

Researchers finding fault

by Kathy DeLucas

The Los Alamos Seismic Studies Project brings together Laboratory geologists, seismologists and engineers to increase seismic safety at the Laboratory. This is accomplished by gaining a better understanding of the seismic hazard facing the Lab and implementing engineering solutions.

The Lab sits within the Rio Grande Rift, a series of elongated north-south basins that run from central Colorado along the Rio Grande and into northern Mexico. The rift causes Earth's surface to stretch, thin and break. The geologic record indicates that earthquakes as large as magnitude 7 have occurred in this region, although infrequently.

"The earthquakes we have found happen on the order of tens of thousands of years, so the chances of one happening again soon, are very remote," said Team Leader Jamie Gardner, "You don't get this

spectacular landscape without earthquakes."

There are three large faults in the Los Alamos area. The Pajarito Fault extends some 30 miles north-south near Bland Canyon to Santa Clara Canyon. The plateau also is transected by the Guaje Mountain Fault and the Rendija Canyon Fault. Data suggest that a 7.0 earthquake occurred along the Guaje Mountain Fault between 4,000 and 6,000 years ago. A similar magnitude quake occurred on the Rendija Canyon Fault between 8,000 and 22,000 years ago.

Because the Lab has nuclear facilities, it is necessary to have a good understanding of the seismic hazard associated with the Los Alamos area. Typical residential construction, office buildings and other low hazard facilities must be designed for a one-in-500-year-event. Commercial building codes have adequate provisions to

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With walls shored up, researchers are literally in the trenches to map various geologic layers. The identification of layers within the trench provides insights into where various faults may be. In the future, the team will begin to include evaluation of potential volcanic hazards from the Valles Caldera.

Photo courtesy of Jamie Gardner of Integrated Geosciences (EES-13)

Modified contract brings new requirements



by John R. Gustafson

Many employees breathed a sigh of relief when they heard the news that the University of California and Department of Energy had signed a modified contract, keeping the relationship between UC and Los Alamos and Livermore national laboratories intact and extending the University's management responsibilities over these labs to the year 2005.

"It got down to the wire," UC President Richard Atkinson told reporters after the contract had been

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Significant challenges face the Laboratory



A guest editorial by Director John Browne

We recently got the good news that the University of California and Department of Energy had signed an extension of the Laboratory management contract. We must all recognize, however, that the modified contract presents some significant challenges for us. To meet these challenges we must dedicate ourselves — employees and managers alike — to being a unified, customer-focused Laboratory, working together to satisfy and

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New Appendix O

A newly added appendix to the Laboratory's prime contract sets essential performance levels and specific deliverables in six areas: management accountability, security, facility operations, critical skill replenishment, project and construction management, and evaluation and self-assessment.

Appendix O establishes greater expectations for corporate accountability for the University of California and assumes increased UC involvement with laboratory management, consistent with how the Department of Energy treats other management and operation contracts.

Los Alamos and Livermore national laboratories will be

scored together on Appendix O. Each lab, therefore, has a strong interest in the other lab doing well.

UC and DOE will evaluate Lab performance against Appendix O measures in December of 2001 and 2002.

Appendix O is graded as a pass/fail measure. The penalties for failure are monetary — loss of part or all of the "at-risk" portion of the performance fee. That portion, which can be as high as \$8.6 million, funds joint campus-lab research and UC's directed research and development program for the labs, and covers costs not allowed under the contract as well as a contingency reserve.

DOE has identified three tiers for evaluating adverse events in either safety or security. A Tier 1 event — comparable to the Lab's hard drive or plutonium uptake incidents last year — can reduce the performance fee by up to 100 percent.

Modified contract ...

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signed. The contract was completed two days before former Secretary Bill Richardson's tenure ended, and a delay into the new administration could have put negotiations on hold indefinitely.

"It is incumbent on us to meet the management and performance challenges spelled out in the contract, but I am confident we can meet them if we work in a disciplined and focused manner," Laboratory Director John Browne told his management team shortly after the contract was signed. "In doing so, we can help ensure that our relationship with UC continues into the future."

The modified contract strengthens the university's oversight role and presents several new requirements and measures of accountability. It also preserves the university's historic partnership with the federal government and an atmosphere encouraging academic inquiry at the laboratories.

Several changes to the contract bring in policies and practices — and standard language — that DOE is now requiring for all of its contractors. One allows the energy secretary — but only the secretary — to direct UC to remove from work on the contract "serious contract performance deficiencies."

If the energy secretary does invoke this authority, UC has 60 days to propose alternative resolutions of the underlying issues. In addition, DOE's actions must be consistent with state law and regulations protecting UC employee rights, and cannot impede the flow of information or advice to the president or Congress on the certification of the stockpile. UC ensured

employee rights would be protected as well as the historic environment of open scientific inquiry.

There also is a major new appendix to the contract, Appendix O, that specifies performance levels that Los Alamos and Livermore must attain before DOE will consider awarding any "at risk" performance fees that are earned under Appendix F (see story above). Those performance fees support research, joint lab-campus collaborations and other expenses.

UC Requirements

UC has begun a search to fill a new position within its central administrative office, a vice president for laboratory management. This position will increase oversight and involvement between UC and the laboratories. The VPLM will have quarterly meetings with DOE to review the progress on commitments made in Appendix O.

UC also is required to establish sub-contracts in the areas of security and project management to assist with the assessment and improvement of laboratory performance.

LANL Requirements

Several specific requirements fall to the laboratories. Los Alamos, for instance, is required to establish a sub-contract by mid-April to bring in commercial nuclear facility operating expertise. The subcontractor will provide an assessment and report that will help establish a master schedule for improvements.

Other requirements include fully implementing Integrated Safeguards and Security Management by the end of next year and developing a five-year staffing plan jointly with Livermore to fill critical mission needs.

Clarification

The answer to the question about photo identification cards in the Director's Question and Answer column in the Jan. 25, 2001, issue of LANL should have included the information that the use of Lab badges to obtain hotel and airline discounts is permissible if the discount is related to travel for official business.

LANL

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Please recycle

Committee assignments for New Mexico's congressional delegation

New Mexico Sen. Jeff Bingaman has vacated his seat on the Senate Armed Services Committee and taken a place on the increasingly influential Senate Finance Committee, the Government Relations Office (GRO) reports.

Here are the committee assignments as of mid-January for the members of New Mexico's delegation in the new 107th Congress:

Rep. Tom Udall (D-N.M.) — Resources and Small Business

Rep. Heather Wilson (R-N.M.) — Energy and Commerce, and Armed Services

Rep. Joe Skeen (R-N.M.) — Appropriations

Sen. Pete Domenici (R-N.M.) — Appropriations, Budget, Energy and Natural Resources, Governmental Affairs and Indian Affairs

Sen. Jeff Bingaman (D-N.M.) — Finance, and Energy and Natural Resources

News from UC

UC researchers produce human genome CD for time capsule

Safely housed inside the National Millennium Time Capsule for the next 100 years is a CD-ROM disk produced by researchers at UC-Santa Cruz that contains the sequence of the human genome. The time capsule, intended to preserve the artifacts, ideas and accomplishments of this time in history, is in the custody of the National Archives and Records Administration. The human genome sequence, which represents the genetic instructions for a human being, is one of the crowning achievements of 20th-century science.

Storing documents to protect them from power blackouts

For those who worry that rolling blackouts will wipe out their bank statements and other computerized records, a UC-Berkeley researcher is designing a solution: A data storage system so vast and powerful it will encompass the entire Earth. OceanStore is a data storage system tough enough to withstand a fire, a hacker attack or a botched electricity deregulation attempt. By chopping data into encrypted pieces and storing them on computers scattered throughout the Internet, OceanStore expands storage capacity and makes data disaster-proof and always available.

Molecular imaging center launched at UCLA

A new molecular imaging center that will develop innovative ways to see gene-based therapies at work in the human body has been launched at UCLA's Jonsson Cancer Center. The \$9.8-million UCLA Center for In Vivo Imaging in Cancer Biology, funded through a five-year grant from the National Cancer Institute, also will further studies on the biological mechanisms of cancer.

Significant challenges ...

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exceed our country's expectations of us.

The contract requirements set the bar for Los Alamos' performance at a high level, but no higher than we should set for ourselves. Being "OK" or "good enough" will not cut it under the new contract.

We started on this journey in 1992, with the first performance-based contract between UC and DOE. We've improved our performance in a variety of areas throughout the '90s, and now it is time to reach for the next level.

We must have a vigorous lessons-learned program, sharing information across the Laboratory. Continuous improvement means we have to learn from each other so we don't repeat our mistakes. We can't take our problems underground — problems covered up invariably become uncovered and have a way of escalating.

The end result of this effort will be a better place in

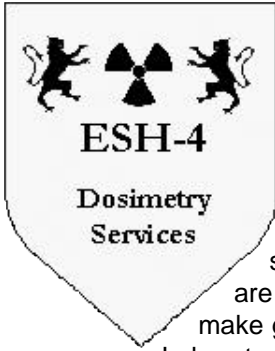
which to work — one that is safer, more secure, more cost effective, and with an operating system that better facilitates our conduct of science and technology in support of our national mission. Achieving this also will increase our value as a resource to the nation.

Several DOE laboratories — Lawrence Berkeley National Laboratory among them — have achieved an overall performance rating of "outstanding" by DOE.

Our Laboratory should aim for this high mark, going beyond contractual requirements. This is in keeping with the strategic business direction I have set for the Laboratory and that I will address in detail at an all-hands meeting on March 7.

Achieving a level of performance that sails over the bar also will give us an opportunity to enjoy the benefits of our historic relationship with the University of California beyond 2005, such as intellectual freedom and collaborative research with the UC campuses. I look forward to your support as we, as a Laboratory, continue on this journey.





Online personnel dosimetry

by Kevin Roark

A new Web site and sign-up system for personnel dosimetry are designed to make getting into the Laboratory's dosimetry programs easier and make sure that the programs are the right fit for the employee's work and the specific operations of each facility.

More than 50 percent of Lab employees are enrolled in external or internal dosimetry programs.

External dosimetry utilizes Thermo-Luminescent Dosimetry, Personal Neutron Accident Dosimetry and PN-3 Supplemental Neutron Dosimetry badges that monitor for exposures to ionizing radiation. The smaller *in vivo* and *in vitro* bioassay programs monitor for internal exposures to ionizing radiation and involve whole-body counters and urine sampling.

The previous checklist for enrolling in a dosimetry program required some interpretation on the part of the employee, at times resulting in confusion. For example, there were cases where two employees doing the same work in the same place ended up enrolled in different programs because information provided on the checklist was inconsistent. The new checklist seeks to eliminate such ambiguity through the use of work-and-facility-based charts, or dosimetry matrices, said Dawn Lewis of Health Physics Measurements (ESH-4).

"The form is a little different, but what has really changed is the process behind the form, the establishment of these facility-based matrices," said Lewis. "The Dose Assessment Team created the basic requirements, then we worked with the facility managers and team leaders of Health Physics Operations (ESH-1) to interpret the requirements and

come up with guidance for each facility, developing different matrices for each facility and its specific operations."

And soon employees will be able to do the whole thing online. "Right now the new form can be accessed on our Web site, but it still has to be printed out, signed and returned to us via fax or interoffice mail. We hope to soon eliminate the paper altogether and do the whole process via the Web site," said Lewis.

Employees already enrolled in a dosimetry program do not have to re-enroll. The new system is designed for employees who are enrolling in a program for the first time or workers who have changed jobs and/or locations and need dosimetry re-evaluations.

The dosimetry system can be found under "shortcuts" on the Laboratory's internal home page or is available directly at http://eshdb.lanl.gov/%7EEesh12/new_eshdb/des.htm.

Researchers finding ...

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address the hazard associated with this event.

However, nuclear facilities at the Lab must be capable of surviving a one-in-10,000 year event. These larger events are not typically addressed in building codes and as a result, the Laboratory developed the Seismic Studies Project. "The Lab's seismic program is probably the most advanced one in the state of New Mexico," Gardner said.

Among the tasks the project addresses is providing site-specific studies in support of locating new facilities. Digging ditches or trenches is the best way to find the faults at potential facility sites. The most recent site to be explored is located close to the Pajarito Fault, a major fault zone at the western boundary of the Lab. The seismic team dug and examined an unusually large trench next to West Jemez Road last November and December. This trench was 300 feet long, 25 feet wide and 10 feet deep. Ordinarily, trenches are about three feet wide and 25 feet deep.

Members of the team map the rock layers in the trenches to determine if and how much the layers were displaced by any faulting. The displacement gives researchers the clues they need to figure out the magnitude of the earthquake. By studying the dates of the various layers, researchers can determine the age of the most recent quake.

Researchers use the same analytical techniques on sample cores drilled in areas where the Lab has become developed. Core drilling studies have been used on five sites around the Laboratory. These studies are complemented by mid-1940s air reconnaissance photos of the area taken before many of the Lab's structures were built. One photo indicates a line going through what is today Technical Area 3. "Nature doesn't like straight lines," Gardner says, "so often lineaments on air photos are a clue to the presence of faulting."

Researchers have discovered that the line on the photo is from early settlers that backfilled what used to be Sandia Canyon with dirt and rich soil for agricultural purposes. The results of a recent drilling program indicate that that stretch of Sandia Canyon had originally been eroded along a fault.



**For the
latest
Lab news**

Check out the Daily Newsbulletin

<http://www.lanl.gov/newsbulletin> on the World Wide Web.

An ounce of prevention

A successful ISSM program strives for "zero safeguards and security incidents." To meet this objective, it is important to know more about the types of incidents and how to prevent them from recurring. Here is a list of 10 security errors that have occurred at the Laboratory in the past two years. In coming issues, we will take a closer look at each of these security errors and steps employees can take to avoid them. The rank order below is not indicative of the number of incidents or their severity.



1. Did not obtain a classification review
2. Left a security container (safe, vault, and vault-type room) unsecured and unattended
3. Created a classified document on an unclassified computer
4. E-mailed classified information over an unclassified local area network
5. Did not control access and need-to-know classified information
6. Did not mark classified drafts and working papers properly
7. Did not account for classified information properly
8. Did not properly verify a classified mailing address
9. Introduced prohibited articles into a security area
10. Did not report actual or potential security incidents

Forensic seismology provides clues to Kursk disaster

Los Alamos and Arizona forensic seismologists have concluded that explosions, not impact, caused the Russian submarine Kursk to sink in the Barents Sea on Aug. 12 with the loss of all crew members.

Steven Taylor and Hans Hartse, both of Geophysics (EES-3), and Keith Koper and Terry Wallace of the University of Arizona reported their finding in the Jan. 23 Eos, a publication of the American Geophysical Union.

The explosions that sank the Kursk triggered shock waves that were recorded by a network of seismic stations in the Baltic region and beyond. The researchers used these data to reconstruct the disaster.

They noted that underwater explosions are highly efficient producers of seismic signals and have been long studied, including those generated by the sinking of a Soviet submarine in 1989. The Kursk seismic data possess features unique to underwater explosions, a strong indication that the submarine did not sink because of a collision or other impact, they said.

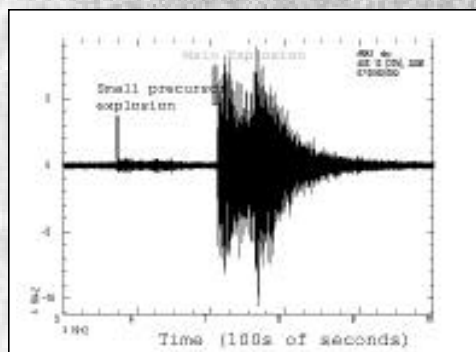
Seismic stations recorded two explosions that correspond to the Kursk disaster in time and place. The first explosion was 250 times smaller than the second one, which occurred 135 seconds later. The earlier explosion was clearly recorded only at a few nearby stations, while the second one released energy equivalent to around five tons of TNT and was recorded up to 5,000 kilometers away.

The first explosion apparently occurred with the Kursk near the surface, as its periscope was filmed in the up position on the seafloor. Also, it had radioed for permission to fire ordnance just before the first explosion.

That explosion produced a seismic record consistent with 250 kilograms of high explosive, equivalent to the warhead of a modern torpedo. The scientists concluded that a torpedo misfired or exploded prematurely and that the submarine absorbed a large fraction of the energy released.

The larger signal is consistent with the explosion of four to eight SS-N-19 ship-to-ship missiles, which the Kursk carried, or one cruise missile tipped with conventional high explosive warheads.

Forensic seismology has been used to assist law enforcement agencies in cases of terrorist bombings, gas pipeline explosions and firework factory detonations.



Seismic waveforms recorded by the University of Arizona show the explosion on the Kursk. The first explosion is at least one order of magnitude smaller than the second explosion.



Stephanie Patterson

Stephanie Patterson has been appointed program manager for technology development in the Materials and Manufacturing Program Office (NW-MM) of the Nuclear Weapons Directorate. Patterson, who came to the Laboratory from Rocky Flats in 1992, will lead interactions with other agencies in the Department of Energy complex to provide technical process development assistance. For the past two years, she has been on charge of

station in Washington, D.C., as a technical adviser to DOE on pit manufacturing and certification activities.



Gregory Kaduchak

Gregory Kaduchak of Electronic and Electrochemical Materials and Devices (MST-11) has been appointed project leader for Nuclear, Biological and Chemical Identification Technologies. The project is a multi-disciplinary approach to detecting and identifying threats posed by

nuclear, biological and chemical devices. As project leader, Kaduchak will be responsible for program development, interacting with current and potential future sponsors, and planning and executing field trials, among other things.



Art Dana

Art Dana of Integrated Physics Methods (X-3) has been selected as a distinguished alumnus of Colorado College, where he earned a bachelor's degree in physics in 1963. Dana, who has been at the Lab for nearly 27 years, is presently the design physics co-project leader for Blanca, a project that is developing simulation capabilities for the Stockpile Stewardship Program. The Colorado Springs, Colo., college cited Dana for his achievements in the field of nuclear weapons research. As a distinguished alumnus, his portrait is on display at the college's "Wall of Fame" and on its Web site.



Fellows Prize 2000

David Clark, left, of Nuclear Materials Technology (NMT-DO), Martin Maley, center, of the Superconductivity Center (MST-STC) and Richard Epstein of Space and Remote Sensing Sciences (NIS-2) are the annual Fellows Prize winners for 2000. The prize recognizes high-quality published research in science and engineering that has a significant impact on a particular field or discipline. Clark was honored for contributing to the understanding of the molecular behavior and solution chemistry of actinide ions. Epstein was recognized for his pioneering work in the laser cooling of solids and for leading the Solid State Refrigerator Development Program. Maley was cited for contributions to the understanding of quantized vortices in high-temperature superconductors, including the development of the Maley analysis technique. Each recipient received \$3,000 and a certificate. They presented summaries of their award-winning research at a Jan. 23 colloquium. Photo by LeRoy N. Sanchez



Three Laboratory organizations and a major subcontractor were recently honored for excellent performance by Quality New Mexico. The **Research Library (STB-RL)** earned a Roadrunner Award for significant progress in building sound and notable processes. The **Advanced Recovery and Integrated Extraction System Project (ARIES)** and the **Environmental Stewardship Office (E-ESO)** earned Piñon Recognition Awards for making serious commitments to quality principles. **Protection Technology Los Alamos** also received a Piñon Recognition Award. Quality New Mexico is a non-profit membership organization that honors New Mexico groups for performance excellence based on the Malcolm Baldrige National Quality Award criteria.

Service anniversaries

35 years

Jerry Potter, LANSCE-6
Julie Wilson, B-DO

30 years

J. David Bowman, P-23
John Middleditch, CCS-3
M.T. Sandford II, NIS-9
Catherine Spicocchi, X-5

25 years

Allan Anderson, DX-7
John Cullinan Jr., S-4
Samuel Freund, LC-BPL
Freddy Garcia, BUS-4
Joseph Kindel, D-DO
Walter Kirchner, NW-IFC
Pat Martinez, CER-20
John Sandoval, ESA-MT
Douglas Stavert, ESH-17
Michael Wheeler, ESA-WE
Rollin Whitman, DX-DO

20 years

Leonard Beebe, X-DO
Judith Buckingham, B-N1
Clara Demaria, X-DO
Deward Efurd, C-INC
Frank Garcia, IM-5
Fermin Gonzales, LANSCE-2
Jo Heiken, IM-1
M. William Johnson, NIS-6
Corine Ortiz, DX-DO
Lanoette Piotrowski, EES-13
Frank Smith, MST-6
Lucille Westerhold, DX-DO
J.G. Whittington II, ESA-FM-ESH
Kenneth Wohletz, EES-1

15 years

Martha Barnes, X-DO
Michael Borden, LANSCE-2
Kwok-Chi Chan, AAA-TPO

Thomas Cote, LANSCE-8
Sharon Dermer, CCN-2
Alan Hoff, NMT-4
Ruth Holt, IM-1
M.H. Holzscheiter, P-23
Kenneth Johnson, LANSCE-1
John Kramer, DX-2
Claire Ladish, T-12
Michael Madrid, AAA-TPO
Johnna Montoya, BUS-4
Duane Nizio, FWO-SEM
Anna Parks, HR-7
Bernardino Romero, S-4
Elizabeth Ronquillo, NMT-7
Anthony Salazar, NIS-3
Dale Schrage, LANSCE-1
Ramon Serrano, ESA-MT
Yolanda Trujillo, BUS-1
Joseph Zowin, IM-6

10 years

David Ceman, DX-1
Richard Gustavsen, DX-1
Denise Liechty, ESA-WE
Kay Matsumoto, SNS-03
Thomas Robison, C-ACT
Christine Roybal, MST-DO
James Theiler, NIS-2

5 years

Steven Batha, P-24
Joseph Bradley III, LANSCE-5
Myra Branch, IM-6
Stephen Ellis, SNS-03
Gilbert Garduno, ESA-WE
David Montgomery, P-24
Milan Njegomir, PM-DS
Stephanie Ortiz, C-ACS
Christian Reidys, D-2
James Stewart, ESA-EPE
John Tapia, SNS-DO
Richard Wagner, DIR
Valerie Whitney, IM-7

New secretary of energy confirmed

Secretary of Energy Spencer Abraham, who was confirmed and sworn into office last month, is a native of East Lansing, Mich., who holds a law degree from Harvard University.



Spencer Abraham

Abraham, who was a U.S. senator from Michigan from 1995 to 2001, lives in Virginia and Michigan with his wife Jane and their three children.

During his confirmation hearing before the Senate Energy and Natural Resources Committee on Jan. 18, Abraham discussed the Department of Energy's role in four principal areas — national security, energy policy, science and technology, and environmental management. Here are excerpts from his testimony.

"... I can assure the members of the committee that nothing I do will be higher on my priority list than the management of our nuclear stockpile."

"With regard to security at the department's national laboratories, I will only say that this too will be a very high priority of mine. ... I look forward to working with [Under Secretary John Gordon] to make our national laboratories secure and to make sure the department and [National Nuclear Security Administration] functions are effectively performed. Which means that we must ensure that the highly skilled and patriotic employees at our facilities — who, by the way, create the nuclear secrets we all agree must be protected — are treated with the dignity and respect they deserve."

"The science and technology programs at the department have been widely praised and with good reason. The laboratories improve the ability of the department to perform its national security, environmental management and energy policy missions. The laboratories also support the activities and missions of other federal agencies. But they are much more than that — they are national treasures. I believe the national laboratories can serve the country in many other capacities and look forward to exploring the full potential for partnerships with industry and academia."

In Memoriam

Stephen B. Schulte

Lab retiree Stephen B. Schulte died July 14. He was 73. He was born in Dawson, N.M., in 1927 and served in the U. S. Navy from 1945 to 1946. He came to work for the Lab in 1950 as a tool crib attendant with Receiving and Services (SP-4). Schulte retired in 1990 while working as a nuclear materials specialist with Materials Technology-Metallurgy (MST-6).

Chess mentors make good moves at local schools

by Michael Carlson



Even though IBM's "Deep Blue" never had the opportunity to play chess against Los Alamos elementary students, it surely would have "computed" respect for the kids who compete against each other in what has become a popular extra-curricular activity at the elementary school level.

A supercomputer, Deep Blue defeated World Chess Champion Garry Kasparov in 1997, marking the first time artificial intelligence beat a high-ranking chess player.

Mentored by Bob Robey of Integrated Physics Methods (X-3), a group of about 45 children in grades kindergarten to six meets every Thursday in the library of Aspen Elementary in Los Alamos. Robey is credited for the revitalization of Aspen's chess club, spending most of his free time teaching the game to the estimated 45 children.

Robey plans lessons, organizes the club rankings and creates Web pages. He also leaves work early every Thursday for the two-hour practice session at Aspen, completing his regular work during the evenings or days off.

He became involved in establishing a chess club when he moved to Los Alamos from Albuquerque three years ago. His son already played chess in central New Mexico and had hopes of joining a similar club upon arriving in Los Alamos. To his disappointment, an active club did not exist; thus Robey set out to establish one.

"Most of the kids in the club did not even know how to play chess when they joined the club. Now they teach each other. It is wonderful to see a fifth-grader patiently teaching a first-grader how to play the game," said Mary Ann D. Martinez, a parent of one of Robey's chess players.

Robey recently received an award from the Parent Teachers Organization for his dedication to the club. The first year of his involvement, his players awarded him with a jacket with the team's logo displayed prominently on the back.

"Chess is an extremely effective activity," said Robey. "I think it's really complementary to schooling. They've done a few studies (showing that chess players) exhibit improvement in test scores." He said that kids who play such games as chess typically develop stronger math skills than those who do not pursue the game.

Robey also teaches kayaking to children 9 to 15. He has junior clinics in late summer when the water is low. Most of his kayaking students also are his chess players.



These children concentrate during a chess tournament at Chamisa Elementary School in White Rock. School children from such places as Santa Fe, Española, Taos, Los Alamos and White Rock competed in the all-day event.

Photo by Michael Carlson

"Outdoor activities are real healthy for kids to get involved," he said.

Robey's chess club meets every Thursday at 3:15 p.m. in Aspen's library. A parental permission slip is required with information on how the child is getting home.

There is another chess club at Piñon Elementary in White Rock, where students from grades one through six meet during the lunch hour on Fridays. For the last three years, they have been coached by Doyle Erwin of Industrial Business Development (IBD) and Energy and Sustainable Systems (ESS).

A computer technician with both groups, Erwin takes advantage of the 9/80 schedule, spending every other Friday at the elementary school. He takes turns with his wife, Mary, who utilizes her Fridays off from the Lab to oversee chess at Piñon.

Erwin is amazed at the response that his club has gotten. Expecting 10 to 12 students, he has an average of 30 players who come regularly for the 20-minute practice sessions.

"I figured chess would be smaller than football," he said.



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