

LANL

LOS ALAMOS NEWS LETTER

A publication of Los Alamos National Laboratory

Vol. 3, No. 7 • April 18, 2002

Lab technology scores big at the Olympics

by Shelley Thompson

"That was such a great experience. I haven't come down yet," exclaimed Jim Busse of Advanced Chemical Diagnostics and Instrumentation (C-ADI) when asked about helping at the 2002 Winter Olympics in Salt Lake City, Utah.

Dave Cremers (C-ADI), Monty Ferris (C-ADI) and Busse participated in an international organization designed to ensure bobsleigh and skeleton racers' equipment met Olympic regulations. The team brought their Laser Induced Breakdown Spectroscopy technology to evaluate the uniformity of metal composition of the runners — the "legs" of the bobsleighs that are in contact with the ice. Olympic specifications require bobsleigh runners to have homogenous metallic composition throughout.

"We talked to a few people several months before the Olympics regarding the use of LIBS, but it wasn't until 10 days before the games started that we were asked by the International Federation of Bobsleigh and Tobogganing, based in Milan, Italy, to actually come and participate," said Cremers, LIBS principal investigator. "We had to scramble in the few days before the games started to test the method on samples sent to us and to get the equipment ready for the trip."

Cremers and Ferris drove to the Olympics with the instrument, and



Jim Busse and Monty Ferris of Advanced Chemical Diagnostics and Instrumentation (C-ADI) take time out from their work to pose in front of the burning Olympic torch at the 2002 Winter Olympics. Photo courtesy of C-ADI

when they arrived, an elaborate and strict security inspection team greeted them. Ferris said, "Secret service, military, police from all over the country and explosive sniffing dogs inspected us and our equipment."

Busse, who flew in to replace Cremers a few days later, said that airline security was beefed up as well, "You weren't allowed to leave

your seat the last 30 minutes of the flight, and if you did, you'd be taken into custody and flown to another airport for questioning."

About his arrival in Salt Lake City, Busse said, "I'd been there many times, but I'd never seen the town spruced up like that. The city looked spectacular. The Olympic rings were lit on the side of the Wasatch Mountains, high-rise buildings throughout downtown displayed huge pictures of athletes and Christmas lights were still up."

Salt Lake City was the first time this type of analysis was done at the Olympics, and the LIBS team said that at first many teams were skeptical of what they were doing, but soon they were being thanked by almost everyone. "So many teams thanked us for being there," Busse said. "Some said we were the reason the times were so close. Others said that they appreciated us because they can't afford to compete with the teams that spend millions on runner technology, and they liked that our analysis no longer made it a technical sport for scientists back home, but put the race back in the hands of the athletes."

Media from across the country also interviewed Ferris and Busse. "That was an eye-opener," said Busse.

Ferris and Busse analyzed runners throughout the competition typically working 10-to-12-hour days. "We were very busy," Ferris

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Lab technology ...

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explained. "We worked every day, the weekends and holiday too, but it was a small price to pay for such a wonderful opportunity."

Their instrument was set up in a building near the finish line of the race. "The athletes got off the ice sweating and huffing and puffing like they'd just run five miles," said Ferris.

In their few free moments, Ferris and Busse watched some races. "We were standing two-feet from the ice and could hear the sleds coming down the track," said Busse. "They passed so quickly that you couldn't tell how many people were in there."

Busse and Ferris also saw behind the scenes action, such as athletes randomly selected for drug testing and the seriousness of that procedure; the up-close emotional outbursts, both elation and anger of the athletes; and the amount of work it takes to have the Olympics run smoothly.

"The thing that impressed me the most was the number of volunteers — more than 24,000 — and their incredible dedication to their jobs," said Ferris. "The Olympics is a first-class operation," added Busse.

As a thank you and sign of appreciation, the FIBT invited Ferris and



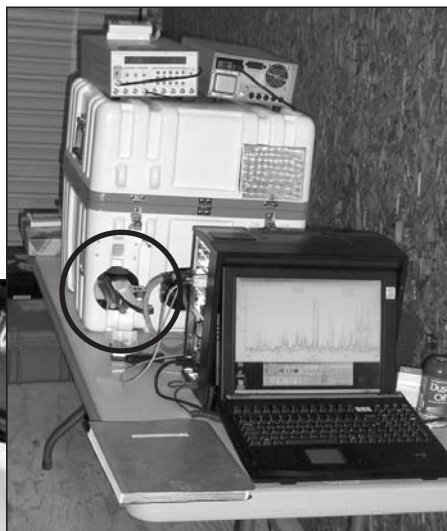
Busse to attend the closing ceremonies and sit with the Olympic Committee and their families. "The closing ceremonies were spectacular and a nice way to close out a great adventure," said Ferris and Busse.

"The FIBT was so satisfied with the use of LIBS at the games that they want to have the

technology available for use at future competitions," said Cremers.

LIBS technology has been under development at the Lab for the past 21 years. Current projects include development of a field-deployable analyzer to determine carbon in soil for use in terrestrial carbon-sequestration programs and development for future use on board landers and rovers to Mars for remote analysis of rocks and soil.

The instrumentation technology adapted for use in the LIBS analyzer at the 2002 Olympics was developed at the Laboratory as part of the Terrestrial Carbon Sequestration program funded by the National Energy Technology Laboratory and the U.S. Department of Agriculture, according to Cremers.



The Laboratory-developed Laser Induced Breakdown Spectroscopy, or LIBS instrumentation, top photo, is set up adjacent to the bobsleigh run at the 2002 Winter Olympics in Park City, Utah. In the photo, a runner has been inserted into the analyzer (circled on the left side of the large white box) and analyzed; the resulting data is displayed on the computer screen. A complete analysis takes less than two minutes. The black "legs" underneath the sled at left are the runners that were analyzed by Laboratory scientists. *Photos courtesy of Advanced Chemical Diagnostics and Instrumentation (C-ADI)*



Dave Cremers of Advanced Chemical Diagnostics and Instrumentation (C-ADI) analyzes a runner — visible at the far left of the picture protruding from the "white box" — before a race.



The Los Alamos News Letter, the Laboratory bi-weekly publication for employees and retirees, is published by the Public Affairs Office in the Communications and External Relations (CER) Division. The staff is located in the IT Corp. Building at 135 B Central Park Square and can be reached by e-mail at newsbulletin@lanl.gov, by fax at 5-5552, by regular Lab mail at Mail Stop C177 or by calling the individual telephone numbers listed below.

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Los Alamos enhances global security by ensuring safety and confidence in the U.S. nuclear stockpile, developing technologies to reduce threats from weapons of mass destruction and improving the environmental and nuclear materials legacy of the cold war. Los Alamos' capabilities assist the nation in addressing energy, environment, infrastructure and biological security problems.



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LANL under scrutiny at hearing in Santa Fe

Laboratory Director John Browne, far right, was on a panel last month that addressed the Senate Select Committee on the Oversight of the Department of Energy laboratories operated by the Department of Energy. At the March meeting in Santa Fe, Browne talked about the University of California's contract to operate the Laboratory, budget, accountability, work force and security issues. Next to Browne is Robert Van Ness, UC assistant vice president for Laboratory management. At left in the photo is Ronald Cochran, executive officer of Lawrence Livermore National Laboratory.



Sen. Manny Aragon, left, D-Bernalillo, Valencia, makes a comment at last month's hearing at the State Capitol in Santa Fe. At center in the photo is Saeed Ali, aide to California Senate Majority Leader Richard Polanco, D-Los Angeles, right. Photos by John Bass

Lab employees make record contribution to Santa Fe County 2001 United Way Campaign

by Steve Sandoval

Employees from Los Alamos National Laboratory were recognized last month at a ceremony in Santa Fe as the top contributor to the United Way of Santa Fe County's recently completed 2001 giving campaign.

University of California Laboratory employees pledged or donated \$133,208.24 to the Santa Fe campaign, said Tom Meyer, associate director for strategic research. Meyer was Los Alamos' chairperson for the campaign. The figure includes about \$9,100 from the not-for-profit Los Alamos National Laboratory Foundation. The total amount pledged or donated to the 2001 campaign by Laboratory workers also is an increase of more than \$40,000 from the previous campaign.



The amount is the largest ever donated by one organization to the United Way of Santa Fe County. The Laboratory received a plaque at United Way of Santa Fe County's awards reception in the downtown Eldorado Hotel. "Our Los Alamos employees can take pride in this accomplishment," said Laboratory Director John Browne. "Once again, Laboratory personnel have shown through their generosity that their community is important to them and that they are eager to help the less fortunate."

"The growing strength of the relationship between the Laboratory and United Way of Santa Fe County is something we're very happy about," said Ron Stevens, United Way of Santa Fe County executive director.

"The donations will be used to help children learn and grow, encourage self-sufficiency, provide services to the elderly and promote health and healing."

Meyer noted that the Laboratory also received the Sangre de Cristo Society Award from United Way of Santa Fe County. The award is given to companies or organizations with the largest number of \$500 or greater donors. Eighty-one Los Alamos employees made pledges or donations of \$500 or greater during the recent campaign, an increase of 35 from the 2000 campaign, said Stevens.

The 2001 United Way of Santa Fe County campaign raised \$1.3 million, a 6 percent increase over last year, according to Stevens.

The most recent Los Alamos/Northern New Mexico United Way campaign raised \$1,071,000, surpassing the campaign goal of \$800,000.

Reaching out: Laboratory opens small-business office in Española

by Steve Sandoval

Small-business owners and operators in the Española Valley will have a point of contact with the Laboratory right in their backyard with the opening April 8 of a Small Business Program Office (BUS-SBO) outreach center in Española.

The office will be located within the Community Relations Office's (CRO) Española Outreach Center at Northern New Mexico Community College, said Bennie Gonzales, the SBO program manager.

Tim Martinez, a procurement specialist and supplier liaison in Procurement (BUS-5), will staff the one-person office, Gonzales said.

"The Laboratory is very committed to making every possible effort to maximize the opportunities for subcontracting for our Northern New Mexico suppliers," said Gonzales. "This is just one of our efforts to

increase these opportunities for businesses in Northern New Mexico and especially underserved areas such as Rio Arriba County."

Gonzales said small-business owners in the valley will be able to meet with Martinez to discuss small-business procurement opportunities at the Laboratory. Martinez also can explain Laboratory procedures and requirements for doing business with the Lab.

"Anything that's more specific, certainly he can help there," Gonzales said, noting that Martinez also will act as the central point for certifying valley businesses under the federal Historically Underutilized Business, or HUB-zone program. Gonzales noted that 36 businesses in the valley have been Hub-zone certified. "We've got a long way to go, but we're working with them," said Gonzales.

In addition to identifying possible Lab procurements, the Española

small-business outreach office will work to bring together large firms, such as Johnson Controls Northern New Mexico and Hensel Phelps Construction Co., to identify possible subcontract opportunities between large and small businesses.

Gonzales said the new small-business outreach office is part of the Small Business Program Office's expanded efforts to increase procurement opportunities in Northern New Mexico.

In the 2001 fiscal year, which ended Sept. 30, 2001, the Laboratory purchased \$357 million in goods and services from Northern New Mexico businesses. The SBO also has held a number of trade fairs aimed at pairing businesses with Laboratory personnel who buy goods and services for their organizations.

For more information, call 7-4410 or go to buynorthern.lanl.gov on the Internet.



NISC Building construction ahead of schedule

The Nonproliferation and International Security Center, seen here looking southwest, under construction at the intersection of Pajarito and Mercury roads, is running ahead of schedule (slightly more than 50 percent complete) without a single lost-workday injury and about \$1 million under budget. The multi-story building is adjacent to the Strategic Computing Center at Technical Area 3 and will be home to employees from a number of Nonproliferation and International Security (NIS) Division groups and program offices. Work on the building is expected to be completed next January. Photo by LeRoy N. Sanchez



Health News

The results of a study published in the March issue of The New England Journal of Medicine found that exercise capacity is a stronger predictor of death among men than other established risk factors such as high blood pressure, smoking and diabetes. Higher exercise capacity was associated with longer survival rates. This result was consistent for men with and without existing cardiovascular disease.

Source: The New England Journal of Medicine, March 14, 2002, Volume 346, Number 11

Science + wheels = enrichment

by Michael Carlson

When Bettie Bedell and Elizabeth Watts enter a classroom, eyes light up and imaginations sparkle. As science educators at the Bradbury Science Museum, they deliver wonder and knowledge to elementary and middle school kids in Northern New Mexico as part of the Laboratory's Science on Wheels program.

By the end of this school year, Bedell and Watts will have visited about 4,000 students in at least 44 schools in a 90-mile radius. They've presented a series of four programs covering geology and physics.

Free of charge to schools, Science on Wheels is a pilot program designed to provide curriculum enrichment, according to John Rhoades, museum director. The program offers a chance for hands-on activities, something teachers aren't always able to coordinate because of few resources, Bedell said.

"Science on Wheels serves as a bridge to the community," Rhoades said. "We offer a message that the Lab cares about the surrounding communities."

Bedell is a former middle school teacher from Houston with bachelor's and master's degrees in science education. She worked with a similar science program at Oak Ridge National Laboratory in Tennessee before relocating to Los Alamos.

Watts said teachers are glad to see women as scientists. She chose to become an educator after finishing her doctoral degree in physics. "I think kids should be educated in science and be aware that the microwave in their homes doesn't operate on magic."

Bedell said the program has even helped students who are having difficulty with science. She said teachers



Leroy Rios, a fifth grader at Tesuque Elementary, looks through a microscope as part of a recent visit by the Bradbury Science Museum's Science on Wheels.

often point out students who are disenchanted with school. But when Bedell and Watts start the experiments, these same kids suddenly show an interest, leaving the teachers with a revised impression of their students.

Watts said a number of scientists have told her that they had been inspired by at least one event like the Science on Wheels program. "Even though they don't always remember the details of the experience in later years, they remember its impact."

Bedell and Watts will spend the summer months tweaking the program. In August, they will begin to actively publicize fall programs. And by September, they will be taking reservations, with plans to go on the road two days a week beginning in October.

Similar to the "Up and At Atom" program at Sandia National Laboratories, the idea for Science on Wheels came from Rhoades and Garry Franklin, a science educator at the museum who died two years ago.



Elizabeth Watts, left, and Bettie Bedell, right, take questions from a recent Science on Wheels visit to Tesuque Elementary. Photos by LeRoy Sanchez



NEWSMAKERS



Rod Wood-Schultz

Veteran Laboratory leader **Rod Wood-Schultz** has been named leader of the Applied Physics Division (X), which develops computational solutions in nuclear weapons, physics and related national security areas.

Since coming to Los Alamos in 1974 to work on weapon simulations in the former Theoretical Design Division, Wood-Schultz has served as group leader for Thermonuclear Applications (X-2) and later as deputy director of the Applied Theoretical and Computational Physics Division, the former name of X Division.

Wood-Schultz also served a tour of duty in 1985-86 as liaison to the Nuclear Weapons Branch of the

Defense Intelligence Agency in Washington, D.C.

Wood-Schultz holds a bachelor's degree in physics from Oklahoma State University, as well as a master's in physics and doctorate in astrophysics, both from the University of Colorado.



Joe Repa

Joe Repa is the new principal deputy leader of the Dynamic Experimentation (DX) Division, which has primary responsibility for nuclear weapon component research, development and testing, with emphasis on dynamic behavior of materials, high-explosive science, shock physics and development of energetic materials.

Repa, who has worked at Los Alamos for 29 years, previously served as program director for Nuclear Weapons Experimental Programs and program manager for Explosives and Conventional Weapons, among other leadership positions. His technical work at Los Alamos has included research in structural mechanics, explosive/metal systems, shaped charges; directional fragment warheads; warhead/target interactions and response of structures to blast.

He holds bachelor's and master's degrees in civil engineering from the University of Texas and worked for General Dynamics Corp. and the New Mexico State Highway Department before joining the Laboratory.



Raymond Vitkus

Raymond Vitkus is the new group leader of Nonproliferation and International Technology (NIS-8). Vitkus came to the Laboratory on Jan. 22 from the Central Intelligence Agency

where he led a team on intelligence support to the U.S. threat reduction and nonproliferation programs for the departments of Defense, State and Energy. Vitkus is a retired Air Force colonel with experience in managing intelligence budgets and international intelligence collections, working with DoD programs for warhead development and directly supporting arms control negotiations.

Vitkus said he had the chance to interface with the Lab during assignments over a 20-year period and is pleased to have the opportunity to work here.

Vitkus received his bachelor's degree in mechanical engineering from Purdue University and his master's in nuclear engineering from the Air Force Institute of Technology. He also has a master's in business administration from the University of Missouri.

Meet the CIA's new chief scientist

by Michael Carlson



John Phillips

John Phillips is the new chief scientist for the Central Intelligence Agency. A Laboratory employee since 1968, he began his career in Los Alamos with the former Chemistry and Metallurgy (CMB) Division.

He's been on a change of station in Washington, D.C., for the last three years, working as the CIA's director of the Investment Project office and as chief technology officer. As chief scientist, Phillips is in charge of a small office that consists of senior technical individuals who provide guidance to the Directorate of Science and Technology, Directorate of Intelligence and Directorate of Operations at the agency.

Phillips began his relationship with the CIA in the 1970s. In 1991, he served as a member of the U.S. nuclear inspection team in Iraq. As an employee with the Laboratory, Phillips has served in several materials science and nonproliferation groups. He said such experience made him an ideal candidate for his new position.

Phillips said he has the best job in Washington for someone working for a national laboratory. "I believe the diversity of our mission is unparalleled within any community," Phillips said. "There is a strong dedication of everyone within the agency to support the national security mission of the country."

Phillips has a bachelor's of science degree in mathematics, a master's of science degree and a doctoral degree in chemistry. He also has a master's degree in business administration. Phillips' assignment in Washington, D.C., ends March 2003.

April service anniversaries

40 Year

Richard Siemon, SSR

35 Year

Horace Martinez, MST-6

30 Year

Hillard Howard, ESH-DO
David Martinez, C-AAC
Rodney Mason, X-1
Raymond Olivas, NMT-8
Annabelle Rivera, HR-1-CB
Joe Roybal, CCN-18
Lawrence Sprouse, NIS-6
John Sutton, NIS-3

25 Year

Sennie Gallegos, CCS-4
Ubaldo Gallegos, NMT-16
Lawrence Haynes, NIS-18
Robert Lopez, DX-4
Alberto Martinez, LANSCE-FM
Cristina Montoya, DX-8
Geary Radcliffe, CCN-2
Linda Trujillo, BUS-6
Elsie Trujillo, NIS-DO

20 Year

Joseph Borovsky, NIS-1
Stephen Francis, FWO-WFM
David Holtkamp, P-22
John Huttenburg, DX-1
Robert Martinez, LC
Leland Morrison, NIS-4
Danny Vigil, LANSCE-5
Glen Wurden, P-24
Stephen Younger, DIR

15 Year

Lawrence Cox, X-5
Luke Bartlein, D-11
Melynda Brooks, P-25
Gregory Buntain, DX-DO
Judith Heath, FWO-IIM
Roberta Idzorek, ADWEM

Herbert Konkel, D-11
Steve Vigil, NMT-16

10 Year

Deborah Allison-Trujillo, C-SIC
Dennis Armstrong, S-8
Marc Bailey, ESH-18
Catherine Finn, NIS-6
Susan Galbraith, MST-6
Anthony Gonzales III, ESA-DE
Roger Rumsey, DX-1
John Jameson, ESH-1
Deborah Leyba, HR-DR
Jon Schoonover, MST-7
Roland Schulze, MST-6
S.C. Thayer, LC
Clarita Trujillo, ESH-1
H.J. Turin, E-DO
Jeremy Valdez, BUS-2
Lily Wang, MST-6
David Wilkey, NIS-7

5 years

Carolyn Adams, NMT-6
David Alberstein, NMT-DO
Jeffrey Bull, X-5
Stanley Busboom, S-DO
Leo Chavez, NIS-6
Hallie Deaguero, EES-DO
Victoria Dominguez, ESH-1
Thomas Evans, CCS-4
Joe Fonseca, ESA-GTS
Paul Gray, DX-1
Michael Irving, S-DO
Cordell Meyer, NMT-13
Regina Pasquale, ESA-WR
Steven Renfro, DX-1
John Retelle, MST-6
Jurgen Schmidt, B-3
Alexei Skourikhine, NIS-7
Marius Stan, MST-8
Keith Stephens, LANSCE-6
Anthony Valdez, NMT-5
Eduardo Vigil, CCN-5
Lorenzo Viramontes, FWO-S2CM
James Watts, ESA-WSE

This month in history

March

1578 — Physician William Harvey is born; he discovered the mechanics of blood circulation

1799 — Humphrey Davy discovers nitrous oxide (laughing gas)

1849 — Walter Hunter patented the first safety pin

1858 — Max Planck, formulator of the quantum theory that revolutionized physics, is born

1865 — President Lincoln is shot at Ford's Theater

1900 — The U.S. Navy purchases its first submarine

1919 — Birth of John Presper Jr., co-inventor of the Electronic Numerical Integrator and Computer, ENIAC, used in the Manhattan Project

1941 — The first one-hour flight of a helicopter is made in Stratford, Conn.


1959 — The selection of the first U.S. astronauts is announced by NASA

1961 — Robert Noyce is granted a patent for the integrated circuit


1978 — The United States cancels development of the neutron bomb

1999 — San Francisco State University astronomers find new solar system

2001 — The first tourist in space, Dennis Tito, flew aboard the Soyuz TM to the International Space Station



Did you know...?
Americans throw away enough office and writing paper annually to build a wall 12 feet high stretching from Los Angeles to New York City.



Employee's Lab ties are a family affair

by Steve Sandoval

For Barbara Ritchie of Communication Arts and Services (IM-1) working at the Laboratory is in her genes, really.

An electronic publications specialist currently assigned to Military Systems Analysis and Simulation (D-5), Ritchie is a third-generation Lab employee. She was preceded at Los Alamos by her parents Joseph and Edna Marx and grandparents, Charlotte and Jerome Johnson.

Jerome Johnson came to the Lab in 1943 from the University of Wisconsin. He was a machinist supervisor in the former Shops (SD) Department, while Charlotte Johnson was a technician in the former High Energy Density Physics (P-1). The Johnsons retired from the Laboratory in the early 1970s.

Mom and dad joined the Lab in 1953. Edna Marx was a "count technician," counting radiation dosages at the Chemistry and Metallurgy Research Building. Joseph Marx was in charge of the heat treatment department where he strengthened metals for parts and equipment. He retired in 1979; Edna Marx retired a year later. They still live in White Rock.

Ritchie's uncle, Ogden Johnson, who worked in health physics, and second cousin, Marcheta Porter, a secretary, also count themselves as employees of the Lab at one time. For a time, Porter worked for renowned physicist Richard Feynman, said Ritchie.

Ritchie joined the Lab in December 1971 as a clerk in the former Weapons Engineering (W) Division, moving around to several Laboratory organizations. "I came in at entry level and had many opportunities to advance," she said.

Nestled among scrapbooks full of newspaper clippings, certificates, old badge and driver's license photos are telegrams from the mid 1940s from Ogden Johnson to his brother Jerome Johnson when Ogden received word he too was coming to Los Alamos.

There's also a certificate of appreciation, well kept in a black frame and dated Aug. 6, 1945 — the day of the Hiroshima bombing in Japan — from then Secretary of the War Department Henry Stimson to Charlotte Johnson thanking her for her contributions to the war effort at Los Alamos.

Ritchie fondly recalls the stories her parents and grandparents told about Los Alamos' early years. The



Barbara Ritchie of Military Systems Analysis and Simulation (D-5) looks at a certificate dated Aug. 6, 1945, to her grandmother, Charlotte Johnson, from Secretary of the War Henry Stimson. Photos by LeRoy N. Sanchez

once-secret city carved out of the mesa tops of the Pajarito Plateau wasn't so different, she said, from "Anywhere, U.S.A.," at least not for many of the young adults growing up and working here.

Jerome Johnson was one of the few men in Los Alamos in the early 1940s who had a vehicle, Ritchie said. Because Jerome Johnson was among the few who had a car, several military and nonmilitary personnel would pile into his car and head to Santa Fe to party, she said.

When the Johnsons came to New Mexico, they reported to P.O. Box 1663 in Santa Fe then started the drive up the main hill, which was a winding dirt road at the time. "My grandmother thought they were going to the end of the world," noted Ritchie.

Ritchie said after the Hiroshima bombing, "Grandma sent mom a telegram saying 'that's our baby.'" She added, "They were very proud of working here and being a part of the effort to end the war."

Much has changed since then, Ritchie agrees. She recalled that as a child growing up in Los Alamos you couldn't just come and go as you

pleased. And Lab workers "qualified" for housing based on their job status.

"The Laboratory does so many wonderful things," said Ritchie. "Look at the capabilities we have. If it weren't for this Lab, we might not all be here. If it weren't for the bomb, we would have lost even more lives [in World War II]."

"The Laboratory is vital to our country. I think it is so important that the Laboratory kept going and did not shut down after the war as once was planned."

Los Alamos News Letter

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