Full Text :

A world famous weapons laboratory turns to partnerships with business in its fight to survive the post Cold War era.

Thomas McEwan looks like a high school shop teacher and talks like a salesman. Sitting in his cramped office at Lawrence Livermore National Laboratory, he holds a small black box about the size of a pack of cigarettes and describes through a broad grin how people will soon be able to walk into K mart and for $20 buy a personal radar system like the one in his hand to detect intruders in their home.

An engineer who designed instrumentation to monitor the 1 billion pulses of light emitted in a single second by the lab's $173 million Nova laser, McEwan has been able to convert that technology into an inexpensive microchip-sized radar system. It can be used in a wide range of commercial devices, from washroom hand dryers that turn on and off automatically to automobile tail light assemblies that warn drivers when they back up too close to an object. Already two companies have licensed the technology from the lab and scores of others have expressed interest in doing the same.

"In the next five to 10 years people will have radar in the home as commonly as stereos and phones," McEwan said.

Scientists like McEwan represent the future of Lawrence Livermore Laboratory - or so some people hope. He embodies a new entrepreneurial spirit among engineers and scientists at the lab as it seeks to transform itself from a Cold War nuclear weapons research and development center to a vital industrial resource.

Lawrence Livermore is trying to turn its brainpower to finding solutions to some of the nation's daunting problems, such as cleaning up toxic waste and developing batteries for electronic automobiles.

But if McEwan is a symbol of Lawrence Livermore's future, perhaps George Craig embodies its present.

At 54, the physicist has spent 20 years at the weapons lab only to find himself now in the uncomfortable position of having to justify his worth.

"I'm what they call a 'displaced' person here at the lab," Craig said.

Certainly there were the events that began to erode Lawrence Livermore's long unquestioned imperative that assured a free flow of funds that kept the lab fat and happy. The Berlin Wall fell, the Soviet bear dissolved and the nation began to clamor over the ballooning national debt.

But as the perception of threat from nuclear foes has faded, people have begun to wonder whether the billion-dollar-a-year investment in Lawrence Livermore is the best use of the

nation's money. Craig has had a front row seat from which to watch the shifting national priorities.

It began for Craig when the project he was working on as part of the Strategic Defense Initiative, or "Star Wars" project, was canceled. Star Wars, which promised to float laser stations in space to shoot down invading missiles, represented the type of grand scale on which the lab's scientists had been long accustomed to working.

At the time, Craig was able to find new work at the lab on a project related to its laser fusion program, but a year ago cuts forced the lab to shut that down as well. No longer assigned to a specific project with its own budget, Craig has become, in the parlance of the lab, a "burden of overhead."

"Many scientist are nervous because they are experts in a discipline that was essential and useful to a certain point, but now it is not," Craig said.

The challenge for Craig is no longer to solve complex physics problems that will somehow increase the security of the nation, but something more basic: how to latch on to a project that will be able to win funding.

He recently completed two months of preliminary work with high-powered lasers to remove "port-wine stains," a blotchy skin discoloration such as the one on Mikhail Gorbachev's forehead, caused by a cluster of blood vessels just below the surface of the skin. The discoloration can be remedied by applying energy from a short laser blast a millimeter below the skin to burn the network of vessels gathered there.

His preliminary work on that project is done, and he's now waiting to see if the initial test results generate enough interest to fund further work. In the meantime, he is placing more hope in another project involving protein crystallography, a way to unlock the function and relationship between different proteins by studying their structures. He's competing within in the lab with about 120 other scientist and engineers for one of 20, $250,000 grants.

"I think this lab is facing a downsizing in the current year," he said. "For a working scientist like myself, the focus is to get off the burden account and be ahead of the machine that wants to lay me off."

About 40 miles east of San Francisco, Lawrence Livermore National Laboratory is one of nine research labs operated by the Department of Energy. Along with Sandia National Laboratories and Los Alamos National Laboratory, Lawrence Livermore forms the triumvirate of labs performing nuclear weapons research.

Established in 1952, Lawrence Livermore has played a long and important role in the nation's nuclear weapons arsenal, from its founding by Edward Teller and Ernest Lawrence, to the now tabled Star Wars program. If its 1993 budget of $1.049 billion were compared to the revenue of public corporations, it would be ranked 359 on the Fortune 500.

But with the end of the Cold War, Lawrence Livermore's future is unclear. As in the private sector, the lab has been forced to confront the reality of downsizing.

In the fiscal year 1987, Livermore's budget for nuclear weapons research and development reached a peak of $325.2 million, and 1,740 people were employed by the program. In fiscal 1993, the budget fell to $253.5 million and 950 people were working in the program. In the current fiscal year, the budget is expected to shrink yet again to $199 million. Though many people have been shifted around by the lab, earlier this year 743 employees - nearly 10 percent of the full-time equivalent staff - participated in an early retirement program.

Despite the attention the lab has drawn with each announcement of a new research and development agreement with an automotive giant or the licensing of a technology to a young company that envisions using it to create new products with mass markets, the lab is in the midst of a struggle to define exactly what its post-Cold-War role should be.

Hardliners both within the lab and the government still support the Lawrence Livermore's traditional mandate. They say, however, that the lab's focus should shift from developing arms to combat another nuclear superpower to developing means to detect and counter the threat from nuclear proliferation and terrorists who might build or buy a nuclear device and smuggle it into a major city.

Others, though, say the nation can no longer afford to support the redundancies built into the weapons program. They say leave the weapons work to Los Alamos, which is in the desert, and convert Lawrence Livermore, a suburban lab surrounded by one of the richest collections of entrepreneurial technology companies in the nation, into a civilian laboratory. The lab's mission would be to put its engineers, scientists and resources to work on some of the considerable industrial problems facing the nation that the private sector is either unable or unwilling to tackle on its own.

The public at large not a rare glimpse of the conflict engulfing Lawrence Livermore in April when the private base between then lab director John Nuckolls and officials from the University of California, which is contracted by the Department of Energy to manage the lab, burst onto the front pages of local newspapers.

Amid reports that UC President Jack Peltason had asked him to step down, a confidential report from an independent performance committee at UC said Nuckolls had been to slow in pushing the lab forward now that the Cold War has ended. The report labeled Nuckolls indecisive and complained of a lack of leadership at Lawrence Livermore.

The next day Nuckolls resigned.

"I view that as a recognition that in a different environment a different kind of leadership is needed," said Michael Odza, publisher of Technology Access Reports, a Novato-based newsletter that covers technology transfer from federal and university labs to the private sector. "I'm concerned while Nuckolls and the University of California recognize that, there's no recognition yet what kind of leadership is needed."

Bruce Tarter, an assistant director at the lab, has been serving as acting director while the University of California conducts a search for Nuckolls replacement.

The selection is being watched carefully both within the lab and outside. The question is whether UC will choose another weapons scientist such as Nuckolls - or Tarter, who is a candidate - or will reach into the business world for someone who would have credibility with the private sector and bring practical experience necessary to transform Lawrence Livermore into a place better suited to operate with the business world.

Not that the lab isn't already trying. Its early efforts, though sometimes awkward, have been met with enthusiasm among some scientists who have discovered industrial problems can be challenging. Some, rather than being overwhelmed by the uncertainty of their future, say the experience has been liberating and energizing.

Since 1983, Don Bender has been an engineer at Lawrence Livermore. Among other things, he helped design the lab's $173 million Nova laser. The laser's 10 arms produce laser pulses that together deliver more than 100 trillion watts of power to a fuel pellet in a billionth of a second. Used in a fusion reactor, a gram of fuel releases the equivalent energy of about 2,400 gallons of oil.

Today Bender works at Lawrence Livermore on a flywheel battery in cooperation with Westinghouse Electric Corp. and Trinity Flywheel Batteries Inc., a San Francisco start-up. The project is somewhat more modest than the Nova. The firms will supply $900,000 for the lab to do research.

The battery has been likened to a potter's wheel, converting electrical energy into motion. As the battery charges, its rotor wheel spins faster. As it discharges, it slows. The battery could help address a $12 billion annual problem for U.S. industry caused by power surges and dips in electricity, the lab said.

As with others at the lab, new words have crept into Bender's vocabulary. He speaks of "customers" and "marketing," things he said he never learned to do at the Massachusetts Institute of Technology where he earned his master's degree in engineering. Rather than interacting solely with other engineers and scientists, Bender is now getting used to describing a project in layman's terms to a roomful of potential customers and corporate partners.

But unlike the massive projects normally undertaken at the lab, Bender said he finds great satisfaction working on smaller projects with commercial goals.

"With a fusion reactor, there's not going to be a commercial reactor in your lifetime. The motivation is abstract. You are working towards an ideal," Bender said. "Here, the feedback is immediate. You see the results, not just in your lifetime, but within your attention span."

In the old world of Lawrence Livermore it was not unusual for scientists and engineers to construct by hand one-of-a-kind devices. A premium was placed on precision, measured in

millionths of an inch or a billionths of a second. The goals of some of the grander projects, such as the fusion reactor, were seen as being decades away.

As these same scientists and engineers are sent off to work with the private sector, they quickly learn timetables are short, money is scarce and precision is not as big a priority.

"When money isn't infinite, you have to take a different point of view," said Malcolm Caplan, a physicist who worked on microwave technology as part of the Strategic Defense Initiative. "It may be worth getting only 90 percent of an answer if it saves three fourths of the money. In industry, cost matters. If it works and breaks the bank, it doesn't work."

Caplan sits in an office in the lab's Building 111. The entire floor is given over to the innocuous sounding "A" group, part of the lab's elite that designs thermonuclear weapons. Though Caplan has worked in the private sector and understands how the corporate world operates, he said it can be a significant adjustment for some of his colleagues, who have long worked in a cloistered environment and now find themselves at a conference table with a group of business people.

"You can't just take a bomb engineer out of his environment. He was trained not to interact," said Caplan. "Now it's really opposite. You have to teach them what's involved in interacting with industry. You have to teach them to dress up in a suit, pull up their fly and shave."

If such cultural adjustments are coming with difficulty at the lab, they are subtle counterparts to the mechanical and operational overhaul the lab and the Department of Energy need to make if they are serious about working with industry in any significant way, say critics.

Though Lawrence Livermore has taken steps to move toward a newly redefined mission, it is only beginning to develop and implement systems that will allow it to work effectively with industry.

"We're not quite sure what the new set of rules is," said Richard Landingham, the section leader of Lawrence Livermore's Materials Science division. "We're taking them on one step at a time and formulating new policies. The policies are evolving. They are a little too rigid and not totally understood."

That's not surprising, considering the dramatic changes the lab is undergoing. Five years ago it was a rare instance when the lab would even take private money to do a job, Landingham said. It would have to be an extraordinary circumstance where there were no alternatives to the lab and it wouldn't take a lot of time or equipment.

Today, by contrast, working with industry has become one of the major goals of the lab. Rather than waiting to be approached by a company in search of technology, the lab now goes knocking on corporate doors to ask those inside what they need and what the lab can do to help. Landingham and others say although there is a sense that the lab should pursue such partnerships, there is only a vague sense about what that should include.

"There isn't a focus to the lab," he said. "There is a mandate from Washington that filters down. I don't think anyone here will tell you we have a mandate we can all agree on yet."

The clearest form of the mandate is in the form of legislation. In 1986, Congress passed the Federal Technology Transfer Act, which created Cooperative Research and Development Agreements, or CRADAs, an important mechanism for the transfer of government technology to the private sector. This was modified in 1989 when Congress passed the National Competitiveness Technology Transfer Act to authorize Department of Energy labs such as Lawrence Livermore to participate in CRADAs.

The development of CRADAs represented a major repositioning for the labs in their relation to industry. Though Lawrence Livermore had a technology transfer office since 1980, it served more as a caretaker than a marketer of the lab's technology. The lab was required to spend .5 percent of its budget on technology transfer, but the office's effort was focused on producing publications that simply cataloged for industry what technology was available.

"It was basically a communications office," said Roger Werne, associate director for engineering and technology transfer at Lawrence Livermore, who described the office previously as "passive."

"Marketing," he said, "is a new term for us. We now go out to companies."

Werne removed a binder from his shelf that held hundreds of business cards neatly stored in sheets of plastic. Like a kid calling off prized pieces in a collection of baseball cards, Werne flipped the pages reading off names here and there. Instead of Mets, Yankees and Dodgers, though, the names he touted were Bechtel, Boeing and General Motors.

"In the last few years I've collected 1,000 business cards," he said.

Already Livermore has entered into 124 CRADAs with a value of $420 million, making it a potent weapon in the technology transfer arsenal.

"Technology transfer is really a misnomer," said Werne. "Now its industrial partnering."

In essence, a CRADA is an agreement between a federal lab and one or more private corporations to jointly use their staff and resources to work on a specific project. CRADAs usually involve an equal sharing of expenses between the lab and its partner, something that serves as an inducement to industry, which is getting half its research-and-development expense underwritten by the government.

Though federal technology had long been available for the asking, many corporations stayed away from it for a variety of reasons. Among them was concern that the technology would not be patentable because it came from government research, or that a competitor, through the freedom of information act, could gain trade secrets from anyone working with a government lab.

It remains controversial that the government can work with one corporation to the competitive disadvantage of another or that a single company or consortium of companies can gain exclusive rights to technology that was developed with taxpayers' money. But advocates of the system say that without such protections valuable technology would languish on shelves.

As CRADAs have drawn businesses to Lawrence Livermore, business people say they are finding value there. Chuck Anderson, supervising engineer for Caterpillar Inc. in Peoria, Ill., is working with Lawrence Livermore on a CRADA to use industrial computer tomography in the production of diesel tractor engines. By using the lab's expertise in X-ray technology, the company has been able to develop ways to inspect the interior of its engines for possible defects.

Though Anderson does not give his lab counterparts perfect marks, he said they do have a good business focus and offer Caterpillar something the company would not otherwise be able to do.

"We still don't have their skill level," he said. "This is the most effective way of doing it."

The original partnerships with industry came slowly. It took the lab as much as 18 months to iron them out since there was no model from which the lab could work.

The process, by industry standards, was long and cumbersome because of redundancies built into the Livermore system and the fact that each contract, once agreed upon, had to go to the Department of Energy for approval. In addition, the lab continues to climb a steep learning curve.

"There were no ground rules, no direction," said Landingham of Livermore's Material Science division, who worked on one of the first partnerships for the lab developing superplastic steel. "We had to make up a contract."

The agreement, hammered out in 1989, involved several parties including the Department of Energy, the University of California, Caterpillar Inc., Northstar Steel and Stanford University, which held basic patents on the technology critical to the agreement.

The problem was that the project was well under way before the contracts had been signed. Two years into the program, Landingham said Stanford began to raise a stink about royalties it wanted up front.

"The tech-transfer people didn't realize verbal communique wasn't adequate," said Landingham.

Since then, far more elaborate guidelines have been put in place and the process has been improved. Today, a CRADA takes Lawrence Livermore two to four months to structure. There is additional effort being made to streamline the process and minimize the bureaucracy. Ultimately, the lab hopes to develop a standardized CRADA that can be worked out in a matter of weeks.

But despite the progress the lab has made to improve the agreements and the fanfare with which they are announced, the reality is that they still represent a small part of what Lawrence Livermore does.

"The amount of work they are doing with industry is not sufficient enough to change the culture of the lab," said Greg Mello, a staff member of the Los Alamos Study Group and a consultant to Tri-Valley Cares, a citizens organization devoted to lab conversion and nuclear disarmament. Only about 5 percent or $50 million of Lawrence Livermore's billion-dollar annual budget comes from CRADAs, he said.

Despite shrinking budgets at Lawrence Livermore, Mello notes that the percentage of the lab's Department of Energy funding allocated for nuclear weapons actually continues to grow. Currently, nuclear weapons work accounts for 55.3 percent or $411 million of Lawrence Livermore's DOE funding. Next year, it will drop to $362 million, but climb to 56.7 percent of the budget, according to Mello.

"The thesis that this laboratory is rapidly shifting to a post-Cold War mission is not really supported," he said.

Many of the lab's critics point to Lawrence Livermore's former director Nuckolls and the congressional testimony he gave less than a month before resigning his post. They say it underlines the lab's resistance to break from the past.

Nuckolls warned legislators of the danger posed by nuclear terrorists and the need to reinvigorate the weapons labs.

"These incalculably and catastrophic threats put at risk the building blocks of modern civilization," said Nuckolls, as he called for an additional $300 million funding for the nation's three weapons labs.

There are those who would like to see Lawrence Livermore entirely shed its weapons work. Among them is congressman George Brown Jr., D-San Bernardino, head of the House Science, Space and Technology Committee, who has advocated that Lawrence Livermore be converted into a civilian lab. He argues the lab should build on its strengths in materials science, fusion, computational science, environmental remediation and biotechnology and emphasize building consortia with industry and academia under the name of Lawrence Livermore National Critical Technologies Laboratory.

"The nation no longer needs three nuclear weapons labs, all of which are trying desperately to retain as much of their defense activity as possible, while also diversifying feverishly toward civilian missions," Brown wrote in February 1992 to then-secretary of energy James Watkins.

While Brown in his letter acknowledged his call for removing Lawrence Livermore from the nuclear weapons business represented a "taboo in the minds of many DOE officials," he said while such taboos may have been "defensible during the Cold War, they have now become obstacles in the way of clear thinking about the proper course for the DOE laboratories."

Others go further and question whether, given Lawrence Livermore historical orientation, it could be an economical source of problem-solving technology for the private sector.

"I am sympathetic to critics who say, 'How can Livermore, a nuclear weapons lab that worked on Star Wars, how can they come up with appropriate solutions to environmental problems,'" said Ann Markusen, director of the Project on Regional Planning and Industrial Economics at Rutgers University in New Brunswick and coauthor of the book "Dismantling the Cold War Economy." "We should say, 'What's the most effective way to solve this problem,' and then say who is the best to do it. Not just give the mission to the labs because their budgets need to be kept up."

Markusen believes instead of foisting a new mission on the lab for which it seems ill-equipped, it would be better to let the lab "shrink gracefully," as have some of the defense companies, and let it deal with the not insignificant role of dismantling nuclear weapons.

People in industry who have worked with the lab certainly see value in some of the existing technology Lawrence Livermore has to offer.

Among them is Kevin Felch, project engineer for the gyrotron development project, a $2 million CRADA between Lawrence Livermore and the Palo Alto-based electronics firm Varian Associates Inc. Through the CRADA, Varian is making use of computer code written for the Star Wars project to test the design of tubes used in what is essentially a monstrous version of the magnetron found in a microwave oven.

"The question always is, is it cost effective?" said Felch. "It's fairly obvious if it's something they've already done."

What's less obvious is whether Lawrence Livermore can develop new technologies with industry in an economical way.

William Weida, a retired Air Force colonel who served as a Pentagon economist and now is a professor of economics at Colorado College in Silver Springs where he works with communities on conversion issues, said that Lawrence Livermore is "selling its soul" with CRADAs. Weida said once the "few neat things they have on the shelves" are gone so will the lab's value to industry be gone as well.

"There's so much promise and so little potential," he said.

Weida advocates some strong medicine for the lab. He'd like to see an independent organization such as the National Science Foundation take an unbiased inventory of Lawrence Livermore and have each department propose projects. Those deemed worthy would be funded, others would be cut with facilities and equipment to be auctioned off.

"We've managed to create institutions that go well beyond the economies in which they operate," Weida said.

For years, Lawrence Livermore's non-weapons programs depended on the largess of the weapons program, which acted as a flywheel to drive the whole lab. Now, Weida views the lab's sudden mad dash to solve grand industrial challenges as a search for a new flywheel in the face of shrinking nuclear weapons budgets.

"It's something that's not going to work," he said. "No one is going to pay them to think hard about big problems. These labs seem to feel because they were good at physics they'd be good at everything. If it's up to the labs to save themselves, we've lost them."

To truly make a contribution to the private sector, Weida argues, Lawrence Livermore will have to shed its weapons work and abolish secrecy so that its ideas will be subject to the same type of scrutiny from scientific peers at universities and private research labs that others must undergo.

But shedding their weapons work is not something Lawrence Livermore seems ready or willing to do. Perhaps the strongest evidence of this is the lab's pursuit of the National Ignition Facility, an $800 million follow-up to the Nova laser. Though billed as an energy research facility, advocates of civilian conversion of Lawrence Livermore say it is an example of how the lab is trying to compensate for budgetary losses by seeking large, new weapons projects.

"These efforts, even if successful, will confine Lawrence Livermore's future to an increasing sterile extension of its past," wrote Mello of the Los Alamos study group in a report prepared for Tri-Valley CAREs, a local community group that advocates Lawrence Livermore be turned into a "green lab."

"If [Lawrence Livermore] invested the energy it now puts into promoting its nuclear weapons agenda into positioning itself to address urgent national needs, its future could be bright and moral and the laboratory would be buoyed by a renewed sense of purpose," wrote Mello. "But while [the lab] dithers, competing laboratories - in government, academia and industry - are positioning themselves to take advantage of new currents in the nation's technology policy debate."

Lab officials counter by arguing that basic defense technology research has long proven a valuable source of commercial technology.

"To think there is no synergy with basic technology research is just not true," said the lab's Werne. "The aircraft industry had its roots in military research. The same is true in the computer industry, and others grew out of military funding."

Werne envisions a happy middle ground between the lab's historical role to develop nuclear weapons and its new one to partner with industry for the economic benefit of the nation.

He said the lab has already embraced a "dual benefit" strategy where R&D within the lab is conducted with an awareness of possible private sector benefits. What that means, from a practical point of view, is that if the lab is working on software for its massive parallel computing project - which will allow several computers to work on parts of a complex problem simultaneously to speed its solution - it will design the software with an architecture that will be able to run on civilian systems as well as military ones.

Werne said the idea of industry and the federal labs working together is still in the experimental stages. When it started, he said, critics argued that lab staff could not work with industry and that the labs have nothing to offer.

"We've proven them wrong," he said. "Industries that leverage themselves by working with the lab will have an advantage that others will not."

Advocates of converting Lawrence Livermore to a civilian lab don't dispute that military research has spawned valuable commercial technology, but they emphasize that dollar for dollar, civilian research produces far more bang for the buck and creates more jobs than does its military counterpart.

And that will be the bottom-line reality that Lawrence Livermore will have to face in the long run, when the lab's value will be evaluated by the results its partnerships yield.

"I worry that the Department of Energy labs are measuring their success by the number of CRADAs they're engaged in," said Odza, of Technology Access Reports. "The ultimate measure of success will be if companies are more successful in the marketplace because of their interactions with the lab. It may be years before we know."

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Plutonium: A valuable commodity or just waste?

LANL scientist: Leftover plutonium will be worth something someday

By KEITH EASTHOUSE
The New Mexican

1/4/94

As the United States dismantles thousands of nuclear warheads, the country's stockpile of plutonium is growing — and so is the problem of what to do with a material that can remain radioactive for 240,000 years.

Some have argued that it should be mixed into glass and buried, perhaps under the sea. Others say it should be destroyed — either by rocketing it into space or by blowing it up underneath the Nevada desert.

Sivasankara Pillay, a scientist at Los Alamos National Laboratory, said in a recent interview that the deadly radioactive metal has too much value as a potential energy source to throw away.

"It would be most criminal to destroy this resource," said Pillay, who manages the waste minimization program for the lab's Nuclear Materials Technology Division.

Pillay's argument that plutonium should be used and not disposed of drew strong criticism from a member of a Santa Fe-based watchdog organization.

"Plutonium is not a substance of commercial value. It is a most troubling and expensive waste product," said Greg Mello of the Los Alamos Study Group.

Pillay's views on what should be done with the country's plutonium stockpiles are contained in a paper, "Disposition Scenarios and Safeguardability of Fissile Materials under START Treaties," that he presented at a meeting in San Francisco last month of the American Nuclear Society.

The issue of what to do as plutonium from dismantled warheads accumulates has become one of the thorniest problems facing the county. In September, President Clinton announced the formation of an interagency task force to consider how much plutonium the nation needs in the post-Soviet era and how to dispose of what is surplus.

> "Plutonium is not a substance of commercial value. It is a most troubling and expensive waste product."
>
> GREG MELLO
> Los Alamos Study Group

These are among Pillay's major points:

■ Plutonium has tremendous economic value.

Pillay estimated that the amount of plutonium from U.S. and former Soviet weapons scheduled for retirement under the two Strategic Arms Reduction Treaties could be worth more than $1 trillion if exploited as an energy resource.

"Before we throw it down a hole or shoot it to the moon, we need to be well aware of the peaceful uses (of plutonium)," Pillay said.

The contention that plutonium has tremendous economic value was disputed by Arjun Makhijani, a prominent Energy Department critic with the Institute for Energy and Environmental Research in Takoma Park, Md.

Makhijani said that the cost of converting plutonium into a form where it could be used for energy generation is prohibitive, particularly when uranium

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prices are so low.

"The costs of conversion are so large that uranium prices would have to increase many-fold before plutonium could be competitive as an energy source," Makhijani said.

"Plutonium is only theoretically an energy source. It is not practically an energy source," Makhijani said.

He said plutonium has other costs associated with it, including preventing it from contaminating the environment and implementing security measures to ensure it won't fall into the wrong hands.

"Plutonium should be declared a waste. It's an economic and environmental liability," Makhijani said.

■ The hazards of plutonium have been exaggerated.

Pillay said plutonium suffers from an unjustified image problem.

"The reason for the problem is the public misperception that plutonium is the most dangerous substance on earth," Pillay said. "It's become kind of a religious belief. There's no science behind it."

Pillay said that an equivalent amount of cyanide is more harmful.

Mello said that microscopic amounts of plutonium can cause cancer if inhaled. He also said that the major pollution problem posed by plutonium is its longevity in the environment.

Pillay said that if plutonium is mishandled it can seriously contaminate the environment and pose a health hazard. He called the DOE's Hanford reservation in Washington state, which is plagued by radioactive pollution from past operations, "probably the most contaminated place on earth."

But he argued that such contamination has occurred not because plutonium is inherently unmanageable but because the emphasis in the past has been on developing nuclear bombs, not on protecting the environment.

"Plutonium hasn't been the problem. It's the idiots who were handling it," Pillay said.

Pillay said the likelihood that massive contamination would result from plutonium use is much less now because the emphasis at Los Alamos and other DOE facilities has shifted to environmental protection.

"The DOE has turned around 180 degrees," Pillay said. "It's been almost a religious conversion. Compliance (with environmental laws) is now the order of the day."

■ Other countries will use plutonium for energy even if the United States doesn't.

Pillay said several nations, including the former Soviet republics, have developed technologies for using plutonium in light water reactors or fast breeder reactors to produce energy.

"These technologies were (first) developed in the United States. Then others borrowed and became masters of these technologies," Pillay said. "If we need these to meet our future energy needs, we could begin exploiting them today."

Pillay said plutonium could be used for large-scale power generation if the United States were to ease restrictions on using it for such purposes.

■ The United States should hold onto the plutonium it has until society can figure out the best uses for it.

Pillay said that in the current climate of anti-nuclear sentiment, using plutonium as an energy source is not likely to happen. He said that "if the present generation cannot find a use for these materials, it may be prudent to save them for a future generation."

He said that plutonium has been stored safely for the past 50 years, and there's no reason to think it cannot be stored safely in the future.

Pillay said that by saving, rather than destroying, plutonium, the current generation could be leaving the future generation a down payment on the national debt because of plutonium's value.

■ The United States should consider lending, leasing or selling surplus plutonium from retired weapons to friendly countries under full international safeguards.

Pillay also said that properly safeguarded plutonium could someday be one of the most valuable commodities traded on world markets.

Makhijani said the costs and risks of such transactions — including the chance that plutonium could fall into the hands of terrorists — would greatly outweigh whatever benefits they would bring.

He said that rather than advocating the trading of plutonium on world markets, Pillay should be worrying about what might happen to the huge amounts of plutonium from retired weapons accumulating in Russia.

"It would be irresponsible to not worry about a potential black market in radiation weapons in Russia," Makhijani said.

Mello said that creating a "plutonium economy" would threaten civil liberties because it would require giving the state highly intrusive powers of search, interrogation and wiretapping because of the danger of theft posed by terrorist groups.

NEW MEX

Saturday, January 22, 1994 Albuquerque Journal

LANL Wants To Conduct

Some Fear Trials May Violate Ban

By John Fleck
JOURNAL STAFF WRITER

SAN FRANCISCO — Los Alamos National Laboratory has asked the Clinton administration to consider permitting underground test explosions using nuclear materials but without creating a true nuclear blast, laboratory director Sig Hecker said Friday.

The possibility of the tests has raised some concerns in the arms control community because of fears they might hurt efforts toward an international ban on all nuclear weapons test blasts.

The United States and most other nuclear powers have been observing a voluntary moratorium on nuclear tests for more than a year, and negotiations for a permanent test ban are under way.

The new tests would be conducted at the Department of Energy's Nevada Test Site, not at Los Alamos, Hecker said.

Hecker mentioned the tests in a written report to the University of California, which manages Los Alamos, and elaborated on them in an interview.

Hecker was in California for his annual report to the university's Board of Regents.

The tests would allow scientists to use real nuclear materials to closely mimic the early stages of a nuclear blast without actually creating the runaway nuclear chain reaction that creates a nuclear weapon's destructive force.

Called "hydro-nuclear" blasts, such tests were conducted in holes drilled into the Los Alamos mesas in the early 1960s during a U.S.-Soviet moratorium on nuclear blasts.

The tests were top secret at the time, but government scientists later argued that

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Nuclear Tests

they didn't violate the testing moratorium because they weren't real nuclear blasts.

The 1960s tests were done because of questions about the potential of accidental explosions of some warheads.

Hecker said there are no specific questions driving the current discussion of possible hydro-nuclear tests. He said the laboratory included the possibility of hydro-nuclear tests as one of a series of options for maintaining the ability to study U.S. nuclear weapons in a test ban.

He said it eventually will be up to the White House to decide whether such tests should be permitted.

Arms control activists differed on whether such tests should be allowed.

Christopher Paine, an arms control expert at the Natural Resources Defense Council in Washington, D.C., said conducting hydro-nuclear tests before a comprehensive test ban is negotiated would send a signal to countries trying to develop nuclear weapons that they should do the same.

But Robert S. Norris, a colleague of Paine's at the NRDC, said that he saw little danger, pointing out that the precedent for their use had been set during the early 1960s testing moratorium.

"I don't see any problem with that," Norris said.

EIS

(from Page 1)

sary, there was disagreement about stopping LANL waste-generating activities.

Riseley said in a telephone interview today that LANL should halt temporarily the work toward a Mixed Waste Disposal Facility and the expansion of Area G at Technical Area 54. Both are planned radioactive waste disposal facilities. "Those plans should be put on hold while they do an EIS," she said.

She said that the areas should be considered in a sitewide EIS. An EIS must examine a no-action alternative, and Riseley said if the lab builds the disposal facilities, it's too late for the no-action alternative to have effect.

"There is great danger in building these very large dumps," Riseley said. "They have much greater capacity to handle generated wastes. It sets the lab up for being a nuclear weapons project in miniature."

But Seibach said that LANL operations wouldn't be stopped during an EIS.

He said the activists essentially called for LANL to "shut down all research and development, production, and waste management operations until the EIS is complete." But interim operations will continue, he said.

However, he said, "If there are interim actions that have a significant impact on the quality of the human envronment, we will do interim NEPA documentation on those activities."

He cited as an example the remediation of Area G "TRU pads," places where transuranic waste destined for the Waste Isolation Pilot Plant is stacked out of compliance with current state regulations.

DOE's waste management program "will be doing a some sort of sitewide waste management NEPA documentation regardless," Siebach said.

He didn't say whether EISs or merely environmental assessments (EAs) would be required.

Riseley said the lab should move straight to the EIS process, because EAs have no requirement for public involvement until the EA has reached a finding. In contrast, she said, "The EIS is a tool for discovery."

But Siebach said the EA is cheaper, so DOE often should start with it. "Starting with an EA certainly doesn't preclude the use of an EIS," he added.

DOE is following the NEPA regulations in preparing an EA first, and, "The public had opportunity to comment on the regulation when it was developed," Siebach said.

Riseley also said at the meeting that LANL should compile a list of what programs produce what waste so the public can decide which programs are worth the environmental cost.

Chris Armijo, an official with DOE-Los Alamos who attended the meeting, said LANL committed to identify waste streams at the meeting. The information is needed for an EIS, she said.

2-2-94 AH

LANL, DOE agree lab needs new impact statement

By STEPHEN T. SHANKLAND
Monitor Staff Writer

At a recent meeting with several activists, Los Alamos National Laboratory and Department of Energy officials agreed that LANL needs a sitewide environmental impact statement (EIS).

Many activist groups, including Concerned Citizens for Nuclear Safety and the Los Alamos Study Group, have been asking for a sitewide EIS for several years.

The sitewide EIS is required by DOE regulations. LANL has one, but it dates from 1979. Documents such as environmental impact statements and environmental assessments are required for certain facilities by the National Environmental Policy Act (NEPA).

"The time is ripe to do this," said Diana Webb of the DOE's Los Alamos Area Office. "There is unanimous consent that the 1979 EIS needs to be redone."

Webb said the move to conduct a sitewide EIS now came from public interest in the process.

Webb said Bruce Twining, head of DOE's Albuquerque Field Office, sent a memo to DOE headquarters several months ago suggesting planning for a sitewide EIS for LANL.

But Webb and Pete Siebach, a DOE headquarters official who also attended the meeting, said there is a long way to go before an EIS actually is begun.

Seibach and Webb said a funding source within DOE must be found. Although neither could say exactly how much a sitewide EIS would cost, Webb said it would be in the neighborhood of $10 million. Seibach said the most recent sitewide EIS for Lawrence Livermore National Laboratory, completed in 1992, cost $15 million.

An EIS proably will take at least three years to complete, Webb said. And Seibach said that the work probably wouldn't begin until January 1996.

A sitewide EIS also requires "buy-in" from other assistant secretaries at DOE, Seibach said. Webb said that although people from these other programs probably agree that an EIS is necessary, the official procedures will take some time.

Jerry Bellows, manager of DOE-Los Alamos, agreed at the meeting to formulate a strategy for funding and organizing the EIS, Seibach said.

Harry Otway, who attended the Friday meeting, said LANL supports the sitewide EIS.

Mary Riseley, an activist with the Santa Fe-based Los Alamos Study Group, said that although those at the meeting agreed an EIS was neces-

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SANTA FE

THE NEW MEXICAN THURSDAY, FEBRUARY 3, 1994 SECTION B

LANL cuts size of proposed waste area

DOE to complete review of plan by summer

By KEITH EASTHOUSE
The New Mexican

Los Alamos National Laboratory has proposed reducing the size of a controversial expansion of its nuclear waste disposal area from 70 acres to approximately 28 acres, laboratory officials said Wednesday.

Tony Drypolcher, leader of the lab's Waste Management Group, said the lab recently proposed scaling back the expansion of Area G to the Department of Energy, which will make the final decision.

Diana Webb of DOE's Los Alamos Area Office said the smaller expansion and the original plan are both under review by the agency. Pete Siebach of the DOE's waste operations division in Washington said the review would be completed by the end of the summer.

The plan to expand Area G, which borders San Ildefonso Pueblo land, is deemed necessary by the lab because the facility — opened in the 1950s — is running out of room.

Solid, low-level nuclear waste — some of it mixed with asbestos and PCBs — is buried in pits at Area G. Additionally, plutonium-contaminated waste bound for the Waste Isolation Pilot Plant, the underground nuclear waste repository near Carlsbad, is stored at Area G. So is mixed waste, which contains both radioactive and chemical substances.

The expansion has raised the ire of the American Indian leaders, in part because any expansion would result in the excavation of centuries-old Indian ruins.

Indian leaders could not be reached for comment about the lab's proposal for a smaller expansion.

Drypolcher and John Krueger, facilities manager for Area G, said the smaller expansion would require that six to eight archaeological sites be excavated — "substantially less" than the number of Indian sites that would have been impacted by the larger expansion, Drypolcher said.

Mary Riseley of the Los Alamos Study Group, a citizens watchdog organization, said that no expansion should be undertaken until a full-scale review of the environmental and health impacts of laboratory operations is completed.

Lab and DOE officials recently committed to undertaking such a review, which would involve the preparation of a huge document called a sitewide environmental impact statement.

The smaller expansion is in line with the recommendations of an internal laboratory group called Our Common Ground, which argued for a smaller expansion in a 1993 report.

Our Common Ground said the lifetime of the existing disposal area at Area G — estimated in 1991 to be as little as two years — could be increased to eight years or more through waste minimization techniques.

Krueger and Drypolcher said such techniques already have caused a reduction in the volume of waste coming into Area G.

Nonetheless, Krueger said the facility could fill up by the end of 1997, or sooner if larger-than-expected amounts of waste are generated.

NASA Studies Cassini Launch on Shuttle

By WILLIAM HARWOOD
Special to Space News

CAPE CANAVERAL, Fla. — NASA is studying the possibility of launching the $1.4 billion Cassini Saturn probe from a space shuttle instead of a Titan 4 rocket as currently planned because of lingering concern about a Titan failure last August, NASA officials say.

Because of Cassini's high weight, 12,400 pounds, and the energy needed to reach Saturn, swapping launchers would require two shuttle missions — the purchase of a custom-built three-stage solid-fuel booster and a spacewalk for final assembly in orbit.

How much switching to the shuttle might cost — or save — NASA is not yet known.

"I don't know what the costs would be," said Peter Ulrich, Cassini program manager at NASA headquarters in Washington. "We're going to do this study, and we're asking for information from the contractor community . . . to answer exactly that question."

The launch study was ordered by the White House Office of Management and Budget, Ulrich said, after reliability questions were raised in the wake of an Air Force Titan 4 failure Aug. 2. The results of the study are expected to be presented to NASA Administrator Daniel Goldin in early April.

Richard Spehalski, Cassini project manager at the Jet Propulsion Laboratory in Pasadena, Calif., flew to Johnson Space Center in Houston Feb. 24 to dis-

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ALBUQUERQUE JOURNAL

Plutonium Lab Safety Questioned

2/26/94

By John Fleck
JOURNAL STAFF WRITER

Federal investigators have raised questions about safety procedures at Los Alamos National Laboratory's plutonium laboratory, where workers soon will begin making key parts for NASA's 1997 Cassini mission to Saturn.

Los Alamos and Department of Energy officials defended the lab's safety, and a NASA official said he doesn't think Cassini will be delayed.

The most serious dispute between investigators and the Department of Energy, which runs Los Alamos, is over whether a backup power generator used in power safety systems should be automatic or manually operated.

The investigation, done during the past year by the Defense Nuclear Facilities Safety Board, didn't find imminent threats to public or worker safety, according to board reports.

The board's staff did, however, find problems in procedures used to ensure safety at Los Alamos' Technical Area 55, the laboratory's main plutonium handling com-

Energy said Technical Area 55 is safe.

"If we thought that facility was unsafe, we would shut it down," said Jerry Bellows, manager of the department's Los Alamos Area Office.

Bellows acknowledged the problems, but said they involve compliance with bureaucratic regulations, not the actual safety of the plutonium complex.

Bellows attributed the number of reported radiation leaks to heightened safety attention by workers, who now report minor incidents that in the past might not have been mentioned.

Dana Christensen, deputy chief of the Los Alamos division that runs the plutonium complex, pointed out that the laboratory has built plutonium parts for U.S. spacecraft for more than two decades without danger to public or worker health.

The Defense Nuclear Facilities Safety Board is an independent federal agency with the legal authority to investigate safety issues and make recommendations to the U.S. Secretary of Energy, said spokeswoman Carol Morgan.

It doesn't have the authority to shut anything down.

Cassini Project Guards Against Mission Failure

By WILLIAM HOYER
Special to Space News

PASADENA, Calif. — Scientists and engineers working on the Cassini mission to Saturn are scrutinizing failure-analysis reports on last year's sudden disappearance of the Mars Observer spacecraft in their effort to avert a similar catastrophe.

The Mars Observer's failure puts the Cassini team under increased pressure to make sure everything goes according to plan, laboratory officials said. The team is responsible for the last of the big, all-in-one missions likely to emerge this decade or next from the Jet Propulsion Laboratory (JPL) here.

Cassini is an international space exploration effort managed by JPL designed to give scientists from around the world a detailed, closeup look at Saturn and its biggest moon, Titan.

"There's an increased emphasis that everything goes right, especially with the disappearance of Mars Observer," agreed Richard Spehalski, JPL's Cassini project manager. "That occurrence created concerns again of tying up all of your science in one mission."

Spehalski said the Cassini team is "taking a hard look at the Mars Observer failure-review reports and we'll re-evaluate any aspect of our designs that's appropriate." That review process should be completed by March, he said.

Firms Consider Nuclear Powerplant In Communications Satellite Concept

By THERESA FOLEY
Space News Staff Writer

LOS ALAMOS, N.M. — An aerospace industry alliance has come up with another idea for nuclear-powered satellite to provide cheap, global communications.

Martin Marietta, leading a consortium of seven firms including Russia's Lavochkin Association, is proposing that the U.S. Department of Energy (DOE) provide technology to the effort. If the request is approved, the consortium would provide the rest, a source said.

The source said the total cost of providing the new, a source said, would be about $1 billion.

Sterling Bailey, Martin Marietta Astro Space's space power program manager, said the consortium expects the government contract to be in the $2 million to $3 million range, and that the participation of Russian engineers would give it the added appeal of low-cost labor.

Bailey said the nuclear aspect of the project should not hinder launch prospects.

Martin Marietta stepped in to lead the proposal after a Russian proposal to launch a nuclear-powered satellite to provide direct broadcast television to the United States was briefed on the idea in July and August with space nuclear responsibility shifted to the DOE.

The pitch to embark on an advanced communications satellite

See NUCLEAR, Page 20

Air Force Launches $2 Million Study of Space Reactor Needs

By THERESA FOLEY
Space News Staff Writer

ALBUQUERQUE, N.M. — The U.S. Air Force will spend $2 million this year to study how nuclear power could support a proposed Air Force Phillips Laboratory satellite system that would monitor missile launches around the world.

The future of the project may depend on whether U.S. Space Command, the Air Force unit that now must rely on the expendable, ground-based military space operations from a much broader military effort to develop space weapons in the 1980s. Particle-beam weapons at the Air Force Phillips Laboratory at Kirtland Air Force Base say that potential Russian participation in a proposed bi-modal nuclear space device could bring more than just technical benefits.

The bi-modal reactor would be used to power a satellite that would operate in an orbit 22,300 miles above the earth. The two modes the reactor would operate in: as a propulsion system for orbital transfer and for electrical power.

Martin Marietta Astro Space has proposed that it contribute two satellites to the program, with the government providing the rest, a source said.

The source said the total cost of providing the rest, a source said, would be about $1 billion.

Sterling Bailey, Martin Marietta Astro Space's space power program manager, said the consortium expects the government contract to be in the $2 million to $3 million range, and that the participation of Russian engineers would give it the added appeal of low-cost labor.

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The pitch to embark on an advanced communications satellite program, with the government providing the rest, a source said, would be about $1 billion.

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The pitch to embark on an advanced communications satellite

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Funding Sought for Topaz

United States Revisits Plans To Buy Reactors

By THERESA FOLEY
Space News Staff Writ.

ALBUQUERQUE, N.M. — The U.S. Defense Department last week reopened the search for funding sources to buy another four Topaz 2 space nuclear reactors from Russia, following three Russian requests to U.S. Vice President Al Gore to complete the deal during his December trip to Moscow, sources said.

The on-again, off-again purchase now is expected to be consummated, although the original sponsor of the work, the Ballistic Missile Defense Organization, may turn over some responsibility for the program to the Air Force, a Pentagon official said last week.

Meanwhile, some specialists say the Topaz 2 reactor represents an offshoot of Russian space nuclear work that is poorly designed, unsafe for flight on U.S. rockets and inferior to two other Russian reactor designs.

U.S. and Russian Topaz program managers acknowledge problems in the reactor's history, but say they have been resolved and that modifications would make

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SPACE NEWS PHOTO BY EUGENE BURTO

E.C. Brolin, *acting director of the Energy Department's office of nuclear energy, said the department has reviewed the safety of Topaz.*

Russian Reactors Offered to U.S.

By THERESA FOLEY
Space News Staff Writer

ALBUQUERQUE, N.M. — The Russian space nuclear reactor used to power Soviet radar satellites is being offered to U.S. officials at the 10th Symposium on Space Nuclear Power and Propulsion conference held here Jan. 10-13, two Russian officials here were discussing the commercial prospects for other space nuclear reactors that they might supply. One of those would involve technical heritage from a program that has been fashioned to include

Topazstar would provide 40-100 kilowatts of power and could be used for five or six years in space.

Gryanov said Topazstar could be used to power satellites that provide mobile communications. "This will be a system of the 21st century," he said. "We can do it by the

Air Force Space Command spokesman Capt. John Kennedy had no comment on the program.

Air Force officials would not say how much the program would cost.

Phillips Laboratory is beginning three studies to be completed in 1995 to help define whether solar or nuclear power should be used. Engineers also will study launch systems that could put the satellite into orbit.

Ned Bador, a California-based consultant who has worked on the early ideas for the concept that the Energy Department is preparing to fund, said he expects the Defense Department to be interested in using nuclear power.

A briefing document assembled by Bador in February 1993 said the satellite would be used by customers for an average of $1 a day and earn an income of several hundred million dollars per

First, the question of how bimodal systems compare to other ideas on how to improve launch and orbit transfer would have to be addressed. Air Force officials would like to see how much less fuel and time it would take to move satellites around more quickly with bi-modal systems.

Kennedy said.

A bi-modal system would begin its work after a regular rocket would deliver it to a chemical orbit. The method would deliver about twice the payload to a chemical orbit.

Boden said the bi-modal system has several features that make it safer. For example, if a crisis developed and managers wanted to reposition a satellite to another part of the world, current systems require weeks to make the shift. With bi-modal power, a satellite could be repositioned more often.

"The interest of Space Command is clearly crucial. That's the reason we're doing the studies," Lt. Fred Boden said.

Boden said the bi-modal system has several features that make it safer. For example, it is designed so that the reactor will not operate for long periods if it failed, the hydrogen could be used to boost it to a higher orbit. Also, the reactor would be launched cold, that is it would not be activated. It would first be boosted to a high orbit by burning the fuel through a rocket engine. Then the reactor would be activated to provide power for the satellite's instruments and engines.

Plan's collapse could mean more weapons work for LANL

By KEITH EASTHOUSE
The New Mexican

The federal Department of Energy is backing off from a plan to build a nuclear weapons production complex that would involve environmentally hazardous work at one of five sites outside New Mexico, top DOE and LANL officials said this week.

Such a decision would increase the likelihood that much of the work will be concentrated at Los Alamos National Laboratory.

Eric Schweitzer, the DOE manager in charge of preparing an environmental impact statement for the proposed nuclear weapons complex of the 21st century — dubbed "Complex 21" — said budget constraints and public opposition have forced the DOE to rethink its plan.

"We're re-looking alternatives based on the public comments we've received and budget realities," Schweitzer said from his Washington, D.C., office.

At the lab, Paul Cunningham, program manager for nuclear materials and reconfiguration technology, said in a telephone interview that "Complex 21 as originally envisioned has lost support."

Complex 21 called for building production facilities at one or more of five possible sites — the Nevada Test Site near Las Vegas, Nev.; the Idaho National Engineering Laboratory; the Savannah River Site in South Carolina; the Oak Ridge Reservation in Tennessee; and the Pantex Site near Amarillo, Texas.

Cunningham said the decision to back

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WEAPONS

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off from Complex 21 has gained support, in part, because the U.S. military at present — and for the foreseeable future — has not ordered that any new nuclear weapons be built.

"Do you invest in a production capacity that you have no defined requirement for? No you don't," Cunningham said.

Complex 21 would have been much smaller, less diverse and far less costly than the DOE's Cold War-era weapons complex, which consisted of 13 major facilities sprawled over 12 states. Nonetheless, it would have cost hundreds of millions of dollars to build and operate.

A cheaper alternative — on the order of tens of millions of dollars, according to Cunningham — is to upgrade existing facilities at Los Alamos and Lawrence Livermore National Laboratory to give them a production capability.

LANL and Livermore traditionally have confined their activities to weapons research, development and testing. Such work requires substantially smaller quantities of plutonium, uranium, tritium and other materials and hence poses less of a hazard to workers and the environment.

The environmental impact statement that described Complex 21 said the main activity that would take place at Los Alamos — in the event that the DOE chose to upgrade existing facilities — would be plutonium work that was formerly conducted at the Rocky Flats plant near Denver.

Specifically, according to the statement, LANL would be in charge of chemically processing plutonium, the radioactive metal at the heart of most nuclear bombs. It would also be involved in forming the metal into a finished bomb part.

The lab currently has the ability to perform both functions on a small scale as part of its weapons research role.

The laboratory's "Strategic Plan," an internal document that became public in January 1993, indicated that the lab has hopes of performing a variety of other production work, including manufacturing bomb parts made of uranium and developing techniques to manufacture tritium, a radioactive form of hydrogen used in nuclear bombs.

Brian Costner of the Energy Research Foundation, a South Carolina activists group, said that the amount of work the lab will get will depend on the scope of the upgrade the DOE decides to undertake.

"The lab may have a plan, but the extent of the upgrade will change and evolve along with budgets and priorities," Costner said.

Whatever the scope of the lab's role, Cunningham said that without Complex 21 it will be critical to maintain the nation's ability to produce nuclear weapons in the event new warheads are needed in the future.

He said it will also be critical for the lab to maintain the ability to replace aging bomb parts.

"We must maintain the capability to reconstruct the production capacity," Cunningham said.

Local citizens groups said the DOE's decision to back off Complex 21 in favor of an "upgrade in place" is a tactic to push the public out of the decision-making process regarding the future nuclear weapons complex.

Greg Mello of the Los Alamos Study Group said that the majority of the public does not want the DOE or Los Alamos to maintain any nuclear weapons production capability at all.

That message, he said, came through loud and clear last fall as the DOE gathered public comments on the Complex 21 environmental impact statement.

Schweitzer of the DOE said that Mello's assessment was true. "A lot of people don't want nuclear weapons at all," Schweitzer said.

The possibility of doing nothing to maintain the DOE's nuclear weapons production capability was dismissed by the DOE in a document published last summer in the Federal Register.

"Some mission requirements for maintenance of the future weapons stockpile would not be met under the no-action alternative. Therefore, the no-action alternative is not reasonable," the DOE said.

Critics of LANL seek moratorium on new projects

3-5-94

By KEITH EASTHOUSE
The New Mexican

Environmental and Indian groups are seeking a moratorium on all new major projects at Los Alamos National Laboratory that might have a significant impact on the environment.

In a two-page letter to Jerry Bellows, manager of the U.S. Department of Energy's Los Alamos office, the groups said the projects should be put on hold until the DOE does a full-scale review of the environmental and health impacts of lab operations.

Greg Mello of the Los Alamos Study Group, a Santa Fe-based watchdog organization, said a number of projects are going forward without sufficient public review — including a plan to expand the lab's nuclear disposal area and an effort to upgrade existing facilities to give Los Alamos the capability to build nuclear bombs.

"They're trying to ram (these projects) down the throats of the public without any kind of formal public process," Mello said.

Diana Webb, an official with DOE's Los Alamos office, said a moratorium would effectively shut down the lab.

"It would be unrealistic to

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LANL

Continued from Page A-1

think that the DOE or (the University of California) would be in a position to shut the lab down," Webb said. The university operates Los Alamos for the Department of Energy.

In addition to the Los Alamos Study Group, the organizations calling for a moratorium include Concerned Citizens for Nuclear Safety and the Sanctuary Foundation, both Santa Fe groups; Citizens for Alternatives to Radioactive Dumping, an Albuquerque group; Western States Legal Foundation, based in Oakland, Calif.; and the Rural Alliance for Military Accountability.

Webb said that instead of a blanket moratorium on all major projects, the DOE — in concert with the public — could evaluate projects on a case-by-case basis to determine which ones can't wait until the completion of a site-wide environmental impact statement.

Those projects could then be separately evaluated — again with public involvement — for their environmental and health impacts, Webb said.

One of the purposes of the site-wide EIS is to develop a complete picture of how the laboratory affects the environment and public health by analyzing the cumulative impact of multiple projects, rather than studying the projects separately.

Both LANL and DOE-Los Alamos officials have indicated to DOE headquarters in Washington, D.C., that they would like a full-scale environmental review done.

The review, or environmental impact statement, would cost approximately $10 million and take from three to five years to complete.

DOE headquarters has not formally committed itself to paying for the study, but an official with the agency's Waste Operations Division in Washington said last month that DOE was "committed to a site-wide EIS" for Los Alamos.

Webb said that officials from DOE-Los Alamos and LANL are traveling to Washington next week to discuss the issue with high-level DOE officials.

The last time a site-wide EIS was done at Los Alamos was in 1979. In comparison, Lawrence Livermore National Laboratory in California had one done in 1982 and completed another one in 1993.

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SANTA FE NEW MEXICAN

LANL may turn into top bomb factory in U.S.

By KEITH EASTHOUSE
The New Mexican

The possibility that Los Alamos National Laboratory may develop a small-scale capability to build nuclear bombs carries the risk that large-scale nuclear weapons manufacturing could be centered at Los Alamos in the 21st century, a top lab official said.

Paul Cunningham, program manager for nuclear materials and reconfiguration technology, said it is not the lab's intention to take on a large-scale production role — which would pose great environmental and safety hazards and could interfere with the lab's much-ballyhooed effort to build ties to private industry.

But he said he couldn't rule out the possibility that once the lab has the capability to do production work on a small scale, it would eventually take on a larger role.

"We'd be opposed to that," Cunningham said. "But I can't guarantee that at some future time, if there is a need to replace (nuclear weapons) in quantity, that that wouldn't happen here."

Cunningham said that Cold War-scale production work — if there is ever a need for it again — would be more likely to happen outside New Mexico at new facilities built by the Department of Energy.

"In the unlikely event that the U.S. makes the political decision to have a major build of nuclear weapons, then we would spawn that work out of the lab," Cunningham said.

He said the country needs to maintain the capability to manufacture nuclear weapons regardless of whether the military has a need for new warheads.

> "I can't guarantee that . . . if there is a need to replace (nuclear weapons) . . . that that wouldn't happen here."
>
> PAUL CUNNINGHAM
> LANL program manager

There are no orders at present, nor for the foreseeable future, from the military for new nuclear weapons. Instead, the United States is in the process of dismantling nuclear weapons.

Mary Riseley of the Los Alamos Study Group, a Santa Fe-based watchdog organization, accused the laboratory of being motivated by self-interest in saying that a production capability needs to be maintained in the absence of military demand.

"We question whether maintaining production capability is not welfare for nuclear weapons designers," Riseley said.

The DOE had planned to build a nuclear weapons production complex — dubbed "Complex 21" — at one or more of five possible sites, all outside New Mexico.

But last week, Cunningham and Eric Schweitzer, the DOE man-

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BOMB

Continued from Page A-1

ager in charge of preparing an environmental impact statement for Complex 21, said that budget constraints, public opposition and the fact that the country at present has no need for new nuclear weapons have forced the DOE to rethink its plan.

That increases the likelihood that the DOE will choose a cheaper alternative: to upgrade existing facilities at Los Alamos and Lawrence Livermore National Laboratory in California to give them production capabilities.

Aside from maintaining the nation's capability to build nuclear weapons, an upgrade would allow Los Alamos and Livermore to play what the DOE is calling a "stewardship role" over the existing stockpile of nuclear weapons.

The role would consist of activities such as replacing aging weapons components and adding safety features to reduce the chances of accidental detonation of weapons.

LANL and Livermore traditionally have confined their activities to weapons research, development and testing. Such work requires substantially smaller quantities of plutonium, uranium, tritium and other materials, and hence poses less of a hazard to workers and the environment.

The environmental impact statement that described Complex 21 said the main activity that would take place at Los Alamos in the event that the DOE chose to upgrade existing facilities would be plutonium work that formerly was conducted at the Rocky Flats plant near Denver.

Specifically, according to the statement, LANL would be in charge of chemically processing plutonium, the radioactive metal at the heart of most nuclear bombs. It also would be involved in forming the metal into a finished bomb part.

The lab has the ability to perform both functions on a small scale as part of its weapons research role.

Last year, a laboratory official said plutonium manufacturing work would bring with it extreme security measures that would have a chilling effect on the lab's interactions with private industry.

"It doesn't fit the future of the laboratory as envisioned by our director," said Richard Mah, who at the time was director of the lab's weapons complex reconfiguration program.

Mah also said production work would detract from the lab's weapons research work and could take away funding and personnel from other defense-related projects.

But Cunningham said that a production role — as long as it remains small in scale — would not be overly disruptive to the lab's research work.

"There are certain kinds of production work that would cause only small perturbations in the R&D role," Cunningham said.

Plutonium 'pits' may be added to LANL duties

BY JOHN FLECK
JOURNAL STAFF WRITER

Responsibility for manufacturing nuclear bomb parts made of uranium and tritium, in addition to plutonium, could be given to Los Alamos National Laboratory under a plan now being studied by the U.S. Department of Energy, a senior laboratory official said Friday.

The department's top nuclear weapons official this week said the DOE has abandoned plans to build a new U.S. nuclear weapons factory, leaving existing plants — primarily the nuclear weapons laboratories — as the repositories for nuclear weapons-building skills.

Los Alamos, with the most capable plutonium-handling laboratory in the country, will take over responsibility for the explosive plutonium "pits" at the heart of nuclear weapons under the plan.

The laboratory also could take over responsibility for work on uranium and tritium parts, two other key components in hydrogen bombs, said Paul Cunningham, head of Los Alamos' nuclear materials program.

Other candidate sites for uranium responsibility are Lawrence Livermore National Laboratory and the Energy Department's Y-12 Plant in Tennessee, Cunningham said.

Uranium and plutonium are radioactive metals that provide a major part of the bomb's nuclear chain reaction.

In addition to Los Alamos, the department's Savannah River Site in South Carolina is a candidate for processing tritium, a radioactive gas used to boost a bomb's explosive force.

Since 1989, the Department of Energy has planned to build a new bomb factory or factories somewhere in the country. With shrinking requirements for new bombs and rising budget pressures, however, the plan has shifted to the laboratories, which already have limited capabilities to do the work.

With no new bomb manufacturing required for the foreseeable future, that means the labs will be required to keep bomb-building skills alive rather than to actually build bombs, Assistant Secretary of Energy Vic Reis said in an interview with the Journal.

Doing that will require some federal spending at Los Alamos to upgrade existing laboratories, said Cunningham, but how much will be spent and on what has not been decided.

One project already moving forward, even before the decision was made to give Los Alamos its manufacturing responsibilities, is a $194 million renovation of the laboratory's Chemistry and Metallurgy Research Building.

Built in 1952, the CMR building is wearing out, and the DOE has asked Congress for $3.3 million next year for the work. The long-range project envisions spending between $10 million and $30 million per year on the building until after the turn of the century.

Other building improvements will be required at Los Alamos, Cunningham said, but the precise work required has not been worked out.

The decision to abandon plans to build a new weapons factory will not affect Sandia National Laboratories, New Mexico's other nuclear weapons laboratory.

Located in Albuquerque, Sandia already had been assigned responsibility for building several non-nuclear components in U.S. nuclear weapons.

The decision not to build new bomb factories is being warmly but cautiously received by arms control activists.

It sends a good signal to the rest of the world that United States has no plans to build large numbers of new nuclear weapons, said Greg Mello, a member of the Los Alamos Study Group and a leading critic of weapons work at Los Alamos.

Mello's main criticism was that the decision, like many made by the Department of Energy, appears to have been made behind closed doors, with little input from the public.

N.M. Labs Help Plan New Nukes

By John Fleck 3/19/94
JOURNAL STAFF WRITER

Despite the end of the Cold War, U.S. Department of Energy scientists — including some at Los Alamos and Sandia national laboratories in New Mexico — are working on preliminary plans for a new generation of nuclear bombs.

Driven by the Pentagon, the work includes a secret weapon that would destroy enemy electronics ith a pulse of radio waves, according to government documents and interviews with government spokesmen.

Laboratory scientists also recently completed a study of a new warhead for U.S. submarine-launched missiles and are now working on preliminary plans for an easy-to-build bomb should one in the current U.S. stockpile fail and have to be replaced.

The work continues despite arms control agreements with the former Soviet Union calling for massive reduc-

MORE: See TWO on PAGE A6

Two N.M. Labs Help Plan New Generation of Nukes

CONTINUED FROM PAGE A1

tions in the U.S. nuclear arsenal and despite the fact that the U.S. Department of Energy has no plans to build any new bombs.

The studies involve conceptual outlines of how the new bombs might be designed but stop short of detailed blueprints of devices that actually could be built.

In fact, government officials and independent experts say there is little chance they will ever be built.

The United States is observing a moratorium on nuclear test blasts — tests are generally required in the development of any new weapon — and most of the factories that in the past built U.S. bombs are now closed because of environmental and safety problems.

> The new design study, according to the unclassified DOE program summary, is aimed at developing submarine-launched warheads with a longer lifespan.

"They're not going to get any of this," said William Arkin, a Washington, D.C., author and nuclear weapons expert.

Arkin criticized the work, saying it sends a signal to other nations that the United States still values nuclear weapons. That, he argued, could lead other nations to try to get the bomb themselves.

Defense Secretary William Perry says the work must continue to preserve the nation's carefully cultivated nuclear weapons expertise.

"Some military capabilities have such a long lead time that we have to spend money on them now even though we don't need them right away if we think there's some plausible possibility of needing them five or 10 years in the future," Perry said in a speech Monday at George Washington University.

"We plan to maintain a minimal production and R&D capability for nuclear weapons, even while we're in the process of dramatically reducing the number of nuclear weapons we've deployed," Perry said.

"You cannot mothball intellectual capital."

A Pentagon spokesman did not answer specific questions from the Journal about the new research efforts, but pointed to Perry's comments as a justification for the work.

Department of Energy spokesman Rick Oborn said the research is needed to complete studies that were already under way, so the conceptual plans would be ready at some point in the future if they were needed.

The new weapon studies are:

■ The High Power Radio Frequency weapon, requested by the U.S. Air Force. Government officials would not discuss the weapon's purpose, but Arkin said it is intended to release a huge pulse of radio waves that wipes out electronic circuits in enemy military equipment.

According to an unclassified two-paragraph summary of the program provided to the Journal by the Energy Department, the research included tests to determine the weapon's possible effect on foreign military equipment.

The HPRF study is scheduled to be completed by March 1995.

■ Submarine-Launched Ballistic Missile Replacement Warhead, a study of possible replacements for the warheads atop the Navy's Trident I and Trident II intercontinental ballistic missiles.

Currently, according to an unclassified analysis by Arkin and Natural Resources Defense Council analyst Robert S. Norris, there are 240 Trident I missiles deployed on 11 submarines and 144 Trident IIs on six submarines.

With eight warheads per missile, that is a total of 3,072 warheads — the largest leg of the U.S. air-, land- and sea-based nuclear triad.

Under the START II nuclear weapons treaty with the states of the former Soviet Union, that number will eventually drop to 1,750 warheads.

The new design study, according to the unclassified DOE program summary, is aimed at developing submarine-launched warheads with a longer lifespan.

According to the Energy Department's 1995 budget request to Congress, one possibility being considered is to adapt some components from land-based Minuteman III missiles — being retired under the START II — for use on submarine missiles.

■ Robust Warhead Assessment, a preliminary analysis being done by Los Alamos National Laboratory to identify easy-to-build nuclear weapons for the future.

The assessment, to be completed sometime this summer, will identify options for generic warhead designs that could be built in the future if an existing warhead system went bad and had to be replaced, said Los Alamos spokesman Jim Danneskiold.

The warhead designs would have to be tailored to be built at some point in the future when today's nuclear weapons expertise is gone, Danneskiold said.

■ Failsafe and Risk Reduction study, an effort to find ways to improve the security of existing U.S. weapons to prevent their unauthorized use. Design changes from this study could be retrofitted to existing weapons, according to the DOE program summary.

cut up right
+ send to Jackie

N.M. labs still planning new weapons

3-20-94 LAM

ALBUQUERQUE (AP) — Even as the United States scales back its nuclear weapons stockpiles under the START II treaty with former Soviet states, New Mexico's defense labs are planning new weapons.

One weapon would use radio waves to destroy enemy electronics, the Albuquerque Journal reported. Another weapons study under way involves determining what possible replacements might be used for the submarine warheads on the Navy's Trident I and II intercontinental ballistic missiles.

Los Alamos National Laboratory and Albuquerque's Sandia National Laboratories are involved in conceptual outlines of how new nuclear bombs might be built — but stop short of detailed blueprints. The U.S. Department of Energy has no plans to actually build any new bombs.

The newspaper said it has received a DOE summary of the anti-electronics weapon, known as a High Power Radio Frequency weapon, saying its research included tests to determine the weapon's possible effect on foreign military equipment.

William Arkin, a Washington, D.C.-based author specializing in nuclear arms, said this weapon supposedly would release a huge pulse of radio waves to wipe out electronic circuits in enemy military systems.

The submarine study is aimed at developing warheads with longer lifespans, and the DOE's congressional budget request says one possibility under consideration is adapting components of land-based Minuteman III missiles being retired under the START II treaty for use on submarines.

Currently there are 240 Trident I missiles on 11 submarines and 144 Trident IIs on six subs, the paper said, quoting an unclassified analysis by Arkin and Natural Resources Defense Council analyst Robert Norris. Counting eight warheads per missile, the paper said, that totals 3,072 warheads.

Under START II, that number eventually would drop to 1,750 warheads.

In another weapons study, Los Alamos National Laboratory is to complete a preliminary analysis this summer identifying easy-to-build nuclear weapons for the future.

The idea is to determine what options there are for generic warhead designs that could be built in the future if an existing warhead system went bad and had to be replaced — and if today's nuclear weapons expertise had been lost, lab spokesman Jim Danneskiold said.

Who wants what given to public?

4/7/94

STEPHEN T. SHANKLAND
Monitor Staff Writer

Los Alamos National Laboratory's Community Reading Room is at the center of a LANL political squabble.

The Reading Room, located next to the Bradbury Science Museum in downtown Los Alamos, is run by the Stakeholder Involvement Office. Previously, it was run by the lab's Environmental Restoration (ER) Program.

Here's what's happened:

• A March 23 memo from ER employees Paul Aamodt and Marja Shaner to Tom Ribe, a contractor who operates the Reading Room, said, "There have been occasions in the past where records have been inappropriately released from the Reading Room."

The memo also said "an individual who was recently visiting the Reading Room requested potentially sensitive information" about the budget for an ER cleanup area (an "operable unit").

The ER Program "wants to ensure, both legally and ethically, that ER documents can be released to the public and (that) a valid way exists of tracking these documents," the memo said.

• On Monday morning (April 4), an ER employee went to the Reading Room and requested the last six months' visitor logs and information

(Please see ROOM, Page 6)

ROOM

(from Page 1)

requests.

The Stakeholder Involvement Office asked for the request in writing.

• On Monday afternoon, the lab's Quality Support Group announced in a memo that it would conduct an "assessment" of the Reading Room "to ensure required Environmental Restoration Program documentation is getting to the public reading room."

The assessment was requested by the Department of Energy and the ER Program, the memo said.

The assessment was scheduled for Wednesday through Friday, but was postponed because Ribe is on vacation.

Because of the events, Stakeholder Involvement Office Director Harry Otway sent a memo to Jorg Jansen, head of LANL's Environmental Management Program and the overseer of the ER Program, saying the events had caused "puzzlement and concern."

Environmental Restoration Program Manager Tom Baca said in a telephone interview that he didn't know what information might have been released inappropriately, but that anything in the Reading Room is available to the public.

LANL spokesman John Gustafson said, "As far as I know, there hasn't been any inappropriate release from the Reading Room." If the information is in the Reading Room, it's approved and appropriate to release, he said.

The March 23 memo said all requests for ER information should be handled by the ER Program. "Our staff and the laboratory's Legal Office work together on any document release," the memo said.

LANL is working on a formal information release policy, but as it stands now, the lab may release information that isn't blocked by privacy or security information.

"The policy of the Reading Room is to release everything we can get our hands on that is not covered by Privacy Act or security restrictions," Gustafson said.

Otway's April 5 memo also said, "There is resistance in the ER Program to the roles and responsibilities" of the Stakeholder Involvement Office.

Baca denied that there is a dispute between the ER Program and the Stakeholder Involvement Office.

However, he did say, "There's some room to more clearly clarify roles and responsibilities" of the two organizations.

"The SIO is essential as a central point" for releasing information, but, "ER has a role in involving poeople" in its programs, he said. The ER Program has a public involvement staff, he said.

He and Otway will be meeting Monday, Baca said.

There are some types of information that may not be released, he said, but he didn't think that proviso applied to the ER budget information.

Budget information is "not anything we would withhold," Baca said.

He said the March 23 memo was "inappropriate" and will be "corrected."

He has never had a request for information that he thought he should check with LANL's legal or security departments, Baca said.

Information involved in lawsuits may be withheld, but Baca said he isn't aware of any litigation involving the ER program.

Classified information may not be released, but there are "very few security concerns for ER documentation," Baca said.

Christina Armijo, an official with the Department of Energy's Los Alamos Area Office, said that the Privacy Act and the Freedom of Information Act restrict the release of some types of information.

Privacy Act exemptions include the release of personal information such as medical or employment records, she said.

The Freedom of Information Act disallows the release of information in litigation or "predecisional budgetary information" that could give a bidder an advantage over competitors, she said.

Once a budget is well-enough known to be submitted to the Office of Management and Budget, "it's considered public information," Armijo said. So far, that means everything up to fiscal 1995 is public, she said.

Energy Secretary Hazel O'Leary, in her openness initiative, has said DOE needs to improve the process for release of information to the public, Armijo said. O'Leary's administration has said reading rooms are important but under-utilized.

"If trends continue, we plan to increase rather than decrease the amount of information we're putting into the Reading Room," she said.

Baca said the assessment of the Reading Room is a check to make sure ER material is getting to the Reading Room, Baca said. "It's pretty routine. It's an attempt to be as open as we claim to be," he said.

Brandt Petrasek, an official from DOE headquarters who toured LANL's Reading Room and other such DOE rooms, said LANL's Reading Room is better than most in the DOE complex.

Some are actually in secured areas, requiring paperwork and escorts, he said.

"We're ensuring reading rooms are doing the job that they're intended to do," Petrasek said.

When he visited LANL's Reading Room, it was still in the process of moving from an earlier location, so not all information was there. But the staff was taking "the right and necessary steps to be open and provide the proper information," he said.

LANL's Reading Room is "ahead of the game," Petrasek said.

Lab produces no information despite request

By CHARMIAN SCHALLER
Monitor Managing Editor

The Los Alamos Study Group has sent a letter to Los Alamos National Laboratory expressing concern about the Environment Restoration Program and its response to information requests.

The study group, based in Santa Fe, is a laboratory watchdog group concerned about environmental impact — particularly the impact of radioactive substances.

The laboratory and the Department of Energy responded to Monitor questions about the letter today by saying, in effect, that their goal is improved communication and they want to do better.

Information Requested

The study group letter, dated April 5, signed by Mary Riseley, and addressed to LANL Deputy Director Jim Jackson, said, in part:

"On Jan. 10, 1994, my colleague, Susan Myers, submitted an information request to Bob Vocke asking for documents relating to the proposed Mixed Waste Disposal Facility ... Marja Shaner from ER left a message with us on Feb. 2 that Daryl Bultman was working on our request and would get the documents to us by the end of the following week.

"After several more weeks, and several telephone messages back and forth, we called to check on progress, and Marja assured us that although the boxes of documents had been sent to 'legal' for review, that she would be able to bring them down to an ER public meeting in Santa Fe the night of March 17th.

"The documents were still not available that night, and, nearly three months after requesting them, Dr. Jackson, we have still not received any of these materials."

The letter said that in response to questions about why the documents required legal review, Shaner said "that internal ER policies and regulations required this review for certain kinds of information."

When the group asked Shaner for a copy of the regulations, she faxed a copy of the LANL Administrative Manual "Information Practices," the letter said. Riseley said that as far as she could tell, the document mentions "nothing about the necessity of legal review for release to the public of the kind of non-classified documents we are requesting."

Attached to Riseley's letter was the original letter of request, addressed to Bob Vocke, acting Environmental Restoration Program manager. The list of documents requested was extensive. It included "excerpts from the current Capital Asset Management Plan or Project that refer to the MWDP (Mixed Waste Disposal Facility); all design documents and scoping criteria supporting the size of the MWDF; memos or letters delineating waste acceptance criteria for the MWDF; posal; task description documents related to planning, development and implementation of the MWDF; (and) all National Environmental Policy Act (NEPA) documentation referring to the MWDF design or inception, including but not limited to, Draft Environmental Assessments (EAs), NEPA decision memos, other records that indicate whether an EA or an EIS (Environmental Impact Study) is necessary, and all supporting documents."

Other Concerns

Riseley's letter also made reference to a recent memo in which Paul Aamodt of the Environmental Restoration program, said, "I want to make you aware that no information other than that placed in the Reading Room for the Environmental Restoration (ER) Program should be released from the Reading Room without ER Program management approval. These requests should come directly to the ER Program. Our staff and the Laboratory's Legal Office work together on any document releases...."

Aamodt's memo made reference to "occasions in the past where records have been inappropriately released from the Reading Room."

But Riseley said "it was an ER staff member" who made the challenged request for information. And, she said, "We protest the commitment to continuing LANL opacity that Mr. Aamodt's words convey."

Riseley also challenged the relevance and success of the ER public involvement process.

She said one of the group's staff members, John Stroud, lost an entire work day Feb. 8 and found that he was "essentially the only member of the public" who attended one of the involvement meetings. She said, "...No one bothered to find out from the invitees if any of them were actually coming."

She said, "Dr. Jackson, what were the costs in salaries, contractor and meeting room fees for this badly planned and valueless exercise?" She mentioned another, similar meeting in Espanola where only two people attended.

She asked, "Could it be that the real questions and concerns of the public are not being addressed at these meetings, and this is why people don't choose to spend their valuable time attending?"

She asked for Jackson's help, and she concluded, "There is no excuse for delaying release of documents that cannot be construed as 'sensitive'; the ER program's reluctance to share information simply amplifies the public distrust in which LANL finds itself mired."

The Response

In response to Monitor requests for comment today, three lab and DOE spokesmen replied — all making it clear that the goal is increasing openness.

Harry Otway, leader of the Stakeholder Involvement Office, said, "This essentially refects part of the shakedown of the roles and responsibilities between my office and Environmental Restoration. We would like to see these requests go through our office so that we can ensure that every program doesn't have its own policy."

Asked whether it might have been possible to provide at least some of the documents more promptly, Otway said, "Yes, I'm sure...."

He noted, however, that some of the documents requested might involve "pre-decisional kinds of information," which, he indicated, cannot be released. He noted that in some cases, release of certain information might adversely affect a bid process, but, he said, he hasn't actually seen the documents requested and can't judge them fully.

Asked how he will proceed in this case, Otway said, "I'm meeting with (Tom) Baca (the new head of Environmental Management programs) on Monday, (and) with Karl Braithwaite (a top aid to LANL Director Sig Hecker) and Jorg Jensen (the incoming head of the Environmental Restoration Program). I think this is one of the things we want to discuss — how we can better implement the laboratory's policy on trying to provide information as much as possible, which is also in accord with DOE policy. We want to do a better job...."

Christina Armijo, a spokeswoman for the DOE, said she isn't personally familiar with the documents, but, "I can say that we can accommodate part of their request."

She said, "I do not know why their request hasn't even been partially responded to, and from that standpoint, I feel that DOE needs to intervene and assist the laboratory in accommodating some of that information request."

But, she added, "There are documents ... in that request that the study group has been told are not releasable." She mentioned draft NEPA documents.

But, she said, DOE is committed to working with the study group and other interest groups "to see where we could be a little bit more liberal with our policies without compromising the ongoing NEPA process."

She said she sees two issues in this case.

First, "Some of the documents may not be releasable," she said, and mentioned documents that might adversely affect contract awards.

But, she said, second, "It's not our policy to be unresponsive outright to information requests." If documents can't be released, she said, "We ought to be timely and responsive in relaying that information to the requester. In this case, that obviously wasn't done."

John Gustafson, deputy group leader and a spokesman for the Public Information Office, said, "The lack of attendance at ER open houses does point to a problem with public involvement. Delays in providing information also are a problem that needs to be addressed."

He said, however, "Recognize that there are two new players in this. One is Tom Baca, ... who is still relatively new on his job, and also Jansjorg Jansen, who takes over the Environmental Restoration program officially as of (next) Monday."

Gustafson added, "Both Tom and Jorg recognize that problems exist and will be discussing the situation with the Stakeholders Involvement Office and also looking internally for solutions."

LETTER

(from Page 1)

Monitor
4/8/94

LANL on list as waste disposal site

Staff and wire report

Los Alamos National Laboratory is on the list of sites the Energy Department said are under consideration for a future disposal site for the department's low-level radioactive and hazardous waste.

However, Paul Aamodt, deputy group leader for Los Alamos' environmental restoration office, said Friday that the DOE's Nevada Test Site was the prime contender for such a facility.

"I would give this very little credibility," Aamodt said in a telephone interview from his El Rancho home. "I don't think we're a prime contender at all."

> **"I don't think we're a prime contender at all."**
>
> **PAUL AAMODT**
> Los Alamos' environmental restoration office

He said that a planned disposal site at the lab for so-called "mixed waste" — waste contaminated with both radioactive and chemical substances — is being designed to take only waste generated at the lab. It is not intended as a disposal site for waste shipped to Los Alamos from elsewhere, Aamodt said.

"We've never looked at that as but a lab facility," Aamodt said.

Low-level radioactive waste is currently located at the laboratory's Area G site, Aamodt said. The laboratory wants to expand the disposal area, but has run into opposition from San Ildefonso Pueblo, which has land bordering the waste dump.

As for non-radioactive chemi-

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LANL

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cal waste — called hazardous waste — Aamodt said that the lab typically ships it off-site for treatment, such as incineration.

The DOE has examined all 49 sites that make low-level mixed waste — containing both radioactive and hazardous materials — and dropped 23 from the disposal site search, said department spokesman Brad Bugger.

In the first round of the study, a department committee asked three questions about each potential burial site:

- Is it 61 meters from an active fault?
- Is it outside a 100-year flood plain?
- Is a 100-meter buffer zone available around the disposal site?

The answers to those three questions narrowed the list to 26 sites, including Los Alamos and Sandia National Laboratories in Albuquerque.

Next, the department will confer with the National Governors' Association, which is representing state governments in determining how to choose one or more low-level waste graveyards for the nation.

"We are doing this in cooperation with the states," Bugger said. "This isn't just a DOE attempt to find a disposal site."

The governors' group and the federal government have not yet determined how many sites will be needed to dispose permanently of more than 2 million pounds of low-level mixed waste generated each year by the Energy Department.

However, Bugger said the governors and the department are working toward a December 1995 goal for proposing "a final disposal strategy."

"It could be a regional approach, it could be several sites, it could be just one," he said.

POSSIBLE SITES

The following Energy Department sites are still under consideration for a future disposal site for the department's low-level radioactive and hazardous waste:

California
- Energy Technology Engineering Center
- General Atomics
- General Electric Vallecitos
- Lawrence Livermore National Laboratory

Colorado
- Rocky Flats Plant

Florida
- Pinellas Plant

Idaho
- Idaho National Engineering Laboratory

Illinois
- Argonne National Laboratory-East
- Site A, Plot M, Palos Forest Preserve

Kentucky
- Paducah Gaseous Diffusion Plant

Missouri
- Weldon Spring Site Remedial Action Project

Nevada
- Nevada Test Site

New Mexico
- Los Alamos National Laboratory
- Sandia National Laboratory

New York
- Brookhaven National Laboratory
- Knolls Atomic Power Laboratory, Kesseiring
- Knolls Atomic Power Laboratory, Niskyuna
- West Valley Demonstration Project

Ohio
- Fernald Environmental Management Project
- Mound Plant
- Portsmouth Gaseous Diffusion Plant

Pennsylvania
- Bettis Atomic Power Laboratory

South Carolina
- Savannah River Site

Tennessee
- Oak Ridge Reservation

Texas
- Pantex Plant

Washington
- Hanford Site

The Associated Press

Groups urge moratorium on construction at LANL

By KEITH EASTHOUSE
The New Mexican

About 50 organizations, including the Archdiocese of Santa Fe, are calling for a moratorium on all new construction projects at Los Alamos National Laboratory that might have a significant impact on the environment.

The groups are supporting a position taken earlier this year by a coalition of environmental and Indian groups who believe that projects that could turn the laboratory into a nuclear weapons factory are proceeding without public debate.

Lab and DOE officials say the moratorium demand is unreasonable and could shut the lab down.

In a two-page letter sent in March to Jerry Bellows, manager of the DOE's Los Alamos office, the coalition demanded a moratorium until a full-scale review of the environmental and health impacts of lab operations is completed.

The lab and the DOE plan to conduct such a review, called a site-wide environmental impact statement. But they say it will take until 1997 to complete.

Meanwhile, they are proposing that smaller environmental reviews of the projects activists are concerned about be conducted. The projects include:

- A $200 million, 10-year upgrade of the lab's Chemistry and Metallurgy Research Building, where work with nuclear materials is performed.
- An expansion of Area G, the lab's nuclear waste disposal area.
- An expansion of Los Alamos' storage capacity for plutonium, a radioactive metal used in nuclear bombs.

Greg Mello of the Los Alamos Study Group said these projects are part of a piecemeal effort to give the laboratory the capability to build nuclear bombs.

Previously, the laboratory has limited itself to researching and designing nuclear weapons.

Laboratory and Department of Energy officials say the projects are needed to keep the lab in compliance with existing environmental and worker safety regulations.

Paul Cunningham, LANL's program manager for nuclear materials and reconfiguration technology, said earlier this year that it was possible that the lab may develop a small-scale capability to build nuclear bombs now that former bomb factories, such as Rocky Flats in Colorado, have closed.

But Cunningham said that since the United States is in the process of dismantling much of its nuclear arsenal, it is unlikely that the country will build bombs in the foreseeable future.

He also said that if there becomes a need for large-scale nuclear weapons manufacturing, it probably would not happen at Los Alamos.

4-29-94 NM

WESTERN EMPIRE
The Denver Post
June 2, 1994

NEW MEXICO

LOS ALAMOS

*PLANS DENIED - Los Alamos National Laboratory officials have denied environmentalists' contention that there are plans to build a small-scale tritium plant here.

Los Alamos Study Group released a document Tuesday suggesting the lab was considering building a backup tritium plant capable of doing the same kind of weapons work now done at Savannah River in South Carolina. But lab officials said the document was based on a conceptual study done more than a year ago that never won support from the Energy Department.

Tritium decays over time, so existing weapons must be serviced regularly with fresh supplies of the radioactive gas. That's done at Savannah River.

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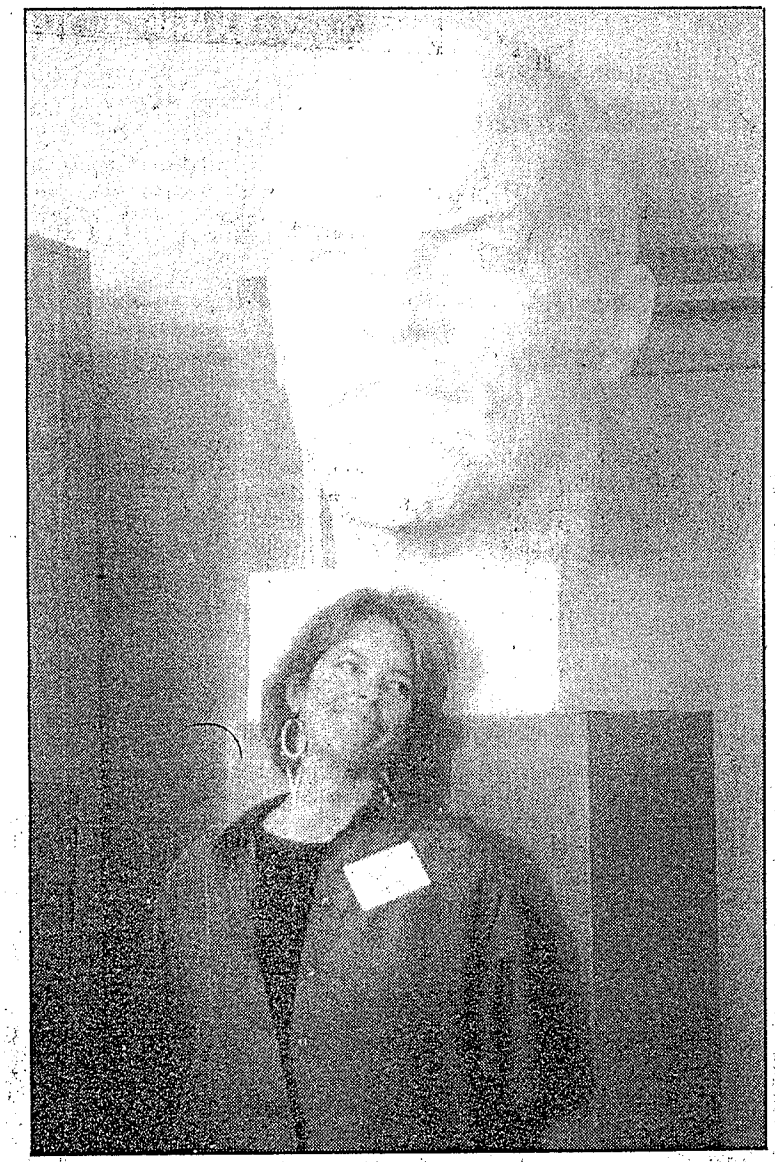

Greg Mello/For The New Mexican

Nuclear safety activist Margret Carde poses in front of a statue the Russian revolutionary Vladimir Lenin in the city of Nizhny Novgorod.

Activists visit Russian lab as it adjusts to peace

By **KEITH EASTHOUSE**
The New Mexican

Crumbling concrete buildings. Faulty plumbing and electricity. A shortage of hot water. A lack of repair workers. Pollution. Political demonstrations in the streets.

These were among the features of Russian life that struck two local activists during a trip to the industrial city of Nizhny Novgorod last month.

Based on his visit, Greg Mello of the Los Alamos Study Group doesn't think Russian society is falling apart. But he allowed it's getting close.

"I wouldn't say the society is disintegrating. I would say it's barely holding it together," Mello said.

One small but perhaps significant sign of decay, Mello said, was that he had to walk through mud to reach his apartment building.

Another sign was that the foyer of the apartment building reeked of cat urine.

A third was that Mello had to light the gas in his apartment each time he wanted hot water.

"The people are sufficiently dispirited that no one is taking care of things," Mello said.

On the other hand, Mello said he was impressed by the Russians' friendliness and inner strength.

"They are a long-enduring, solicitous and warm people," Mello said.

Margret Carde, of Concerned Citizens for Nuclear Safety, said that she witnessed an anti-Yeltsin demonstration in which the protesters were calling for a return to Communism.

She also said that a Russian told her that when you listen to the words of Vladamir Zhirinovsky, the controversial Russian ultranationalist, "what he says is wonderful."

"But when you see how he's going to achieve his goals," her Russian friend went on, "you see that he's crazy."

Mello and Carde traveled to Nizhny Novgorod, 180 miles east of Moscow, to attend a seminar that had to do in part

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Continued from Page B-1

with the future of Arzamas-16, Russia's primary nuclear weapons laboratory. Traveling with them was Lorenzo Valdez, a longtime Northern New Mexico activist

Like Los Alamos National Laboratory, Arzamas — also known as the All-Russian Scientific Research Institute for Experimental Physics — is Russia's oldest nuclear weapons lab and is sometimes jokingly called "Los Arzamas."

Also like Los Alamos, Arzamas is trying to find new work for itself — mainly civilian research — as defense budgets decline.

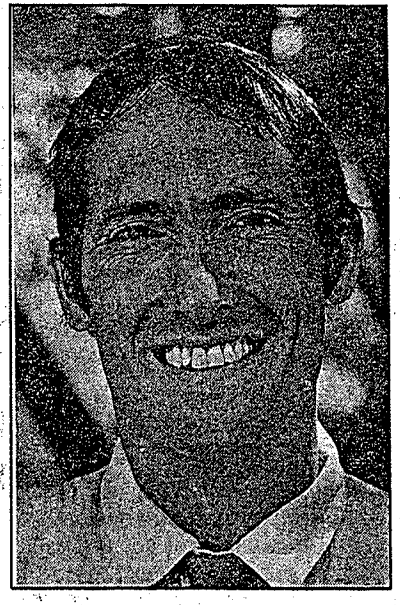
The seminar was organized by Tri-Valley Cares, a California anti-nuclear group, and DRONT, a Russian umbrella organization for a variety of Russian citizen groups. The trip was funded by a grant from the State Department.

Attending the seminar were Russian anti-nuclear activists, an adviser to the Yeltsin government on nuclear issues and a scientist from Lawrence Livermore National Laboratory in California known as an internal critic of the U.S. government's nuclear weapons programs.

Some officials from Arzamas, a secret, fenced-off city located in the vicinity of Nizhny Novgorod, also put in an appearance.

But Mello said it was a token gesture to appease Boris Nemtsov, the reformist governor of the Nizhny Novgorod region, who also sent a representative to the seminar.

Mello and Carde said the seminar, which lasted 3½ days, did not end with any clear agreement among the various groups. But they said they learned a few things, particularly about Arzamas' efforts to convert to civilian research work.



> "I wouldn't say the society is disintegrating. I would say it's barely holding it together."
>
> **GREG MELLO**
> Los Alamos Study Group

Mello said that approximately 20 percent of Arzamas' budget is going to industrial partnership work. In comparison, from 4-to-5 percent of Los Alamos' $1.1 billion budget is going toward such work.

But while much of Los Alamos' work for private industry is high-tech, Mello and Carde said that a fair amount of Arzamas' work is of the lower-tech variety — a reflection, perhaps, of the fact that companies in Russia are not very sophisticated when it comes to conducting their own research and development.

The projects that Mello and Carde were told about include:

- Building radiation detectors to detect radiation in meat and produce, which is a concern because of environmental disasters such as Chernobyl.
- Building inhalation devices for respiratory therapy.
- Designing eye surgery equipment.
- Building portable X-ray machines for use in remote settings.
- Designing machines to measure vibrations in industrial equipment.

Mello said that Arzamas scientists have not been paid in two months, due to government financial troubles.

U.S. officials have been concerned that financially-strapped Russian nuclear weapons scientists may fall prey to the temptation of doing work for unsavory clients, such as Iraq or terrorist groups.

To avoid that, a $6 million agreement was signed in January between LANL and Arzamas to cooperate on civilian research.

The three-year deal calls for the U.S. government to provide funding that Russian officials believe will provide employment for more than 1,000 scientists who used to work on nuclear weapons.

The research to be conducted under the deal has civilian applications for both countries ranging from studying auto engine performance to cleaning up environmental contamination.

Mello made a proposal at the seminar for greater cooperation between Arzamas and Los Alamos with regard to environmental cleanup technologies. He said that Los Alamos scientists are spending too much time with their Arzamas counterparts engaging in high-energy physics experiments that have military applications.

Scientists from Los Alamos and Arzamas have conducted three joint experiments in the past year that have involved the production of intense pulses of electrical current and ultrahigh magnetic fields, according to Jim Danneskiold, a lab spokesman.

It's no secret that ultrahigh electromagnetic pulses have military applications, such as disrupting an adversary's electronics systems.

But Danneskiold said that the experiments — which have been billed as a way for two former adversaries to build scientific ties — have had nothing to do with weapons development.

Instead, Danneskiold said, the experiments have generated results that could be applied to a variety of scientific fields, including plasma physics, high-pressure chemistry, microwave generation, astrophysics and advanced electronics.

The experiments could also apply to the long-sought goal of fusion power and to developing superconducting materials that could carry electricity without resistance, Danneskiold said.

SANTA FE

TUESDAY, JULY 19, 1994 SECTION B

Expert: Tests may jinx treaty

U.S. should forgo underground testing, ex-LANL scientist says

By KEITH EASTHOUSE
The New Mexican

So-called "hydronuclear tests" — underground explosive tests with an extremely small radioactive yield — could jeopardize efforts to negotiate an international treaty banning full-scale nuclear tests, a veteran of the Manhattan Project said Monday.

J. Carson Mark, head of Los Alamos National Laboratory's Theoretical Division from 1947 to 1973, said during a panel discussion at Los Alamos that the United States is asking for trouble if it seeks to conduct such tests while it pushes for a comprehensive test ban treaty.

Mark said that as a condition to signing a test ban treaty, other nations will want the United States to conduct the tests openly to be assured that they are strictly for safety and reliability purposes and not for future weapons development.

But the United States won't want to do that, Mark predicted, because other countries could apply the data from the tests to develop their own nuclear weapons programs.

"If we insist on hydronuclear tests while we insist on a test ban, we'll complicate the business of a test ban," Mark warned.

The panel discussion was organized by the Los Alamos Study Group, a Santa Fe-based watchdog organization. Other speakers included Steve Younger, LANL deputy program director for nuclear weapons technology; and Christopher Paine of the Natural Resources Defense Council.

Hydronuclear tests were last conducted from 1958 to 1961, when the United States and the Soviet Union had agreed to a moratorium on nuclear testing. The tests, which Mark was involved in, were conducted in underground shafts at Los Alamos and in Nevada. Their purpose was to assess nuclear weapon reliability and safety.

Hydronuclear tests are among a battery of "non-nuclear" experiments, facilities and testing machines being pushed by officials at Los Alamos National Laboratory and elsewhere in the Department of Energy's nuclear weapons complex.

The officials believe that the facilities are necessary to maintain the safety and reliability of the nation's nuclear arsenal in the absence of full-scale nuclear testing.

A moratorium on nuclear testing has been in place since 1992 and will last until at least 1995. Meanwhile, negotiations for a comprehensive test ban treaty are ongoing in Geneva.

Some of the facilities to conduct non-nuclear experiments already exist, such as LANL's PHERMEX machine, which uses bursts of X-rays to make images of high-explosive tests.

Others are under construction, such as the lab's $81 million Dual-Axis Radiographic Hydrodynamic Test Facility, or DAHRT. DAHRT, scheduled for completion in 1997, would be composed of two high-energy linear accelerators that would provide extremely precise images of high explosives as they are detonated.

THURSDAY, JULY 28, 1994 50 CENTS

THE SANTA FE
EW MEXICAN

Lab sticks with weapons

LANL creates $3.5 billion 'wish list'

By KEITH EASTHOUSE
The New Mexican

Despite the end of the Cold War, Los Alamos National Laboratory officials have developed a plan that calls for $3.5 billion worth of weapons-related projects over the next 10 to 20 years.

According to a laboratory document called the 1994 Site Development Plan, almost $1.1 billion worth of weapons research, development and testing projects are planned for the rest of the decade and into the first years of the 21st century.

An additional $1.9 billion worth of weapons "RD&T" work is planned for the first 15 years of the next century, according to the 10-page development plan.

Also planned is $543 million worth of projects that would allow the lab to play a "stewardship role" over existing nuclear weapons.

That role would consist of activities such as replacing aging weapons components and adding safety features to reduce the chances of accidental detonation.

Lab spokesman Jim Danneskiold described the plan as a "wish list" that should not be taken as a blueprint for the laboratory of the future. He also said that the vast majority of the projects have not received funding and may never receive funding.

Christopher Paine of the Natural Resources Defense Council, a Washington, D.C., watchdog group, said the preponderance of weapons projects in the planning document suggests that "lab officials are out of synch with political realities."

"These will largely go unfunded," Paine predicted.

Paine said, however, that the mere fact that the projects are planned is cause for alarm. He said several of the projects could be used to develop new nuclear weapons and so could spur other countries to do the same.

"If these projects were to re-

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Friday, July 29, 1994

NEW MEXICO

Albuquerque Journal

Weapons Budget Draws Fire

Critics Assail Lab Proposal

By John Fleck
JOURNAL STAFF WRITER

Los Alamos National Laboratory wants to spend $1.2 billion on nuclear weapons-related buildings in the next eight years, and another $400 million on projects aimed at handling hazardous wastes, primarily those from nuclear weapons research, laboratory documents show.

That compares to $783 million proposed for the single major civilian research project over the same period, leading critics to charge that the laboratory has not yet adapted to the fall of the Soviet Union.

"Do we really as a society want to spend (this much money) on nuclear weapons projects in a post-Cold War world?" asked Mary Riseley, a member of the Los Alamos Study Group, a Santa Fe-based peace and environmental group.

Laboratory officials defended the plan, saying they bear the responsibility for maintaining the safety and reliability of the remaining U.S. nuclear stockpile.

The Los Alamos Study Group, which was instrumental in publicizing the spending plan this week, also charged the U.S. Department of Energy with stalling for seven months in releasing related documents that would provide more detail on the proposed nuclear weapons construction projects.

On Feb. 2, the group formally requested the additional documents. The group has yet to receive them.

DOE officials acknowledge the documents are not classified and say they are near to making them public.

"These things take time," said Christina Armijo, a spokeswoman for the DOE's Los Alamos office.

The documents could be released as early as next week, Armijo said.

Underlying the debate over the construction plans is the question of how the nation will maintain its nuclear arsenal now that the Cold War is over.

Los Alamos officials argue that, with underground nuclear test blasts likely to be permanently banned, expensive new facilities are needed to monitor the weapons remaining in the U.S. stockpile.

"Our mission now is maintenance, stewardship and preserving the capability of the vast majority of the nuclear stockpile," said Los Alamos spokesman Jim Danneskiold.

Danneskiold also said the extensive list is a broad wish list that is sure to be refined as construction dates near. Any new construction at the laboratory requires congressional approval.

Among the major new projects envisioned in the laboratory plan is a $422 million complex in which to conduct explosives tests that simulate key parts of a nuclear weapon's operation without having to resort to a nuclear blast.

Another $150 million in the spending plan would buy a laboratory to simulate the effects of a nuclear blast on electrical circuits, a key issue in planning to fight a nuclear war.

On the environmental side, the laboratory hopes to spend $110 million for a new radioactive liquid waste treatment plant to replace the current facility, which DOE and laboratory officials acknowledge does not meet current safety and environmental regulations.

The $783 million civilian project is a new center to use high-powered particle beams to study subatomic particles.

While critics do not question whether some expense to maintain the stockpile is needed, they do question the scope of Los Alamos' plan.

"That may be true that the mission is to do that, but what is required to do that mission is open to debate," said Tom Zamora Collina, a nuclear weapons analyst at the Washington, D.C.,-based Institute for Science and International Security.

"A lot of these are of questionable merit," Collina said.

Los Alamos Monitor
Vol. 31, No. 156 Sunday, Aug. 7, 1994

Peace vigil held at pond

By ELIZABETH GOLDMAN
Monitor Correspondent

A group of peace activists gathered at Ashley Pond Saturday for a day of meditation and prayer for peace.

The small group came to Los Alamos on the anniversary of the bombings of Hiroshima and Nagasaki to make personal pleas for peace.

Mary Riseley of the Los Alamos Study Group said she expected more people to show up later in the afternoon, when the group of activists planned to look at an exhibit at the Bradbury Science Museum, have a potluck dinner and float memorial candles across Ashley Pond.

But in the early afternoon, when only five people were at the commemoration, activist Florence Dance said, "Sometimes it feels like it can't (make a difference).

"But it really can," she said. "It doesn't matter how many people are here. What matters is your personal intent."

Vincent Scotti Eirené had come to the area from Pittsburgh and joined the activists for the ceremony for several reasons.

"As a Christian and a peacemaker, I think Los Alamos (National Laboratory) is becoming the hub of research and development of the third generation of nuclear weapons," he said.

Los Alamos is a fitting location for a demonstration because, "It's where society's will to suicide finds its rest. We need to come and

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VIGIL

(from Page A-1)

express God's preservation," Eirené said. "I hope to leave a legacy to the next generation that some people were not afraid to stand up to our nation's nuclear weapon production."

Los Alamos also is located on sacred Indian land, Eirené said, and the United States has violated the land "by putting a lab here that is doing research (from which the) only final product is death."

Saturday's ceremonies were supported in the third year by the Los Alamos Study Group, People for Peace, and the Santa Fe Friends Meeting, Riseley said.

This year the event coincides with an exhibition at the Bradbury Science Museum, a photo essay of Hiroshima and Nagasaki that was a gift to the study group from the mayor of Hiroshima, she said.

The exhibit, from the Hiroshima Peace Memorial Hall, will be on display through August at the museum.

Riseley said events this year have made her feel more hopeful than ever before for peace. "The lab has traditionally lobbied hard against a comprehensive test ban," she said. "The lab has now dropped its opposition."

Riseley said she finds hope in the stances that some military leaders are taking against nuclear weapons production. It's strange for a pacifist to join with the military on an issue, she said, but, in anti-nuclear activism, "strange alliances often are popping up here and there."

Saturday's commemoration itself is "part of bearing witness," said Dance, a member of People for Peace in Santa Fe. "My whole lifetime has been under the threat of nuclear weapons ... (Meditation) is very peaceful, and it's sort of a counter to the violence of nuclear weapons and the violence of using those against other people."

A lifelong activist, Eirené said he got his start protesting against the Vietnam War in 1968. A commemoration of the deaths caused by the atomic bomb in World War II was just another step for him.

Los Alamos has been a focus in his anti-nuclear efforts, he said, because "there's no way in which LANL is repentant (for making nuclear weapons)."

The candle-lighting ceremony and the public action were the most important part of Saturday's anniversary commemoration to him, Eirené said.

"Our candles, hopefully, will become like warning flares to a society," he said. "We're either going to die from within ... or we're going to be the victims of our technology."

The commemoration has become an annual event because, Riseley said, "It makes a difference for us. It's something that we can't not do. It's important to renew a pledge each year that this will never happen again."

The commemoration ended Saturday with candles, which "symbolize the souls of the people who were killed," Riseley said. "It's also an expression of solidarity with the Japanese people."

The attitudes of many more people need to change to keep history from repeating itself, she added. "I feel that the definition of 'we' is what has to change if we're gong to survive on this planet," she added. "We, to us, means all life."

145th YEAR WEDNESDAY, AUGUST 10, 1994 50 CENTS

THE SANTA FE NEW MEXICAN

DOE puts brakes on six LANL projects

By KEITH EASTHOUSE
The New Mexican

ALBUQUERQUE — Six projects at Los Alamos National Laboratory — including a planned expansion of the lab's nuclear waste disposal area — have been put on hold pending a full-scale review of the environmental and public health impacts of laboratory operations, a top Department of Energy official said Tuesday.

Thomas P. Grumbly, assistant secretary for environmental management, stressed at a press conference at the Albuquerque International Airport that the projects were not being canceled.

Instead, the DOE will scrutinize the projects and make final decisions about them as part of preparing a site-wide environmental impact statement for the laboratory, Grumbly said.

"We propose to defer action (on the six projects) pending the outcome of decisions made during the EIS process," Grumbly said.

Grumbly said a site-wide environmental impact statement is needed to evaluate the cumulative impacts on the environment and public health of all LANL operations. The last time one was done was in 1979.

Grumbly said that the cost of a site-wide impact statement would be about $20 million and could be completed by 1997.

On another topic, Grumbly said it was possible the Department of Energy could take control of the lab's massive, $1.2 billion "environmental restoration" effort out of the hands of the laboratory and have it be run instead by private contractors.

Grumbly said that the DOE's "preferred option" is to leave the cleanup program in the lab's hands, provided the lab can persuade DOE officials that it can do the job more quickly and cost-effectively than it has done so far.

A proposal to streamline the program will be submitted by the lab to DOE on Aug. 15. DOE officials will study the proposal and then make a decision.

According to Jorg Jansen, an official with the lab's environmental restoration program, the proposal will call for bringing more contractors into the program, which is attempting to

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identify and clean up contaminated sites from 50 years of laboratory operations.

Jansen said that modifying the operation in that way — a number of contractors already are involved — probably would require that some of the 160 lab employees working on the project be relocated to other positions.

He declined to say how many employees would be affected.

Grumbly's decision to put the six projects on hold is a victory for environmental and Indian groups, who called earlier this year for a moratorium on all major projects at the laboratory until a site-wide environmental impact statement could be prepared.

"I think it's fantastic," said Victor Lujan, acting executive director of the Eight Northern Indian Pueblos Council. "We hammered on them for months, and they responded."

Grumbly said the decision is evidence that the Energy Department under the Clinton administration is committed to working "collaboratively" with the public."

"We're trying to walk the talk in terms of public participation," said Grumbly.

However, Susan Hirshberg of Concerned Citizens for Nuclear Safety, a Santa Fe watchdog group, expressed disappointment that several defense-related projects weren't also put on hold — in particular, a $194 million, ten-year upgrade of the lab's Chemistry and Metallurgy Research Building.

Grumbly said that the upgrade of the CMR facility, which supports weapons programs and other programs at the lab that handle plutonium and uranium, would be analyzed for its environmental and health impacts under a separate, less intensive review called an "environmental assessment."

He said that the CMR upgrade would also be studied during the site-wide environmental impact statement process.

James Werner, an assistant of Grumbly, pointed out that it was beyond Grumbly's power to put any defense-related programs on hold. Such programs are managed by another division of DOE, Werner said.

The six projects that were put on hold come under the category of "environmental management," meaning that they involve the treatment, storage and disposal of radioactive and toxic waste.

The projects that have been put on hold include:

■ A planned expansion of Area G, the lab's nuclear waste disposal site.

Lab officials, concerned because the dump is getting filled up, originally proposed a 70-acre expansion. But they reduced it to 28 acres after they ran into opposition from Indian groups upset that the expansion would require the excavation of Indian ruins.

Grumbly said the concerns of the Indians played a role in the DOE's decision to put the planned expansion on hold.

■ A $247 million replacement and upgrade to the lab's aging radioactive liquid waste treatment facility.

Built in 1963, the facility is leaking, but according to a 28-page DOE document called the Advance Notice of Intent, the plant can be "operated safely and reliably for a few more years."

■ A proposal to put into operation a controlled air incinerator that would burn waste.

Lab officials have said that putting a substantial number of major projects on hold could shut down operations. But Werner said that the amount of money that would have been spent on the six projects in the next two or three years totaled only about $3 million.

DOE wants LANL projects on hold

From PAGE 1

step, they believe the DOE has not gone far enough. Other projects related to nuclear weapons research at the laboratory also should be halted until the study is completed, they say.

All projects, including the nuclear weapons-related ones, should be put on hold until the study of their environmental impacts can be completed, Santa Clara Pueblo Governor Walter Dasheno wrote in a July 13 letter to the Energy Department.

"This (the environmental study) is our opportunity to participate and provide substantive comment regarding the impacts upon Santa Clara by activities at LANL," Dasheno wrote.

The proposal for which projects would be put on hold and which will proceed will now be the subject of a series of public hearings and internal Energy Department review before final decisions are made.

Grumbly's comments, which came during a two-day trip to New Mexico, focused on the DOE's environmental programs at Los Alamos and the Waste Isolation Pilot Plant, a proposed nuclear waste dump near Carlsbad.

As the assistant secretary in charge of the Energy Department's environmental programs, Grumbly oversees a $6 billion budget — $564 million of it this year in New Mexico, primarily at Los Alamos, Sandia and WIPP.

The environmental study, to be done under the auspices of the National Environmental Policy Act, will analyze the environmental effects of the entire laboratory's operations.

It will be the first time that a site-wide Los Alamos Environmental Impact Statement has been prepared since 1979.

Grumbly said delaying the projects would allow the department to do an overall study of the relationship between laboratory operations and the waste they produce.

And in the process, he said, the department wants to consult members of the public, who he said have been left out of decisions by the department's past practices of "decide, announce, defend."

On the question of Los Alamos' environmental cleanup program, Grumbly said he hopes the laboratory can keep the program, rather than having a private contractor hired to take over the job.

Department officials are studying that possibility for both Sandia and Los Alamos national laboratories.

Grumbly differentiated between the two laboratories, however, saying Sandia has done a better job in coming up with a plan to streamline its cleanup plans.

"The Sandia people came back with a strong proposal," Grumbly said. "Our Los Alamos colleagues have taken some coaxing."

DOE wants LANL projects on hold

The assistant secretary of Energy proposes delaying nuclear waste projects until the completion of an environmental impact study.

BY JOHN FLECK
JOURNAL STAFF WRITER

The Department of Energy is proposing to stop $180 million in new construction projects at Los Alamos National Laboratory for the next two years while a laboratory-wide environmental study is completed.

Among the projects that could be put on hold are a new $137 million liquid radioactive waste treatment plant and a $2 million expansion of the laboratory's low-level radioactive waste dump, Assistant Secretary of Energy Tom Grumbly said Tuesday in Albuquerque.

According to the proposal, plans to use an incinerator to burn radioactive waste also would be delayed until after completion of the environmental impact statement, which could take more than two years.

Other projects, including renovation of a major nuclear weapons research building and construction of an explosives research laboratory, would continue under the proposal, which is scheduled to be published today in the Federal Register.

The department believes the projects to be continued are needed to support continuing laboratory missions, according to the Federal Register notice.

Grumbly announced the proposal at a news conference.

In a later interview with the Journal, Grumbly also singled out Los Alamos' environmental cleanup program for criticism, saying the northern New Mexico laboratory's costs are higher than other Energy Department sites.

The department is considering taking the cleanup program away from Los Alamos and hiring a private contractor to run it if the laboratory cannot come up with a plan to do the work faster and at lower cost.

The department's decision to place the construction projects on hold is a partial victory for citizen activists and northern New Mexico pueblo officials who had asked for a moratorium on construction at Los Alamos until the environmental study was completed.

"It does show that DOE can listen to citizen concerns," said Mary Riseley, a member of the Los Alamos Study Group, a Santa Fe-based group that pushed for the study.

But Riseley and others said that, while stopping the nuclear waste projects was a good

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Put some heat on Cold War mindset

9/27/94 New Mexican

Greg Mello
Commentary

Wednesday and Thursday at 1 p.m. and at 6 p.m. at the Sweeney Center in Santa Fe, Department of Energy and Los Alamos National Laboratory officials are conducting hearings on alternative missions for LANL.

Their analysis of these alternatives must, by law, include their impact on the environment, economy and culture of our region.

Unfortunately, neither the DOE nor LANL has so far proposed alternatives for the Lab.

Bound by bureaucratic inertia, the DOE is asking the public to do this work for them, while LANL is entirely caught up in promotion of its existing programs, which are largely carry-overs from the Cold War. Members of the public attending these hearings will be confronted by a battery of technical experts giving well-rehearsed sales pitches for their particular projects and programs. These specialists do not want even to mention any underlying issues and may deny their relevance altogether.

Most people in Santa Fe do not realize that LANL has not at all converted to any civilian mission and has no plans to do so. Instead, Los Alamos now stands to become a *de facto* nuclear materials storage, processing, manufacturing and dumping center for the nation's nuclear bomb complex. LANL is inheriting the plutonium manufacturing role of Rocky Flats, some or all of the tritium handling and perhaps even the tritium production role of the Savannah River Site, along with many other tasks, all potentially very dirty and dangerous.

To serve its nuclear work, Los Alamos is hoping its nuclear weapons design and testing program at Cold War levels indefinitely and plans to build literally billions of dollars in new facilities to attract new scientists to these Stragelovian pursuits.

Almost all of this is unnecessary, even if one believes in maintaining a large nuclear deterrent indefinitely. Contrary to what Lab managers are telling Congress, the data clearly show (and weapons scientists will privately admit) that there are essentially *no* technical problems with nuclear weapons, and none are foreseen. The U.S. arsenal is quite reliable and will remain so for the next decade or more without *any* investment in new facilities or in any new nuclear waste-producing programs. This arsenal could be maintained with a fraction of the current effort.

At the same time, many voices — including those of top-ranking military men like Gen. Horner and Gen. Goodpaster — argue that the U.S. cannot achieve its nonproliferation goals as long as it so obviously values its nuclear weapons and does so little to encourage further mutual arms reductions. Even analysts like Seth Cropsey at the right-wing Heritage Foundation are pointing out that nuclear weapons should simply never be used.

We agree wholeheartedly. Maintaining a large nuclear arsenal hurts the United States and the world. Unfortunately, the top people in the Pentagon recently announced that they would *not* be bound by the Bush-Yeltsin agreement to reduce U.S. and Russian nuclear arms to 3,500 strategic warheads apiece but would maintain an arsenal of 8,000 weapons indefinitely. This retrogressive action will be sure to harden attitudes in Russia, China and throughout the world, and could have serious consequences for Los Alamos and northern New Mexico as well.

There *are* some very positive alternatives for LANL, but to choose them will require courage, initiative, a new organizational culture and new management. LANL could become the world center for the detection and control of weapons of mass destruction. It could advance the science of renewable energy sources. It could do important work for industry and in the process build a thriving new economic sector in northern New Mexico. Los Alamos, the place where the nuclear nightmare began, could be a place devoted to peace and to harmonizing technology with nature and the human spirit. Pursuing these goals in partnership with northern New Mexico could benefit everyone.

This seems like common sense, but none of it will happen without a great deal of public pressure. DOE's "green" initiatives are now largely going to labs in California, Colorado and elsewhere, while New Mexico is seen as too politically weak to seriously object to nuclear weapons and their waste, however damaging the effects on our state's economy and environment may be in the long run.

Please come to DOE's hearings this week and help them break out of their Cold War mindset. If we do not speak, our silence will be taken as assent to all things nuclear.

Greg Mello is a member of the Los Alamos Study Group.

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are precious.

"If you're going to make toasters, you want to make them cheaply," Gusterson commented.

■ Weapons scientists will have a hard time making the switch to non-weapons work.

Aside from being trained to make weapons, the scientists would have psychological barriers to overcome, Gusterson said.

During their professional careers, weapons scientists have developed what Gusterson calls a "Cold War narrative" to justify their work.

The narrative, according to Gusterson, is that "the outer world is a dangerous place and that nuclear weapons can make the world safer if they are managed properly."

To many, such a "narrative" should die with the Cold War. But to weapons designers, there are new reasons to continue developing nuclear weapons, such as unpredictable states like North Korea or Iraq or the possibility that terrorist groups could obtain a nuclear bomb, Gusterson said.

■ Managers at Livermore and Los Alamos do not know much about economic conversion or how to obtain funds for such work.

If Los Alamos and Livermore are to convert to industrial partnership work, officials will have to learn how to obtain money from corporate America, the federal government, or both, Gusterson said.

The problem, he said, is that the labs are run almost exclusively by managers who rose through the ranks of the nuclear weapons programs.

"They are exquisitely nuanced and knowledgeable about weapons science" and how to raise obtain money from Congress for weapons programs, Gusterson said.

But that skill is matched by "a symmetrical ignorance about how to raise money for other missions," such as industrial partnership work, Gusterson said.

Consequently, for a transformation work to be successful, a whole new set of managers who did not earn their stripes in the weapons program would have to emerge, Gusterson said.

Gusterson said Livermore has a better chance of success in economic conversion work because of its proximity to large numbers of corporations in the heavily populated Bay Area of northern California.

At the same time, it might make more sense to policy makers to concentrate weapons work at Los Alamos because it is in a sparsely populated area that is not known for its political activism, Gusterson added.

"Livermore is located near liberal communities such as Berkeley and San Francisco" that contain large numbers of well-organized people who often vigorously protest Livermore initiatives, Gusterson said.

"You don't see many pro[illegible]ers in Los Alamos," Gusterson said.

Scientist: Taking LANL private a tough task

By KEITH EASTHOUSE
8/22/94 The New Mexican

Los Alamos National Laboratory can best ensure its long-term survival if it converts from weapons work to performing research to aid private industry, according to a researcher with the Massachusetts Institute of Technology, a Boston-based university.

Yet making such a switch will be extremely difficult, said Hugh Gusterson, assistant professor of anthropology and science studies at MIT.

"It would involve tremendous changes," Gusterson said.

It would be much easier for the laboratory to continue as a weapons research center because lab scientists already know how to do such work and because laboratory managers are skilled in obtaining funds from Congress for weapons programs, Gusterson added.

Yet taking that course, Gusterson said, is fraught with risk because public support for nuclear weapons work is eroding — both among the public and in Congress.

"It will be difficult for laboratory officials to raise sufficient funds for weapons work in the future," Gusterson predicted.

Gusterson said that if the decision is made in Washington, D.C., to concentrate weapons work at one of the Department of Energy's national research labs — currently, such work is divided between Los Alamos and Lawrence Livermore National Laboratory in California — Los Alamos would likely be the site.

Gusterson will be discussing possible futures for Los Alamos and Lawrence Livermore at a talk at 7 p.m. Tuesday in Los Alamos at the Fuller Lodge.

Gusterson has spent the summer in Santa Fe researching a book on what Russian and American nuclear weapons scientists will do now that the Cold War is over.

He is the author of *Testing Time: A Nuclear Weapons Laboratory at the End of the Cold War*, which will be published next year. It looks at weapons designers at Livermore in the late 1980s and early 1990s.

Gusterson said it is unrealistic to think that Livermore and Los Alamos can easily convert to working with private industry.

"A lot of people think of Livermore and Los Alamos as a menu of technological capabilities and that to achieve conversion all you have to do is reallocate (the capabilities). But that's naive," Gusterson said.

Among the obstacles to conversion to private-industry work, according to Gusterson:

■ The secrecy that has pervaded the laboratories over the decades does not lend itself to smooth interactions with corporate America.

■ The laboratories' top-heavy bureaucracy slows the speed with which they can sign "cooperative research and development agreements," or CRADAS, with private industry.

"CRADAS are very labor intensive," Gusterson said.

■ Scientists who worked during the Cold War era, when there were virtually limitless funds for weapons work, are strangers to the profit-oriented world of private industry, where time and money

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ENCHANTED TIMES

Summer 1994

News from All Peoples Coalition and Citizens for Alternatives to Radioactive Dumping

Victory for New Mexico

EIS Process to Provide Forums on the Future of LANL and Nuclear Weapons

by Greg Mello and Mary Riseley
Los Alamos Study Group

How the Public Got to the Table

Beginning in late 1992, a coalition of Indian Pueblos, peace and environmental organizations, and labor unions petitioned Los Alamos National Lab (LANL) and the Department of Energy (DOE) for an environmental impact statement (EIS) prior to any expansion of "Area G", LANL's big radioactive waste disposal area, and prior to any new nuclear waste dumps at LANL. Also requested was a new site-wide environmental impact statement (SWEIS) for LANL operations as a whole.

At first the organizations were principally concerned with Area G, which LANL hoped to more than double in size. In early 1993, plans surfaced for another huge radioactive waste dump — twice the size of WIPP — which could potentially accept nuclear garbage from all over the country. Meanwhile, LANL's plans for a radioactive waste incinerator were proceeding, an incinerator which would receive plutonium-containing wastes, as well as many other kinds, from throughout the nuclear weapons complex. A WIPP-bound waste treatment plant is also on the horizon.

All these nuclear waste facilities have been proposed in part because LANL is fast becoming a central hub in the newly downscaled nuclear weapons manufacturing complex. To this end, LANL plans numerous new nuclear weapons design and fabrication facilities. Just one of these, an upgrade of the Chemistry and Metallurgical Research (CMR) Building, will cost $200 million, 75% of the entire DOE weapons program construction budget. This huge building (550,000 sq. ft.) will be used for a variety of development, analytical, and manufacturing jobs involving both plutonium and uranium; part of the building is already being used for monitored storage of spent nuclear fuel.

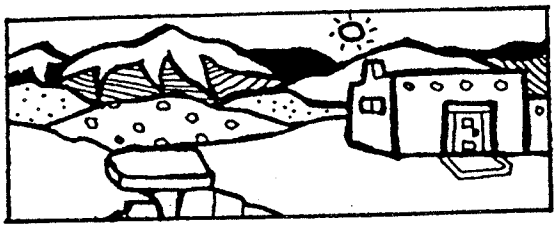
Faced with this deluge of new waste-generating operations and new dumps — too many to fight one at a time — *more than sixty New Mexico and national organizations petitioned Secretary of Energy Hazel O'Leary in April of this year for a moratorium on all major construction projects at LANL until the completion of a site-wide EIS.* Led by the Eight Northern Indian Pueblos Council, the petitioners included the Archdiocese of Santa Fe, the Mayor and three city councilors in Santa Fe, as well as well-known national groups like the Natural Resources Defense Council and Greenpeace.

What the Discussion Will Include

The site-wide EIS has now been granted. But which projects will be subject to its analysis? Which projects will be held back pending its outcome? Will the EIS process be for real, or just for show? The DOE's proposed answers to these

questions were published in the August 10 Federal Register in the form of an Advanced Notice of Intent to do the LANL SWEIS. It includes a timetable and lists of major LANL projects with DOE's initial recommendation for appropriate National Environmental Policy Act review. In addition, there is a discussion of how the LANL SWEIS might relate to several current, broad-scale DOE National Environmental Policy Act reviews such as the Environmental Restoration and Waste Management Programmatic EIS, the Pantex SWEIS and the Programmatic Environmental Impact Statement for Storage and Disposition of Weapons-Usable Fissile Materials.

LANL projects, DOE concedes, that should be included in the SWEIS (and hence put on hold until it is completed several years from now) include:



EIS Victory For New Mexico

(continued)

- the Radioactive Liquid Wastewater Treatment Facility
- the Isotope Separator Facility
- the proposed expansion of the Nuclear Materials Storage Facility
- Decontamination, decommissioning and demolishing of the High Pressure Tritium Laboratory
- New Sanitary Landfill
- the Controlled Air Incinerator, Expanded Operations (trial burn scheduled for February 1995 still up in the air, no pun intended!)
- Expansion of Area G, Radioactive Waste Disposal Site, and
- the National Biomedical Tracer Facility

Although the huge Mixed Waste Disposal Facility is listed as being *in* the site-wide, reading the fine print reveals that only the 1% that will hold legacy and operational wastes is actually being delayed. Basically, the project appears to be going forward for now, pending effective protest. And the wording on the CMR Building upgrades, crucial to LANL's stated intention to continue nuclear weapons research, development and testing, is much too vague for us really to know what is and what is not going to be halted. The WIPP-bound waste tests, called the Actinide Source Term Waste Test Program, would NOT be slowed.

This list definitely represents a partial moratorium, especially for the Environmental Management programs, and we have to say, "Hurrah!" But there are also a number of Defense projects not on this list that we hoped would be, such as the Dual Access Radiographic Hydrotest (DARHT) Facility and the High Explosives Materials Test Facility, among several others. Like CMR, these facilities, especially DARHT, are central to continuing nuclear weapons design and development.

Public comment is critical now. This EIS process is supposed to be a comprehensive look at LANL's future plans — but how comprehensive it actually is will strongly depend upon citizen involvement. Comments will be received until October 31. Public meetings will be held before then with two weeks' advance notice in local newspapers.

What's at Stake

Simply put, what is at stake here is the future of Los Alamos and the Pajarito Plateau, the future of New Mexico's weapons labs (and with them a large part of the state's economy and identity), and the future of nuclear weapons. Will New Mexico become even more of a nuclear colony — or a leader in global cooperation to eliminate weapons of mass destruction, in industrial technologies, and in environmental research? In many ways, the choice is up to us. If we are silent, this will be interpreted as assent to all things nuclear, and other states will get the government's industrial and environmental research funds.

And if we are silent, the nuclear establishment will continue its deep conflict of interest, promoting and maintaining its own weapons while trying to keep other nations from getting them, while distributing a variety of nuclear technologies as if these were unrelated to proliferation of nuclear weapons.

What You Can Do

Copies of the Advanced Notice of Intent are available from the LANL Environmental Reading Room, 1450 Central Avenue, Suite 101, Los Alamos, NM 87544, (505) 665-2127 or 1-800-543-2342. *Read this document and write a comment on the proposed scope of the SWEIS and send it (before October 31) to:*

M. Diana Webb
Los Alamos Area Office/DOE
528 35th Street
Los Alamos, NM 87544
Attn: LANL SWEIS
TEL: (505) 665-6353 FAX: (505) 665-4504

Watch your newspapers and come to and speak at the public meetings to be scheduled in September and October. *Attendance at these meetings will be critical in determining the future of LANL.*

The Los Alamos Study Group (LASG) can provide background information for both of these activities. We are at 212 East Marcy St., Santa Fe, NM 87501, 982-7747. Concerned Citizens for Nuclear Safety will host an informational town meeting in Santa Fe a few days before the first scheduled pre-scoping DOE meeting. Call them for information at 986-1973. Let the All People's Coalition or LASG know if you can volunteer time or want to take part in demonstrations and other events related to these issues. The volume and quality of comments *does* really make a difference. This is our long awaited chance to be heard — let's make sure that many, many of us speak up loud and clear!

Los Alamos Study Group is a member of All People's Coalition.

[Note from the Editor: Congratulations to LASG, and especially to Greg and Mary, for their organizing success in pressuring DOE for a site-wide Environmental Impact Statement at LANL!]

Feature

Stockpile Stewardship

BY GREG MELLO AND MARYLIA KELLEY

Science-Based or Science Debased?

After what seemed like a fresh start under Secretary Hazel O'Leary, the future of the Department of Energy (DOE) weapons labs is now beginning to look a lot like the bleak past, only more so. While the nation sleepwalks its way further into global warming, an ever-greater importation of fossil fuels and the near-complete neglect of conservation and renewable energy, bureaucratic inertia and right-wing ideology seem to be winning out over science applied to genuine national needs.

At this point in post-Cold War time, the only conversion happening at the weapons labs is linguistic. Their flagship program, now called "Science-Based Stewardship" (SBSS), has inherited all the functions of the former nuclear weapons research, development, and testing (RD&T) program save one: underground nuclear explosive testing. The loss of underground testing is being parlayed into an extravagant set of new nuclear weapons facilities at the labs and an overall funding increase in their nuclear weapons programs, dashing hopes that these institutions could or would convert to more socially useful, and less culturally corrosive, research.

Even within the scope of the labs' current overall mission ("reducing the nuclear danger"), the vast bulk of resources continue to be applied to maintaining and improving US nuclear weapons. The underlying assumptions of SBSS are that the US arsenal is permanent, that it remains large and diverse, and that a permanent technological and production-capacity "hedge" is needed to reconstitute an even bigger arsenal in a short period of time. All these US policy assumptions run directly counter to any widely-shared definition of security, to any genuine defense needs, and — not least — to Article VI of the Nuclear Nonproliferation Treaty (NPT), in which the world's nuclear powers agreed to dismantle their arsenals in return for a promise of nonproliferation from the rest of the world. Even if these assumptions are granted, most of the SBSS program is still not needed.

How Much Does Stockpile Stewardship Cost?

SBSS, née RD&T, is the core program at the three DOE nuclear weapons laboratories, where most SBSS funds are spent. Out of a fiscal year (FY) 1995 DOE weapons program appropriation of $4.5 billion, the SBSS program comprises $1.5 billion. Neither of these amounts include the substantial costs of managing the wastes being created by DOE nuclear weapons activities, or of cleaning up contaminated sites, including the weapons labs.

The budget for stockpile stewardship is rising. The FY 1996 DOE budget request for SBSS is $1.6 billion, and it is likely that Congress will award DOE at least this much. Amazingly, the weapons laboratories are now receiving substantially more funds for nuclear weapons science and technology than they did during most of the Cold War.

The weapons labs want even more. In addition to high levels of SBSS program funds, the labs want a $3 billion panoply of new facilities to simulate various aspects of nuclear weapon explosions. This extravagant and provocative construction program is aimed at circumventing a nuclear test ban to the greatest extent technically possible. If constructed, these facilities will define the research agenda of the labs, and make their conversion to more useful work almost impossible for the next decade.

What Exactly Is the SBSS Program?

To understand the stockpile stewardship program, it is first necessary to understand what it is not. It is not the program that stewards our stockpile of nuclear warheads and bombs or provides for the surveillance, repair, and replacement of nuclear weapons. The program which does these jobs is called "stockpile management," a related but separate DOE program, funded at $1.8 billion in FY 1995.

Instead, so called "science-based" stockpile stewardship is aimed at providing a sort of science—nuclear weapons science—for the stewards of the stockpile, or some of them anyway. To put it another way, it doesn't really maintain warheads so much as it maintains physicists. As DOE Assistant Secretary Victor Reis put it to Congress in 1994: "The stewards really are more important than the equipment...the purpose of the Stockpile Stewardship program is in fact to maintain the stewards, and the right type of experiments."

The basic idea behind SBSS is described in the FY 1994 Defense Authorization Act, which says that the purpose of "stewardship" is to preserve the "core intellectual competencies" of the US "in nuclear weapons, including weapons design...and certification." The Act provides funding for "advanced computational capabilities to enhance the simulation and modeling capabilities of the

> Stockpile Stewardship doesn't really maintain warheads so much as it maintains physicists.

United States with respect to detonation of nuclear weapons...[and for] above-ground experimental programs, such as hydrotesting, high-energy lasers, inertial confinement fusion, plasma physics and materials research." Further, the Act provides "support for new facilities construction projects" for these programs. This is exactly what the old RD&T program used to do, with advanced non-nuclear testing replacing to the extent possible the role of nuclear testing in the certification process.

In addition, the labs, through their growing central role in the stockpile management program, will be the place where much of the component production for new or replacement nuclear weapons takes place. At present, both stockpile stewardship and management present impossible barriers for conversion of the weapons labs.

A Simple, Inexpensive Program to Maintain the Stockpile of Mass Destruction

Barring imminent orders for new weapons, science-based stockpile stewardship is essentially a blank check. Being primarily oriented toward maintaining the existing workforce, there is no definite product and therefore no real accountability in the program.

A more rational approach would begin by carefully delineating goals for the program that enjoy a consensus, such as: assurance of the safety and security of nuclear weapons; compliance with US treaty obligations; support for nonproliferation; and compatibility with anticipated future treaties and further stockpile reductions.

In addition, a large majority of federal officials would support a goal of ensuring that a given weapon remains reliable until that weapon is retired, and providing for its replacement as needed until that time. We believe it is likely, however, that maintaining an enormous nuclear deterrent will be increasingly seen as conflicting with US nonproliferation goals, as some senior military officers and defense officials have already warned.

To fulfill all these goals, including maintaining the reliability of our weapons of mass destruction and providing for their replacement, a "science-based" stockpile stewardship is unnecessary. A much simpler, problem-focused stockpile management program would suffice and would cost a great deal less. Since there are not now any important safety, security, or reliability issues in the arsenal, and none are foreseen for the immediate future, this program could initially be largely a matter of surveillance, pending future arms reductions. And if a posture of nuclear deterrence, *i.e.* threatened annihilation, is to be maintained, any problems which may arise can be solved by the remanufacture and replacement of specific parts.

Over the longer term, a small-scale remanufacturing capability will be required to maintain a nuclear deterrent. But the scale of this capability will depend upon the anticipated scale of the arsenal, which has been declining and should continue to do so.

The US and the other declared nuclear powers have promised, however, in Article VI of the NPT, to eventually dismantle all their nuclear weapons, not rebuild them. So there is a proliferation cost, however difficult it may be to measure or predict, as well as a very real economic and environmental cost, to rebuilding weapons.

The Cold War level design establishment should be collapsed down to a much smaller and more narrowly-focused "curatorship" program, whose size would depend upon the complexity of the possible problems that could be encountered. In the case of the nuclear "physics packages" (warheads), which contain only about 5 percent of the parts in the weapons, that program could and should be rather small. It will be less expensive, in many cases, to simply replace some parts than to understand in detail everything that could, some decades hence, go

(Continued on p. 13)

US Department of Energy's National Laboratories At a Glance

Lab	Contractor	Annual Budget (FY '95)	Military related work	# of Empl.	Est. Cost of Environ. Cleanup
Lawrence Livermore (Livermore, CA)	University of California	$983 million	49%	7,310	$1.5 billion
nuclear weapons R&D and testing; research on nonproliferation, arms control, and treaty verification technology					
Los Alamos (Los Alamos, NM)	University of California	$1.1 billion	61%	6865	$3.3 billion
nuclear weapons R&D and testing; research on nonproliferation, arms control, and treaty verification technology; waste management & envrionmental restoration					
Sandia (four sites in NM, CA, NV & HI)	Lockheed Martin	$1.1 billion	74%	8500	$890 million
R&D and testing of all non-nuclear components of nuclear weapons; transportation, storage and safety assessment of nuclear weapons; training military personnel in assembly and maintenance of nuclear weapons.					

Sources: Los Alamos Study Group, Military Toxics Project, US DOE, US Nuclear Weapons Cost Study Project

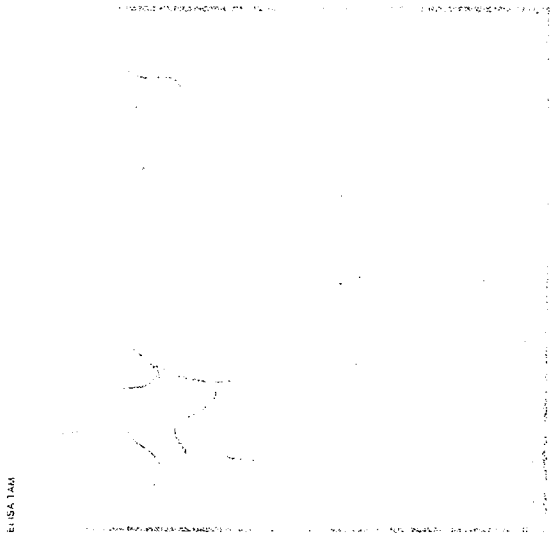
CHART BY SARAH ALLEN

commonly used isotope. Citizen opposition has resulted in an environmental impact statement being prepared. Among citizens' concerns are the much greater use of the annular core research reactor, currently rarely used, but potentially on-line 24 hours a day, seven days a week. The process would produce both low and high-level nuclear waste and a large amount of wastewater contaminated with both chemicals and radionuclides. There is also opposition to the use of taxpayers money to subsidize an industry, pharmaceuticals, which is already highly profitable. Technicium production is done by private industry in Europe, and has been done privately both in the US and Canada.

Sandia represents the best and worst of DOE. While maintaining the non-nuclear components of the nuclear weapons stockpile, there are also cutting-edge scientific projects, many of which are both costly and environmentally hazardous. The DOE culture which has disregarded environment and public health for years continues, but there are also a mix of dedicated scientists and technicians who would like to see Sandia in the forefront of non-weapons science, including environmental technologies for energy and clean up. As one of the nation's three nuclear weapons laboratories, Sandia will probably contain these opposing points of view for many years to come.

Jay Coghlan is a member of Concerned Citizens for Nuclear Safety in Santa Fe, NM. For more information, call (505) 266-2663.

Garland Harris is public information director for Citizens for Alternatives to Radioactive Dumping (CARD) in Albuquerque, NM. For more information, call (505) 266-2663.



(Stockpile Stewardship cont'd from p. 3)

wrong with them. For any real problems (as opposed to the trumped-up problems often cited by the labs), any such prediction would in any case remain quite speculative, no matter how great the investment in SBSS facilities.

In a curatorship program at Los Alamos and Livermore there could be small teams of two dozen scientists and engineers at each lab devoted to surveillance and troubleshooting for each of the six or so types of weapons currently slated to remain in the arsenal for the time being. With support staff and in aggregate, 400 people would be sufficient to staff the stockpile stewardship program, now renamed "stockpile curatorship." This number would be more than enough to solve any technical problem that might arise with the nuclear components of a weapon.

Such a program for nuclear components would cost less than $100 million per year, including redundant teams at each of the two physics labs, contractors, and oversight from DOE headquarters, and all necessary capital expenses. Substantial additional stewardship funding would be necessary for Sandia and a much lesser amount at other sites, but we believe that the overall cost of the program can and should be kept to a small fraction of the $1.6 billion requested, making it possible to restore funding for genuine national needs within the Department.

DOE's stockpile management program likewise contains excessive spending, driven, as in the case of SBSS, by pork-barrel concerns rather than any rational assessment of national security needs. Both stockpile programs are, in turn, heavy drivers of DOE's waste management program, with a budget of $2.9 billion in FY 1995. Waste management absorbs hundreds of millions annually that would be better directed to cleaning up the existing toxic and radioactive contamination at weapons complex sites.

Still further savings would result if unnecessary nuclear weapons-associated buildings and facilities around the country, now being kept "just in case" large new production runs of nuclear weapons are required, were allowed to enter the queue for dismantlement and decontamination and their substantial upkeep costs brought to an end. We do not attempt to quantify here the overall savings possible through these reforms, but together, they clearly run into the billions of dollars annually.

It is not too dramatic to say that we stand at a crossroads in the future of the nation's weapons laboratories. Decisions we make in the next two years will greatly affect the future of Los Alamos, Livermore, and Sandia for a generation. With them, the R&D agenda of the DOE will largely be set. What will it be: billions more added to the $4 trillion we have already spent on nuclear weapons and their delivery systems? Or research, both prudent and exciting, into ways that will help us live on the earth lightly enough for our children to have a future?

Greg Mello is director of the Los Alamos Study Group in Santa Fe, NM. For more information, call (505) 986-1973.

Marylia Kelley is president of Tri-Valley CAREs (Citizens Against a Radioactive Environment) in Livermore, CA. For more information, call (510) 443-7148.

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A world famous weapons laboratory turns to partnerships with business in its fight to survive the post Cold War era.

Thomas McEwan looks like a high school shop teacher and talks like a salesman. Sitting in his cramped office at Lawrence Livermore National Laboratory, he holds a small black box about the size of a pack of cigarettes and describes through a broad grin how people will soon be able to walk into K mart and for $20 buy a personal radar system like the one in his hand to detect intruders in their home.

An engineer who designed instrumentation to monitor the 1 billion pulses of light emitted in a single second by the lab's $173 million Nova laser, McEwan has been able to convert that technology into an inexpensive microchip-sized radar system. It can be used in a wide range of commercial devices, from washroom hand dryers that turn on and off automatically to automobile tail light assemblies that warn drivers when they back up too close to an object. Already two companies have licensed the technology from the lab and scores of others have expressed interest in doing the same.

"In the next five to 10 years people will have radar in the home as commonly as stereos and phones," McEwan said.

Scientists like McEwan represent the future of Lawrence Livermore Laboratory - or so some people hope. He embodies a new entrepreneurial spirit among engineers and scientists at the lab as it seeks to transform itself from a Cold War nuclear weapons research and development center to a vital industrial resource.

Lawrence Livermore is trying to turn its brainpower to finding solutions to some of the nation's daunting problems, such as cleaning up toxic waste and developing batteries for electronic automobiles.

But if McEwan is a symbol of Lawrence Livermore's future, perhaps George Craig embodies its present.

At 54, the physicist has spent 20 years at the weapons lab only to find himself now in the uncomfortable position of having to justify his worth.

"I'm what they call a 'displaced' person here at the lab," Craig said.

Certainly there were the events that began to erode Lawrence Livermore's long unquestioned imperative that assured a free flow of funds that kept the lab fat and happy. The Berlin Wall fell, the Soviet bear dissolved and the nation began to clamor over the ballooning national debt.

But as the perception of threat from nuclear foes has faded, people have begun to wonder whether the billion-dollar-a-year investment in Lawrence Livermore is the best use of the

nation's money. Craig has had a front row seat from which to watch the shifting national priorities.

It began for Craig when the project he was working on as part of the Strategic Defense Initiative, or "Star Wars" project, was canceled. Star Wars, which promised to float laser stations in space to shoot down invading missiles, represented the type of grand scale on which the lab's scientists had been long accustomed to working.

At the time, Craig was able to find new work at the lab on a project related to its laser fusion program, but a year ago cuts forced the lab to shut that down as well. No longer assigned to a specific project with its own budget, Craig has become, in the parlance of the lab, a "burden of overhead."

"Many scientist are nervous because they are experts in a discipline that was essential and useful to a certain point, but now it is not," Craig said.

The challenge for Craig is no longer to solve complex physics problems that will somehow increase the security of the nation, but something more basic: how to latch on to a project that will be able to win funding.

He recently completed two months of preliminary work with high-powered lasers to remove "port-wine stains," a blotchy skin discoloration such as the one on Mikhail Gorbachev's forehead, caused by a cluster of blood vessels just below the surface of the skin. The discoloration can be remedied by applying energy from a short laser blast a millimeter below the skin to burn the network of vessels gathered there.

His preliminary work on that project is done, and he's now waiting to see if the initial test results generate enough interest to fund further work. In the meantime, he is placing more hope in another project involving protein crystallography, a way to unlock the function and relationship between different proteins by studying their structures. He's competing within in the lab with about 120 other scientist and engineers for one of 20, $250,000 grants.

"I think this lab is facing a downsizing in the current year," he said. "For a working scientist like myself, the focus is to get off the burden account and be ahead of the machine that wants to lay me off."

About 40 miles east of San Francisco, Lawrence Livermore National Laboratory is one of nine research labs operated by the Department of Energy. Along with Sandia National Laboratories and Los Alamos National Laboratory, Lawrence Livermore forms the triumvirate of labs performing nuclear weapons research.

Established in 1952, Lawrence Livermore has played a long and important role in the nation's nuclear weapons arsenal, from its founding by Edward Teller and Ernest Lawrence, to the now tabled Star Wars program. If its 1993 budget of $1.049 billion were compared to the revenue of public corporations, it would be ranked 359 on the Fortune 500.

But with the end of the Cold War, Lawrence Livermore's future is unclear. As in the private sector, the lab has been forced to confront the reality of downsizing.

In the fiscal year 1987, Livermore's budget for nuclear weapons research and development reached a peak of $325.2 million, and 1,740 people were employed by the program. In fiscal 1993, the budget fell to $253.5 million and 950 people were working in the program. In the current fiscal year, the budget is expected to shrink yet again to $199 million. Though many people have been shifted around by the lab, earlier this year 743 employees - nearly 10 percent of the full-time equivalent staff - participated in an early retirement program.

Despite the attention the lab has drawn with each announcement of a new research and development agreement with an automotive giant or the licensing of a technology to a young company that envisions using it to create new products with mass markets, the lab is in the midst of a struggle to define exactly what its post-Cold-War role should be.

Hardliners both within the lab and the government still support the Lawrence Livermore's traditional mandate. They say, however, that the lab's focus should shift from developing arms to combat another nuclear superpower to developing means to detect and counter the threat from nuclear proliferation and terrorists who might build or buy a nuclear device and smuggle it into a major city.

Others, though, say the nation can no longer afford to support the redundancies built into the weapons program. They say leave the weapons work to Los Alamos, which is in the desert, and convert Lawrence Livermore, a suburban lab surrounded by one of the richest collections of entrepreneurial technology companies in the nation, into a civilian laboratory. The lab's mission would be to put its engineers, scientists and resources to work on some of the considerable industrial problems facing the nation that the private sector is either unable or unwilling to tackle on its own.

The public at large not a rare glimpse of the conflict engulfing Lawrence Livermore in April when the private base between then lab director John Nuckolls and officials from the University of California, which is contracted by the Department of Energy to manage the lab, burst onto the front pages of local newspapers.

Amid reports that UC President Jack Peltason had asked him to step down, a confidential report from an independent performance committee at UC said Nuckolls had been to slow in pushing the lab forward now that the Cold War has ended. The report labeled Nuckolls indecisive and complained of a lack of leadership at Lawrence Livermore.

The next day Nuckolls resigned.

"I view that as a recognition that in a different environment a different kind of leadership is needed," said Michael Odza, publisher of Technology Access Reports, a Novato-based newsletter that covers technology transfer from federal and university labs to the private sector. "I'm concerned while Nuckolls and the University of California recognize that, there's no recognition yet what kind of leadership is needed."

Bruce Tarter, an assistant director at the lab, has been serving as acting director while the University of California conducts a search for Nuckolls replacement.

The selection is being watched carefully both within the lab and outside. The question is whether UC will choose another weapons scientist such as Nuckolls - or Tarter, who is a candidate - or will reach into the business world for someone who would have credibility with the private sector and bring practical experience necessary to transform Lawrence Livermore into a place better suited to operate with the business world.

Not that the lab isn't already trying. Its early efforts, though sometimes awkward, have been met with enthusiasm among some scientists who have discovered industrial problems can be challenging. Some, rather than being overwhelmed by the uncertainty of their future, say the experience has been liberating and energizing.

Since 1983, Don Bender has been an engineer at Lawrence Livermore. Among other things, he helped design the lab's $173 million Nova laser. The laser's 10 arms produce laser pulses that together deliver more than 100 trillion watts of power to a fuel pellet in a billionth of a second. Used in a fusion reactor, a gram of fuel releases the equivalent energy of about 2,400 gallons of oil.

Today Bender works at Lawrence Livermore on a flywheel battery in cooperation with Westinghouse Electric Corp. and Trinity Flywheel Batteries Inc., a San Francisco start-up. The project is somewhat more modest than the Nova. The firms will supply $900,000 for the lab to do research.

The battery has been likened to a potter's wheel, converting electrical energy into motion. As the battery charges, its rotor wheel spins faster. As it discharges, it slows. The battery could help address a $12 billion annual problem for U.S. industry caused by power surges and dips in electricity, the lab said.

As with others at the lab, new words have crept into Bender's vocabulary. He speaks of "customers" and "marketing," things he said he never learned to do at the Massachusetts Institute of Technology where he earned his master's degree in engineering. Rather than interacting solely with other engineers and scientists, Bender is now getting used to describing a project in layman's terms to a roomful of potential customers and corporate partners.

But unlike the massive projects normally undertaken at the lab, Bender said he finds great satisfaction working on smaller projects with commercial goals.

"With a fusion reactor, there's not going to be a commercial reactor in your lifetime. The motivation is abstract. You are working towards an ideal," Bender said. "Here, the feedback is immediate. You see the results, not just in your lifetime, but within your attention span."

In the old world of Lawrence Livermore it was not unusual for scientists and engineers to construct by hand one-of-a-kind devices. A premium was placed on precision, measured in

millionths of an inch or a billionths of a second. The goals of some of the grander projects, such as the fusion reactor, were seen as being decades away.

As these same scientists and engineers are sent off to work with the private sector, they quickly learn timetables are short, money is scarce and precision is not as big a priority.

"When money isn't infinite, you have to take a different point of view," said Malcolm Caplan, a physicist who worked on microwave technology as part of the Strategic Defense Initiative. "It may be worth getting only 90 percent of an answer if it saves three fourths of the money. In industry, cost matters. If it works and breaks the bank, it doesn't work."

Caplan sits in an office in the lab's Building 111. The entire floor is given over to the innocuous sounding "A" group, part of the lab's elite that designs thermonuclear weapons. Though Caplan has worked in the private sector and understands how the corporate world operates, he said it can be a significant adjustment for some of his colleagues, who have long worked in a cloistered environment and now find themselves at a conference table with a group of business people.

"You can't just take a bomb engineer out of his environment. He was trained not to interact," said Caplan. "Now it's really opposite. You have to teach them what's involved in interacting with industry. You have to teach them to dress up in a suit, pull up their fly and shave."

If such cultural adjustments are coming with difficulty at the lab, they are subtle counterparts to the mechanical and operational overhaul the lab and the Department of Energy need to make if they are serious about working with industry in any significant way, say critics.

Though Lawrence Livermore has taken steps to move toward a newly redefined mission, it is only beginning to develop and implement systems that will allow it to work effectively with industry.

"We're not quite sure what the new set of rules is," said Richard Landingham, the section leader of Lawrence Livermore's Materials Science division. "We're taking them on one step at a time and formulating new policies. The policies are evolving. They are a little too rigid and not totally understood."

That's not surprising, considering the dramatic changes the lab is undergoing. Five years ago it was a rare instance when the lab would even take private money to do a job, Landingham said. It would have to be an extraordinary circumstance where there were no alternatives to the lab and it wouldn't take a lot of time or equipment.

Today, by contrast, working with industry has become one of the major goals of the lab. Rather than waiting to be approached by a company in search of technology, the lab now goes knocking on corporate doors to ask those inside what they need and what the lab can do to help. Landingham and others say although there is a sense that the lab should pursue such partnerships, there is only a vague sense about what that should include.

"There isn't a focus to the lab," he said. "There is a mandate from Washington that filters down. I don't think anyone here will tell you we have a mandate we can all agree on yet."

The clearest form of the mandate is in the form of legislation. In 1986, Congress passed the Federal Technology Transfer Act, which created Cooperative Research and Development Agreements, or CRADAs, an important mechanism for the transfer of government technology to the private sector. This was modified in 1989 when Congress passed the National Competitiveness Technology Transfer Act to authorize Department of Energy labs such as Lawrence Livermore to participate in CRADAs.

The development of CRADAs represented a major repositioning for the labs in their relation to industry. Though Lawrence Livermore had a technology transfer office since 1980, it served more as a caretaker than a marketer of the lab's technology. The lab was required to spend .5 percent of its budget on technology transfer, but the office's effort was focused on producing publications that simply cataloged for industry what technology was available.

"It was basically a communications office," said Roger Werne, associate director for engineering and technology transfer at Lawrence Livermore, who described the office previously as "passive."

"Marketing," he said, "is a new term for us. We now go out to companies."

Werne removed a binder from his shelf that held hundreds of business cards neatly stored in sheets of plastic. Like a kid calling off prized pieces in a collection of baseball cards, Werne flipped the pages reading off names here and there. Instead of Mets, Yankees and Dodgers, though, the names he touted were Bechtel, Boeing and General Motors.

"In the last few years I've collected 1,000 business cards," he said.

Already Livermore has entered into 124 CRADAs with a value of $420 million, making it a potent weapon in the technology transfer arsenal.

"Technology transfer is really a misnomer," said Werne. "Now its industrial partnering."

In essence, a CRADA is an agreement between a federal lab and one or more private corporations to jointly use their staff and resources to work on a specific project. CRADAs usually involve an equal sharing of expenses between the lab and its partner, something that serves as an inducement to industry, which is getting half its research-and-development expense underwritten by the government.

Though federal technology had long been available for the asking, many corporations stayed away from it for a variety of reasons. Among them was concern that the technology would not be patentable because it came from government research, or that a competitor, through the freedom of information act, could gain trade secrets from anyone working with a government lab.

It remains controversial that the government can work with one corporation to the competitive disadvantage of another or that a single company or consortium of companies can gain exclusive rights to technology that was developed with taxpayers' money. But advocates of the system say that without such protections valuable technology would languish on shelves.

As CRADAs have drawn businesses to Lawrence Livermore, business people say they are finding value there. Chuck Anderson, supervising engineer for Caterpillar Inc. in Peoria, Ill., is working with Lawrence Livermore on a CRADA to use industrial computer tomography in the production of diesel tractor engines. By using the lab's expertise in X-ray technology, the company has been able to develop ways to inspect the interior of its engines for possible defects.

Though Anderson does not give his lab counterparts perfect marks, he said they do have a good business focus and offer Caterpillar something the company would not otherwise be able to do.

"We still don't have their skill level," he said. "This is the most effective way of doing it."

The original partnerships with industry came slowly. It took the lab as much as 18 months to iron them out since there was no model from which the lab could work.

The process, by industry standards, was long and cumbersome because of redundancies built into the Livermore system and the fact that each contract, once agreed upon, had to go to the Department of Energy for approval. In addition, the lab continues to climb a steep learning curve.

"There were no ground rules, no direction," said Landingham of Livermore's Material Science division, who worked on one of the first partnerships for the lab developing superplastic steel. "We had to make up a contract."

The agreement, hammered out in 1989, involved several parties including the Department of Energy, the University of California, Caterpillar Inc., Northstar Steel and Stanford University, which held basic patents on the technology critical to the agreement.

The problem was that the project was well under way before the contracts had been signed. Two years into the program, Landingham said Stanford began to raise a stink about royalties it wanted up front.

"The tech-transfer people didn't realize verbal communique wasn't adequate," said Landingham.

Since then, far more elaborate guidelines have been put in place and the process has been improved. Today, a CRADA takes Lawrence Livermore two to four months to structure. There is additional effort being made to streamline the process and minimize the bureaucracy. Ultimately, the lab hopes to develop a standardized CRADA that can be worked out in a matter of weeks.

But despite the progress the lab has made to improve the agreements and the fanfare with which they are announced, the reality is that they still represent a small part of what Lawrence Livermore does.

"The amount of work they are doing with industry is not sufficient enough to change the culture of the lab," said Greg Mello, a staff member of the Los Alamos Study Group and a consultant to Tri-Valley Cares, a citizens organization devoted to lab conversion and nuclear disarmament. Only about 5 percent or $50 million of Lawrence Livermore's billion-dollar annual budget comes from CRADAs, he said.

Despite shrinking budgets at Lawrence Livermore, Mello notes that the percentage of the lab's Department of Energy funding allocated for nuclear weapons actually continues to grow. Currently, nuclear weapons work accounts for 55.3 percent or $411 million of Lawrence Livermore's DOE funding. Next year, it will drop to $362 million, but climb to 56.7 percent of the budget, according to Mello.

"The thesis that this laboratory is rapidly shifting to a post-Cold War mission is not really supported," he said.

Many of the lab's critics point to Lawrence Livermore's former director Nuckolls and the congressional testimony he gave less than a month before resigning his post. They say it underlines the lab's resistance to break from the past.

Nuckolls warned legislators of the danger posed by nuclear terrorists and the need to reinvigorate the weapons labs.

"These incalculably and catastrophic threats put at risk the building blocks of modern civilization," said Nuckolls, as he called for an additional $300 million funding for the nation's three weapons labs.

There are those who would like to see Lawrence Livermore entirely shed its weapons work. Among them is congressman George Brown Jr., D-San Bernardino, head of the House Science, Space and Technology Committee, who has advocated that Lawrence Livermore be converted into a civilian lab. He argues the lab should build on its strengths in materials science, fusion, computational science, environmental remediation and biotechnology and emphasize building consortia with industry and academia under the name of Lawrence Livermore National Critical Technologies Laboratory.

"The nation no longer needs three nuclear weapons labs, all of which are trying desperately to retain as much of their defense activity as possible, while also diversifying feverishly toward civilian missions," Brown wrote in February 1992 to then-secretary of energy James Watkins.

While Brown in his letter acknowledged his call for removing Lawrence Livermore from the nuclear weapons business represented a "taboo in the minds of many DOE officials," he said while such taboos may have been "defensible during the Cold War, they have now become obstacles in the way of clear thinking about the proper course for the DOE laboratories."

Others go further and question whether, given Lawrence Livermore historical orientation, it could be an economical source of problem-solving technology for the private sector.

"I am sympathetic to critics who say, 'How can Livermore, a nuclear weapons lab that worked on Star Wars, how can they come up with appropriate solutions to environmental problems,'" said Ann Markusen, director of the Project on Regional Planning and Industrial Economics at Rutgers University in New Brunswick and coauthor of the book "Dismantling the Cold War Economy." "We should say, 'What's the most effective way to solve this problem,' and then say who is the best to do it. Not just give the mission to the labs because their budgets need to be kept up."

Markusen believes instead of foisting a new mission on the lab for which it seems ill-equipped, it would be better to let the lab "shrink gracefully," as have some of the defense companies, and let it deal with the not insignificant role of dismantling nuclear weapons.

People in industry who have worked with the lab certainly see value in some of the existing technology Lawrence Livermore has to offer.

Among them is Kevin Felch, project engineer for the gyrotron development project, a $2 million CRADA between Lawrence Livermore and the Palo Alto-based electronics firm Varian Associates Inc. Through the CRADA, Varian is making use of computer code written for the Star Wars project to test the design of tubes used in what is essentially a monstrous version of the magnetron found in a microwave oven.

"The question always is, is it cost effective?" said Felch. "It's fairly obvious if it's something they've already done."

What's less obvious is whether Lawrence Livermore can develop new technologies with industry in an economical way.

William Weida, a retired Air Force colonel who served as a Pentagon economist and now is a professor of economics at Colorado College in Silver Springs where he works with communities on conversion issues, said that Lawrence Livermore is "selling its soul" with CRADAs. Weida said once the "few neat things they have on the shelves" are gone so will the lab's value to industry be gone as well.

"There's so much promise and so little potential," he said.

Weida advocates some strong medicine for the lab. He'd like to see an independent organization such as the National Science Foundation take an unbiased inventory of Lawrence Livermore and have each department propose projects. Those deemed worthy would be funded, others would be cut with facilities and equipment to be auctioned off.

"We've managed to create institutions that go well beyond the economies in which they operate," Weida said.

For years, Lawrence Livermore's non-weapons programs depended on the largess of the weapons program, which acted as a flywheel to drive the whole lab. Now, Weida views the lab's sudden mad dash to solve grand industrial challenges as a search for a new flywheel in the face of shrinking nuclear weapons budgets.

"It's something that's not going to work," he said. "No one is going to pay them to think hard about big problems. These labs seem to feel because they were good at physics they'd be good at everything. If it's up to the labs to save themselves, we've lost them."

To truly make a contribution to the private sector, Weida argues, Lawrence Livermore will have to shed its weapons work and abolish secrecy so that its ideas will be subject to the same type of scrutiny from scientific peers at universities and private research labs that others must undergo.

But shedding their weapons work is not something Lawrence Livermore seems ready or willing to do. Perhaps the strongest evidence of this is the lab's pursuit of the National Ignition Facility, an $800 million follow-up to the Nova laser. Though billed as an energy research facility, advocates of civilian conversion of Lawrence Livermore say it is an example of how the lab is trying to compensate for budgetary losses by seeking large, new weapons projects.

"These efforts, even if successful, will confine Lawrence Livermore's future to an increasing sterile extension of its past," wrote Mello of the Los Alamos study group in a report prepared for Tri-Valley CAREs, a local community group that advocates Lawrence Livermore be turned into a "green lab."

"If [Lawrence Livermore] invested the energy it now puts into promoting its nuclear weapons agenda into positioning itself to address urgent national needs, its future could be bright and moral and the laboratory would be buoyed by a renewed sense of purpose," wrote Mello. "But while [the lab] dithers, competing laboratories - in government, academia and industry - are positioning themselves to take advantage of new currents in the nation's technology policy debate."

Lab officials counter by arguing that basic defense technology research has long proven a valuable source of commercial technology.

"To think there is no synergy with basic technology research is just not true," said the lab's Werne. "The aircraft industry had its roots in military research. The same is true in the computer industry, and others grew out of military funding."

Werne envisions a happy middle ground between the lab's historical role to develop nuclear weapons and its new one to partner with industry for the economic benefit of the nation.

He said the lab has already embraced a "dual benefit" strategy where R&D within the lab is conducted with an awareness of possible private sector benefits. What that means, from a practical point of view, is that if the lab is working on software for its massive parallel computing project - which will allow several computers to work on parts of a complex problem simultaneously to speed its solution - it will design the software with an architecture that will be able to run on civilian systems as well as military ones.

Werne said the idea of industry and the federal labs working together is still in the experimental stages. When it started, he said, critics argued that lab staff could not work with industry and that the labs have nothing to offer.

"We've proven them wrong," he said. "Industries that leverage themselves by working with the lab will have an advantage that others will not."

Advocates of converting Lawrence Livermore to a civilian lab don't dispute that military research has spawned valuable commercial technology, but they emphasize that dollar for dollar, civilian research produces far more bang for the buck and creates more jobs than does its military counterpart.

And that will be the bottom-line reality that Lawrence Livermore will have to face in the long run, when the lab's value will be evaluated by the results its partnerships yield.

"I worry that the Department of Energy labs are measuring their success by the number of CRADAs they're engaged in," said Odza, of Technology Access Reports. "The ultimate measure of success will be if companies are more successful in the marketplace because of their interactions with the lab. It may be years before we know."

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Thomson Gale Document Number: A17014342

Paper: The Dallas Morning News
Title: Los Alamos lab says nuclear arms mission changed
Date: October 1, 1994

SANTA FE, N.M. - Los Alamos National Laboratory's mission to create weapons of mass destruction "has largely gone away," and the lab isn't designing any new nuclear weapons, says a senior manager.

Steve Younger, deputy director of nuclear weapons technology, said at a hearing Thursday that the weapons program is focusing on helping dismantle weapons and working to halt their spread to countries that don't have them.

Although speakers at the hearing - generally lab critics - welcomed Mr. Younger's remarks, not all said they believed him.

Greg Mello, a leader of a Santa Fe-based **Los Alamos study group**, questioned Mr. Younger about studies for the Defense Department on exotic new warhead designs for future wars.

Mr. Younger acknowledged the studies but said they were preliminary, and he detailed the bolt-by-bolt work needed to design a working nuclear weapon.

The exchange came during one of a series of public meetings in northern New Mexico on the Energy Department's plans to prepare a new environmental impact statement for Los Alamos.

The study, to be prepared over the next three years, will cover the full range of lab operations from nuclear weapons research to radioactive waste disposal.

Meanwhile, another lab official said as much as 880 pounds of plutonium is shipped to and from the lab each year on secret, heavily guarded trucks.

T.J. Trapp, program manager for nuclear materials, said this week that 440 to 880 pounds of plutonium is shipped via unspecified state and federal roads from the Energy Department's Pantex plant in Amarillo.

David Rosson of the Energy Department's Albuquerque office said Thursday that most of the plutonium is in the form of "pits" - the radioactive metal sphere at the heart of most nuclear bombs.

Mr. Rosson said the pits are extracted from warheads at Pantex and shipped to Los Alamos, where they are tested to determine reliability. Most of the pits are then returned to Pantex, where they are reinserted into warheads in the nation's nuclear stockpile, he said.

Mr. Rosson said a few pits undergo "destructive testing" that makes it impossible to use them again. Plutonium from those pits remains at Los Alamos, he said.

The Energy Department disclosed earlier this year that Los Alamos has 2.6 metric tons of plutonium on site.

Santa Fe resident Elliott Skinner expressed outrage at the secret truck shipments.

"We've been kept in the dark about this," Mr. Skinner said. "These are not small amounts."

Author: Associated Press
Section: NEWS
Page: 40A

Paper: Santa Fe New Mexican, The (NM)
Title: ACTIVISTS SEEK HALT TO LANL FACILITY
Date: October 4, 1994

Two local environmental groups and a national environmental organization have asked Department of Energy Secretary Hazel O'Leary to halt construction of a $117 million weapons test facility at Los Alamos National Laboratory.

The Dual-Axis Radiographic Hydrotest Facility, known as DAHRT, has been called ``the highest priority'' for the weapons program at LANL by John Immele, program director for nuclear weapons technology at the lab.

Concerned Citizens for Nuclear Safety, the **Los Alamos Study Group** and the National Resources Defense Council say that DAHRT is being constructed without the environmental reviews and public input required by the National Environmental Policy Act.

``This facility is being built as we speak and the community knows very little about it or its consequences,'' said NRDC attorney Drew Caputo.

In an 11-page letter to O'Leary, the groups said that the DOE in 1993 upheld the project's exemption from the NEPA review process even though the agency abolished the exemption procedure in 1990.

``This action is illegal, is bad public policy and violates the commitment of successive secretaries of energy to bring the department into a new era of NEPA compliance,'' the letter said.

The groups want the Energy Department to prepare a detailed environmental study, called an environmental impact statement, of DAHRT.

Neither O'Leary nor her office in Washington, D.C., could be reached for comment Monday.

The groups' concern about the environment, expressed in a one-page statement by the NRDC, is that ``by exploding nuclear and other materials, DAHRT would release radioactive and toxic materials into the air around Los Alamos.''

In a telephone interview, Immele said DAHRT does not release anything into the environment because it is simply an imaging machine.

He said the project -- scheduled for completion by 1997 -- has proceeded in accord with the National Environmental Policy Act.

``The bottom line is that NEPA requirements have been met at every step of the project,'' Immele said. ``We're confident we could win this in court. The NEPA documentation is in good shape.''

Immele said the Energy Department has found DAHRT would have no impact on the environment. He also said that the state had issued a construction permit for the project.

Delaying the project for an environmental impact study would add to the cost of the project. A two-year delay, he said, could add as much as $15 million.

DAHRT is essentially a huge X-ray machine that would enable laboratory weapons scientists to peer into nuclear weapons components as they are subjected to the impact of a non-nuclear explosion -- the first step in the two-step process that creates a nuclear detonation.

DAHRT is part of an array of testing devices that are part of the lab's Above Ground Experiments program, known as AGEX. The program is intended to substitute for the underground nuclear weapons tests once conducted at the DOE's Nevada Test Site. The tests are now banned.

Immele said DAHRT is critical to the performance, aging and accident-proof tests that the lab needs to perform on existing nuclear weapons components under its ``stockpile stewardship'' program.

``In the absence of nuclear testing, it is our way of assuring the taxpayers of the safety and reliability of the remaining U.S. weapons in a much reduced nuclear inventory,'' Immele said.

The environmental groups say one reason they are concerned about DAHRT is that the lab could use it to design new nuclear weapons.

Immele said DAHRT was not going to be used to design nuclear weapons because ``the president of the United States has said we're not going to develop and test new nuclear weapons.''

Author: Keith Easthouse
Section: SANTA FE / REGION
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FERC's Bailey Downplays Power Marketers' Role

BY MARY O'DRISCOLL

The continuing evolution of the electricity market does not bode well for those entering the power marketing and brokering business, Federal Energy Regulatory Commissioner Vicky Bailey says.

But, Bailey told *The Energy Daily's* retail wheeling conference last week, until FERC issues final rules on such issues as stranded cost recovery and the industry determines what route it wishes to take, that evolution will be slow.

"With more clarity, particularly as to the financial aspects of this business, it will be easier for managers, investors and customers to begin evaluating options and make decisions that will accelerate the transition," she said.

Without that direction, she added, "[m]any utility managers might see it as a disservice to shareholders to voluntarily write off assets as long as there is a possibility of recovery. Investors are skittish and view each new 'vision' as some further threat to past investment deals. Customers are curious about options and hesitant to sign long-term deals as long as there is the possibility of a better option under some new, as yet unspecified, industry structure."

Bailey in the past has signaled her support for taking a second look at FERC's relatively strict regulatory stance on electric power marketers, against which many of the

(Continued on page 2)

Environmentalists To Fight 'Secretive' Los Alamos Facility

BY GEORGE LOBSENZ

Environmentalists, saying "an indefensible veil of secrecy" still shrouds the Energy Department's nuclear weapons program, Tuesday demanded an immediate halt in construction of a test facility at Los Alamos National Laboratory until DOE conducts more environmental studies.

In a letter to Energy Secretary Hazel O'Leary, three environmental groups contended DOE is violating the National Environmental Policy Act (NEPA) in proceeding with the Dual-Axis Radiographic Hydrodynamics Test (DARHT) facility.

Los Alamos officials vigorously disputed that allegation, saying all federal environmental requirements have been met and that DARHT poses no environmental threat.

But the environmentalists threatened to sue if DOE does not complete a full environmental impact statement on DARHT. And more significantly, they said DOE should conduct a broader programmatic environmental impact statement (PEIS) covering DARHT and all other facilities to be used in the department's "stockpile stewardship" program.

"The department must prepare a programmatic EIS concerning its poorly explained and secretive new program for 'stockpile stewardship,'

(Continued on page 2)

PG&E Changes Its Mind, Decides To Keep Gas Pipeline

Pacific Gas & Electric Co. is abandoning the sale of its Pacific Gas Transmission pipeline to TransCanada PipeLines, PG&E CEO Stanley Skinner said Tuesday.

Instead, Skinner said in an interview with *The Energy Daily*, the San Francisco-based utility plans to keep PGT to help create synergies with the power production activities of its U.S. Generating Co. subsidiary and as a "vehicle for alliances" with other companies.

PG&E announced the sale of PGT's 612 miles of pipe extending from Canada to the California border three years ago, before Order 636 when the company was being squeezed between the California Public Utilities Commission and Canadian producers.

Since then, PGT has relocated its headquarters from San Francisco to Portland, Ore., and completed work on its controversial system expansion. The $350 million sale, however, encountered several delays and was on hold for much of the time.

Skinner said he discussed the matter with TransCanada officials in Calgary last month. But, he added, abandoning the sale does not mean PG&E will forsake working with TransCanada and other companies on future projects.

PG&E is "of the view...that there will be a lot more strategic alliances in the future," Skinner said. "The days of owning and controlling everything is a thing of the past."

And, he added, PG&E continues to work with TransCanada through the connection of U.S. Generating, PG&E's independent power partnership with Bechtel, which recently bought J. Makowski—itself a partner with TransCanada in the Iroquois pipeline and the Ocean State projects.

Skinner also said he recently expanded the board of PGT with more outside directors, including Neal Goldschmidt, the former governor of Oregon and Carter administration transportation secretary.

—MARY O'DRISCOLL

Bailey Downplays Power Marketers' Role... (From page one)

marketers are chafing. Nevertheless, she said, "I do not see much of a role for them in the future."

In an interview Monday, Bailey was quick to note that she is not casting doubt on the worth of the marketers to the electric power industry and stressed that as a regulator, her job is to make sure there is a level playing field for all entrants into the electric power business.

But, she added, as the industry evolves, there probably will come a day when the role of the power marketer may diminish—although when that will be, she is not sure.

"I look at them...as trying to take advantage of a business opportunity," she said. "I guess now, while the market is developing, there may be enough margin there to make money through brokering deals, middlemen kinds of roles.

"But there is a definite difference between the vertically integrated utilities and the gas industry, which was disintegrated" and accommodated for a time a flourishing gas marketing business, she said.

The largely integrated electric power industry's operations involve not only federal, but state, regulators who oversee utilities and look out for their ratepayers. "And as things evolve on the electric side, I think there will be less of a role for marketers," Bailey said.

The current situation in the electric power marketing industry may bear her out: Experts who follow it closely say that despite the more than 60 power marketing applications at FERC, only a handful of the largest power marketers are doing probably 90 percent of the buying and selling of power.

But, those observers add, many new entrants into the marketing business are investment firms that anticipate a situation similar to what has evolved in the natural gas industry, where much of the activity involves hedging, specialized swaps and other sophisticated financial instruments.

Bailey acknowledged as much when she noted that many marketers appear to be joining the California debate on the side of those who support bilateral markets—which would enable them to take advantage of imperfections in the market and find their own niches. The concept of a power pool, she said, does not allow for as much activity.

Environmentalists Plan Court Fight... (Continued from page one)

including engineering and manufacturing activities proposed as part of DOE stockpile responsibilities," said the Natural Resources Defense Council, Los Alamos Study Group and Concerned Citizens for Nuclear Safety. "In addition to being legally required...the PEIS will remove the indefensible veil of secrecy that has covered this program and contributed to the NEPA illegality [at DARHT]."

In regard to DARHT, the groups told O'Leary Los Alamos has not conducted any substantial analysis of toxic and radioactive emissions to be emitted from the facility, which is to be used to assess the reliability of U.S. nuclear weapons through experiments involving high explosives and depleted uranium.

Rather, they said Los Alamos is improperly relying on a 1987 decision by DOE's Albuquerque office that found no environmental studies are needed. The so-called NEPA "categorical exclusion" issued by Albuquerque found that the environmental impacts of DARHT are "substantially the same as actions previously evaluated in existing NEPA documentation and determined to be insignificant. Therefore, further NEPA documentation is not required."

That decision appears to be based on findings that emissions from DARHT would be similar to those from the facility DARHT is replacing, PHERMEX, or the Pulsed High-Energy Radiographic Machine Emitting X Rays. Los Alamos officials said the only change at DARHT involves more sophisticated analytical equipment.

DOE officials revisited the EIS issue for DARHT in November 1993—five months prior to groundbreaking for the facility—and again concluded no further environmental studies were needed.

However, the environmentalists said the 1993 go-ahead ignored fundamental changes in DOE's environmental regulations since Albuquerque's initial 1987 finding. In particular, they said former DOE Secretary James Watkins in 1990 revoked the categorical exclusion approach used by Albuquerque in saying that no further environmental studies were needed because DARHT would emit much the same emissions as PHERMEX, which had been studied previously.

"In relying on a by-then-nonexistent categorical exclusion in its November 1993 decision on the adequacy of DARHT's NEPA compliance, the department violated NEPA...," the environmentalists said.

Furthermore, they said the categorical exclusion was improper in that the only previous document analyzing environmental impacts similar to those posed by DARHT was a 1979 sitewide environmental study of the entire Los Alamos site. The environmentalists said that document was clearly outdated.

Los Alamos officials strongly rejected charges that DARHT had not been subject to adequate environmental analyses, citing DOE reviews in 1987 and 1989 and clean air approvals granted by the Environmental Protection Agency in 1988.

They also said timely completion of DARHT in 1996 is vital to national security, especially in view of the United States' halt in underground testing.

"By asking Secretary O'Leary to stop construction of DARHT, these groups in effect are asking her to jeopardize the government's ability to assure the taxpayers of the long-term safety and reliability of the remaining U.S. weapons in a much-reduced nuclear inventory," said John Immele, director of the nuclear weapons program at Los Alamos.

DARHT will allow nuclear weapons researchers to study explosions through high-tech X-ray machines. Los Alamos officials say minimal toxic and radioactive emissions are released when high explosives are used in conjunction with depleted uranium to simulate bomb explosions.

Paper: Santa Fe New Mexican, The (NM)
Title: INDIAN RUIN ON LAB LAND COULD NEED SHIELD FROM TOXIC BLASTS
Date: November 8, 1994

Special barriers to protect an important Indian ruin might be needed at a $117 million nuclear weapons test complex under construction at Los Alamos National Laboratory, a LANL official said Monday.

Mike Burns, project leader for the Dual-Axis Radiographic Hydrotest Facility, or DARHT, said that shrapnel contaminated with toxic materials such as uranium, lead and beryllium could reach the ruin site from non-nuclear, outdoor detonations at DARHT.

The ruin, called Nakemuu, is located across a canyon on a mesa 1,100 feet from the site where the explosions will take place, Burns said.

Nakemuu includes standing unburied walls, among other features. According to a laboratory document, it is the ``best preserved prehistoric Indian ruin on laboratory land."

Burns said that another, much smaller ruin about 100 yards from the firing site would be protected through burial and by constructing an earthern berm over the site.

Officials at San Ildefonso Pueblo, which borders the laboratory, could not be reached for comment.

Last month, activist groups in Santa Fe and Washington, D.C., asked Energy Secretary Hazel O'Leary to halt construction of DARHT. The groups, which include Concerned Citizens for Nuclear Safety, the **Los Alamos Study Group** and the Natural Resources Defense Council, say the facility is proceeding without the environmental reviews and public input required by federal law.

Lab officials say that such reviews were not required when construction began on DARHT in 1988. They also say that an environmental study would add to the cost of the project -- as much as $15 million over a period of two years.

DARHT is essentially a huge X-ray machine that would enable laboratory weapons scientists to peer into nuclear weapons components as they are subjected to the impact of a non-nuclear explosion -- the first step in the two-step process that creates a nuclear detonation.

DARHT is one of an array of testing devices that make up the lab's Above Ground Experiments program, known as AGEX. The program is intended to substitute for the underground nuclear weapons tests once conducted at the DOE's Nevada Test Site. The tests are now banned.

Burns said 30 percent of the experiments at DARHT would involve explosions powerful enough to hurl shrapnel far enough to reach Nakemuu. He said the lab expects to conduct approximately 45 DARHT experiments yearly.

Burns said that most if not all of the shrapnel from the DARHT detonations never would reach Nakemuu because the metal fragments would be intercepted by one of two buildings that make up the DARHT facility.

The building, which is 40 feet high with five-foot thick concrete walls, was purposely oriented so that it would stand between the ruins and the DAHRT firing site, Burns said.

He said laboratory archaeologists will monitor Nakemuu during the initial phases of DARHT's operation to see if any shrapnel is shooting up over the building and falling onto the ruins. If any are, the lab will build additional protective structures, Burns said.

These could include stands placed over the firing site containing glass plating or sandbags that would either block the fragments entirely or slow their trajectory enough to prevent them from reaching the ruins, Burns said.

Activists and Department of Energy officials are in the midst of negotiations over the future of DARHT. One option is to halt the construction of DARHT -- scheduled for completion in November 1997 -- until an environmental study can be done.

Author: Keith Easthouse
Section: MAIN
Page: A1

Paper: Santa Fe New Mexican, The (NM)
Title: LANL FACILITY MUST BE BUILT, SENATOR SAYS
Date: November 10, 1994

It is ``imperative'' that the Department of Energy not give in to the demands of activists to halt construction of a $117 million nuclear weapons test facility at Los Alamos National Laboratory, Sen. Pete Domenici, R.-N.M., said Wednesday.

In a two-page statement, Domenici said that the Dual-Axis Radiographic Hydrotest Facility, or DARHT, has been in compliance ``at every stage of its development'' with a federal law requiring environmental review of the project.

Domenici, repeating claims by laboratory officials, said that halting or delaying the project would add unnecessary costs to the project and have a negative impact to the Northern New Mexico economy.

``Construction laborers (would be put) out of work,'' Domenici said.

DOE officials could not be reached for comment.

Domenici's statement was blasted by activists in Santa Fe and Washington, D.C., who want Energy Secretary Hazel O'Leary to halt construction at DARHT pending a full-scale review of its potential environmental impacts.

``What Senator Domenici is contemplating is to ignore the need for environmental analysis and the public's right to be involved in decision-making about DARHT,'' said Drew Caputo of the Natural Resources Defense Council.

``The senator is wrong that any meaningful environmental review (of the DARHT project) has happened,'' Caputo added.

Caputo said that neither an ``environmental assessment'' nor a more stringent review called an ``environmental impact statement'' has been done on DARHT, despite the fact that toxic materials such as beryllium, lead and uranium will be released into the atmosphere from non-nuclear explosions at the site.

Lab officials have said that such reviews were not required when construction began on DARHT in 1988. Caputo said the level of environmental and public health review that was conducted then was inadequate even by the standards of the time.

As for the economic consequences of stopping DARHT, Greg Mello, of the **Los Alamos Study Group**, a Santa Fe watchdog organization, said that canceling the project would be the cheapest alternative for taxpayers.

DARHT is essentially a huge X-ray machine that would enable laboratory weapons scientists to peer into nuclear weapons components as they are subjected to the impact of a non-nuclear explosion -- the first step in the two-step process that creates a nuclear detonation.

DARTH is one of an array of testing devices that make up the lab's Above Ground Experiments program. The program is intended to substitute for the underground nuclear weapons tests once conducted at the DOE's Nevada Test Site. The tests are now banned.

Domenici said that DARHT ``will provide the most modern means of testing the safety and reliability of nuclear weapons without the detrimental effects of underground testing.''

Mello questioned the need for performance tests. He said Defense Department officials have repeatedly stated that the country's nuclear arsenal has already been proven reliable for the immediate future.

Author: Keith Easthouse
Section: SANTA FE / REGION
Page: B1

Paper: Santa Fe New Mexican, The (NM)
Title: MAIN
Date: November 15, 1994

Giving in to activists' demands, the Department of Energy has agreed to conduct a full-scale review of the potential environmental impacts of a nuclear weapons test facility being built at Los Alamos National Laboratory.

But the department, contrary to the wishes of the activists, apparently has decided that construction of the $117 million facility will continue while the study is being done.

That raises the likelihood that two activist groups in Santa Fe, the **Los Alamos Study Group** and Concerned Citizens for Nuclear Safety, will make good their threat to file a lawsuit and seek a court order to halt construction of the Dual-Axis Radiographic Hydrotest Facility, better known as DARHT.

``A lawsuit is pending,'' said Mary Riseley of the study group.

Riseley said that continuing with construction of DARHT during the environmental review violates a federal law that says an evaluation of a project's environmental impacts should take place before it is decided whether to proceed with the project.

Once begun, momentum would make it difficult to cancel the project, Riseley said.

Anna Bachicha, a spokeswoman with DOE's Albuquerque office, said the construction issue still is being debated.

``Discussions are ongoing,'' Bachicha said.

DOE officials in Washington could not be reached for comment.

The DOE also announced Monday that it has ini tiated a review of classified information about DARHT and hopes to declassify this material by May of next year.

The dispute over DARHT has in recent weeks risen to the forefront of delicate international negotiations for a comprehensive test ban that would prohibit testing of nuclear devices worldwide. The United States is observing a self-imposed moratorium and hasn't conducted an underground nuclear test since 1992.

DARHT is considered critical by those in Washington who want to ensure that the facility and other nuclear blast simulation machines take the place of underground nuclear tests.

Critics of the simulation machines say they could undermine the test ban by allowing nuclear weapons design work -- once dependent on nuclear testing -- to continue at Los Alamos and the nation's other nuclear weapons laboratory, Lawrence Livermore National Laboratory in California.

The dispute has attracted the attention of top laboratory officials as well as Sen. Pete Domenici, R-N.M.

Last month, DARHT was called ``the highest priority'' for the weapons program at Los Alamos by John Immele, program director for nuclear weapons technology at the lab.

Last week, Domenici said it was ``imperative'' that construction on DARHT continue, in part because halting the project would have a detrimental impact on the economy of Northern New Mexico.

DARHT itself is a huge X-ray machine that would enable laboratory weapons scientists to peer into nuclear weapons components as they are subjected to the impact of a non-nuclear explosion -- the first step in the two-step process that creates a nuclear detonation.

Negotiations between the DOE and the activist groups, including the Natural Resources Defense Council, broke down last week over the construction issue.

It is not clear whether NRDC, a prestigious national environmental organization, will join a lawsuit if one is filed. Drew Caputo, a member of the organization, declined to comment.

According to a statement from DOE headquarters in Washington, D.C., the environmental study, called an

``environmental impact statement," would be completed by October of next year.

The statement also said that the study would look at ``reasonable alternatives," but did not elaborate. Typically in environmental impact statements, one alternative that is examined is to not go forward with a project at all.

The DARHT facility is scheduled to go into operation by late 1997. It would release toxic materials such as beryllium, lead and uranium into the atmosphere from non-nuclear explosions at the site.

Author: Keith Easthouse
Section: MAIN
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Paper: Santa Fe New Mexican, The (NM)
Title: SANTA FE / REGION
Date: November 17, 1994

Two Santa Fe activist groups sued the U.S. Department of Energy on Wednesday, seeking to halt construction of a nuclear weapons test facility at Los Alamos National Laboratory.

The lawsuit was filed in U.S. District Court in Albuquerque by the **Los Alamos Study Group** and Concerned Citizens for Nuclear Safety. The complaint contends that the $117 million Dual Axis Radiographic Hydrotest Facility, or DARHT, is being built in violation of the National Environmental Policy Act.

Earlier this week, the Department of Energy announced that it would produce an environmental impact statement on the project. But the agency said it would allow construction to proceed in the meantime.

Local attorney Grove Burnett, who is representing the groups, said that ``the ongoing construction of DARHT violates the most fundamental principles of (the National Environmental Policy Act)." He also said the decision by DOE to do an impact statement ``is an admission that the project is illegal."

The law requires that the environmental impacts of federal projects be reviewed before officials decide whether to go ahead with projects.

Work on the DARHT facility, which would release beryllium, uranium and lead into the atmosphere through non-nuclear detonations, has been going on for several years. It is scheduled to begin operations by November 1997.

Laboratory officials have said that the level of environmental review required by NEPA was not required when construction began on DARHT in 1988. They have also maintained that the environmental reviews that the facility was subjected to then were in line with the standards of the time -- a point disputed by activists.

Burnett said the groups' request for a preliminary injunction on construction at DARHT would be heard by U.S. District Judge Edwin Mechem in coming weeks. Burnett said that if the lab proceeds with procuring equipment for the DARHT facility, he would seek a temporary restraining order, which would bring the matter before Mechem much sooner.

Mechem has required environmental impact statements for other projects in Northern New Mexico in recent years, including a controversial plan to expand the Taos airport.

DARHT is a huge X-ray machine that lab scientists say is necessary to evaluate the condition of the nation's nuclear stockpile in the absence of underground nuclear tests. Activists say the machine could also be used to design new nuclear weapons.

Author: Keith Easthouse
Section: SANTA FE / REGION
Page: B1

Paper: Santa Fe New Mexican, The (NM)
Title: SANTA FE / REGION
Date: November 25, 1994

LOS ALAMOS -- The Los Alamos County Council is angry at what it views as Los Alamos getting short shrift from the Department of Energy during public hearings about Los Alamos National Laboratory.

Councilors say the Energy Department is lending too much credence to peace groups.

They also are angry about recent accusations of racism leveled at Los Alamos during a DOE hearing in Espanola, and the fact that DOE paid for an anti-nuclear group to go to Washington to discuss the proposed $117 million Dual Axis Radiographic Hydrotest Facility, or DAHRT.

The **Los Alamos Study Group** has filed suit seeking to halt construction of DAHRT, a huge X-ray machine to evaluate the condition of the nation's nuclear stockpile. The group claims the project violates the National Environmental Policy Act.

The council's anger may have influenced a decision Monday not to allow an international children's group to erect a peace statue and garden on county property. Council members repeatedly referred to peace activists, people meddling in the affairs of Los Alamos and Los Alamos being publicly humiliated when they considered the request.

During the meeting councilors also criticized recent DOE hearings on a pending sitewide environmental impact statement at LANL.

``If the Department of Energy is to encourage openness, the representatives of the community must have the very same representation as special interest groups," County Councilor Ginger Welch said.

``This process is designed to inflame the community. . . . It creates way more heat than light," Councilor Morris Pongratz said.

The council has voted to draft a letter to DOE criticizing the hearings and demanding an equal voice for Los Alamos. Welch said more than 200 Los Alamos residents voiced support for LANL's mission at a DOE hearing. DOE should act on that, she said.

In an earlier interview, Welch said, ``You have to at some point make a decision that what we are doing is right and then move forward. Is this some kind of an attempt to discontinue nuclear research? I believe that is what it is -- that any kind of nuclear research be discontinued at LANL."

During Monday's council meeting, Councilor Jim Greenwood said the council must get DOE's attention.

``If a letter does not work, the council must go further. If it takes us getting on a plane and sitting in Hazel O'Leary's office for a couple of days, then let's do it," he said.

Welch said dissatisfaction is directed at DOE Washington, not local offices, at Energy Secretary O'Leary and at the Clinton administration. She said that while DOE flew the **Los Alamos Study Group** to Washington, DOE would not return phone calls or meet with council members in Washington to discuss DAHRT.

Councilors also say they are angry that DOE allowed Los Alamos resident Charles ``Chuck" Montano to humiliate Los Alamos with charges of racism at a recent Espanola hearing, rather than direct him to Los Alamos officials. They also are angry that a DOE official then called Los Alamos assistant school superintendent Cheryl Pongratz and ordered her to paint out what Montano feels is a racist gesture on a mural in the high school gym or face loss of $7 million in DOE funding.

Author: Kathleene Parker
Section: SANTA FE / REGION
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FRIDAY, DECEMBER 9, 1994

THE SANTA FE
NEW MEXICAN

DOE official: LANL project violating law

By KEITH EASTHOUSE
The New Mexican

Construction of a nuclear weapons test facility at Los Alamos National Laboratory hasn't proceeded in accordance with a federal law requiring analysis of projects that could seriously impact the environment, a top Department of Energy official has acknowledged.

Undersecretary Charles B. Curtis, according to legal documents, said the DOE's position that the $124 million project is exempt from reviews required by the National Environmental Policy Act is "indefensible."

At a meeting with activists in October when he apparently made the remark, Curtis also said he was "appalled" at the project's lack of environmental review, the documents reveal.

Curtis' remarks would seem to undercut the position staked out by DOE and laboratory officials that the Dual-Axis Radiographic Hydrotest Facility (DARHT) project, first proposed 12 years ago, has been in compliance with the environmental law throughout its history.

Two Santa Fe organizations, the Los Alamos Study Group and Concerned Citizens for Nuclear Safety, filed a lawsuit last month contending the project has violated the federal act.

DARHT is a huge X-ray machine that would enable laboratory weapons scientists to peer into nuclear weapons components as they are subjected to the impact of a non-nuclear explosion — the first step in the two-step process that creates a nuclear detonation.

Toxic materials such as beryllium, lead and uranium will be released into the atmosphere from non-nuclear explosions at the facility.

But lab spokesman John Gustafson said DARHT would have less of an impact on the environment than a predecessor machine at the laboratory because it would involve fewer outdoor explosions.

Lab officials have maintained that the environmental reviews were not required when construction began in 1988.

The activist groups base their lawsuit, in part, on a 1993 decision by DOE to maintain the project's exemption from the review process even though the agency abolished the exemption procedure in 1990.

The groups seek a court order halting construction of DARHT, scheduled to go into operation in

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DARHT

Continued from Page A-1

November 1997.

Last month, the DOE acquiesced to activists' demands to prepare an environmental impact statement that would analyze possible environmental impacts and weigh alternatives — including canceling the project.

Despite the fact that such a study is typically done before a project begins, the agency has refused to stop building DARHT while the impact statement is prepared. The document is expected to be completed next fall.

The activists contend that continuing construction makes it unlikely the impact statement will be objective.

"It is unrealistic to assume that DOE will take a hard look at DARHT as walls are being raised on the facility," said the groups' attorney, Grove Burnett.

A hearing on whether construction should continue is scheduled today before U.S. District Judge Edwin Mechem in Albuquerque, but it's unclear when he will rule.

Curtis' remarks appear in a 32-page legal brief written by Burnett. The same remarks also appear in a four-page affidavit given Wednesday by Jay Coghlan, a CCNS member.

According to members of the Los Alamos Study Group, recent negotiations with DOE lawyers resulted in a decision to remove Curtis' remarks from the brief and the affidavit. Additionally, an agreement was also reached that Curtis' remarks would not be discussed in court and would not be part of the court record.

Consequently, Curtis' remarks do not appear in final versions of the brief and the affidavit. *The New Mexican* obtained earlier versions of both documents.

In a telephone interview earlier this year, John Immele, program director for nuclear weapons technology at the lab, said the project is critical to conducting performance, aging and accident-proof tests on nuclear weapons components in the lab's emerging "stockpile stewardship" program.

Such tests have become more important since underground nuclear testing was banned in 1992.

Documents in the case also show:

- J. Carson Mark, a veteran of the Manhattan Project and head of Los Alamos' Theoretical Division from 1947-1973, said in an affidavit that halting construction at DARHT for the 11 months that an environmental impact statement is expected to take would not impair the safety and reliability of the country's nuclear weapons stockpile.

DOE and laboratory officials have maintained that halting construction at DARHT would deprive the country of information vital to evaluating the condition of the stockpile.

- From 1983, when the project was first proposed, until 1993, DARHT was promoted in DOE budget documents as a facility to design and develop nuclear weapons. Beginning in 1993, it was pitched as being essential to stockpile stewardship.

Paper: Santa Fe New Mexican, The (NM)
Title: SANTA FE / REGION
Date: December 10, 1994

ALBUQUERQUE -- Stopping construction of a nuclear weapons test facility at Los Alamos National Laboratory could endanger national security by impairing the lab's ability to monitor the condition of the country's nuclear arsenal, a top Department of Energy official said Friday.

Speaking at a federal court hearing in Albuquerque, Victor Reis, assistant secretary for defense programs, said the existing nuclear stockpile is safe and reliable and will be for the next few years.

However, he said that if Los Alamos' Dual-Axis Radiographic Hydrotest facility is delayed, it would decrease the window of opportunity government scientists have to understand in detail the condition of the nuclear weapons before they begin to show signs of age that could affect their performance.

That understanding is critical, Reis said, because it would enable scientists to better detect changes in the weapons when they do begin to show signs of aging in the future.

``We need a reference point because what we will be looking for in the future are subtle differences (in the weapons),'' Reis said. ``We need to be able to compare what we have now with what happens in the future as we push the weapons beyond their design life.''

Reis' testimony came during a hearing before U.S. District Judge Edwin Mechem on a request by two Santa Fe activist groups to halt construction of the DARHT facility while the DOE prepared an ``environmental impact statement'' that would analyze the potential environmental impacts of the project.

The **Los Alamos Study Group** and Concerned Citizens for Nuclear Safety believe that if construction of DARHT is allowed to continue it is unlikely that the impact statement will be objective.

``It is unrealistic to assume that DOE will take a hard look at DARHT as walls are being raised on the facilities,'' said the groups' attorney, Grove Burnett.

Key to the activists' case is the contention that an 11-month delay in DARHT -- the estimated time to do the impact statement -- is minimal and would not negatively impact national security.

Mechem is expected to issue a ruling on the request for a construction halt in the coming weeks.

DARHT, scheduled to go into operation in 1997, is a giant X-ray machine that would enable laboratory weapons scientists to peer into nuclear weapons components as they are subjected to the impact of a non-nuclear explosion -- the first step in the two-step process that creates a nuclear detonation.

The following points and statements were also made at Friday's hearing:

--DARHT has been delayed twice already -- once for four years, the other time for seven months -- without any apparent harm to national security.

Reis said those delays were not that significant because they occurred when underground nuclear tests -- the best way to learn about weapons performance -- were still allowed.

A delay now, when nuclear testing is banned, would be much more serious, Reis said, because the country has no choice but to simulate and monitor them with machines like DARHT.

--Reis said he ordered last month that an impact statement be prepared on DARHT ``to allay public concerns'' about the environmental impacts of the facility.

He said he did not base his decision on a concern that the environmental impacts of the facility had never been properly studied.

Another top DOE official, Undersecretary Charles B. Curtis, said in October that DOE's lack of environmental review of the facility was ``indefensible.''

Author: Keith Easthouse
Section: SANTA FE / REGION
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Paper: Santa Fe New Mexican, The (NM)
Title: Image: DowneySen. Pete Domenici, left, and Gov.-elect Gary Johnson appear at the Capitol Tuesday to announce plans to study the state's water situation. Later, both visited LANL, where Domenici discussed the lab's future. DOMENICI: LANL TO KEEP WEAPONS FOCUS -- WITH A TWIST
Date: December 14, 1994

The main focus of Los Alamos National Laboratory will continue to be what it has been in the past -- nuclear weapons, Sen. Pete Domenici, R-N.M., said Tuesday.

Speaking at the laboratory before an audience that included several hundred LANL employees, lab director Sig Hecker and Gov.-elect Gary Johnson, Domenici said, however, that the lab's nuclear weapons work will have a new focus. Instead of designing new nuclear bombs -- the role the lab has played for most of its history -- the lab's weapons scientists will spend most of their time monitoring the condition of the country's nuclear stockpile, Domenici said.

Domenici said he supported the Department of Energy's plan to make Los Alamos a center for its ``stockpile stewardship'' program, which calls for conducting aging and performance tests on the country's nuclear arsenal.

``If the plan becomes policy, there will be large amounts of money (available to the laboratory from Congress) each year'' for the program, Domenici said.

He said that the laboratory's much ballyhooed ``technology transfer'' effort -- a program to work cooperatively with private industry in developing commercial technologies -- will remain secondary to the lab's weapons mission.

He dismissed the idea floated by some that since the Cold War is over, Los Alamos should get out of the nuclear weapons business and become a pure scientific research facility.

``There's no way Congress will be interested in that,'' the senator said.

Domenici also dismissed the idea currently under discussion at the highest levels in Washington of abolishing the Department of Energy and transferring its nuclear weapons responsibilities to the Defense Department -- a shift that could mean that Los Alamos would be run by the Pentagon.

That possibility is reportedly being discussed by President Clinton as a way to trim the government and pave the way for a middle-class tax cut. House Speaker-to-be Newt Gingrich also has targeted the DOE for possible budget cuts or elimination.

Domenici said such talk was ``very premature'' and is not supported by any detailed analysis indicating that abolishing the DOE is a sensible thing to do.

``I don't think for now that anyone should lose any sleep over it,'' Domenici said.

Domenici said that under the stockpile stewardship program, Los Alamos would be ``for the next three to five decades the principal guardian (of the country's) nuclear weapons,'' along with the DOE's other nuclear weapons research labs, Sandia National Laboratories in Albuquerque and Lawrence Livermore National Laboratory in California.

He said that the size of the arsenal upon which Los Alamos and the other laboratories will be conducting performance and aging tests is likely to be from 3,000 to 4,000 nuclear bombs -- a far cry from the 20,000 bombs that the U.S. had in its arsenal a few years ago.

Under an agreement with the Russians, the United States is dismantling a large part of this arsenal.

The stockpile evaluation program also calls for replacing nuclear weapons components when they are found to be flawed or no longer useful.

Mary Riseley of the **Los Alamos Study Group**, a Santa Fe activist organization, said that the program is actually a cover for the DOE to continue to develop new nuclear weapons.

``It's a brilliantly conceived ploy to continue nuclear weapons development,'' Riseley said.

She also said that it was ``welfare for weapons scientists'' because there is currently no need to conduct safety and reliability tests on the nuclear arsenal.

Author: Keith Easthouse
Section: NEIGHBORS
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