtler but similarly devastating. It adversely affects the brain and central nervous system of fetuses and small children, and lower IQ levels have been noted in highly exposed children.

Although paint is fairly stationary and easy to spot, lead dust may fall anywhere and on anything and be ingested in any number of ways. Finding ways to detect it and remove it is a critical need in older structures if they are going to be made safe for habitation.



A technician for a lead-detection instrument vendor arranges particles on a dust-wipe sample.

"There are different regulatory standards for acceptable lead-dust content in

the home, depending on how high the surface is," says Amy. "For instance, allowable amounts of lead on the floor are lower than shelf surfaces because children are more likely to come in contact with the floor."

ORNL's work with the EPA's ETV program is aimed toward providing the marketplace with a critical need—data verifying the performance of field-portable instruments that can do the lead-detection job.

You can learn more about ORNL's work, including the results of the lead dust wipe testing once they are available in late spring 2002, at the Web site [www.ornl.gov/etv](http://www.ornl.gov/etv).—B.C. [ornl](http://www.ornl.gov)

## HFIR, 3019 staff celebrate restarts

Staff members at the High Flux Isotope Reactor and Building 3019 celebrated operations restarts recently. Lab Director Bill Madia noted the accomplishment—two nuclear operations startups in one year—in a December 19 senior staff meeting.

At the celebrations, Bill and other Leadership Team members donned aprons and doled out barbecue to the crowd of staff members who participated in the restart efforts.

HFIR's restart culminated a process that began back in 1994 with the purchase and design of materials for the project. The work included the replacement of the reactor's beryllium reflector and a number of upgrades that include installation of new beam tubes and a cooling tower. On the way is a cold neutron source that will "slow down" neutrons, making them more user friendly for researchers.

"The HFIR restart and the Spallation Neutron Source will represent \$2.5 billion—that's *billion*—in research assets, which will continue ORNL as the

world leader in neutron science for years to come," Bill said at the HFIR event.

Bill recognized BWXT's John Sinclair, who coordinated the operational readiness reviews for the HFIR restart and the preparations for the 3019 restart. Also on hand for the celebration was Tom Stevens of Duke Engineering Services, the subcontract operator for HFIR.



Jerry Cotter was one of the HFIR restart celebrants.

Duke and BWXT are part of the UT-Battelle partnership that was assembled for the 1999 contract competition for

ORNL. Neither company has been a household word around ORNL since. Research Reactors Division Director Gary Rothenberger says that's by design.

"That's a good thing. Things need to work together as a whole, as a team, not this company or that company," Gary says.

Things are definitely working, with the HFIR operating at its full-rate 85 megawatts of power, Gary says.

Building 3019's restart involves the facility's uranium-233 inspection and repackaging operations. "We've resumed operations with a substantial amount of new equipment providing enhanced inspection capabilities and better protection for personnel," says the facility's Alan Krichinsky. "The new equipment and new staff required a substantial startup activity, including a full-bore operational readiness review."

The Building 3019 operation, he says, has now resumed routine handling operations involving a much larger scope of the U-233 inventory with better equipment.—B.C. [ornl](http://www.ornl.gov)

# Molecules that matter

## Polymer chemist's appointment resumes series of UT-ORNL Distinguished Scientists

**D**r. Jimmy Mays has been named a University of Tennessee–Oak Ridge National Laboratory Distinguished Scientist, the first in eight years but also the first of more to come.

Mays is a polymer chemist who has earned international recognition for synthesizing precisely tailored polymer materials and establishing highly productive collaborations.

“I don’t want to make a molecule and leave it on the shelf to be admired,” Mays says. “I want to understand as much about what we make as possible. And the way you do that is to collaborate with people that have expertise in fields outside your own.”

Mays, 44, was appointed distinguished professor in the UT Chemistry Department and distinguished scientist in the ORNL Chemical Sciences Division effective January 1. He recently came to UT from the University of Alabama at Birmingham. His is the first UT-ORNL distinguished scientist appointment since 1994.

“Jimmy Mays is the first in a series of new distinguished scientist appointees intended to provide leadership in building programs of research in materials science, neutron science, biological

science and computational sciences,” UT Science Alliance Director Jesse Poore says.

Mays is working on a material that would block out harmful substances and keep military personnel safe from chemical and biological agents.

“You could put soldiers in suits of butyl rubber—that’s the material inner tubes are made of which is impermeable to everything—but if you did they would probably welcome nerve gas, because there’s nothing to prevent them from ‘stewing in their own juices,’” Mays said.

“So we’ve been making polymers with butyl rubber as their main component, but interspersed throughout are tiny dots of perm-selective material. These let water vapor pass through, but chemical-biological agents do not.”

Lee Riedinger, ORNL deputy director for Science and Technology, stresses the importance of the Distinguished Scientist Program.



Jimmy Mays

“This joint program is one of the Laboratory’s primary vehicles for critical hires of research leaders important to our agenda for science and technology,” Riedinger said. “Dr. Mays is a wonderful addition to ORNL and to the university.”

Mays says he was drawn to the joint UT-ORNL position by the emphasis on materials science at both institutions.

“This is an exciting place for a materials scientist,” Mays said. “Just look at the pool of talent when you combine UT talent with what’s available at Oak Ridge. Add to that the soon-to-come ORNL Center for Nanophase Materials Sciences and the Spallation Neutron Source. There’s a real critical mass of materials research here.”

Mays, who refers to himself as “a scientific extrovert,” specializes in creating model compounds where the structure and architecture of the molecule are very well known and in working with engineers, physicists and other scientists to understand how the structure affects the properties. —*Reported by Mike Bradley, UT Public Relations ornl*

## Team UT-Battelle answering AMSE’s call for volunteers from Lab

**O**ver the years, ORNL employees have made their mark on the quality of programs offered by the American Museum of Science and Energy. The museum and Team UT-Battelle, ORNL’s volunteer support organization, are inviting Lab staff to continue their participation in the museum, in any way they can.

There is plenty of precedent for ORNL’s volunteerism at AMSE. For example, the museum’s biofuels living exhibit at the entrance is largely the contributed effort of the Environmental Sciences Division’s Mark Downing. The Nuclear S&T Division’s Brad Weil has lent a significant amount of time and expertise to the Lego League, a national student engineering competition with a healthy local participation supported by AMSE, UT-Battelle and Tennessee Tech University. Metals and Ceramics Division’s Larry Allard and retiree Ted Nolan have helped set up the museum’s remote electron microscopy exhibit. Corporate Fellow Lynn Boatner has contributed the Solid State Division’s handiwork to one of the museum’s most currently popular exhibits—“Created Crystals: Scientific and Aesthetic,” representing a wide range of single-crystal growth techniques with a range of applications from high-tech devices to jewelry. ORNL’s Computing and Computational Sciences Directorate has contributed to the museum’s computer-oriented exhibits, as well.

“It’s no secret that AMSE’s offering of science-based exhibits has benefited from our proximity to and relationship with ORNL, and we’d like to encourage it further,” says AMSE Program Manager Kaye Johnson. “There are lots of opportunities for a whole range of ORNL volunteers to participate in the museum.”

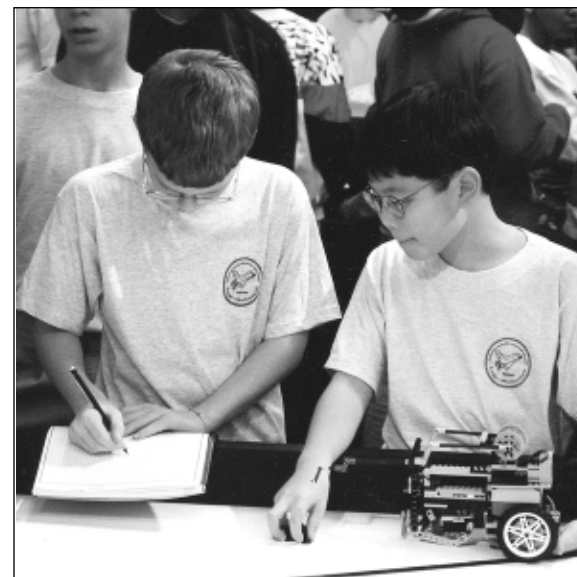
Team UT-Battelle is all set to facilitate the volunteerism. The organization serves as a clearinghouse for employees who wish to volunteer in the community, offering coordination and organizational support.

“The museum downtown is a vital community resource, one that ORNL and UT-Battelle have taken a major role in preserving,” says Team UT-Battelle Coordinator Bill Pardue. “We can be a contact point for any Lab staff members who want to contribute efforts or participate in AMSE.”

Volunteerism isn’t restricted to providing science exhibits.

“The bluebird-box-building activity is one example of a popular event that could use volunteer support. We’re making box kits ourselves now, and people with even modest woodworking skill could really help us there,” says Kaye. “Competitive events, such as the bridge-building competition, also need knowledgeable judges.”

Kaye says ORNL retirees and staff members can follow the example of several current volun-



Fred Strohi

**Popular programs such as Lego League, locally sponsored by ORNL, AMSE and Tennessee Tech University, are supported largely by knowledgeable volunteers.**

teers simply by staffing the museum’s information booth or helping with other day-to-day tasks.

If you’d like to volunteer at AMSE or have science exhibits or ideas for them, contact Team UT-Battelle’s Steve Stow, 576-7802, or Brenda Hackworth, 574-4160.—*B.C. ornl*

## SBO's attack on backlog frees \$1.6 million

More than \$1.6 million has been returned to programs of researchers, department heads and others following efforts by a firm contracted by the ORNL Small Business Office. The funds were part of a backlog of cost-reimbursement contracts that were physically complete but not administratively closed.

"This is real money, not funny money," says the Small Business Office's Will Minter.

Will says that in fiscal year 2001, of the \$177 million in subcontracts for R&D and goods and services that ORNL issued, 48 percent of the ORNL subcontracting activity was done with small businesses.

"It's the business side of science," Will says. "Why do we do a large amount of our subcontracting with small businesses? It's simply a good business decision. Small businesses are drivers in our economy. They are technically sound, easy to work with and very competitive."

To relieve the contract closeout backlog created before October 1998, UT-Battelle subcontracted the closeout function to GeoQuill Services, Inc., a locally operated, woman-owned small business specializing in contract management and property administration.

With the assistance of Accounts Payable, the Office of Audit and Management Advisory Services and others, GeoQuill has closed more than 300 subcontracts. The closed subcontracts have an acquisition value in excess of \$203 million and account for credits, refunds and excess procurement



Pictured from right to left are Dave Rice, ORNL Contracts and Procurement director; Carrol Dee, president of GeoQuill; and Jim Dee, closeout specialist.

fund deobligations of \$1.6 million available for reuse by ORNL divisions.

GeoQuill has also drafted a closeout process that has been incorporated into SBMS and has conducted closeout-training seminars for Procurement, Property, Finance and Accounts Payable personnel.

Dave Rice, director of Contracts and Procurement, says, "The relationship with GeoQuill has been a win-win, and I'm very pleased with the results. Laboratory personnel and the small business community are both our customers; and when we can please both, we have true customer satisfaction."

Greg Turner, ORNL chief financial officer, says, "These results are just another example of why it is good business working with small businesses." [ornl](#)

## ORNL tops review of undergraduate programs

ORNL recently received the highest score given in a system-wide DOE program review of the agency's undergraduate education programs. The Office of Science-sponsored programs—the Energy Research Undergraduate Laboratory Fellowships, the Community College Institute and the Pre-Service Teacher Internships—last summer collectively provided 10-week, hands-on research experiences under the mentorship of ORNL scientists to undergraduates from across the country.

The DOE review team rated ORNL programs favorably in all main evaluation areas.

Particular strengths included mentors' contact time with and support of students, orientation materials, and travel and housing arrangements. The Laboratory received an especially high rating in the category of overall quality of experience.

"We are very pleased that our program has been recognized by our DOE customer as providing an outstanding educational opportunity for our students," says Billy Stair, ORNL director of Communications and Community Outreach. "The program's success is the result of an effective partnership between ORNL staff and the ORISE project management team.

"We are especially encouraged by the positive feedback we continue to receive from the students themselves. One of UT-Battelle's priorities is attracting young people to careers in science in general, and to Oak Ridge in particular," he added.

Overall, nearly 550 students from across the United States participated in ORNL programs during 2001. They came from 180 colleges and universities in the United States and listed home addresses in 36 different states, plus the District of Columbia and Puerto Rico. [ornl](#)



ORNL's undergraduate education program received positive feedback from summer students.

## ORNL people

Calvin M. Hopper of the Nuclear Science and Technology Division is now a fellow of the American Nuclear Society, "for his outstanding achievements in the field of nuclear criticality safety," as well as for his leadership in developing national and international consensus standards, developing and directing technology support programs, preparing guidance on the elements of a criticality safety program and in the governance of the ANS Nuclear Criticality Safety Division.

NSTD's Lester M. Petrie received the ANS Nuclear Criticality Safety Division Award for Technical Excellence, for his work in the development of criticality safety software.

The Life Sciences Division held their annual division awards presentations in December. Betty K. Mansfield, group leader of the division's Bioinformation Systems group, received the management achievement award for her outstanding work with the DOE Human Genome Project. H. Tim Borges, toxicologist in the Risk and Regulatory Analysis group, received the scientific achievement award in recognition of his research linking selected U.S. AIDS and cancer registries. Marilyn E. Langston received the achievement in technical support award, for outstanding computer support to several research groups. Brenda H. Kimmel received the administrative support award.

The Environmental Sciences Division's Robert Washington-Allen won best of session paper for his presentation titled "Dynamical Retrospective Assessment of Rangelands Using Historical Satellite Remote Sensing Imagery" at the Third International Conference on Geospatial Information in Agriculture and Forestry.

Fusion Energy Division Director Stan Milora has been appointed to the *Fusion Science & Technology* editorial advisory board. *FS&T* is the international research journal of the American Nuclear Society, edited by FED researcher Nermin A. Uckan.

FED's Don Batchelor recently hosted a workshop in Oak Ridge on "Future Directions in Theory of Three-Dimensional Magnetic Confinement Systems." The 37 researchers who attended from around the country mapped out the future for theoretical work on fusion concepts, such as stellarators.

ESD's Lynn Kszos has been nominated to serve as editor for hazard/risk assessment for the journal *Environmental Toxicology and Chemistry*.

ESD's Mark Greeley co-organized and co-chaired the first-ever session on toxicogenomics at the 22nd Annual Meeting of the Society of Environmental Toxicology and Chemistry.

## Benefits Delivery details recent changes in savings program

As a result of the enactment of the Economic Growth and Tax Relief Reconciliation Act of 2001 (EGTRRA), Benefits Delivery has announced changes in the savings program, effective Jan. 1, 2002.

Under the current provisions, an employee may contribute up to 16 percent of eligible earnings to the savings program. As of Jan. 1, 2002, non-highly compensated employees (those making less than \$85,000 in 2001) may contribute up to 60 percent (6 percent basic and 54 percent supplemental) of eligible earnings. The company will continue to match on the first 6 percent. (Company match is calculated at 100 percent of the first 2 percent of eligible earnings and 50 percent on the next 4 percent.) Highly compensated employees' contributions will still be limited to 16 percent.

The maximum annual employee contributions to the 401(k) (pre-tax) plan has increased from \$10,500 to \$11,000. This amount will increase annually in \$1,000 increments through calendar year 2006.

Additionally, a new provision allows employees age 50 and over to make pre-tax "catch up" contributions to the savings program if they desire. This catch-up provision will be automatic for employees who have contributed the maximum pre-tax amount of \$11,000 during the calendar year. Catch-up amounts through 2006 are as follows:

2002	\$1,000
2003	2,000
2004	3,000
2005	4,000
2006	5,000

There is, however, no company match on the catch-up contributions. Eligible employees (those who are age 50 and have made a pre-tax election to contribute more than \$11,000 in calendar year 2002) who *do not* wish to take advantage of this provision must notify CitiStreet by calling the toll free number (1-888-472-8348) and speaking to a customer service representative.

Certain limits remain on savings program contributions. However, some of those have changed for calendar year 2002.

1. The maximum total annual additions increase from \$35,000 to \$40,000. (Your annual additions represent a combination of employee and employer contributions.) This limit will now be based upon 100 percent of compensation, rather than 25 percent.
2. Total compensation available for contributions to the savings program increases from \$170,000 to \$200,000.

There are fewer restrictions on the transferring of savings plan funds. An individual may roll funds from any type of savings plan to any other type of savings plan. For example, rollovers from 403(b) or 457 plans are accepted beginning Jan. 1, 2002. Rollovers had been restricted to only the taxable

portion of your distribution. However, beginning in 2002, after-tax contributions may also be rolled to an IRA if the IRA will accept the transfer of funds.

"We believe these changes to be very favorable to plan participants," says Benefits Delivery Manager Pam Williamson. "They provide greater opportunity for increased savings, as well as more flexibility in the transfer of savings funds. We will be publishing additional information to assist you in your decision-making process on our savings plan home page ([www.y12.doe.gov/benefits/badmin/savpgm.htm](http://www.y12.doe.gov/benefits/badmin/savpgm.htm))."

Contact CitiStreet at 1-888-ISAVEIT (1-888-472-8348) or use your activated Internet account to increase your contribution elections. Contribution changes become effective as soon as administratively possible.

**Reminder:** Individuals with Lockheed Martin Corporation stock, account balances must be liquidated by April 30, 2003. Questions about these changes may be directed to Mike Moore at (865) 574-9564, e-mail at [mooreml2@y12.doe.gov](mailto:mooreml2@y12.doe.gov). [omi](#)

### Beneficiary statements mailed

Benefits Delivery is sending out beneficiary confirmation statements in February for life insurance (and special accident insurance for active employees) policies. If after receiving this statement you wish to change your beneficiary, call the OneCall Service Center at 574-1500 or toll free at 1-877-861-2255 to request a new beneficiary designation form.

### EAP, service awards move to UT-B

The administration of the Employee Assistance Program and the Service Award Program for ORNL transitioned from BWXT Y-12 to UT-Battelle effective Jan. 1. There will be no changes to the features of these programs with the transition, says ORNL Employee Benefits' Cindy Spence. Questions should be directed to Cindy Spence of ORNL Employee Benefits at 576-8051. Employees should continue to contact OneCall at 574-1500 for information related to all other benefit plans.

### VITA again offers free tax help

VITA, the Internal Revenue Service Volunteer Income Tax Assistance program, starts Monday, January 28, at the Oak Ridge Mall.

IRS-trained volunteers will be available to provide free tax assistance from 3 to 8 p.m. every Monday through Friday and on Saturdays from 10 a.m. to 12:30 p.m. No appointment is necessary; free e-filing is available.

Those seeking help in preparing their income tax returns should bring their tax package and their W-2 forms, their 1099 statements and other tax records, including last year's return, with them.

John Murray and Mike Lundin are the Oak Ridge coordinators of this free public-service program.

## Service Anniversaries

January

**40 years:** L. D. Chitwood, Metals & Ceramics; Barbara L. Littleton, Business & Information Services Directorate

**35 years:** B. G. Arrington, HR & Diversity Programs Directorate

**30 years:** Dennis M. Bradburn, Laboratory Protection; Robert M. Cushman, Environmental Sciences; Auzzie B. Freeman, Logistical Services; William R. Wing, Computer Science and Mathematics

**25 years:** Donald J. Adams, John B. Andriulli, Raymond Tucker and Bobby R. Whitus, Engineering Science & Technology; Dennis E. Boyd, L. A. Grayson and Tommy D. Ray, Craft Resources; R. L. Cline, Clyde P. McGinnis and Gary D. Owen, Nuclear Science & Technology; Linda J. Foote, Dennis M. Opresko and Tuan Vo Dinh, Life Sciences; Michael A. Kuliasha, Office of the Laboratory Director; Mary J. Long, National Security Directorate; Thomas J. McLaughlin, Engineering; Steven H. Overbury and Catherine E. Vallet, Chemical Sciences; David H. Pike, Computational Sciences & Engineering; Robert J. Shamblin, Integrated Operations Support; Earnestine Sloan, Communications & Community Outreach Dir; Vickie H. Tharpe, Operational Safety Services; Nancy R. Whitehead, Logistical Services; Gregory P. Zimmerman, Environmental Sciences

**20 years:** Cyrus Baktash, Physics; Van H. Colby, Craft Resources; Mike L. Evans, Nuclear Science & Technology; Lynn M. Smalley, Solid State

**15 years:** Robert J. Shamblin, Integrated Operations Support; Earnestine Sloan, Communications & Community Outreach Dir; Vickie H. Tharpe, Operational Safety Services; Nancy R. Whitehead, Logistical Services; Gregory P. Zimmerman, Environmental Sciences

**10 years:** Robert J. Shamblin, Integrated Operations Support; Earnestine Sloan, Communications & Community Outreach Dir; Vickie H. Tharpe, Operational Safety Services; Nancy R. Whitehead, Logistical Services; Gregory P. Zimmerman, Environmental Sciences

**5 years:** Robert J. Shamblin, Integrated Operations Support; Earnestine Sloan, Communications & Community Outreach Dir; Vickie H. Tharpe, Operational Safety Services; Nancy R. Whitehead, Logistical Services; Gregory P. Zimmerman, Environmental Sciences

February

**44 years:** Frank M. Rau, Integrated Operations Technical Support

**35 years:** Ron O. Meyers, Engineering Science & Technology; James D. White, Nuclear Science & Technology; Rolland B. Rayder, Craft Resources

**30 years:** Willard H. Johnsey, Jr., Craft Resources

**25 years:** Maria A. Goodman, Curtis E. Moore, Edwin R. Blackburn and Pauline A. Thomas, Craft Resources; Randall J. Wood, Engineering; Michael E. Borum, Laboratory Protection; Stanley C. Forrester, Fusion Energy; Charles R. Howell, Metals & Ceramics; Luther D. Lambert, Edward D. Blakeman and Joseph N. Herndon, Nuclear Science & Technology; Robert N. Nodine, Engineering Science & Technology; Donna S. Leggett, Business & Information Services Dir., Michael E. Mellon and Gwen L. Justice, Logistical Services; Sherri J. Cotter, Infrastructure Planning; Donald W. Lee, Environmental Sciences; Joe M. Wolfe, Jr., Environmental Protection & Waste Services

**20 years:** Allan A. Toney, Life Sciences; Gary W. Parks, Metals & Ceramics; Terry C. Awes, Physics; Homer R. Yook, Independent Oversight; Francois G. Pin, Engineering Science & Technology; Vasilios Alexiades, Computer Science and Mathematics; Ellen D. Smith, Environmental Sciences; David A. Kennard, Infrastructure Planning

**15 years:** Allan A. Toney, Life Sciences; Gary W. Parks, Metals & Ceramics; Terry C. Awes, Physics; Homer R. Yook, Independent Oversight; Francois G. Pin, Engineering Science & Technology; Vasilios Alexiades, Computer Science and Mathematics; Ellen D. Smith, Environmental Sciences; David A. Kennard, Infrastructure Planning

**10 years:** Allan A. Toney, Life Sciences; Gary W. Parks, Metals & Ceramics; Terry C. Awes, Physics; Homer R. Yook, Independent Oversight; Francois G. Pin, Engineering Science & Technology; Vasilios Alexiades, Computer Science and Mathematics; Ellen D. Smith, Environmental Sciences; David A. Kennard, Infrastructure Planning

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# New Battelle chief wants to smooth the scientist's path to success

Carl Kohrt, Battelle's new president and chief executive officer, made his initial visit to ORNL just after the holidays. The visit spanned three days filled with tours, presentations and receptions.

His comment about the Spallation Neutron Source might indicate his overall impression of what he saw and heard at ORNL: "I'd love to still be a scientist and be able to use that tool."

Among other stops at ORNL, which is managed by a partnership mainly between the company he now runs and the University of Tennessee, were visits to the High Temperature Materials Laboratory; the Metals and Ceramics Division's carbon lab; and the SNS's Receiving, Acceptance, Testing and Storage Facility. He was also introduced to some of ORNL's mutant mice and received overviews from nearly every R&D directorate.

Kohrt's background at Kodak, in Rochester, N.Y., includes the development of one of the first color digital-imaging devices and the revamping of the company's intellectual property processes that made Kodak a leader in patents per R&D dollar spent.

Both Kohrt and ORNL Director Bill Madia express a goal of operating a "Battelle family" of labs, which includes the partnerships such as UT-Battelle.

"Laboratory management is a core Battelle business, based on our historic, industrial roots," Bill says. "We have developed the systems to effectively and efficiently run laboratories to the maximum benefit to our customers."

That family of labs will involve a sharing of ideas and talents that is already in progress. Since UT-Battelle's arrival, 60 staff members—incoming and outgoing—have transferred among ORNL and the other Battelle-affiliated labs, which include Pacific Northwest, Brookhaven and the National Renewable Energy Laboratory.

Add to that family UT and the core universities, and you have the makings of a continuing science and technology force.

Kohrt says there are three themes to his approach as president and CEO of Battelle: growth—in programs, staff and returns on investments; refreshment—in skills and in talent; and sustainability—building a legacy of S&T excellence.

"My personal contribution is to serve as a 'lightning rod' for helping Lab researchers take their technologies down the path of least resistance to the marketplace," he told *ORNL Reporter*.

"The Battelle family of labs will be expected to help identify those technologies that can be most useful the soonest," Kohrt says. "There is a need for that now for national security. Often, the best way to make that happen is to find the potential in the commercial marketplace, as well as in government and defense."

Kohrt believes his experience in private industry will help Battelle find ways to help its scientists discover the path forward for their inventions.

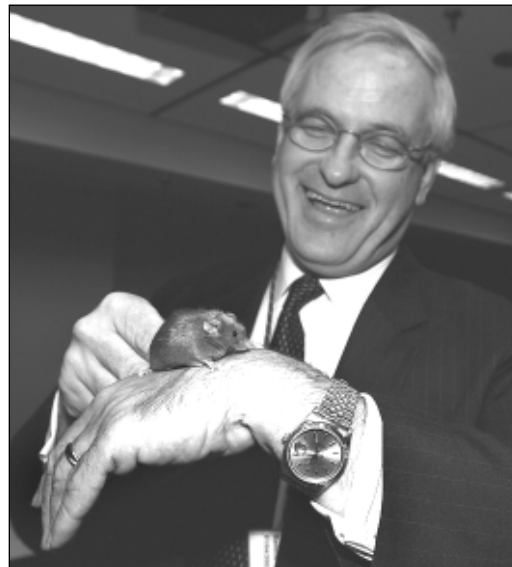
"On my industrial side I've been able to make those connections. A Lab with as much breadth as ORNL has those capabilities, but in the past we haven't made it easy or said that it's of great importance."

Kohrt says Battelle doesn't intend to bring about a culture change at its labs, but the company would like to encourage researchers to look at their innovations

in a more strategic, planned way.

"One of the few culture changes I'd like to see at the labs is to make sure that the best ideas are presented in a way so that others can see their value. I'm thinking of patents: Scientists publish their work, and patents are another form of publishing. Think ahead to ways that your experiment can be designed to ensure that your innovation can be successful, and write a claim that's the difference between ordinary and a blockbuster," he says.

"Value the fact, when you're setting up your experiments, that others may get value



Curtis Boles

**Battelle President and CEO Carl Kohrt makes acquaintance with one of the Mouse House's tenants during his January visit.**

from your work."

Kohrt describes the "rush" of walking down the aisle of a store, eyeing a product and being able to say, "I invented that" or "I had a role in that."

He would like for an increasing number of ORNL scientists to experience it, as well.—B.C. [ornl](#)

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