

On track

One year along at ORNL, Bill Madia finds lots to cheer about—and a few frustrations

In April 2000 UT-Battelle LLC assumed management of ORNL with all the usual enthusiasm that goes with a new job and a fresh set of challenges. The University of Tennessee-Battelle partnership spoke of new and upgraded facilities, a strategic Lab science and technology agenda and a stronger role in the community. *ORNL Reporter* asked Lab Director Bill Madia where things stand now, one year later.

It's been a year. What has UT-Battelle accomplished? Are we on track?

I've been overwhelmingly pleased with the first year's start. We came in with a well-defined, 12-point agenda for the Lab: six items dealing with science and technology, three in operations and three in the community. In the first six months we launched all twelve. Now, by the end of the first year, we've accomplished substantial milestones with each one.

What's your favorite example?

Funding for the Spallation Neutron Source,



Bill Madia

Curtis Boles

which included some pretransition activity on the sales-tax issue (the state legislature unanimously passed a \$28 million sales tax relief measure for the SNS). That—plus a good partnership with our five partner labs and university colleagues—got us to this year's \$278 million funding level. That was by far the biggest test of UT-Battelle and our most important accomplishment. I think the previous appropriation was \$117 million. That was a gigantic step.

The second test is coming up: Getting from \$278 million to \$291 million for FY 2002. That's a big step as well—critically important to the UT-Battelle image. If we get \$291 million for SNS in FY02, we've hit peak funding. From there, our funding requests decline and the degree of funding difficulty generally gets to be less.

One of the achievements I'm proudest of is the Mouse House funding. I've heard stories going back 15 or more years about trying to get a new Mouse House built. We've got funding; we're starting construction next year. Getting the biology agenda up and running is a top priority.

Operationally, getting the modernization plan launched, and having the Energy secretary and governor down along with

congressmen Wamp and Clement to kick it off was a major accomplishment. The land transfers and the state involvement are very complicated elements of the strategy. DOE-ORO has been a solid partner in making this happen.

The work we did in terms of science and math education—getting five science laboratories upgraded in local high schools—I believe will result in a material increase in science education. The rowing tower begins our series

We've got very good traction across the board with our agenda. All 12 things we committed to do got launched.

of legacy investments. In economic development, we've spun off 11 companies so far in 12 months.

We've got very good traction across the board with our agenda. Of course some things have fallen short. But the fact is that all those 12 things we committed to do got launched, including tangible progress and major milestones—including the SNS, Mouse House and our teraflop computer facility—and we've

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Parallex takes surplus plutonium out of the weapons world

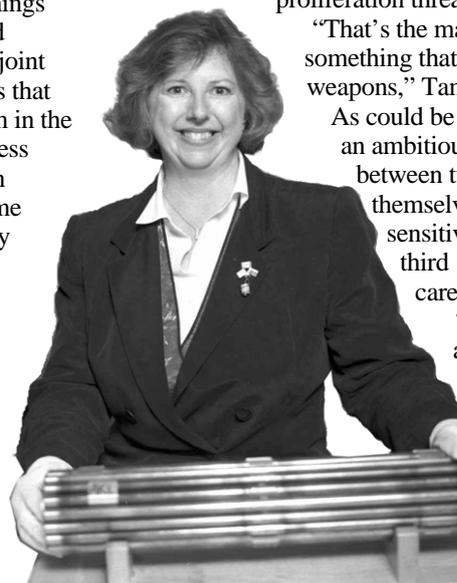
What was once weapons-grade plutonium stocked by former Cold War antagonists is being experimentally consumed in nuclear reactors—and thus rendered useless for weapons of mass destruction. ORNL has had a leading role in making this complex but enormously beneficial undertaking come to fruition.

Called the Parallex project, one of the options being considered is to take surplus plutonium from the nuclear weapons programs of the United States and Russia and turn it into mixed-oxide, or MOX, fuel to generate electricity in Canada's nuclear power plants. Once the fuel is used in the reactor, it becomes unsuitable for weapons. Canada's Chalk River nuclear facility is where the MOX fuel is being tested.

DOE called on ORNL to lead this part of the complex project. The Engineering Technology Division's Tammra Horning had

the lead role in getting things arranged, technically and logistically, to make the joint venture happen. She says that by burning the plutonium in the reactors, the fission process removes the proliferation threat and at the same time provides a nuclear energy source for other uses. "Blessed" with more plutonium than they'll ever need, the nations wish to dispose of it in a way that reduces the

Tammra Horning displays fuel test assemblies containing plutonium from the United States and Russia.



proliferation threat.

"That's the main goal, to turn it into something that is not attractive for weapons," Tammra says.

As could be expected, bringing off such an ambitious project—an arrangement between two countries to divest themselves of such a specialized and sensitive material and ship it to a third country—takes much careful planning.

"It involves a large range of activities from the technical aspects of making nuclear reactor fuel with weapons plutonium, to export controls, transportation, political issues and public education," says Tammra. "The U.S.

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Parallex

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MOX test fuel was shipped by truck to the Canadian border, then flown by helicopter to the test reactor. The Russians sent theirs by plane. Although the shipping containers were equivalent in size to three 55-gallon drums, a huge Antonov-100 cargo plane—big enough to carry train engines—was used so enough jet fuel could be carried to fly from Canada to Russia without stopping to refuel. They also took the last leg of the journey by helicopter.”

Not surprisingly, the Parallex project is very significant to the participating nations, and even the European community.

“The Russians pointed out to me that it was the first time that weapons plutonium had been shipped outside of Russia. It was very important to them,” Tammra says. “The project also receives attention high in the Canadian government, including briefings with the prime minister and senior cabinet members.”

She credits her Canadian counterpart, Dave Cox of Atomic Energy Canada Ltd., a semi-government entity, with bringing together many of the logistical aspects of Parallex.

“He had to orchestrate the shipments with dozens of participants, which meant he had a phone glued to his ear much of the time.”

Cox also ran a very important facet of the project—a series of public meetings for citizens along the proposed transportation routes. Mentioning the word “plutonium” is usually a sure way to trigger negative reactions. Horning says she learned that communication goes a long way toward building public trust.

“The hazards of plutonium are commonly exaggerated. I have a book of press accounts several inches thick on this project, and most of them are not factually accurate. But we as scientists also have an obligation to provide

the public with factual information. In the public meetings, when we provided the public with accurate information about the project and shipments and hazards involved, they were very supportive of the effort.”

Tammra says she also learned that foreign, supposedly exotic cultures really aren’t so different. People on once-opposite sides have common values and concerns.

“In Russia, working through translators, things appeared to be done very differently at first glance, but when you stepped back you saw that they had many of the same constraints as we do, such as bureaucracy, security, and funding. There are more parallels than it seems on the surface. It’s been very interesting to work with colleagues from other countries who have cultural and language differences, but then find that we have a lot of things in common.”

She credits the translators with spotting nuances in conversations and helping the two sides recognize common ground through the language barrier. These professionals often attain a role as facilitators between two sides.

Tammra has had some “pinch-me-I’m-dreaming” moments during the Parallex project.

“In the last three years I’ve been to Russia a dozen times. Every time I stood in Red Square it amazed me. I never expected to be there; early in my career it would have been difficult to even go to Russia, much less work there,” she says.

She describes meeting with a very senior, highly positioned Russian scientist. She later discovered that he was the first Russian to separate plutonium. “It was like meeting with



Tammra Horning credits Dave Cox of Atomic Energy Canada Ltd., with bringing together many of the logistical aspects of Parallex, including its communication to the public. Here he conducts a TV interview.

Fermi or one of the other pioneers of the U.S. nuclear program!” she says.

ORNL’s involvement with the Parallex project is another feather in its project management cap. Why ORNL? “Early on, Sherrell Greene was very instrumental in developing the fissile material disposition program,” Tammra says. “We’ve performed a project management role on many programs, and ORNL is the lead lab on reactor technologies-fast, light-water and gas-cooled reactor programs. Scott Ludwig in the Chemical Technology Division was also very actively involved with the transportation arrangements for the U.S. shipments of the plutonium.”

What’s next for the project? “The current test fuel assembly and two more will be in the Canadian reactor for two to three years. When they are taken out of the reactor, we’ll take a close look at the fuel,” she says. “We’ll compare how MOX made with weapons plutonium compares with MOX made with civilian plutonium. The Canadians have over 20 years of experience with civilian MOX fuel. In the meantime, the overall program is looking at how the disposition rate can be expanded. Both countries are initially targeting disposing of about two metric tonnes a year; G-8 countries (the United States, France, Britain, Germany, Japan, Italy, Canada and the European Community) and Russia are examining expanding beyond that target. The results will influence what DOE does next.”

The nuclear engineer says it’s been tough sledding, but it’s been worth it.

“It takes a lot of coordination to do this in one country, much less three; it’s more than three times the complexity. Other people, not connected with the project, have noted the amount of team cooperation that’s been developed among the three countries on Parallex. It always makes for a much better project if you can achieve that,” she says.

“And it’s a good idea to take weapons material and make electricity out of it instead of it being a potential hazard.”—B.C.



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Bill Cabage, editor
Phone 574-4399
E-mail cabagewh@ornl.gov

Deborah Barnes, associate editor
Phone 576-0470
E-mail barneds@ornl.gov

fax: 574-1001

On the Web: www.ornl.gov/reporter

Ombudsman: 576-7802

DOE Inspector General Hotline: 1-800-541-1625



Curtis Bolles

Tina Curry, of ORNL Graphics, was just one of many employees who exhibited crafts and causes on Values Day, March 22. Tina’s work included this sculpture of her grandfather, Allen Wiggins, who lived in Florida.

Lab Notes

Olesen: 'Solving significant problems'

Battelle Memorial Institute President and CEO Doug Olesen made his first official visit to ORNL on March 19 to give the keynote talk for Leadership Week, the ORNL Leadership Action Consortium's showcase. His audience got an up-close orientation on how Battelle conducts its business.

Battelle's mission, values and business philosophy are closely aligned with the market and the customers it serves, Olesen said. "Solving significant national problems" through "economically and socially valuable science and technology" are key Battelle tenets.

"Running national labs puts us right in the middle of that," he said.

Turning a profit is very important to

Battelle, and the money is typically poured back into the company's S&T programs. "We try to leverage our assets horizontally; make all pieces of the pie bigger," he said, alluding to a strategic decision about a decade ago to integrate the different, and admittedly stovepiped, sections of the company. The company also stresses a marketing approach, as evidenced by its widely and highly regarded technology forecasts. "Knowing where the market is going and where science is going" puts the company on the path to creating economically and socially valuable S&T, he said.

Even though the company emphasizes commercializing technology, Olesen acknowledged that most technologies aren't suitable for the shelves. But the ones that are can pay off big. The company recently sold a fiber-optic technology it developed for a sum that far exceeded a net-operating-margin goal for the year 2003.



Curtis Boies

Bill Madia (left) welcomed Battelle President and CEO Doug Olesen for his first official talk to an ORNL audience on March 19

Going for rowing

It's currently rising along the shoreline of Melton Hill Lake, and could foretell a rising sport in the region. Area rowing enthusiasts joined Lab Director Bill Madia and city officials on March 1 to break ground for the rowing facility now under construction on Melton Hill Lake. UT-Battelle contributed \$30,000 as a legacy community investment for the finish-line tower, located on Lakeshore Drive. The total cost of the tower is about \$130,000.

"UT-Battelle is putting an emphasis on legacy investments that have lasting impact for the community," Bill told the gathering by the placid waters. "By helping bring more rowing events to Oak Ridge, the tower will pay dividends for years to come."

Oak Ridge Rowing Association President Tom Ham agreed, saying one national rowing event is leaning toward coming to Oak Ridge next year—bringing 3,000 people with it who usually spend about \$1 million.

"We want to build rowing's momentum in this area, expand the sport in this area and in the whole Southeast," Tom said. The sport is strongest regionally in the Northeast. Oak Ridge could help shift it southward.

"The smooth waters on our rowing course, the region's mild climate and the enthusiasm of volunteers running the regattas are among reasons we hear that rowers like to come to Oak Ridge," he says.

A boon for classroom scientists

When Mike Smith reported to Coalfield High School to teach science, he realized he'd have to scrape and scrounge what he could to equip a laboratory. The storeroom for lab equipment was full of athletic gear. He managed to uncover a few beakers and some chemicals.

Then principal Ramona Bentz told him that the school had received a \$10,000 grant from UT-Battelle.

Now CHS has a full-fledged chemistry lab. More importantly, CHS students have a much better opportunity to explore science.

Coalfield is one of five area schools—the others are Vine Middle Magnet School in East Knoxville, Oak Ridge High School, Clinton Middle School and Roane County's Midway High—that received the laboratory grants. UT-Battelle will hand out five \$10,000 grants during each of the five years of its contract.



The latest artist's concept of the finish-line tower for Melton Hill Lake's rowing enthusiasts.

"There's a need generally in many Tennessee schools for upgraded science equipment," Communications and Community Outreach Director Billy Stair told the Knoxville *News-Sentinel*, which ran a front-page story on Coalfield's educational windfall. "It was clear if we were going to invest in science and math education, this was a place our resources could make immediate benefit."

QWL: Progress where we can

ORNL staff members gave the Leadership Team a pretty clear idea of what they think would improve the quality of work life at the Lab, and those views are being seriously taken. Bill Madia outlined QWL progress in a recent *ORNL Today*, the Lab's Web news.

The number one desire in the survey earlier this year, an enhanced pension multiplier, is getting an active look by both ORNL and Y-12 management, he said. Announcements may be soon in coming. Progress on number two—more communication from the director—is pretty well evidenced in this issue of *Reporter*.

Also progressing are a temporary on-site fitness center and better physical facilities, both in the survey's top 10. "We're making progress in many other initiatives, including building a near-site child-care facility; establishing jogging, walking and biking trails, which are closely tied to the New Campus Initiative; planning a cafeteria benefits program; updating our Values statement; establishing a scientific lecture series possibly this spring; and establishing an ORNL staff association that will address many quality of work life issues," Bill said.

Financial constraints and other complexities may rule out some initiatives, and some may just take time to work through. In the meantime, Ombudsman Steve Stow will begin a broader Quality of Work Life survey later this month.

Reported by Bill Cabage

Track

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made major milestones in each one.

You set some pretty ambitious goals, with some very tough issues. Have some proved harder to achieve than you thought they would be?

Not really. Having been a lab director for 15 years, you develop a good sense of how hard things will be. We knew the SNS funding was a heavy, heavy lift. We knew it would take a huge amount of collaboration with other labs. We knew the complexity of the modernization plan—the land transfers, for instance. We had done all those pieces before, and we knew we had some very complicated issues.

The condition of the facilities was the big surprise I've talked about before. I just didn't realize we had a million square feet over

Have you had good cooperation from DOE?

The support we've gotten on the staff reductions and modernization from ORO and Headquarters has been very positive. The Lab and ORO have worked together to accomplish our respective roles in the modernization. While we garnered state support, ORO has helped with the land transfers. It's been a really good partnership.

There is a complexity to the relationship here between the Lab and DOE that is higher than I expected. This is a far more complicated site managerially. Lots of different people intervene. I'm more used to a cleaner site-office-to-lab relationship. The site office here has only partial authority over the Laboratory; many others have direct impact on us. You find similar complexity at Headquarters—the roles of NE and EH and the Office of Science are somewhat ambiguous.

the management chain and get the requirement removed. We don't do that; we salute smartly and move forward. We should question the value of requirements more.

What are the avenues if people do want to question something?

Go to the responsible level-one manager. If you think there's a dumb requirement in the communications shop, go knock on Billy Stair's door and ask why.

One of two good things happens when you do. First, if there is a value in that requirement, you find out what it is. There's educational value in learning the basis for a requirement.

On the other hand, if it's some dumb requirement caused because of something that happened 15 years ago, and it has no value today, let's get it removed. Historic momentum carries a lot of our requirements. "Fifteen years ago somebody did so-and-so and now we have to make everyone take some form of training." That's not a smart thing to do; let's fix those kinds of problems. Staff should raise issues and concerns, especially if they don't make common sense.

I know I'm asking for a lot of trouble, but that, in fact, is what I want. It's the old "question authority" bumper sticker. Our culture is "accept it." The culture change I want to see is "don't accept it." Everyone can help make this a better and lower-cost place to work if we just ask the question "why?"

Next year we hope to start a pretty aggressive new hiring program. If we bring in a hundred new staff, some fresh graduates, they will always push the envelope. They are far less reticent to question. You'd better have a good reason for doing something or they'll be in your face. That was our experience at Pacific Northwest.

I think it was (ATLC President) Carl Scarbrough who showed me a 24-page procedure on calibrating a manometer. Only a compliance-oriented lab could do that. If we try to proceduralize everything we do, all we will do is recreate the Library of Congress. Managers get paid to exercise their judgment. Policies should establish the framework of those judgments, but *people* make judgments. That's the idea behind the Standards Based Management System.

With Pacific Northwest located at Hanford, why didn't they have a similar culture?

Because Battelle ran the laboratory since 1965 and other contractors did the cleanup and production. When science, weapons and cleanup are all done in one organization, the culture gravitates toward compliance. At Northwest it was more of an entrepreneurial culture. Compare our situation with Berkeley—those guys question everything.

Some others have cited a growingly autonomous National Nuclear Security Administration and other trends in pointing to a need to pull the science mission out, or reemphasize it, versus the waste and weapons missions. Do you see DOE going through some changes in the near future?



Curtis Boles

I like to see a little anarchy in my Laboratory.

50 years old. Space costs continue to eat our lunch. Too much, too-old space costing us literally tens of millions of dollars because we're stuck with old space we don't want or need.

I have been disappointed in our ability to drive costs down. Getting costs controlled better and reduced has been our biggest weakness in the first year. In addition to the space cost issues I mentioned earlier, we were faced with our other big surprise—that we were 20 percent below market in our salaries. The fact is that our salaries are below market in both the research and support organizations; not just nationally, but even in East Tennessee. So we have to drive down indirect costs and raise salaries, and those two actions have neutralized each other, thus we haven't made nearly the progress I'd like on the cost of doing business here.

You've laid a pretty good groundwork, though.

Yeah, but I wish we had more traction. These are areas where we had a good plan, but the complexities and legacies were just deeper and more complicated. No excuses though, we should have made more progress.

The history of Oak Ridge has a lot to do with that. We still see the vestiges of when this was a more fully integrated site. That shadow has not gone away yet. There's much more base-touching that needs to be done. That was a bit of a surprise.

Regarding culture change, can you name some areas where you would encourage employees to think differently than they did a year ago?

I like this question. The culture of this Laboratory is very compliance oriented. There are rules for making up rules! I'm not used to that in a lab environment. Labs are very creative. You can see here the history of a production mentality, where everything's proceduralized. The culture change I'd like to see is questioning the value of procedures and requirements. We don't do nearly enough of that.

I like to see a little anarchy in my Laboratory—question authority. Let me be clear, I'm not saying don't follow the rules or procedures. But if something does not make sense to you, ask: *Why is that a rule? What's the basis of that requirement?* And if there isn't a good basis for it, change it. Run it up

'Child To Work' Day April 26

We're DOE's largest performing energy laboratory. The fact that energy is now a major national issue can only bode well for us in the long term. ORNL is well positioned to solve the problems.

I believe there'll be some restructuring of DOE in this administration. DOE is a conglomerate in the traditional industrial sense. It's got a national security business, a science business, an energy business and a cleanup business. Overlap between those is minimal. It runs like a typical conglomerate. The NNSA structure is one that makes enormous sense for the rest of the Department. The NNSA picked up all the resources it needs to do its mission in this restructuring. I believe that science and environmental quality and energy could do a similar thing, and clarify who does what to whom in DOE. Right now, it's a very complicated management structure with intertwined bureaucracies. The NNSA "semiautonomous" legislation helped clarify their situation.

I have no worries whatsoever about us being programmatically separated from NNSA. They need the capabilities of the science laboratories to do their mission, and science labs need the ability to help NNSA solve its problems. There are mutual benefits to the partnership. I don't think its semi-autonomous nature is an impediment. The weapons lab directors are as concerned about their inability to work outside the NNSA as much as other directors are concerned about being able to work for it. I've talked to (NNSA Director) John Gordon many times on this issue and he supports the need for this partnership.

What will life be like under the Bush Administration?

It's too early to tell. It's been a very slow start. Our folks in Washington are encouraged about Secretary Abraham's support for science. Now the administration's energy rhetoric, which focused earlier on supply-side issues like nuclear power and drilling in the Arctic National Wildlife Refuge, are now being balanced with statements on efficiency, renewables and conservation. That was a concern early on—that it would be only a supply-side energy strategy—but now we're hearing more about a balanced portfolio.

We're DOE's largest performing energy laboratory. The fact that energy is now a major national issue can only bode well for us in the long term. Five years ago we had a hard time getting any awareness about energy—the "phantom energy crisis." ORNL is well positioned to solve the problems across the spectrum.

What about nuclear?

Nuclear is in a resurgent mode. With the growing concern on carbon management and climate change, nuclear offers a wonderful alternative to fossil-based strategies. It's not

the only solution, but it is clearly an important element of the national energy strategy.

Will technology solutions lead to better public acceptance of nuclear?

The public acceptance question is fascinating. By all accounts, nuclear energy did a bad job of portraying its strengths and weaknesses. There was almost an arrogance: "This is complicated stuff; trust us and we'll do good." Everyone recognizes that failed public outreach strategy today. Ironically, if you go to a high school or college today and bring up energy concerns, you hear "climate change, ozone layers and global warming." Twenty years ago you would have heard "nuclear, radiation." The public perception today of young people is far more driven by fossil concerns than nuclear. Three Mile Island and Chernobyl were nearly a generation ago.

What are your big issues for next year?

The SNS leads the list of issues. We need full funding to sustain the momentum up on Chestnut Ridge.

Making progress on Lab modernization—as someone said earlier this year, "It's only rhetoric until we see the results." I want to see a muddy parking lot with big holes in the ground. Seeing the start of construction for the state and private sector buildings, seeing the Mouse House come out of the ground, will give the staff the realization that modernization is a reality.

The mud, the trucks and the noise—I'll love every minute of it.—B.C. [ornl](#)

Briefs

Report all illnesses, injuries

ORNL policy states that all occupational injuries and illnesses must be promptly investigated to determine the cause and prevent reoccurrence. To make this process work effectively, employees should report all work-related injuries and illnesses to their supervisor as soon as they occur. The employee should then report to ORNL's Health Division for evaluation.

If a work-related condition becomes worse during off shift, the Laboratory Shift Superintendent should be contacted to give guidance on the proper procedure to follow. Also, if an employee telephones the supervisor after the injury or illness has occurred to report an absence, he or she should notify the supervisor if it is work related.

RIF'd staff receive increases

UT-Battelle sent word recently to some

ORNL is hosting a "Take Your Child to Work Day" on Thursday, April 26. The day is designed to give middle- and high-school-age children—5th through 12th grade—the opportunity to explore future careers by observing the scientific, technical, and support activities that exist at a national laboratory, say event co-chairs Joy Castleberry and Debra Dickerson.

Lab Director Bill Madia will welcome the visitors, and a variety of realistic work demonstrations will be available between 10 and 11:30 a.m and 1 and 2:30 p.m. A special lunch will be available at the cafeteria.

Parents are encouraged to "design" the day so that it best suits the student's individual interests, including observing the parent's work sites and activities or the work sites and activities of others across the Laboratory. Parents will be expected to be responsible for the child at all times.

A soon-to-be-established Web site will provide the day's agenda, contact persons, permission-slip requirements and other information.

In the interim, send an e-mail to Joy Castleberry (castleberry@ornl.gov) or Sonya Sharpe (sharpsa@ornl.gov) if you and your child or children are interested in participating, with the following information: parent's name and ORNL organization; student's name, grade and gender; and any special access needs the student may have. Note again that the event is limited to children in grades 5–12.

A work group chartered by the ORNL Committee for Women is organizing the program. Watch *ORNL Today* for additional information as it becomes available. [ornl](#)

former staff members who left the payroll in last fall's staff reduction that they would receive the merit pay increases they would have received under the salary plan. Workers who left under both the voluntary and involuntary programs who were scheduled for raises received the letter explaining that the move will make a difference in their severance packages.

The merit increases were determined through the normal salary planning process up to the time of the staff reductions, the letter from Human Resources and Diversity Programs Director Darryl Boykins said. A delay in the implementation of the merit pay increase plan meant that DOE approved the raises after these employees left the payroll. The approved salary plan, however, was made retroactive to October 1.

Recipients received a check stub detailing the adjustments.

Holifield Facility's 20th

Last month's ISOL '01 conference reflects on two decades of nuclear physics research

As ORNL's landmark tower, the Holifield Facility does not seem to have changed much in the 20 years it has hosted world-class nuclear physics research. But, in fact, there has been a significant shift in the type of research conducted there, and even the facility itself has been renamed twice.

Partly in celebration of 20 years of nuclear physics research at the Holifield Facility, the international conference ISOL '01 was held last month in Oak Ridge. This ISOL (isotope separator online) conference was organized by a committee chaired by Witold Nazarewicz, deputy director for science at ORNL's Holifield Radioactive Ion Beam Facility. HRIBF is the first U.S. ISOL facility specializing in low-energy nuclear physics and nuclear astrophysics research. Like other ISOL facilities, it can accelerate radioactive ions made "online" to energies sufficiently high to produce nuclear reactions.

At the conference, scientists from all over the world reported on results of physics experiments using exotic nuclei from HRIBF and ISOL facilities in Canada, France, Germany, Japan, and Switzerland.

According to a letter of invitation from the organizing committee, "One of the main frontiers of today's nuclear science is the physics with radioactive ion beams. By studying the properties of short-lived nuclei, we hope to get a better understanding of the properties of nucleonic matter, the origin of the elements, the mechanism of energy generation in stars, and to provide stringent tests of the Standard Model."

The first day of the conference focused on the Holifield Facility's past. Former ORNL Associate Director Jim Ball, who led the facility's construction and was its first director, reviewed its origins and history. Researchers Dan Shapira and Cyrus Baktash, both of ORNL's Physics Division, reminisced about past research projects.

In 1972, a National Academy of Sciences panel consisting of physicists such as Allen Bromley of Yale University (who became a Presidential science advisor) and ORNL's Alex Zucker (who helped recruit the panelists) recommended improved facilities for nuclear physics research. ORNL's Physics Division proposed that the Atomic Energy Commission build a National Heavy Ion Laboratory, which would be a user



Jim Richmond

The "Holifield Tower," housing the huge tandem electrostatic accelerator, serves as ORNL's most prominent landmark.

facility for visiting as well as resident scientists. Other national labs submitted similar proposals. AEC liked ORNL's proposal of converting the Oak Ridge Isochronous Cyclotron, which began operating in 1958, into a "booster" that would increase the energy of heavy-ion beams produced by the proposed tandem electrostatic accelerator. ORNL received funding for the Heavy Ion Facility in 1974.

In 1974, a rider introduced by zealous congressional staffers, renamed ORNL the Holifield National Laboratory in honor of retiring California Rep. Chet Holifield, who had been chair of the Joint Atomic Energy Committee. The name change upset ORNL employees. To appease both Oak Ridgers and Tennessee politicians, a subsequent bill restored ORNL's name and named the Holifield Heavy Ion Research Facility after the congressman.

On May 10, 1979, National Electrostatics Corporation tested the column without acceleration tubes at full tank pressure. The column was operated at voltages up to 32 million volts, thus qualifying the Holifield Facility for the *Guinness Book of World Records* as having produced the highest man-made direct-current voltage in the world. In September

1988, an ORNL group operated the machine with acceleration tubes and an accelerated beam at a world record voltage of 25.5 million volts.

In 1979, HHIRF opened up as ORNL's first scientific user facility. To house the visiting scientists, the Joint Institute for Heavy Ion Research was built at ORNL using a combination of federal, state, and private funding.

Research at HHIRF focused on what happens when a beam of heavy ions—the projectile—collides with a stationary target at various energies. Do the collisions cause the emission of particles; exchanges of particles between the projectile and target nuclei; or changes in motion, spin, energy levels or even shape of the nuclei? Will projectile nuclei approaching target nuclei be repelled, or will fusion result? Some answers to these questions were found using sophisticated gamma-ray detectors, such as the spin spectrometer developed at Washington University.

In the early 1990s, the Holifield Facility faced the possibility of closing. Interest was moving from low-energy heavy-ion collisions to higher-energy collisions that were being produced elsewhere. At the same time, interest was rising in the study of nuclear astrophysics—what happens when stars explode—and of nuclear structure using radioactive ion beams. In 1992, as a result of a successful ORNL proposal in which ORIC and the tandem accelerator were to reverse roles (ORIC would produce the initial radioactive ions and the tandem would accelerate them), DOE provided funds to convert HHIRF into the Holifield Radioactive Ion Beam Facility.

Professor Joe Hamilton of Vanderbilt University and the late Russell Robinson led the effort to obtain the Recoil Mass Separator for nuclear structure studies at HRIBF, and Michael Smith obtained the Daresbury Recoil Separator from the United Kingdom for nuclear astrophysics studies at the converted machine. In 1995 HRIBF was dedicated as the first facility in the United States devoted to studies of nuclear structure and nuclear astrophysics with radioactive beams.

This development spawned another name change. The University Isotope Separator at Oak Ridge (UNISOR), which used a Holifield beam to produce excited states of nuclei far from stability, was renamed UNIRIB.

The Holifield Facility may resemble an ivory tower, but the physicists working there have not tried to separate themselves from the accelerated changes of recent years.—Carolyn Krause 



Tower construction, 1977

UT-Battelle begins UT scholarship program

Marking its first anniversary at ORNL, UT-Battelle is establishing a scholarship program for the children of UT-Battelle employees that encourages careers in science. A renewable scholarship to the University of Tennessee-Knoxville will be granted annually on a competitive basis, beginning in the fall of 2001.

The scholarship is worth \$4,000 per academic year and is renewable for four years if the student maintains full-time enrollment, a strong grade-point average and steady progress toward a baccalaureate degree.

Students may select a major course of study leading to a baccalaureate degree offered through UT in science, engineering or mathematics. In addition, UT-Battelle scholars will spend at least one practicum term at ORNL.

"The aim of this program, which is closely aligned with the thrust of our overall community outreach program, is to promote and further science and math education in the region," says Communications and Community Outreach Director Billy Stair.

"We also hope the program will become a pipeline for outstanding students to choose a

career at ORNL," he said.

For consideration, students must meet the following eligibility criteria, which parallel UT's Bicentennial Scholarship Program:

- Son or daughter of a current UT-Battelle employee
- High school diploma held by the end of the current school year
- Resident of Tennessee
- Acceptance to the University of Tennessee, Knoxville, for the following fall term
- Minimum high school grade point average of 3.75 in a 4.0 system
- ACT test score of 31

A committee established and coordinated by the Office of Communications and Community Outreach will consider the applicants based on academic performance in high school; ACT scores; academic references and awards; and activities, community service and leadership.

For more information on the program for next year's class, contact Brenda Hackworth, 574-4160, or Gail Beyersdorf, 241-9515, in the Communications and Community Outreach office by April 15. [ornl](#)

Service Anniversaries

April

42 years: Ray L. Johnson, Jr., SNS Project Director's Office

41 years: J. P. Moore, Metals & Ceramics

35 years: K. T. Cain, Life Sciences; Garvin J. Morris, Computational Physics and Engineering

30 years: Hank D. Cochran, Chemical Technology; Brenda B. Hickey, Metals & Ceramics

25 years: W. C. Clowers, Jr., Jack M. Crawford Jr., Sarah E. Evans, D. A. Irby, Kenneth D. Lawson and Gary Shepherd, Plant and Equipment; Charles R. Foust, Fusion Energy; Tina J. Graves, David R. James and Nancy S. Wright, Life Sciences; Beverly D. Johnson and Deborah A. Peters, Business & Information Services Dir.; Stanley G. Kimmett and Douglas D. Lee, Chemical Technology; Gary B. Mays, Computing, Information, and Networking; Robert M. Tate, Instrumentation & Controls; Karen K. Thacker, Robotics and Process Systems

20 years: Richard W. Counts, Computer Science & Mathematics; Linda T. Malone, Energy & Engineering Sciences Dir.; Paulette D. McGill and Randal Roberts, Laboratory Protection; Margaret D. Parker, Logistical Services; Terry L. Payne and Jeffrey A. Zollar, Tech Transfer & Economic Development; Bradley S. Richardson, Robotics and Process Systems; Donald E. Welch, Engineering Technology

Friends set Community Lecture series

The Friends of ORNL have launched this year's series of community lectures. Hank Cole, a native Oak Ridger and president of The Futures, a company that provides worldwide research and technical assistance for developing countries, gave the first talk on March 23.

Cole described population and reproductive health international development efforts, and his company's role in providing analysis and assistance to strengthen policy and planning for population programs at global, national and local levels.

Three more talks are scheduled in the coming months at the American Museum of Science and Energy auditorium. The next is Richard Weinberg, son of ORNL Director Emeritus Alvin Weinberg, who will introduce him at 7:30 p.m. on April 26. His talk is titled "Glutamate: The Brain's Favorite Seasoning."

On May 3, Susan Marie Frontezak will present "Manya: A Living History of Marie Curie" at 7:30 p.m. It's a one-woman living history presentation about the life of Marie Curie, set in 1915, in commemoration of the 100th anniversary of the discovery of radium.

Arizona State University's Jane Maienschein, whose parents had careers at Oak Ridge, will present a talk on science policy on May 23. Maienschein, a former congressional science advisor, shares some intriguing insights on how the competing

values of science and Congress play out, and how advocates of science can make their opinions count in Washington, in her talk titled "How Should We Tell the Stories of Science? Who Knows, Who Says, and Who Cares?"

Ram Uppuluri rounds out the Community Lecture series on June 19 with a talk on science policy. All talks are at the AMSE auditorium; check listings and announcements for times. It's a great slate of speakers. [ornl](#)

Benefits Delivery seeks customer feedback

Benefits Delivery, which serves approximately 28,000 employees and retirees from ORNL, Y-12 and the U.S. Enrichment Corporation, wants your opinion on how they are doing the benefits delivery job. All you have to do is place a call to 574-2150 any time by April 15.

"We want to listen to your needs and feedback so we serve our various customers as effectively as our resources will allow us to," says Benefits Delivery (formerly Benefit Plans) Manager Jill Freeman. "To do so, the OneCall Benefits Service Center wants to hear from you."

If you have had contact with the OneCall center since mid-January, Benefits

Delivery wants your assessment of service. Call (865) 574-2150 any time from April 1-15. They have prepared a seven question survey that takes approximately two minutes or so to complete. We will also give you an opportunity to leave us your comments after the survey.

"We need your feedback regarding the quality of our services during a normal operation period," says Jill. "We apologize for difficulties you may have had getting through to us last fall during an unusually busy period of contractor transition, and benefit changes."

Benefits Delivery will share the feedback in future newsletters.

Team UT-Battelle

Lab employees can lend their time, talent to the community

UT-Battelle employees have a new mechanism to help them lend their time and talents to creating a better community. The Team UT-Battelle concept has been established to facilitate the application of ORNL's bounty of volunteer spirit to causes in the surrounding area.

Volunteerism has long been a trait of ORNL employees. Strong numbers from the Lab have supported causes ranging from fundraisers for disease research to improving facilities in the cash-strapped Great Smoky Mountain National Park. With quality community and stakeholder relations as a major facet of the Lab Agenda, UT-Battelle is committed to helping focus the Lab's considerable talent and skill resources—not to mention elbow grease—toward civic goals.

"ORNL staff give generously of their time to many worthwhile community activities, Team UT-Battelle's goal is to assist them and help recognize their efforts," says Lab Director Bill Madia.

Team UT-Battelle is there to help you help.

The Team UT-Battelle Advisory Committee is being established to identify and approve projects. The committee in turn will assist volunteer project directors. Word on projects and solicitations for volunteers will go out on employee media including a Team UT-Battelle Web site and ORNL Today.

The Team UT-Battelle concept will facilitate activities by offering advice, consultation, organizational support and a little bit of funding, such as T-shirt money, toward getting the projects and initiatives off the ground. Bill Pardue, an Oak Ridge resident who works with the Office of Communications and Community Outreach,

is heading up the organizational thrust of Team UT-Battelle.

"Team UT-Battelle will be run by the volunteers," says Bill. "This will be an employee-driven, coordinated, volunteer community service organization that comprises Lab staff, family members and retirees working to assist the communities where we live and work."

The ORNL Values Committee, which has initiated a number of successful internal Lab projects, will continue to do so with projects and initiatives internal to the Lab, and will have a member on the Team UT-Battelle Advisory Committee. Team UT-Battelle will take the ORNL volunteer efforts into the community. New projects can be identified in a number of ways, including causes that have been supported in the past, by bringing them to the attention of an advisory committee member, a request from a local charity or cause or activities supported by UT-Battelle charitable contributions.

"This is going to be a way for Lab employees who serve worthy causes to attract attention to them, get support and earn recognition both for the projects and the volunteers who do them," says Bill Pardue. "Many times it takes an organizational boost, which this Team UT-Battelle 'umbrella' can provide, to get a project off the ground."

If you have a project or cause that you think your fellow staff members may be interested in helping, Team UT-Battelle can help you get the word out and get it on track. Send your candidate project ideas to Bill Pardue, 576-0235 or 220-5101; fax 574-0595, Building 4500-N, MS 6266; e-mail pardueb@ornl.gov.—B.C. 

ORNL people

The Physics Division's **David R. Schultz** has been named a 2000 Fellow of the American Physical Society for development of novel lattice methods for solving the time-dependent Schrodinger equation, providing fundamental new insights in atomic collisions and disseminating data to other research communities.

The Instrumentation and Controls Division's **Ken Tobin** has been elected a fellow of SPIE, the International Society for Optical Engineering. Only five percent of SPIE members can be fellows. Ken was also the Tennessee Academy of Science's engineer of the year for 2000 for his work in semiconductor metrology.

Jizhong Zhou, a research staff scientist in the Environmental Sciences Division, has been appointed to the editorial board of the American Society for Microbiology journal *Applied and Environmental Microbiology*, the leading scientific journal in the field of environmental microbiology. Zhou joined ORNL in 1996 as an Alexander Hollaender Distinguished Fellow.

Cheryl Bast, Tim Borges, Kowetha Davidson, Carol Forsyth, Glenda Johnson, Po-Yung Lu, Sylvia Milanez, Dennis Opresko, Bob Ross, Sylvia Talmage, Lois Thurston, Annetta Watson and Lee Ann Wilson, all members of the Toxicology and Risk Analysis section of the Life Sciences Division, recently received plaques of commendation from the U.S. Environmental Protection Agency for their work for the agency's Acute Exposure Guideline Levels program, which is used in emergency evacuation planning.



P.O. Box 2008
Oak Ridge, TN 37831-6146

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