Computer Code Models Events You’d Hate to Be Near

Sandia-developed computer software for which more than 100 external licenses have been issued is being used in studies that can range from the origin of the moon to the possible detonation of weapons by accidental impacts.

The software is CTH, a large (250,000-line) computer code that has quickly become the standard program throughout industry and government for modeling a wide range of high-energy, high-velocity phenomena. Many of its applications are in defense.

“It’s an extremely popular code,” says Mike McGlaun, Manager of Computational Physics Research and Development Dept. 1431 and one of the CTH developers. The code was developed by a team of Sandia scientists and engineers over the past year and a half, and is being continually refined.

Meteorites and Gallstones

CTH is a portable, high-performance computer code that models and generates images of two- and three-dimensional phenomena arising from very rapid release of very large amounts of energy. These dramatic events melt or vaporize solid materials, generate strong shock waves, and fragment much of the material. “The common denominator is energy,” Mike says. “Lots of kinetic, chemical, or nuclear energy.”

Such events include impacts of meteorites, collisions of orbital debris with space vehicle hull protectors, violent explosions when molten metal and water come into contact, acceleration of hypervelocity projectiles, explosive forging, and defense applications such as nuclear events modeled with CTH.

Town Meeting with AI Narath

Sandia Is Strong, Must Seize Strategic Opportunities

“I believe in self-fulfilling prophecies,” said President Al Narath to Sandia employees in a recent Town Meeting series. “If we adopt a pessimistic outlook, this laboratory could fall by the wayside. But the evidence that I see tells me there’s much more reason for optimism — and that’s self-fulfilling, too.”

This observation came from one of the eight meetings he conducted last week at the Labs’ California and New Mexico locations. Referring to the sites that way, he said, rather than the traditional Livermore and Albuquerque designations, is an experiment he’s trying as a way to underscore Sandia’s distinctiveness from other DOE Labs, “I invite you to try it, too,” he said.

During the talks with employees, Al presented the Labs’ statement of strategic intent — "exceptional service in the national interest," from Harry Truman’s 1949 letter that led to the formation of the Labs. “Many people have thought about other ways of stating our strategic intent," he said, “but it’s hard to improve on that phrase. It’s the one enduring theme in Sandia’s history.”

Which Hills?

Al acknowledged the discomfort caused by continuing economic uncertainty and the disorientation of having lost the sense of a single focus as the world backs away from superpower confrontation. “The way a lot of people feel,” he said, “is that we scaled a mountain once, by helping make it possible to win the Cold War. Now, it seems as if there are just a lot of little hills out there, and we’re wandering around trying to

You Make the Difference

Rehabilitation Center Helps Sandia Family

During last year’s Employee Contribution Plan (ECP) campaign, Dan Summers (324) spoke at several ECP meetings and told the story of a young man who years ago nearly failed in school when he learned his four-year-old daughter was stricken with muscular dystrophy. That young man found help for his daughter, himself, and his family through Albuquerque’s Rehabilitation Center.

The adversity also resulted in the young man writing a master’s thesis about stresses on a brace called an ankle/foot orthosis (AFO) which led to better-fitting, longer-lasting braces for his daughter. The computer code he wrote for analyzing the AFO’s structure is still being used today to make AFOs for patients at UCLA Medical Center and Rancho Los Amigos Children’s Hospital.

The young man is, of course, Dan. His daughter, Danielle Carrillo, is now grown, married, and taking classes at Albuquerque T-VI and UNM. Danielle received help at the Rehabilitation Center from age four to eight. She attended a kindergarten that she remembers as a pleasant experience.

“Attending that kindergarten was a nice way to find out that this is okay,” says Danielle. “Other children had the same problems I did and we learned to cope together.”

“As a parent, I saw them provide her

(Continued on Page Five)
When people use initials only instead of full given names on correspondence. Something else bugs Marvin Moss (251): when people pronounce nuclear to sound something like nuke-yu-ler. As I recall, President Eisenhower pronounced it that way, and it unfortunately caught on with engineers. But Ike said it! I mentioned in the last issue that it bugs me when people use initials instead of full given names on correspondence. Something else bugs Marvin Moss (251): when people pronounce nuclear to sound something like nuke-yu-ler. As I recall, President Eisenhower pronounced it that way, and it unfortunately caught on with engineers. If anyone knows for sure which is "correct" or at least which system was used first and you have the proof, please send it to Employee Communications Dept. 7162, and we'll share it with everyone.

Roman or Arabic? — Ruby Cockrell (6400) wants to know why Sandia's number of technical areas are sometimes referred to using Roman numerals and sometimes Arabic. (For the record, we use Arabic in the LAB NEWS and Weekly Bulletin.) If anyone knows for sure which is "correct" or at least which system was used first and you have the proof, please send it to Employee Communications Dept. 7162, and we'll share it with everyone.

Sure Beats Lonely Street — We got a letter recently from an Albuquerque retiree who lives on Tennis Court NW. Sounds like a decent street if you don't mind dodging bright yellow projectiles. Seeing Tennis Court reminded me that I once lived in a city that had a street named Candy Cane Lane. That was just a little too "sweet" for me, and I nominate it as the worst-named street anywhere. Anyone have anything that can compete with Candy Cane Lane? We Don't Deliver — Sometimes Sandians call us to say that their group didn't get enough copies of the LAB NEWS or Weekly Bulletin to go around. If your group doesn't get enough copies, please call the mail distribution folks. They are totally in charge of distribution. Call extension 4-4213 in Albuquerque or extension 4-2429 in Livermore. However, if you have trouble with your copy, then call the Employee Communications Office in Albuquerque on 4-7841 or Barry Schrader in Livermore on 4-4229 and we'll check into the problem.

Now It Needs Waxing — I've tried to teach my kids to look for a positive side of seemingly bad things. It may be working. After hearing me register disgust at our leaking dishwasher, number one son said, "Hey, Pops, it's not all bad. It's the only time the kitchen floor ever gets mopped.”

**Recent Patents To Sandians**

Roger Clough (1811), Clifford Renschler (1812), Timothy Sheppard (8711), John Gill (Mound Labs), Daniel Hawkins (University of Alaska), and Henry Smith (Allied Signal Kansas City): Solid-State Radioluminescent Zeolite-Containing Composition and Light Sources.

Richard Brow (1845) and Randall Watkins (6611): Sealing Glasses for Titanium and Titanium Alloys.

Danny Gregory (2761), Harry Hardee (ret.), and David Smallwood (2741): Downhole Hydraulic Seismic Generator.

Stephen Martin and Antonio Ricco (both 1315): Acoustic Wave Device Using Plate Modes with Surface-Parallel Displacement.

Tazwell Bramlette and Jay Keller (both 8364): Method and Apparatus for the Control of Fluid Dynamic Mixing in Pulse Combustors.

**Take Note**

The Maxwell Museum of Anthropology is seeking individuals to serve as museum educators in its Museum Docent Program. This is an excellent opportunity for people interested in learning more about Southwestern culture. Participants will be trained by Museum staff in a 10-week program that covers a broad overview of Southwestern archaeology and includes lectures by noted scholars and hands-on workshops on how to best present the materials to groups of children in the Museum and in outreach "trunk" programs in the schools. No previous experience is required, and free parking is provided. All participants who take trunk programs to the schools will be reimbursed for mileage from the Museum. Training will begin Wednesday, Sept. 30. Contact Mary Smith on 277-2924 or register at a sign-up coffee on Wednesday, Sept. 30, at 9 a.m. at the Museum.

**Sympathy**

To Karl Schuler (1562) on the death of his mother in Albuquerque, Aug. 1.

To Bill Burd (2483) on the death of his sister in Hallstead, Pa., Aug. 2.

To Rita Padilla (153) on the death of her father in Albuquerque, Aug. 23.

To John Gallegos (7329) on the death of his father in Albuquerque, Aug. 23.
Department Gets 'Ergonomized'

Assesses Labs' Environmental Impact

Long-Awaited Report Ready for Release

The long-awaited Environmental Impact Report and Environmental Impact Statement (EIR/EIS) for both Sandia, Livermore and Lawrence Livermore National Laboratory is complete and expected to be released next week, say DOE officials.

The 2,200-page document analyzes the potential environmental impacts of operating the two national laboratories in Livermore. The report assesses laboratory impacts on air and water quality, geological systems, occupational and public health, prehistoric and historic resources, endangered species, flood plains and wetlands, socioeconomic resources, hazardous waste management, and other environmental issues.

Broad policy issues, such as nuclear weapons testing, test ban treaties, or nuclear proliferation, are beyond the scope of the document.

The report was prepared by DOE during a two-year period.

Don Nissen, Manager of Environmental Protection Dept. 8642 and EIR/EIS project manager for Sandia, says he is pleased with the final document and believes it is the most thorough look at the two laboratories' operations and impacts ever produced.

"In addition to the internal work performed by Sandia and contract personnel, we received more than 700 public comments at the April 30 public hearing and from later written statements," he says. "All comments were included verbatim in Volume IV of the final report."

Copies of the five volumes will be available by Sept. 9 in the Sandia reading room (Bldg. 911 Lobby) or in the Livermore City Library, as well as at other locations in the Bay Area.

Take Note

Barbara Combs of Dept. 8532 has been named chair of the Sandia, Livermore Family Day committee. Family Day for the Livermore site is scheduled for Saturday morning, Oct. 17. Sandians interested in serving on the committee are welcome; contact Barbara on 294-3250.

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Winter Stretch Is Just What the Doctor Ordered

What's the first thing you do when you arrive at work each morning? Maybe you pour a cup of coffee, chat with co-workers, or reach for a doughnut. Well, employees in one Sandia, Livermore organization have discovered an alternative to these routines.

Every morning, employees in Plant Maintenance Dept. 8613 begin their days with a 15-minute morning exercise program, says Department Manager Johnny Ellison. They stretch and do a series of exercises that warm up certain muscle groups and help prevent injuries and fatigue on the job.

"The reaction of employees has been positive," says Sandra Hansen, a physical therapist who first put on an exercise workshop for department employees five years ago. "There have been fewer worker's compensation claims, less absenteeism, and people say they feel better," she says. "They're not as stiff or tired."

Hansen's first visit to the department in 1987 taught employees stretching exercises that would help stop physical maladies resulting from their jobs. It focused on musculoskeletal problems, how they occur, and how to prevent back injuries, strains, sprains, and fatigue. The group has been doing the exercises ever since.

Recently, however, Hansen returned to the department to teach a revised workshop. The new workshop included ergonomics — how to organize the work site differently to make an employee's job easier. In other words, how to fit the job to the person rather than fitting the person to the job.

Warm Up and Cool Down

The workshop focused on job functions that Department 8613 employees do every day, explaining how ordinary body movements could lead to fatigue or physical problems. It then provided preventive and self-treatment techniques for each problem.

For instance, for tasks in which employees might work with their heads forward and their necks bent down — such as cleaning or maintaining machinery — employees were told to get as close as possible to the object of their work to avoid extending their necks. In addition, the workshop also recommended that employees should be kept high so the neck doesn't have to be bent.

Specific stretching exercises for the neck and shoulders were also recommended that would improve posture and strengthen affected muscles. As a general rule, the workshop recommended warm-up exercises to increase circulation before a task and cool-down exercise afterwards to prevent soreness.

A brochure, slides, and a video were produced from the workshop, in which employees can see themselves performing normal job routines, lifting, working with tools, and in awkward positions. The materials will be used as periodic refreshers and to teach new employees.

Johnny says approximately 80 percent of the department's 75 people participate in the morning exercise program. But even more important, they are now equipped with stretching techniques and preventive approaches that they can use throughout the day. It is this kind of daily stretching, maintenance, and attention to safer procedures that will help prevent on-the-job injuries and fatigue in the long run, he says.
High-Energy Modeling

weapon safety and armor-projectile interactions. All are being modeled with CTH. CTH has helped provide evidence that the moon was born out of a cataclysmic impact of a large planetary object with the early Earth. CTH is being used to evaluate the potential for premature detonation of a weapon due to accidental impacts. It is being used for medical purposes, to analyze the destruction of gallstones and kidney stones by shock waves.

CTH is the principal code employed in the US for these kinds of problems, the Sandia team says. It's already been used at more than 80 industry, university, and government sites, with the number rising steadily.

"It really has become the code of choice," says physicist Gene Hertel (1431), project manager of the Sandia team. Gene tracks all outside requests for the code. "Virtually every Army, Air Force, and Navy lab has CTH and uses it. Virtually every major defense contractor has it. The national laboratories and a number of universities use it."

CTH can operate on anything from a massively parallel supercomputer to a Cray supercomputer to a high-end personal computer, Mike and Gene say. "The porting to massively parallel computers allows us to take advantage of the tremendous capabilities of these new computers," says Mike.

CTH is easy to transfer to any computer.
Strategic Opportunities

decide which ones to go up."

AI contrasted this view with the Labs’ reputation among customers in Washington and elsewhere, and with the argument that Sandia is ideally positioned for the coming to the country’s needs over the next decades.

“I talk to a lot of people in Washington, at DOE and other places,” he said, “and it’s clear that we’re the labs of the best-managed laboratory in DOE. Those aren’t words to be taken lightly.

“We give consistently high customer satisfaction,” he continued. “That doesn’t mean that all customers are always delighted — like anyone else, we have our good days and our bad days, but our customers view us as delivering real value.”

Making the Labs’ Case

Sandia has changed, in the last 20 years, from carrying out externally defined assignments to being a lab that helps influence the course of events. “We have to make sure our good ideas are recognized and put into action,” AI said. “That’s for our customers’ good and for ours. This is a defining period for the national labs. Many people question whether they have a role at all. We feel we have our role, and we’re making sure we’re heard.”

And, he said, Sandia apparently is making the case for its value. He cited a generally healthy FY92 budget and the so-far-favorable prospects for FY93. “This is during a time when many organizations have faced large cuts. Internally, however, AI said, employees still feel overworked and overstressed. They believe that infighting continues, and that teamwork hasn’t taken hold as they thought during that way of working. They don’t believe that Sandia has a clearly focused mission, and they think the Labs’ strategy is unclear.

“Rather than try to reconcile the internal and external views in detail, AI offered an alternative based on the demands of the present and the opportunities of the future. “The past is gone,” he said. “We may feel nostalgic about it, as we may about our childhood, but it’s a time that won’t come again. The Labs face now are just the Smith Act’s natural continuation of changes that we have seen since the earliest days.” He cited stressful events of the past, such as the addition of research programs to the traditional engineering programs in the ‘50s and the shift to being a multimarket lab in the ‘70s. “The pace of change has increased, as the world has changed in ways we could not have predicted.”

Economic War Intensifies

AI characterized the future as full of opportunity for Sandia’s technological capabilities. “We’re in an economic war,” he said, “and while the Cold War was an economic victory — the other side saw that it could not afford to continue — the economic contest is actually intensifying. It has political and social dimensions, certainly, but the technological dimension is central. To be competitive, our nation must keep pace technologically. And that’s where we fit in.”

AI noted that Sandia continues to have an “awesome responsibility” for nuclear weapons. Even though it’s not clear how many weapons there will be in the US stockpile, weapons of mass destruction — including chemical and others — are proliferating in the world, and nuclear weapons will continue to have some role in US security.

In meeting the future and carrying out its mission, AI said, there are three keys: strategic planning, a focus on customers, and an emphasis on science and technology.

“Planning and replanning go on constantly. In a dynamic world, our direction is never set permanently, yet at any given time we have to know where to point the rudder. And as part of that planning, we have to understand what our competitors are good at, so we can decide what we need to be good at — we can’t do everything.” Sandia also must exercise political sensitivity, he said; not playing politics, but being respectful of political positions and mindful of political forces in the nation.

Breaking Taboos

The customer focus, AI said, involves two worlds that have always been part of the Labs’ history: marketing and competition. “We have to understand what marketing means for us,” he said. “We’re not just trying to sell products or services. We help customers define their needs, and we offer our solutions, produced by teams that may be just from Sandia or may include others. And that inclusion of others is part of our approach to competitiveness. Competition motivates excellence — it helps keep us sharp. But without cooperation, competition becomes destructive. While cooperating, we prefer to lead — as should our competitors. We compete for leadership while cooperating and teaming with others.”

Sandia’s basic job in science and technology, AI continued, is to innovate. “Doing research and advanced development is a way to help keep us in front and offer solutions to customers. Not everything we offer customers is or should be innovative, but much of it is.”

The Labs’ core competencies are the areas where Sandia invests its resources to stay strong in science and technology. “The core competencies aren’t our purpose in themselves,” AI said, “but our excellence in these areas supports our ability to deliver for customers. Sandia has long been good at combining various levels of activity, from fundamental research to the development of products.”

The core competencies also unify service to different customers, he said. “The same set of competencies supports our traditional mission in nuclear weapons and our work for other customers. Conversely, the diversity of customers helps support the core competencies required for our basic mission. We’ve maintained cohesion by attending to this set of fundamental technical strengths.”

Training For Competitiveness’ Sake

Newly emerging mission areas may continue to be largely government-funded, AI said, but government won’t remain the near-exclusive customer as it is for weapons. “The emphasis now is to increase US competitiveness. In the past, we interacted with industry so that government could receive the products it needed — nuclear weapons being the prime example. Now, interaction with industry is a way to make our country more competitive economically.”

These emerging areas — including advanced manufacturing technologies, improved transportation systems, more cost-effective health care, technical contributions to space missions, and a variety of technology transfer efforts — include areas where DOE does not have direct mission responsibility but can, through its national labs, contribute to national needs. Doing that without “turf battles” among government agencies requires unprecendented cooperation — which AI said is beginning to be visible.

Major areas where Sandia is working to contribute to US global competitiveness have become the responsibility of specific Sandia managers: Dan Hartley (6000) for transportation, Gerry Yonas (9000) for space and health/biomedical technologies, and Hein Schmeltz (2000) for advanced manufacturing technology.

Advanced manufacturing technologies are the single most important key to US economic growth, AI said. “We can’t be a nation that produces only services, and that fact is becoming more widely recognized. We have to manufacture products. Much of Sandia’s past work fits into this national need. For instance, microelectronics and photonics, metal fabrication and joining, and composite materials would just begin a list.”

In the other areas, Sandia’s traditional work has varied from large to small when measured in dollar amounts, but has been significant in opportunities to make contributions. For each of the areas, he said, a single person was needed to take responsibility for the programs that were formed and work was done through cooperation across the Labs’ various organizations, and thus came about the assignment of the named managers. On the other side, in the industry, the more than 100 cooperative R&D agreements that have come into being since mid-1991 are evidence that there’s great interest, AI said. He noted that as these agreements are formed and work is done, important relationships develop between the Labs and industry.

“So, all in all, here’s how I think we should see ourselves,” AI concluded. “We can’t be complacent, but we certainly have success stories to tell, and we have good reason to feel confident. We don’t have a guaranteed future, but we’re strong enough that we don’t need guarantees. Our customers believe in us; we believe in ourselves. If we work together, if we stay mindful of what Sandia is about, no one can match us. The opportunities are out there — let’s seize them.”

See related articles on page 6 about discussions of the Labs’ strategic directions.

The Educational Success Alliance, a network of community groups, has organized a conference titled “Educational Success: Teaming For Our Future” to be held Saturday, Sept. 12, from 8 a.m. to 1 p.m. at the Smith Brother Hall Bldg. at Albu- querque T-VI (corner of University and Coal SE). Keynote speaker will be George Otero, a nationally recognized authority on education and family relationships and executive director of Los Palomas de Taos Educational Center. Conference workshops include “Eliminating Barriers through Communication” (in Spanish and English), “Conflict Resolution: A Winning Strategy,” “Communicating with Parents and Young People,” “Discipline with Dignity,” “Personal Pride” (in Spanish), “Working the Systems to Benefit Your Child,” and others. The conference is free, with free child care for children three years of age or older. To register, call Anis Kohn (798-2124), Donna Kohn on 831-6038, or RoseMarie Sanchez on 768-6059.

Welcome

Albuquerque — James Griego (7814), Nicholas Lendino (7812), Phillip Rivera (7615), Tommy Storks (7818). Other New Mexico — Patrick Jaramillo (7615), Christina Moya (7615), Robert Ullibraci (7615). Elsewhere: California — Susan Hutton (122).
1992 Fall Leadership Forum Will Revitalize Strategic Plan

Got a Strategic Question? Let Your Director Know

In past years, the annual Fall Leadership Conference has been primarily a management event, during which Sandia's top managers gather to discuss business plans for the next fiscal year. This year, the Sandia Leadership Forum is intended as only one element of a Labs-wide campaign to share these business plans with employees.

As part of the overall campaign, Labs President Al Narath recently held a series of town meetings to share management's strategic vision with employees (see story on page one). Gerry Esch (7101), communications coordinator for the conference, says he hopes the meetings have encouraged employees to think about strategic planning issues.

Managers will have several opportunities during the leadership forum to discuss concerns brought to them by their employees," says Gerry. "Employees who have specific questions and concerns can relay them to their directors before the conference.

In addition to the dialogue sessions, VPs are scheduled to hold sector meetings with employees later this month (see box). These meetings are meant to communicate Sandia's strategic vision to employees, particularly concerning the results of the Sandia Leadership Forum. Center directors are also being encouraged to share what they learn at the conference with their employees.

So What Did Managers Talk About at the Forum?

Following the 1992 Sandia Leadership Forum on Sept. 15 through 18, several of Sandia's sector and support programs VPs are scheduled to deliver their visions of the Labs' future to employees and report results of the four-day forum. VPs Gerry Yonas (9000), Roger Hengenruber (5000), Dan Hartley (6000), Paul Fleury (1000), and Paul Robinson (4000) are scheduled to speak.

Sessions at Sandia, Albuquerque take place in the Technology Transfer Center (Bldg. 825) on Sept. 28 and 29. Employees should attend sessions at the times listed below:

Dates, Times: Organizations
Sept. 28, 8:30 a.m. 1 through 600, 6000
Sept. 28, 10 a.m. 1000 through 1900, 2800
Sept. 28, 1 p.m. 2000 through 2700
Sept. 29, 8:30 a.m. 5000 through 5900 and 7000 through 7300
Sept. 29, 10 a.m. 7400 through 7900
Sept. 29, 1 p.m. 4000 through 4500 and 9000 through 9900

Sessions at Sandia, Livermore take place Sept. 30 in the Building 904 auditorium. Employees with last names beginning A through L should attend the 8:30 a.m. session; employees with last names beginning M through Z should attend the 10 a.m. session.

NEW COMMANDER - Brig. Gen. Leonard Miller (right), who assumed command of the Field Command Defense Nuclear Agency this summer, confers with Executive VP Orval Jones during a recent visit to the Labs. Gen. Miller was briefed on work Sandia is doing in various defense programs, the nuclear stockpile, and nuclear safety.
**Time to Review and Renew**

**National Quality Month Filled with Quantity and Quality**

Sandia will join companies and other organizations across the country observing National Quality Month in October to review progress made during the past year and renew its commitment to Total Quality Management (TQM) for 1993.

Allison Kane of Quality Tools Dept. 4311, chairman of the Labs' National Quality Month Committee, says a full slate of activities and speakers are scheduled for the month, including the chief executives of some of the world's leading companies.

"This is our annual public awareness campaign, and all our speakers and programs will focus on the need for, as well as the importance of, quality improvement in all Labs organizations," says Allison.

Quality Month was first observed in 1984, as the result of a joint resolution by Congress and a proclamation by President Reagan. This year's edition will begin Oct. 1 with a program beamed by satellite to locations across the country, featuring a keynote address by Edwin Artzt, chairman and CEO of Proctor & Gamble, and chairman of National Quality Month 1992.

**National Quality Leader**

The program will be presented in the Technology Transfer Center (TTC) at Sandia, Albuquerque, and in Building 904 at Sandia, Livermore. "We hope the month's activities will help broaden Sandians' understanding of quality and push all of us along the way toward our goal of making the Labs a national leader in quality," says Allison.

President Al Narath, who set Sandia on the TQM path, says there are many components in quality processes at the Labs, but that perhaps foremost is the need to satisfy customers' requirements and expectations.

"We must not only satisfy our customers' requirements," says Al, "but we must also understand their needs, as well as how their expectations influence their perception of quality.

Sandia events scheduled during Quality Month include:

- The Quality Forum VIII kickoff, Albuquerque TTC, 8 to 11 a.m., Oct. 1; Livermore Building 904, tape delay, 1 to 4 p.m., Oct. 2; among other things, addressed by Artzt, Wal-Mart President and CEO David Glass, Xerox Canada

Chairman David McCamus, and Ernst & Young Chairman Ray Groves.

- Quality Tools Forum '92, Ahahmes Activity Center, Livermore, Calif., Oct. 5 through 7; speakers and workshops.

- "Union Understanding of TQM — A Must," TTC, 10 to 11:30 a.m., Oct. 12; colloquium by Joseph Sensenbrenner, former mayor, Madison, Wis.

- "Successes in a New Culture," Building 822 Conference Room, 8 a.m. to noon, Oct. 15; presentations by Sandia employees.

- "Creative Problem Solving and Continuous Improvement," TTC, 8:30 to 11:30 a.m., Oct. 20; colloquium by Chic Thompson, founder and president of Creative Management Group.

- AT&T Quality Conference, TTC, time to be determined, Oct. 22 through 23.

- "Successes in a New Culture," Building 822 Conference Room, 9 to 11 a.m., Oct. 26; presentations by Sandia employees involved in the Quality Action Request process.

- "Quality — You've Got To Believe It to See It," TTC, 10 to 11:30 a.m., Oct. 29; colloquium by Ed Gus, member of the federal Senior Executive Service currently serving at the Federal Quality Institute.

**Fun Event Planned**

"There's also an event we think Sandians will have fun entering," Allison says. "It's called 'Visualizing Quality' and will take place in tandem with Family Day on Saturday, Oct. 17. Employees and their families can participate by drawing their vision of quality on an 8-1/2 by 11-inch sheet of paper and handing it in as an entry in the National Quality Month '92 poster.

She says the line drawings to be colored are available from center quality coordinators. Drawings and colorings, including names and employee organization numbers, must be turned in to employees' respective center quality coordinators by Oct. 9 and will be posted in work areas for viewing on Family Day.

Allison says the first 200 entries will receive a Quality First stadium cup.

Further details on National Quality Month will be announced as they are developed.

*HK*

Q: I understand the policy on level increases has changed and they are now being added to base salary. When did this policy take effect? Also, why wasn't this change communicated to managers? How can managers effectively motivate their staffs when they are not aware of basic personnel policy changes?

A: In July 1991, Compensation proposed a policy change and a transition schedule moving to the use of base salary increases to recognize advancements within the MLS structure rather than lump sum awards. The transition schedule called for an Oct. 1, 1991 effective date in order to provide appropriate forewarning about the change in rules. At the time of the policy decision, there were three announcements scheduled: one on Aug. 1 and two on Oct. 1.

Staff from the Compensation Department met with VP assistants, director assistants, and personnel reps on July 23; the agenda included announcement and discussion of the policy change and the effective date so that pending actions could be altered, as appropriate. On Aug. 1, 1991, Compensation distributed a memo to all VP assistants, director assistants, and personnel reps restating the policy change and the effective date, and on Oct. 1, the annual "Promotion Increases, Salary Minimums, and Advancement Awards" memo was distributed to all management (division supervisors and up) and to all administrative assistants and personnel reps. The promotion increase memo included a table reflecting base increase amounts by level.

The policy change was effected at the start of a new fiscal year, and the transition provided for both notification of the change and some lead time prior to implementation of the policy.

Ralph Bonner (7500)

**Feed Back**

**MANY OLD FACILITIES in Tech Area 2 will be phased out when this new Explosive Components Facility (ECF) is occupied in 1995. Several DOE officials and Sandians will participate in the Sept. 10 groundbreaking ceremony at the site located northeast of Area 2. Lloyd Bonzon, Manager of Explosive Projects and Diagnostics Dept. 2514, says the 91,000-square-foot ECF will contain both office and laboratory space. The explosive-component testing area will contain seven test firing bays and two walk-in-test fire chambers for explosives testing, chemical and physical testing labs, propellant and pyrotechnic areas, a battery testing area, a neutron-generator testing area, and other special facilities. The building will be used by four Sandia technology groups: Explosive Technologies and Components, Neutronic Components, Power Sources, and Weapons Evaluation. The Explosive Components Facility has been designed with a heavy emphasis on advanced components activities and advanced diagnostic systems to support component development for the nuclear weapon program. As production agency consolidation occurs, Lloyd explains, the facility will take on an increasingly important role in maintaining technologies important to weapon systems and in doing R&D on explosive components in cooperation with firms that will be involved in manufacturing and supplying them.**
THOMAS EVANS to Manager of Digital Sub-systems Test Equipment Dept. 2313.

Tom joined the Labs in 1962 as a member of the Environmental Test Division, where he was a test and instrumentation technician at the drop tower facility. He transferred to the Quality Operations Department’s East Coast Field Office in 1969 and did maintenance and calibration of test equipment. In 1971, he joined the Digital Systems Division as a design engineer. He was project leader of the Secure Cryptographic Unit and system manager of the Computer-Aided-Engineering network.

Tom joined the Advanced Weapon Systems Division in 1990 and was the W91 electrical systems engineer with PAL (permissive action link) System responsibility and the project leader of a joint US/UK system study. He transferred to the Command and Control Department in 1992 and provided systems engineering support for a PAL controller.

Tom’s degrees are in electrical engineering, an AS from Pennsylvania State University and a BS and MS from UNM.

He enjoys amateur radio, cross-country skiing, church activities, and auto mechanics. Tom and his wife Cindy live in the NE Heights and have two grown children.

DAVID KEESE to Manager of System Design and Engineering Dept. II 9812.

David joined Sandia in 1984 as a member of the Aerospace Projects Division. He has worked in aerospace engineering since coming to the Labs, including aerodynamic modeling and trajectory simulation of reentry vehicles and booster systems. Projects he’s worked on include the Aerothermal Recovery Experiment, the Army Test Vehicle flight tests, and MK11 sounding rocket flights. He also developed an upward appraisal survey for the Aerospace Technology Department.

David has a BS and an MS in aerospace engineering from Texas A&M University and an MBA from UNM. Before coming to Sandia, he worked for Exxon from 1977 to 1979 and did missionary work in the Philippines from 1981 to 1982. He is a member of the Ponderosa Christian Camp board of directors and is financial deacon for his church.

David enjoys softball, hunting, camping, and church activities. He and his wife Michelle have three children and live in the NE Heights.

JOHN TAYLOR to Manager of Verification and Monitoring Analysis Dept. 9241.

John joined Sandia in 1975 as a member of the Nuclear Safety Assessment Technology Division, evaluating risk in transporting radioactive material and in weapon accidents. He transferred to the Transportation Risk Assessment Division in 1979 and continued evaluation of nuclear weapons and radiactive materials transportation issues as well as plutonium dispersed phenomena.

In 1983, John joined the Arms Control and Verification Technology Division, evaluating proposals for cutoff of fissionable material production and for warhead dismantlement. He studied onsite inspection issues and evaluated Intermediate Range Nuclear Forces Treaty, Strategic Arms Reduction Treaty (START), and Chemical Weapon Convention verification. In 1990, he was named a Distinguished Member of Technical Staff.

John served as DOE liaison to the START delegation in 1990 and was DOE liaison to the State Department for the Gulf War cease-fire implementation in 1991.

He has a BS and MS in nuclear engineering from Stanford University. He served with the Navy and was reactor controls officer aboard the USS Nautilus.

John is an amateur historian, a state high school soccer official, and participates in church activities. He and his wife Lynn have four daughters and live in Peralta.

JERRY McDOWELL to Manager of System Design and Engineering Dept. 9811.

Jerry joined Sandia in 1979 as a member of the Exploratory Projects Division, where he analyzed reentry vehicle flight test data and developed algorithms and models for parameter estimation and for predicting aerodynamic properties. He joined the Aeroballistic Projects Division in 1981 and did aerodynamics, flight mechanics, and mission planning and data analysis. He has been involved in numerous SWERVE (Sandia winged energetic reentry vehicle) tests. Among others, he was point of contact and lead payload range safety engineer for the SWERVE III flight test in 1983. He transferred to Advanced Systems Development Division IV in 1985 and was senior analyst and program manager for two SWERVE flights at Tonopah Test Range.

Jerry has a BS, MS, and PhD in aerospace engineering from the University of Washington. Before coming to Sandia, he was a co-op student at NASA’s Johnson Space Center in Houston and worked for LTV in Dallas.

He enjoys family and church activities, soccer, reading, and old movies. Jerry and his wife Tara have three children and live in the NE Heights.

JENNIFER ECKWERT to Manager of Environmental Restoration Technology Dept. 6621.

Jennifer joined Sandia’s Access Denial Technology Division in 1984, working on development of innovative safety systems. In 1986, she transferred to the Project Engineering Division and worked on nuclear command and control. From February 1988 through April 1990, she was on temporary assignment in Washington, representing Sandia on the Phase One Engineering Team that supports the Strategic Defense Initiative Organization. When Jennifer returned to Sandia, she continued her work in the command and control area. She was leader of the Proo-fOf-Concept/Experimental Testbed project and was the Military Intelligence Information Processing System team leader.

She has a BS in mechanical engineering from the University of Nebraska and an MS in mechanical engineering from Stanford University through Sandia’s One-Year-On-Campus program. She was named a Distinguished Member of Technical Staff in 1992.

Jennifer enjoys skiing, tennis, and golf. She lives in the NE Heights.

REBECCA McCLAFIN to Manager of General Employment and Staffing Support Dept. 7533.

Becky joined Sandia’s Support Services organization in 1969 as a clerk-typist. She joined the Personnel Operations and Services Division in 1974. In 1981, she became an MLS trainee in the Personnel organization. Other groups that she’s worked for include Systems and Appraisal, Procurement Systems Design, and Personnel Information Systems.

Becky has a BBA from the University of Albuquerque and an MBA from UNM. She is a member of Human Resource Systems Professionals.

She enjoys reading, gardening, and music. She has two children and lives in the NE Heights.

MICHAEL MUNDT to Manager of Programmers Dept. 2314.

Mike joined Sandia in 1980 as a member of the Advanced Fuzing Development Division, where he did electrical fuzed design for the Air Force MX missile. The division became the Trident II Armament Fuzing and Firing (A&F) Design Division in 1982. Mike was a member of the system design team that managed advanced development and production of the A&F and the Trident II submarine. In 1988, he joined the Advanced Fuzing Development Division and was fuzing system project leader for the Army’s Follow-On-To-Lance missile. He returned to the Trident II Armament, Fuzing, and Firing Design Division in 1990 and developed fuzing proposals for alternative warhead candidates.

Mike has a BS from West Point, an MA in human resource management from Pepperdine University, and an MS in electrical engineering from the University of Wyoming. He served with the Army from 1969 to 1978, and is now a lieutenant colonel in the Army Reserve. Mike is a New Mexico Registered Professional Engineer, graduates from a part-time member of the University of Phoenix faculty. Mike enjoys flag football and running. He lives in Albuquerque.

Fun & Games

Boating — The Coast Guard Auxiliary is again offering boating safety courses in both power boating and sailboating. Classes begin Sept. 15 and will be held Tuesdays at 7 p.m. at the Armed Forces Reserve Center (400 Wyoming NE). Both courses continue for approximately 13 weeks. Classes include information about marine engines, basic sailing, navigation, marlinspike training, and trailering. There is no charge for instruction, but there is a $15 charge for the course text for the first member of a family only. Additional family members who attend pay $5 for the worksheets. To register, call 897-1695 or 298-0116.

JJC
Sandia News Briefs

DOE Hosting Innovation Workshop in Albuquerque

An Albuquerque businesswoman whose company is marketing a product derived through a cooperative research and development agreement with Sandia will address a DOE innovation workshop in Albuquerque Sept. 15 and 19. Joanna McNamara, founder and president of Permacharge, joins Professor Lowell Catlett of New Mexico State University; James Mueller, president and CEO of Controls for Environmental Pollution, of Santa Fe; and Gary Hickens, AT&T International Markets Group vice president. The workshop is designed to help inventors and other entrepreneurs get their ideas to the marketplace.

The workshop will be held at the Albuquerque Marriott Hotel.

Bingaman Amendment Hikes Funds for Lab-Industry Partnerships

The Senate has adopted an amendment written by Senator Jeff Bingaman and co-sponsored by Senator Pete Domenici adding $25 million to its existing budget request for partnerships linking DOE labs and industry. The amendment pushed the Senate funding request to $141 million, but the House version calls for $91 million. The two bills are awaiting action by a Senate-House conference committee.

"The national laboratories in New Mexico have been aggressively seeking partnerships with industry in such areas as computers and electronics, and this amendment will give them the funding to make even more of these partnerships work," says Bingaman.

Domenici says government has a "responsibility to tap the expertise of our national laboratories to enhance the competitiveness of US industry." Bingaman says the $25 million increase in labs-industry partnership funding would be offset by a $25 million reduction in production of nuclear materials.

Former Sandian Awarded '92 National Medal of Science

Stanford engineering professor Calvin Quate, who was Vice President for Research at Sandia in the late 1950s, has been awarded this year's National Medal of Science. Quate, who also is a senior research fellow at the Xerox Palo Alto Research Center, accepted his medal from President Bush in a White House ceremony earlier this summer. The other 1992 science medalists are Eugene Shoemaker of the US Geological Survey and John Whitney of the University of California, Berkeley.

Quate invented the scanning acoustic microscope in 1973, and in 1986, together with Gerd Binnig and Christoph Gerber of IBM, introduced the atomic force microscope.

CRADA Could Improve US Role in Semiconductor Memory

Sandia and Radiant Technologies Inc., of Albuquerque, have signed a cooperative research and development agreement (CRADA) that should lead to a stronger US role in semiconductor memory and optical communications markets. The objective is to develop a new type of nondestructive readout nonvolatile semiconductor memory device that would be a key component of future military computing systems and commercial optical communication systems.

"Every time nonvolatile memories are read, they have to be rewritten to their original state by a brief "destructive readout" that takes about a tenth of a microsecond. A single-event upset during that instant can permanently scramble the information, and the CRADA will team Sandia and Radiant Technologies in an effort to develop a nondestructive readout method to avoid that problem.

Bruce Tuttle of Glass and Electronic Ceramics Properties Dept. 1845 says much of the work on the project will take place in the new University of New Mexico Advanced Materials Laboratory in Albuquerque, where UNM, Sandia, and Los Alamos National Lab researchers are working along with industry researchers. This new facility was dedicated in late August (LAB NEWS, Aug. 21).

Send potential Sandia News Briefs to Editor, Dept. 7162.

Earnings Factors

June 1992

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Congratulations

To Lorie and Mark (7614) Crawford, a son, Cody Robert, June 10.

To Mary Beth and Ken (1332) Hughes, a daughter, Krista Lynn, Aug. 5.
**MISSCENELLOS**

**NEW-STYLE CAPS & T-SHIRTS** with logos of your choice: $2.50 each or $15 for a set of 6 caps, $10 for 6 shirts; $3 for 12 cups; $7; pocket knives, $10. So. 14, 283-1315.

**PROJECT, LAB NEWS** Dept., 266-2305.

**DECOR**

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**PROJECT, LAB NEWS** Dept., 266-2305.
Coronado Club Activities

Dance, Dance, Dance to the Poorboys’ Tunes

FIESTA TIME — Next Friday, Sept. 11, you can celebrate Diecisieis de Septiembre at the Club with music, dancing, entertainment, and great food. The folk-dance group Miguel Caro y La Fiesta Mexicana will perform at 8 p.m. The popular band Together will play fine dance music from 7 to 11 p.m. Of course, you can count on some good New Mexican food. It’s gonna be a setout, so make those reservations (265-6791).

ATTENTION, JUNIOR BOWLERS — The Coronado Club Junior Pros, for ages 6 through high school, still have room for Saturday morning bowlers. It’s a good way to have fun while learning to bowl — or to get some coaching and learn to bowl better! The group meets Saturday mornings at Holiday Bowl, 7515 Lomas Blvd. NE, with check-in time at 8:45 a.m. Cost is $3.50 each week for three lines of bowling, plus a one-time sanction fee of $4.50 (good through July 1993). For more information, call coach and league official Ciss Kelly on 255-8011.

Events Calendar

Events Calendar items are gathered from various sources. Readers should confirm times and dates of interest whenever possible.

Sept. 11 — “The Trip to Bountiful” by Horton Foote, story about a woman whose last wish is to return to her home in Bountiful before she dies; 8 p.m. Fri.-Sat., 6 p.m. Sun.; Vortex Theatre, 247-8600.

Sept. 4-19 — “Once Upon a床垫ress,” musical comedy based on “Princess and the Pea” fairy tale, Albuquerque Civic Light Opera presentation; 8:15 p.m. Fri.-Sat., 2:15 p.m. Sun.; Popejoy Hall, 345-6577.

Sept. 4-Oct. 2 — Exhibit, “21 Stept,” waterless lithographic images; 9 a.m.-4 p.m. Tues.-Fri., 5-9 p.m. Tues., 1-4 p.m. Sun.; UNM Jonson Museum, 277-4967.

Sept. 4-Oct. 8 — Exhibit, “The Political Landscape: American Photography 1839 to the Present,” 41 works by well-known photographers from the Civil War to the present; 9 a.m.-4 p.m. Tues.-Fri., 5-9 p.m. Tues., 1-4 p.m. Sun.; Van Deren Co Gallery, UNM Art Museum, 277-0505.

Sept. 4-Oct. 18 — Exhibit, “Unbroken Threads: A Quincentenary Exhibition of Native American and Hispanic Art”; 9 a.m.-5 p.m. Tues.-Sun., Albuquerque Museum, 242-7255.

Sept. 4-Oct. 25 — Exhibit, “Facet and Metaphor: Optics in Photography,” how the study of optics contributes to the understanding of sight and comprehension of the world; 9 a.m.-4 p.m. Tues.-Fri., 5-9 p.m. Tues., 1-4 p.m. Sun.; UNM Art Museum, 277-4001.

Sept. 4-Dec. 23 — Exhibit, “Rio Grande Blankets/Frazadas del Rio Grande: Late Nineteenth Century Textiles in Transition,” examples include Pueblo, Navajo, and Mexican weaving, artworks, artifacts, and historical photos; 9 a.m.-4 p.m. Tues.-Fri., 5-9 p.m. Tues., 1-4 p.m. Sun.; Albuquerque Museum, 242-4750.

Sept. 13 — St. Joseph Rehabilitation Hospital and Outpatient Center 4th Annual Run/Walk/Roll, events include 5K run/walk/roll, 10K run/roll, and 1-mile fun walk/roll; 7 a.m., St. Joseph Rehabilitation Center (505 Elm NE, behind St. Joseph Hospital), 1-800-528-8888.

Sept. 13 — Spike’s Ride and Chile Cook-Off, family fun day, features three separate distances for the bicycle ride and red and green chili categories in the cook-off; 8 a.m., New Mexico Museum of Natural History, 841-8837.

Sept. 18-19 — Marketplace Fall Arts and Crafts Show, more than 70 local crafes; 9 a.m.-5 p.m., Wyoming Mall, 294-1606 or 296-0460.

WINNING GENERATIONS — As members of AT&T’s Corporate Cup track team, retiree Ed Johnson (left) and summer hire David Honea find themselves at opposite ends of the age field. Ed, 67, is one of the team’s oldest members. David, 29 (25 years younger than the shot in Ed’s hand), was the youngest Sandian competing for AT&T this year. He was in the Outstanding Student Summer Program and recently returned to school at North Carolina State. Both Ed and David contributed to AT&T’s first-place finish in the 1992 National Corporate Cup competition held in Irvine, Calif., this summer. David won the men’s 10K road race for the second year in a row, and Ed placed fifth in the shot-put and discus. They and 15 other Sandia Track and Field Club members qualified to compete on the AT&T team as a result of their performances in state and regional competition.