



Iraq Vets Join The Ranks Of Livermore Employees

U.S. Army Sgt. Cristian Valle and Pfc. Justin Leon first met at Walter Reed Army Medical Center in Washington, D.C.

Both were recovering from serious injuries sustained in combat in Iraq. Valle, 24, lost both of his legs when insurgents in a car tossed a bomb at his military vehicle. Leon, 22, lost an arm when an improvised explosive device (IED) exploded beneath his vehicle.

In December of last year,

representatives of the Sentinels of Freedom Scholarship program escorted both men from Walter Reed to Livermore, Calif. where they and their families received a police escort from the airport to their new homes, and eventually to their new jobs at NNSA's Lawrence Livermore National Laboratory (LLNL).

The Sentinels of Freedom program, a grassroots project that helps severely injured men and women of the U.S. Armed Services

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Nevada Test Site Reestablishes Nuclear Material Safety Testing Capability

At its Nevada Test Site, NNSA successfully completed its first nuclear material criticality safety experiment in almost two years. This experiment, performed in the test site's Device Assembly Facility, is the first step toward reestablishing the United States' ability to lead the world in similar research on nuclear weapons material. "Criticality" refers to the point at which a self-sustaining chain reaction begins.

The criticality safety experiments provide important information about plutonium and highly enriched uranium by looking at the different ways that nuclear weapons materials begin a self-sustaining chain reaction.

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MOX FACILITY CONSTRUCTION AT SUNRISE

Construction of NNSA's Mixed Oxide (MOX) Fuel Fabrication Facility at the Savannah River Site begins during the early morning hours of August 1st.

The facility, set to be complete by the spring of 2014, will convert weapons-grade plutonium into fuel to be used in commercial nuclear reactors in North Carolina and South Carolina. See story on pages four and five for more on the facility's mission.

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Pantexan Coaches Youngsters To Top 10 World Finish In Robotics At LEGO League Competition

Dr. Ben Richardson, a scientist from NNSA's Pantex Plant, has been named a top 10 student mentor for coaching an Amarillo team that placed three top ten finishers at the FIRST (For Inspiration and Recognition of Science and Technology) LEGO League World Festival/Robotics Competition held in Atlanta.

Richardson, who works in the Pantex Plant's applied technology division, was the coach for the San Jacinto Christian Academy robotics team. The group, called the MicroMonkeys, competed



ROBOTICS TEAM WINNERS: Members of the MicroMonkeys are: first row (left to right) -- Jonathan Richardson, Audrey Pruitt and Logan Jarvis; second row (left to right) -- Emily Robertson, Hannah Jones, Allen Watkins and Collin Fielder. In back are (left to right) coach Ben Richardson, school development director Susan Robertson, BWXT Applied Technology Manager Jeff Yarbrough and School Superintendent Mark McKnight.

against 94 teams from 22 countries and earned a third place trophy for

teamwork and top ten recognition awards for research quality and for creative presentation. The team was one of only two that received four awards.

"Working with these kids has made a big difference in the attitude in which I approach life," he said. "We all enjoy seeing and understanding new principles and technologies. I personally benefited from learning about aspects of this year's theme - nanotechnology."

Richardson is a 25-year Pantex Plant veteran who works in the materials and analytical services department. This is his third year working with a LEGO robotics team.

Nevada Test Site Reestablishes Nuclear Material Safety Testing Capability

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The first experiment performed in Nevada measured the reaction to having neutrons reflected back at a piece of plutonium by a shell of polyethylene. Researchers wanted to see how the reflection affected the amount of plutonium it would take to start a chain reaction under that specific condition. This experiment will increase the understanding of plutonium and uranium safety for years to come.

"The successful completion of this experiment shows that NNSA is continuing to move forward on reestablishing the country's nuclear safety research and development capabilities," said Thomas D'Agostino, NNSA administrator. "It is important that we continue to lead the world on nuclear safety."

The information provided in this

and future criticality safety experiments will help several NNSA missions. The data collected allows NNSA to continue to verify the safety of the nuclear weapons stockpile.

NNSA's emergency response teams also gain valuable insight about the characteristics of nuclear materials that could be useful in responding to nuclear terrorism situations.

Additionally, NNSA's nonproliferation teams use the knowledge to better track and measure weapons material throughout the world, improving their ability to keep it out of the hands of terrorists.

In the past, criticality safety experiments were performed at Los Alamos National Laboratory's Technical Area

18. However, after the 9/11 terrorist attacks, new security requirements led NNSA to close the Los Alamos facility and transfer the mission to Nevada.



NEVADA MILESTONE: The Nevada team that successfully conducted a subcritical noise experiment at the Nevada Test Site in support of the Nuclear Criticality Safety Program poses with the experimental device -- a beryllium-reflected plutonium ball encased in three inches of polyethylene and positioned within the detector array.



IRAQ VETERANS:
New Lawrence
Livermore
National
Laboratory
employees
Cristian Valle
(left) and Justin
Leon.



INTEL SCIENCE FAIR WINNERS AT SANDIA:
Some of the winners from the 2007 Intel International Science & Engineering Fair, held recently in Albuquerque, tour the University of New Mexico/Sandia Advanced Materials Laboratory. The fair received NNSA support through the multi-faceted involvement of Sandia National Laboratories. Twenty young scientists spent two weeks at Sandia as part of a special research internship. Their projects ranged from a study of paralysis in worms to the creation of a homemade fusion reactor as a means to detect and analyze chemicals from a distance.

Iraq Vets Join The Ranks of Livermore Employees

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return to civilian life, not only secured free housing and transportation for the veterans, but also facilitated their employment at the laboratory. Valle is now an emergency dispatcher trainee in the laboratory's emergency management division, while Leon is a property center representative in the laboratory services directorate.

Valle was a member of the first wave of troops sent to Iraq in 2003. He said he had no qualms about going into battle. At the time, he had served in Iraq for six months and was sent back for a one-year tour of duty in 2005. It was during his second tour that he was injured while driving a high mobility multipurpose wheeled vehicle (HMMWV) during a routine patrol in Balad, a town north of Baghdad.

At one point, Valle got out of his HMMWV and walked to the roadside as a car passed with four insurgents aboard. They threw an IED, which rolled alongside the vehicle in his direction, exploding and knocking him to the ground.

"I was conscious. Luckily, we had a medic aboard," Valle remembered. "But I couldn't move my legs. I knew something was wrong." Valle lost both legs due to the explosion. Today, Valle has prosthetic legs and uses two canes for mobility.

Leon was deployed to Iraq in late September 2005. During a combat operation in Kirkuk, he was serving as a gunman on top of a HMMWV when an IED hit his vehicle. Leon was pinned underneath the vehicle and lost his right arm. His road to recovery would be similar to Valle's. First, he was taken to a field medical unit, then to Landstuhl, Germany, and then on to Washington, D.C. to the Walter Reed Army Medical Center for a lengthy rehabilitation.

Marilyn Carter, a former LLNL employee and Livermore Sentinels of Freedom director, was more than instrumental in bringing the veterans to Livermore and facilitating their laboratory hires. The project became her mission and she played a key role in their transition to Livermore.



SENATOR BOND AT KCP: During a visit to the Kansas City Plant, Senator Christopher "Kit" Bond (left) was greeted by Joe Madrid (center), manager of quality operations, Sue Madrid, eProcurement specialist and Bob Metzler, principal engineer.

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MOX Fuel Fabrication Facility

On August 1, NNSA started construction of the Mixed Oxide (MOX) Fuel Fabrication Facility at the Savannah River Site (SRS) in South Carolina. The 600,000 square foot facility is critical to permanently disposing of at least 34 metric tons of surplus U.S. weapons-grade plutonium that was formerly a part of the U.S. nuclear weapons complex.

"The start of construction of the U.S. MOX facility helps us fulfill an international nonproliferation agreement and marks a major step forward in our efforts with Russia to

dispose of surplus weapons-grade plutonium so that it can never be used again for nuclear weapons," said NNSA's Deputy Administrator

for Defense Nuclear Nonproliferation William Tobey.

In 2000, the United States and Russia each committed to disposing of 34 metric tons (68 metric tons total) of surplus

The new facility is being constructed by Shaw AREVA MOX Services and will fabricate the surplus plutonium into MOX fuel. The fuel will be used in commercial nuclear reactors in



HARD AT WORK: Construction crew at work on the site of the new NNSA MOX Fuel Fabrication Facility at the Savannah River Site.

weapons-grade plutonium, enough material for approximately 17,000 nuclear weapons.

North Carolina and South Carolina, generating enough electricity for one million households for 50 years. Once the plutonium is irradiated in nuclear reactors, it will no longer be readily usable for nuclear weapons.

The facility's design is based on successful facilities in France that are currently producing MOX fuel for nuclear reactors in Europe. Construction is scheduled to be complete by the spring of 2014. Following a start-up period, the facility is scheduled to begin producing MOX fuel by September 2016

MOX Facility Statistics	
Concrete:	170,000 cubic yards
Reinforcing Steel:	35,000 tons
Process Piping:	80 miles
HVAC Duct Work:	1,000 tons
Conduit:	500,000 linear feet
Cable Tray:	47,000 linear feet
Power/Control Cable:	3,000,000 linear feet
Total Buildings Size:	600,000 square feet
Material Eliminated:	8,500 nuclear weapons worth

Construction Begins At Savannah River

Facility Will Dispose of Enough Material for 8,500 Nuclear Weapons

disassemble nuclear weapon pits, or triggers, and convert the resulting plutonium metal into oxide for use in the MOX facility. A Waste Solidification Building will be built to process waste from both the

and to complete its mission in the 2030 timeframe.

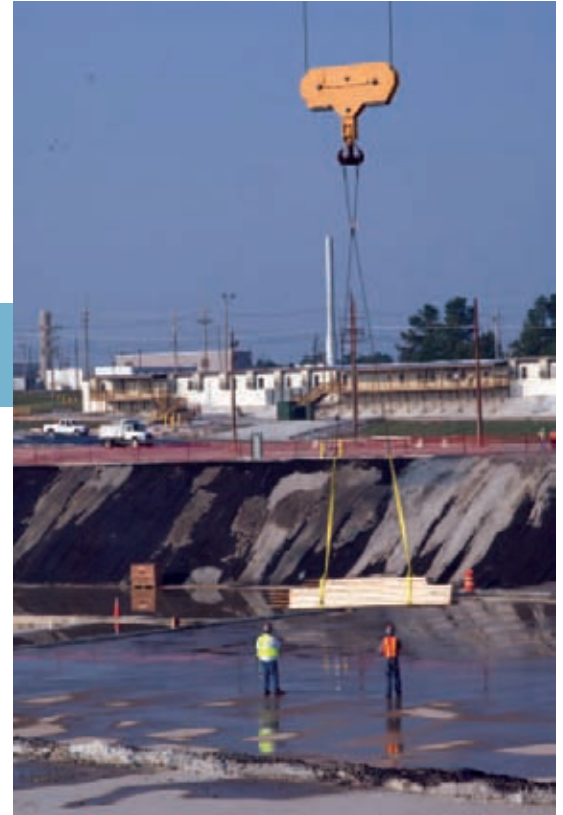
CONSTRUCTION BEGINS: Placement of the first concrete forms for the 600,000 square foot MOX Fuel Fabrication Facility.

Approximately 1,600 people will be employed at the facility during peak construction and about 800 employees will be needed once it is operational.

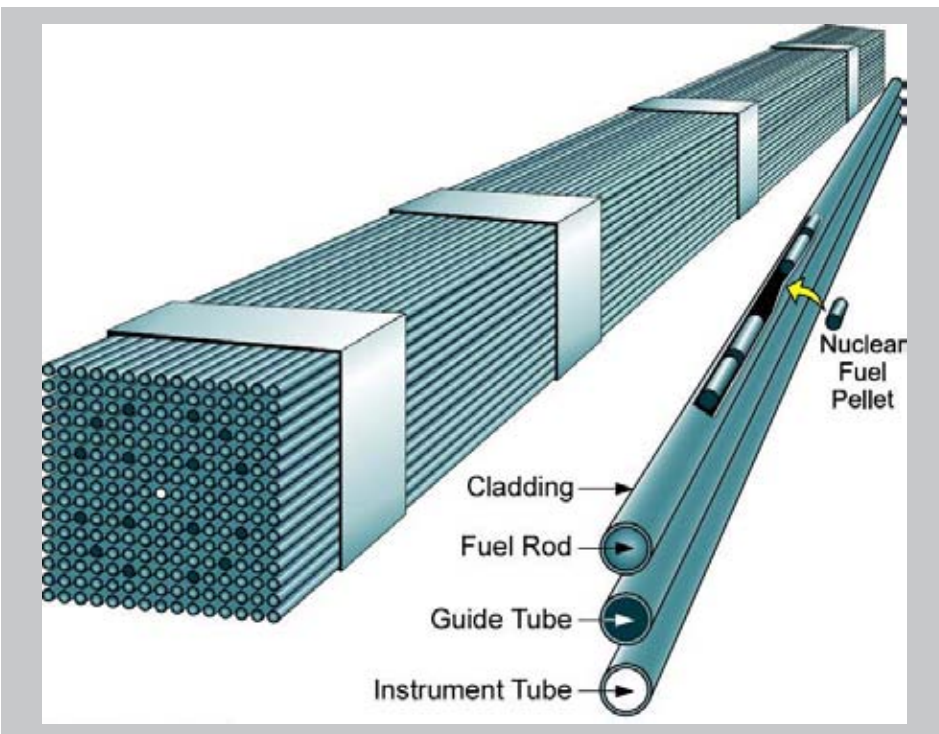
In addition to the MOX facility, NNSA will need to construct two other facilities to complete the nonproliferation mission. A Pit Disassembly and Conversion Facility will be built to

MOX and Pit Disassembly and Conversion facilities.

In addition to meeting an important international nonproliferation objective, the MOX facility is a critical element in the department's overall strategy for securing surplus weapons plutonium. It will help to reduce security



and storage costs of material across the complex and has the potential to support other missions such as the Global Nuclear Energy Partnership.



FUEL ASSEMBLIES: Completed MOX fuel assemblies look identical to uranium fuel assemblies used in commercial nuclear power reactors in the United States. A fuel pellet is about 1/2 inch in height and less than 1/3 inch in diameter. Each fuel assembly will contain 264 fuel rods in a 17x17 array. Each rod contains about 360 pellets. Fuel assemblies are about 13 feet in length. One MOX fuel assembly can power approximately 30,000 homes for an entire year.

New Program Will Help Evaluate Nuclear Threat

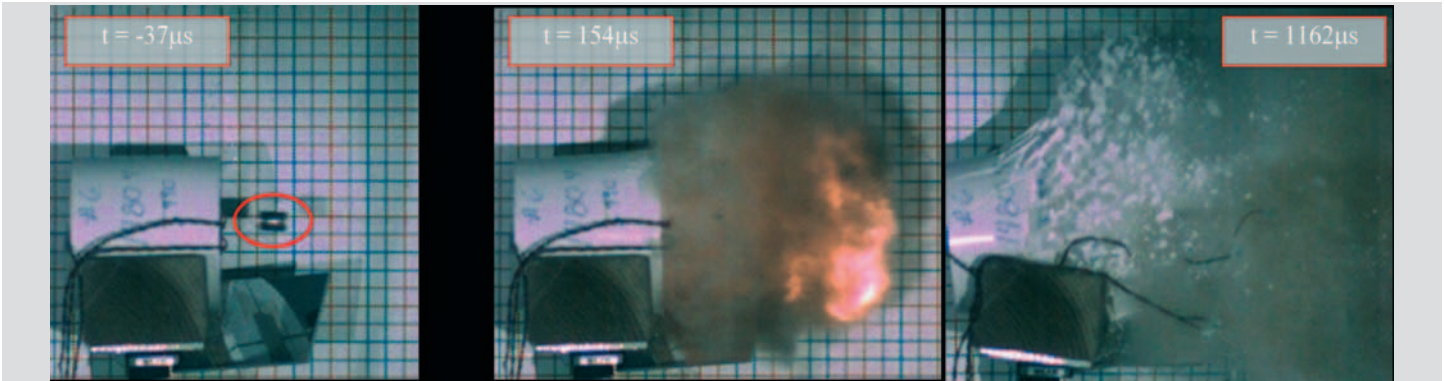
NNSA recently introduced a \$53 million program that will provide essential support in the U.S. government's efforts to protect the homeland against nuclear attack.

The Nuclear Counterterrorism Design Support program

nuclear weapon design expertise and this program puts this knowledge to powerful use against a terrifying possibility - the detonation of a terrorist nuclear weapon inside the United States," said Marty Schoenbauer, NNSA's acting deputy administrator for

can initiate detection and disassembly procedures.

"This new program is an excellent example of how NNSA's expertise developed during our Cold War mission is being effectively applied to 21st century threats," said Schoenbauer.



COUNTERMEASURES EXPERIMENTS: High speed images show the impact of a blunt projectile on a high explosive. These experiments are conducted to show how certain tools used to counter improvised nuclear devices will interact with explosives.

harnesses NNSA's world-class nuclear weapon design expertise and brings this collective knowledge together to help reduce the threat of improvised nuclear devices (IND). The program helps to determine the scope of the IND threat, identifies potential defense vulnerabilities, works to develop countermeasures against IND threats and trains specialists to defeat any threat they may encounter.

"NNSA has over 50 years of

defense programs.

The program supports the U.S. government's intelligence, homeland security and emergency response communities with its IND design analysis skills. Using the information and knowledge gained from decades of work on the U.S. nuclear weapons stockpile, NNSA's experts are able to evaluate potential terrorist devices and provide critical information to homeland security and emergency response personnel so that they

NNSA's program involves physicists, engineers, explosives experts, materials scientists and diagnosticians from around the nuclear weapons complex.

The program has already made impressive contributions to the U.S. counterterrorism mission. It has provided specialized IND training to emergency response personnel within the Department of Defense and the Federal Bureau of Investigation and has analyzed proliferation and terrorist concerns related to the department's Global Nuclear Energy Partnership.

Sandia Labs Assists 293 Small Businesses in 2006

Two hundred ninety-three small businesses received assistance in 2006 from NNSA's Sandia National Laboratories in New Mexico with projects ranging from a kid's car organizer to a radio frequency signal that can alert 85 to 90

percent of drivers that a first responder is approaching. It was Sandia's sixth year of helping small businesses through the New Mexico Small Business Assistance Program (NMSBA), thanks to a gross receipts tax credit passed by the

New Mexico Legislature.

The program allows Sandia to provide technical advice and assistance to New Mexico's small businesses. During 2006, Sandia received nearly \$1.8 million in tax credits.

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NNSA Awards Contract For Reliable Fuel Supply Program

A team consisting of Wesdyne International, LLC (a subsidiary of Westinghouse Electric Company, LLC) and Nuclear Fuel Services, Inc. has been awarded a contract to down-blend 17.4 metric tons of U.S. highly enriched uranium (HEU) and store the resulting low-enriched (LEU) uranium for the Reliable Fuel Supply program. The 17.4 metric tons of U.S. HEU is in excess of national security needs. Building on key nonproliferation and energy initiatives of President Bush, the United States will provide reliable access to a nuclear fuel supply to countries not pursuing their own enrichment and reprocessing technologies.

"Setting up the Reliable Fuel Supply program demonstrates U.S. leadership on nonproliferation by setting aside fuel for countries to use if supplies are disrupted so that they don't have to pursue sensitive fuel cycle programs on their own," said William Tobey, head of NNSA's nuclear nonproliferation programs.

Under the terms of the contract, Nuclear Fuel Services, a subcontractor, will down-blend 17.4 metric tons of HEU to LEU at its facility in Erwin, Tenn. The down-blending is scheduled to begin in 2007 and be completed in 2010. It will produce about 290 metric tons of LEU, most of which will constitute the Reliable Fuel Supply.

Wesdyne International, the prime contractor, will store the LEU at the Westinghouse fuel fabrication facility in Columbia, S.C. The fuel will be available for use in civilian reactors by nations in good standing with the International Atomic Energy Agency (IAEA) that have good nonproliferation credentials and are not pursuing uranium enrichment and reprocessing technologies. The LEU will be made available to qualifying countries at the current market price and only in the event of an emergency.

The down-blending, storage and operation of the reliable supply will be overseen and managed by NNSA, and the down-blending will be eligible for IAEA inspection. To cover the project's costs, Wesdyne will sell a small fraction of the resulting LEU on the market over a three to four year period.

Sandia Labs, Site Office Get Highest Safeguards And Security Rating

NNSA's Sandia National Laboratories and the Sandia Site Office (SSO) achieved an overall "Effective Performance Rating" for all of its safeguards and security areas in a recent Department of Energy (DOE) Office of Independent Oversight (OIO) inspection. Effective Performance, a green rating, represents the highest achievable score awarded by the DOE's OIO. All DOE facilities in the nuclear weapons complex undergo a rigorous process every two years involving some 50 inspectors who spend upwards of two months at each site reviewing records,

"Inspectors specifically cited Sandia's contractor assurance program for security as a model for the entire NNSA complex."

work methods and controls, and observing and conducting performance tests.

Patty Wagner, NNSA's Sandia Site Office manager, said, "Our team worked closely with Sandia to ensure a positive outcome. The exemplary work can be credited to a solid focus on security by both the site office and Sandia. The security staffs of both organizations, under the leadership of SSO's Safeguards & Security Assistant Manager Jo Loftis and Sandia's Safeguards & Security Director Mike Hazen, deserve the credit as well as the laboratory staff who help maintain the security posture that led to such a positive review."

Mike Hazen said it required the commitment of the entire laboratory in New Mexico, California, and the Tonopah Test Range to achieve the rating. The OIO inspection focused on seven major topical areas falling within the safeguards and security programs, including classified matter protection and control, personnel security, security systems, material control and accountability, program management, classification, and protective force operations. All areas showed improvement, some showed significant improvement, and the inspectors specifically cited Sandia's contractor assurance program for security as a model for the entire NNSA complex.

Jo Loftis said efforts are already underway to sustain the green-level performance and seek opportunities for continual improvement.

Los Alamos Site Office Revitalization Manager Named

Donald L. Winchell, Jr. was named revitalization manager of NNSA's Los Alamos Site Office in New Mexico. He heads the approximately 100 federal personnel who oversee the contract management of security, quality assurance, environment, safety and



Donald L. Winchell, Jr.

health issues at Los Alamos National Laboratory. He will focus on revitalizing the federal oversight and management role of the site office.

"We are excited to have Don on the NNSA team," said NNSA Administrator Thomas D'Agostino. "The Los Alamos Site Office and its employees are an important part of our nuclear weapons complex."

Winchell has worked at the laboratory since August 2004, where he most recently served as a technical staff member and operations support division group leader. Prior to joining the laboratory, he was the vice president and deputy general manager for operations of Johnson Controls Northern New Mexico, LLC, which provided maintenance and infrastructure support to the facilities at the laboratory.

After completing 30 years of service in the U.S. Navy, Winchell retired in 1999. His assignments involved service on four nuclear attack submarines, including command of USS DRUM (SSN 677). From 1989 to 1991, he commanded Submarine Squadron 22 in La Maddalena in Sardinia, Italy. Other tours included program management of a defense liaison division project, assistant chief of staff for material and logistic support for the Atlantic Submarine Force, executive officer of the Atlantic Nuclear Propulsion Examining Board, and assignment to the Bureau of Personnel.

Born in Maryland, Winchell was raised in Los Alamos. He has a Bachelor of Science in engineering physics from Oregon State University.

Daniel E. Glenn, who served as acting manager of the site office for six months, will return to be the manager of NNSA's Pantex Site Office in Amarillo, Texas.

Sandia Assists 293 Small Businesses In 2006

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To qualify for this program, small businesses must be from New Mexico and unable to receive this help from the private sector for a reasonable cost.

Eight success stories from the 2005 NMSBA program year were highlighted at a recent event in Santa Fe.

Los Alamos, Livermore Also Assist Small Businesses

All three of NNSA's national laboratories have small business initiatives. Each year they award hundreds of millions of dollars in procurements to small firms. In fiscal year 2006, for example, Lawrence Livermore National Laboratory (LLNL) awarded approximately 41 percent (\$246.5 million) of the \$602 million in LLNL procurements to small businesses. This fiscal year, approximately 42 percent (\$200 million) of \$477 million in Livermore procurements have been awarded to small businesses.

In fiscal year 2008 under the laboratory's new management contract the overall LLNL small business goal will be 45 percent, or an increase of approximately \$30 million, in small business awards. In addition, the new LLNL contract manager, Lawrence Livermore National Security, LLC, has teamed with four small business companies to add to capabilities in laboratory management.

The contract manager for Los Alamos National Laboratory, Los Alamos National Security, LLC, will enter into a first-ever mentor-protégé agreement with TSAY Construction and Services, LLC, a small business 100 percent owned and operated by Ohkay Owingeh Pueblo (formerly San Juan Pueblo) located just north of Los Alamos.

The agreement with TSAY Construction & Services, LLC, is designed to help the company improve its ability to compete for contracts across the NNSA complex. Under the agreement, the laboratory will provide technical assistance in marketing, proposal development, networking with potential customers, purchasing management, project management, and quality assurance.