



# LIBRARY

U.S. Department of Energy  
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- Table of Contents
- Milestones
- News
- NTS Public Tours
- Factsheets
- Speakers Bureau
- Acronyms
- Mailing List
- Information Request
- Publishing Information
- Questions/Contact
- Masthead
- Archives

---

- FAQs/QUESTIONS
- SUBJECT INDEX
- SITEMAP
- SEARCH
- CONTACT US
- ABOUT US
- HELP
- ACRONYMS
- FOIA
- PRIVACY ACT
- WEBSITE POLICIES
- HOME PAGE

[Home](#) > [Library](#) > [SiteLines](#)

U.S. DOE/NNSA - Nevada Site Office



September/October 2009 - Issue 139

A publication for all members of the NNSA/NSO family

## Criticality Experiments Facility Heads to Start-Up Phase

Construction of the Criticality Experiments Facility (CEF) at the Nevada Test Site is complete and a management team from National Security Technologies (NSTec) and Los Alamos National Laboratory (LANL) is preparing to assess readiness in anticipation of a June 2010 startup.



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*A worker works on Flattop reflectors for the Criticality Experiments Facility.*

The reconfiguration of a portion of the Device Assembly Facility (DAF) at NTS required to support CEF work was a large part of a \$150 million project that encountered numerous challenges along its seven-year path. The CEF is the only project in the entire Department of Energy and National Nuclear Security Administration (NNSA) complex where the scientific community can conduct general research and training using critical assemblies able to reach a sustained neutron chain reaction or nuclear criticality controlled under stringent nuclear safeguards.

“Through the tremendous efforts of everyone involved, the CEF Project

achieved a major milestone with the completion of construction,” said Robert Bangerter, NSO Federal Project director. “This represents a significant step towards the completion of the relocation of the TA-18 mission to the NTS and the start of operations.”

[Read full story >](#)

## In This Issue

- [Criticality Experiments Facility Heads to Start-Up Phase](#)
- [Mercury Highway Repaving Nearing Completion](#)
- [RNCTEC Opens to Help Safeguard U.S. Border](#)
- [UNLV, NTS Team Up on UAV Flight Test Project](#)
- [NNSA, Political Dignitaries Tour NTS](#)
- [State Approves Closure of Historic Nuclear Blast Site](#)
- [NASA Moon Project Lands at NTS](#)
- [NNSA/NSO Share Ideas at LDRD Symposium](#)
- [RSL Wins Prestigious U.S. DOE Awards](#)
- [CDC Urges Precautions During Flu Season](#)
- [Milestones](#)

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- Table of Contents
- Milestones
- News
- NTS Public Tours
- Factsheets
- Speakers Bureau
- Acronyms
- Mailing List
- Information Request
- Publishing Information
- Questions/Contact
- Masthead
- Archives

FAQs/QUESTIONS

SUBJECT INDEX

SITEMAP

SEARCH

CONTACT US

ABOUT US

HELP

ACRONYMS

FOIA

PRIVACY ACT

WEBSITE POLICIES

HOME PAGE

[Home](#) > [Library](#) > [SiteLines](#)

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significant step towards the completion of the relocation of the TA-18 mission to the NTS and the start of operations.”

The CEF project is one of the highest priorities for the NNSA, and involves a complex orchestration of expertise, equipment, scheduling and money.

In December 2002, the NNSA announced it would relocate Technical Area-18 machines and testing equipment from LANL to the DAF. NNSA wanted to quickly establish the critical national security mission in Nevada while consolidating special nuclear materials in a newer, more secure facility.

The operations at TA-18 enable NNSA and other government agencies to gain knowledge and expertise in advanced nuclear technologies that support the following: (1) nuclear materials management and criticality safety; (2) emergency response in support of counter-terrorism activities; (3) safeguards and arms control in support of domestic and international programs to control excess materials; and (4) criticality experiments in support of Stockpile Stewardship and other programs.

A particular section of the DAF was designated as the CEF. Relocation of the TA-18 missions and necessary support logistics to the DAF was a complex retrofit project. It involved the coordinated efforts of NSTec, LANL, Lawrence Livermore National Laboratory, and WSI as the execution entities, and integrated by the CEF Central Project Office.

The relocation included the successful completion of all design/engineering, construction, machine relocation, control system installation, acceptance testing and successful completion of operational readiness reviews for four criticality assemblies. This equipment provides an experimental capability to test and qualify nuclear materials.

The DAF was modified to accept these machines and provide associated storage vaults. Additionally, the facility features modified general purpose bays, two control rooms, health physics areas, offices, shipping and receiving, and conferencing areas to allow for a successful transition of equipment and operations to the NTS as the new host site. However, LANL

will continue to operate the program.

“As a result of the successful relocation of the CEF mission to NTS, these new missions will provide the centerpiece of NTS nuclear capability indefinitely,” said Dennis Kelly, CEF Central Project Office Manager.

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U.S. DOE/NNSA - Nevada Site Office

- Table of Contents
- Milestones
- News
- NTS Public Tours
- Factsheets
- Speakers Bureau
- Acronyms
- Mailing List
- Information Request
- Publishing Information
- Questions/Contact
- Masthead
- Archives

---

- FAQs/QUESTIONS
- SUBJECT INDEX
- SITEMAP
- SEARCH
- CONTACT US
- ABOUT US
- HELP
- ACRONYMS
- FOIA
- PRIVACY ACT
- WEBSITE POLICIES
- HOME PAGE

[Home](#) > [Library](#) > [SiteLines](#)

## Mercury Highway Repaving Nearing Completion *Cost Clause Helps Expansion of Work Scope*

The rollercoaster up and down of prices in the worldwide oil economy has been a boon for at least one project at the Nevada Test Site (NTS).

Repaving of what began as 19 miles of the Mercury Highway at the NTS was buoyed earlier this year by a downward shift in oil costs, paving the way for the completion of some 31 miles of new asphalt on the important sprawling roadway spanning from Mercury to Gate 700.

Bob Platoni, National Security Technologies (NSTec) project manager, said the subcontract for the Mercury Highway project, which was awarded to Frehner Construction in March, included an asphalt-cement escalation clause. The price-dependent provision allowed the project to recoup costs when oil prices came down, freeing up funds to pave more of the highway.

“We increased our work scope by 65 percent,” Platoni said. “And we brought that in under budget, and with significant funding pulled back.”

Indeed, the \$19.3 million budget eventually was scaled back to \$17 million, but the effort to pave more of the roadway has caught the attention of many in the National Nuclear Security Administration (NNSA) complex, which asked NNSA Nevada Site Office and NSTec to a conference in Florida to model the project.

Construction began in April and wraps in September on three different segments of the Mercury Highway. The first part of the project spanned from Area 5 to Area 1. The second piece went from the Mercury main Gate 100 to the top of 200 Hill, and the third included the roadway in Area 4 at

Road 4-04, running up to Gate 700.

The design for the Mercury Highway repaving was completed in May 2008. Four work proposals were received and the subcontract was awarded on September 26, 2008. Two aspects of this effort were particularly noteworthy.

First, the Request for Proposal (RFP) preparation, technical evaluation, and award recommendation were prepared and reviewed in an extremely short period of time. The support given by all of the reviewers, including NSTec and NNSA/NSO, was a major contributor to this success.

Second, the proposal prices were extremely favorable. This can be attributed, in part, to the general downturn in the economy and the local construction market. However, the RFP contained an escalation clause for the price of asphalt cement to protect the subcontractors from the volatility and escalation of oil prices. This allowed the proposers to remove the risk from their proposal prices for which they expressed their appreciation.

In his September 2008 Memorandum approving portions of the project, Robert Dino Herrera, director, Office of Infrastructure and Facility Management, congratulated the project team for "... the team's outreach program and the project team's approach to include the asphalt escalation clause in the RFP. The outreach resulted in receiving four bids from highly qualified bidders and the asphalt escalation clause allowed the bidders to provide favorable bids." The support and guidance from the NSTec Procurement Department and NNSA/NSO Contracting officer were extremely beneficial.

As a result, Platoni said the repaved roadway will benefit all who use the NTS in the long run.

"It was a safety issue. The road was deteriorating pretty badly, and if we hadn't done something now, it would have cost us quite a bit more to rebuild the road," Platoni said. "Speed limits would have been reduced. In



the name of safety, rather than compromising the mission by reducing speed limits and closing roads, this project demonstrates how working collectively we were able to renovate the roads to make them safer for everyone.”

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U.S. DOE/NNSA - Nevada Site Office

- Table of Contents
- Milestones
- News
- NTS Public Tours
- Factsheets
- Speakers Bureau
- Acronyms
- Mailing List
- Information Request
- Publishing Information
- Questions/Contact
- Masthead
- Archives

---

- FAQs/QUESTIONS
- SUBJECT INDEX
- SITEMAP
- SEARCH
- CONTACT US
- ABOUT US
- HELP
- ACRONYMS
- FOIA
- PRIVACY ACT
- WEBSITE POLICIES
- HOME PAGE

[Home](#) > [Library](#) > [SiteLines](#)

## RNCTEC Opens to Help Safeguard U.S. Border

The National Nuclear Security Administration Nevada Site Office (NNSA/NSO) and National Security Technologies (NSTec) teamed up recently to cut the ribbon on a new facility designed to help make the nation's borders more secure.



[Click to Enlarge](#)

*Steven Lawrence - NNSA/NSO Deputy Manager and Chuck Gallaway, Acting Director DNDO, cut the ribbon on RNCTEC.*

The Radiological/Nuclear Countermeasures Test and Evaluation Complex (RNCTEC), located at the Nevada Test Site (NTS), was proposed and designed after the terrorist attacks on Sept. 11, 2001. It was created to provide crucial detector and sensor testing and evaluation needed to help prevent radiological or nuclear materials, such as those used to build dirty bombs, from entering the United States.

Located about one mile south of the Device Assembly Facility (DAF), RNCTEC is a multi-use, Department of Homeland Security Domestic Nuclear Detection Office (DNDO) complex that is set up to conduct active and passive testing that simulates a U.S. land border crossing or port facility. The facility includes radiation sensors, detection systems and

shipping containers for performance testing and hands-on testing for U.S. Customs and state and local responders.

“RNCTEC was not only designed to be a state-of-the-art facility capable of testing detectors against special nuclear material in accordance with the original vision, it was designed with the understanding that breakthroughs in technology will require unimagined capabilities,” said Adam Daegorn, NSO On-Site supervisor. “This facility was built to be easily modified and expanded.”

The RNCTEC facility has a Test Support Building (TSB) that houses all of the test personnel and the wireless Data Collection System (DCS); the Active Interrogation Building (AIB) designed to conduct active testing of cargo; and a doublewide trailer, which houses the core team responsible for maintaining the facility in a test-ready condition as well as assist customers with various aspects of operations.

“The subsurface portion of the facility has been described as ‘Swiss Cheese,’ due to the volume of empty conduit that runs throughout the facility,” Daegorn added. “We just completed the first test at the facility, Eland, which required installation of a wireless system. Wireless was not originally considered a viable technology but the times and technology have changed. Combine the ability of the facility to adjust to the requirements of the test with the determination of the Test and Evaluation team to be the best in the world, and you have a facility that is and will continue to be a national asset essential to protecting U.S. interests.”

One key part of the RNCTEC can actually be seen in action: three lanes of primary point-of-entry inspection stations, called Vehicle Choke Points, outside the TSB and the AIB. The Vehicle Choke Points are narrow lane portals that allow vehicles to drive through and simulate the alert of U.S. Border Customs to any radiological or nuclear materials smuggled onboard. On either side of each Vehicle Choke Point lane are radiation detection monitors; five pads throughout the Paved Test Area provide power and fiber optic connections for any number of testing environments.

The complex is also customer-friendly, in that DNDO encourages other

agencies to use the facility for their security programs. This facility also can be used in many versatile ways for testing, data collecting, and even training personnel on the proper use of equipment as well as the proper response to alarms. The U.S. Border Patrol, law enforcement, the U.S. Department of Defense, components of the Federal Emergency Management Agency and other government agencies can use the RNCTEC facility and its system for their detection needs.

“The RNCTEC provides government agencies and private corporations vital information about the limitations of equipment and personnel in their search for the ever elusive illegal radioactive material,” says Don Ricketts, RNCTEC operations manager. “This will give them a wealth of information that is very hard to replicate anywhere else in the U.S.”

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# LIBRARY

U.S. Department of Energy  
National Nuclear Security Administration

U.S. DOE/NNSA - Nevada Site Office

- Table of Contents
- Milestones
- News
- NTS Public Tours
- Factsheets
- Speakers Bureau
- Acronyms
- Mailing List
- Information Request
- Publishing Information
- Questions/Contact
- Masthead
- Archives

---

- FAQs/QUESTIONS
- SUBJECT INDEX
- SITEMAP
- SEARCH
- CONTACT US
- ABOUT US
- HELP
- ACRONYMS
- FOIA
- PRIVACY ACT
- WEBSITE POLICIES
- HOME PAGE

[Home](#) > [Library](#) > [SiteLines](#)

## UNLV, NTS Team Up on UAV Flight Test Project

The University of Nevada Las Vegas and a private company – Unmanned Aerial Systems – will team up with the Nevada Test Site (NTS) this month to launch a Flight Test Plan that will test improvements in unmanned aerial flight.



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*The Nightwind 2*



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*Piccolo Ground Station will operate at 900 MHz*

The partnership will take UNLV engineering students and unmanned aerial vehicle (UAV) experts to Frenchman Flat at the NTS to test downlinks on the Nightwind 2 UAV as it flies at various altitudes and distances over the site. The tests will further UNLV's understanding of enhanced UAV command and control from long distances. The data can be extrapolated

into “distance versus signal strength” charts, which will aid in determining appropriate bandwidths and data rates for a variety of line-of-sight distances from Ground Station to UAV.

UNLV College of Engineering established the UAV Center of Excellence with federal funding supported by Sen. Harry Reid. The College has undertaken a series of projects to provide practical applications for theories developed by UNLV faculty and students. Examples of UAV-related activities have included vertical takeoff and landings of UAVs and UAVs powered by the smallest known heavy fuel turbine engine.

UAS Inc. has used the NTS previously for similar research projects.

UNLV Assistant Dean Dr. William Culbreth will lead the UNLV team, while Steve Kamen will lead the UAS team – which provides the flight vehicle, pilot and payload support team. The Northwind 2 UAV will be used as the flight platform, which has over 1,200 hours of flight time (including some at NTS).

Improved communications equipment will be tested, including two high-gain antennas for improvement of video reception and flight data communication. It is anticipated that these antennas will dramatically improve video reception quality over standard antennas utilized in previous flights.

Flight data recording will also use the Eagle Tree Seagull Pro Telemetry system. The small unit will be recording to onboard memory while simultaneously transmitting at 900 MHz (1W) to a live feed near the ground station. Flight information to be monitored and recorded during all test flights will include:

- Battery voltage, real-time and over course of flights
- Current draw from batteries
- Engine power (wattage)
- Speed controller temperature monitoring.

The Northwind 2 also will have a low-resolution Sony camera mounted in its nose for pilot orientation should the UAV require manual operations

while flying at high altitudes. The camera has a maximum focal length of 3.7 mm and a maximum field of view of 40 degrees.

The Northwind 2 will launch from Frenchman Flat and fly an upward square pattern since the aircraft climbs most efficiently with wings level until it reaches successive altitudes of 5,000; 6,000; 7,000; and 8,000 feet MSL (above sea level). Once the UAV reaches each specific altitude, it will fly for up to 90 minutes, while UNLV technicians take test measurements on their communications equipment. It is anticipated that there could be as many as six test flights each lasting from 30-90 minutes.

The UNLV-UAS Flight Test Team has extensive experience flying at the NTS and will remain within specified boundaries as prescribed by the Test Site's Operational Control Center (OCC).

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U.S. DOE/NNSA - Nevada Site Office

[Table of Contents](#)

[Milestones](#)

[News](#)

[NTS Public Tours](#)

[Factsheets](#)

[Speakers Bureau](#)

[Acronyms](#)

[Mailing List](#)

[Information Request](#)

[Publishing Information](#)

[Questions/Contact](#)

[Masthead](#)

[Archives](#)

[FAQs/QUESTIONS](#)

[SUBJECT INDEX](#)

[SITEMAP](#)

[SEARCH](#)

[CONTACT US](#)

[ABOUT US](#)

[HELP](#)

[ACRONYMS](#)

[FOIA](#)

[PRIVACY ACT](#)

[WEBSITE POLICIES](#)

[HOMEPAGE](#)

[Home](#) > [Library](#) > [SiteLines](#)

## NNSA, Political Dignitaries Tour NTS

August was a busy month at the Nevada Test Site (NTS), with the National Nuclear Security Administration Nevada Site Office (NNSA/NSO) hosting Brigadier General Garrett Harencak, Principal Assistant Deputy Administrator For Military Application and Department of Energy Deputy Secretary Daniel Poneman, among other NNSA and political leaders.

*Deputy Secretary Daniel Poneman (right) gets a briefing from the Nevada Test Site's Jim Holt in the underground U1a facility. The room the group is standing in will be the site of an upcoming Los Alamos National Laboratory subcritical experiment in fiscal year 2010. The U1a facility, nearly 1,000 feet underground, has been the test bed for 23 subcritical experiments.*

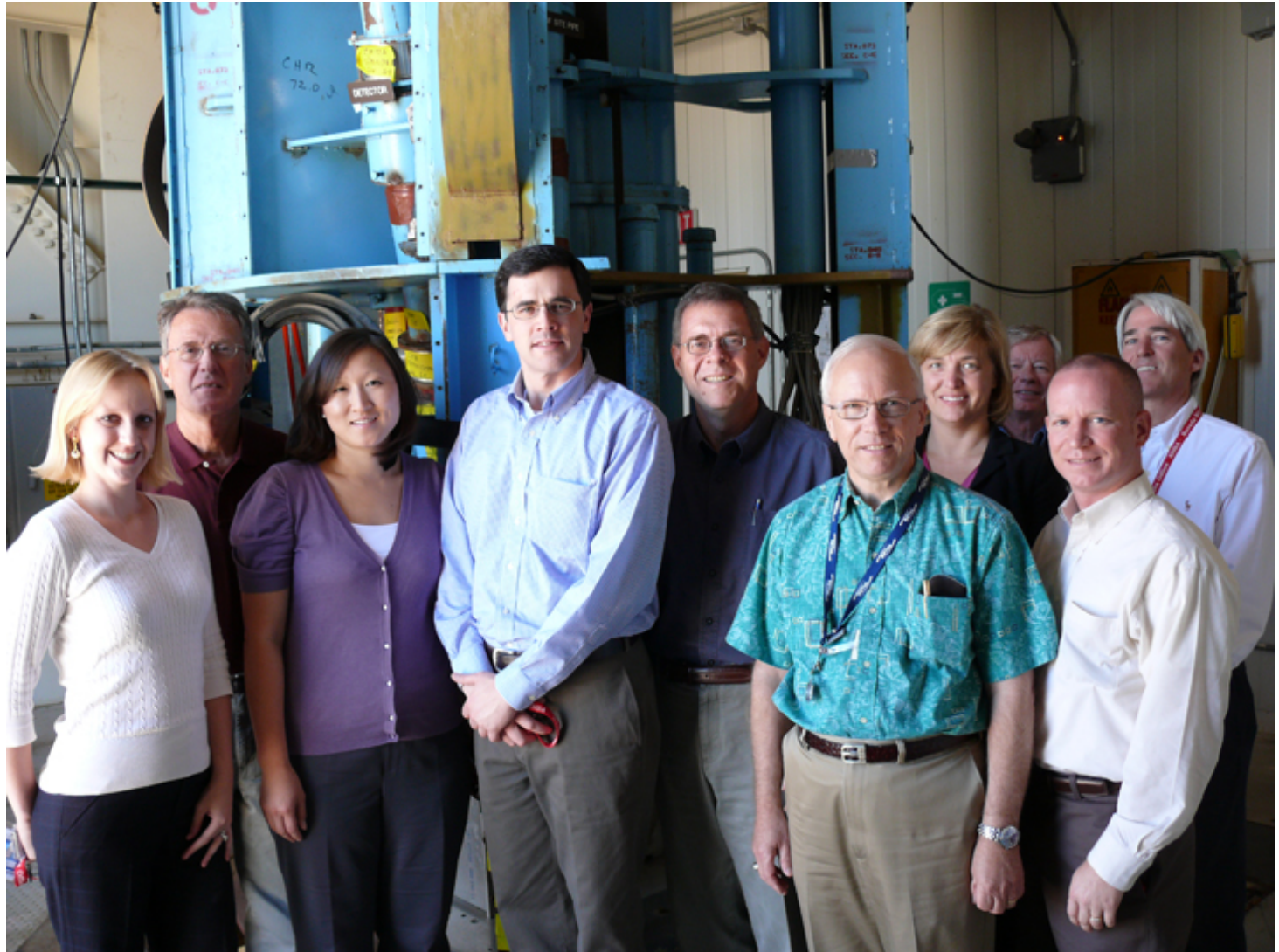




*Professional staffers from Congress pose in front of the ICECAP rack at the NNSA's Nevada Test Site. ICECAP was slated to be the last underground nuclear test conducted by the United States in late 1992. The rack is now used to explain how an underground nuclear test was assembled and fielded. The last underground nuclear test conducted by the United States was Divider on September 23, 1992.*

*Pictured are from left to right: Jennifer Wagner, Deputy Director Public Affairs, NNSA; James Lambert, Deputy Associate Administrator for Management and Administration, NNSA; Kari Bingen, House Armed Services Committee Professional Staffer; Tim Morrison, Military Legislative Assistant Senator Jon Kyl; Bob DeGrasse, House Armed Services Committee Majority Professional Staffer; Dr. Steve Younger, President,*

*National Security Technologies (NSTec); Ginger Wierzbanski, Office Of the Joint Chiefs of Staff; Jim Holt, NSTec; Maj. Jeff Carter, Air Force Legislative Fellow; Steve Mellington, NNSA Nevada Site Office Manager.*



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National Nuclear Security Administration

U.S. DOE/NNSA - Nevada Site Office

- Table of Contents
- Milestones
- News
- NTS Public Tours
- Factsheets
- Speakers Bureau
- Acronyms
- Mailing List
- Information Request
- Publishing Information
- Questions/Contact
- Masthead
- Archives

---

- FAQs/QUESTIONS
- SUBJECT INDEX
- SITEMAP
- SEARCH
- CONTACT US
- ABOUT US
- HELP
- ACRONYMS
- FOIA
- PRIVACY ACT
- WEBSITE POLICIES
- HOME PAGE

[Home](#) > [Library](#) > [SiteLines](#)

## State Approves Closure of Historic Nuclear Blast Site

During the height of the Cold War, 100 atmospheric nuclear weapons tests were conducted in remote areas of the Mojave Desert at the Nevada Test Site (NTS). Although the twisted metal and concrete remain, the isolation and cleanup of these national security activities is a priority. In June, a major milestone was reached when the State of Nevada approved the closure of a former atmospheric nuclear weapons test location, known as T-4.

Between May 25, 1952 and July 24, 1957, four nuclear detonations, including Fox, were conducted at the T-4 site, located in Area 4 of NTS. Following each of these tower tests, some debris and contaminated soil was removed from the site. However, contaminated soil remained along with remnants of the towers, an associated bunker and soil berm, and pieces of metallic and concrete debris.

For more than a decade, discussions have ensued between the U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office (NNSA/NSO) and the State of Nevada Division of Environmental Protection (NDEP) regarding the level and extent of remediation necessary for historic atmospheric test locations. "It is imperative that both NSO and NDEP are confident in how sites like these achieve environmental completion," said Kevin Cabble, the Acting Soils Federal Sub-Project director. "Teamwork and open dialogue with the State resulted in a successful closure approach which saved millions of taxpayer dollars while protecting the interests of the public."

The first step necessary to reach closure was to determine an investigation approach that NSO and NDEP could agree upon. NSO designed the investigation approach to determine the nature, distribution, and extent of

hazardous and radioactive contamination (e.g., lead, plutonium, cesium) at the site. Upon approval of the investigation plan by NDEP, field investigations including detailed surveys and sampling of the site were completed. These activities, referred to as "site characterization," included collecting and analyzing samples from numerous specific locations, and removing lead plates and batteries.

The information gathered during the investigation was then presented to NDEP and various corrective action scenarios were evaluated and discussed. NSO and NDEP considered the current and future land use, potential risk to current and future workers, and cost versus the risks and benefits of removing the contamination and transporting the resulting waste to an appropriate disposal facility. Based on these factors, it was determined that the most appropriate method for reaching environmental completion of this site was to close the historic site in place, which includes restricting future access to the land.

The closure process included implementing administrative and physical controls such as placing formal land use restrictions on the contaminated area, posting warning signs and repairing existing fencing around the area of contamination to limit future potential worker exposure. These controls will be inspected annually as part of the long-term monitoring process. NDEP approval for closure of this first Soils Corrective Action Site was just the beginning as 15 additional sites have since been closed.

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U.S. Department of Energy  
National Nuclear Security Administration

U.S. DOE/NNSA - Nevada Site Office

- Table of Contents
- Milestones
- News
- NTS Public Tours
- Factsheets
- Speakers Bureau
- Acronyms
- Mailing List
- Information Request
- Publishing Information
- Questions/Contact
- Masthead
- Archives

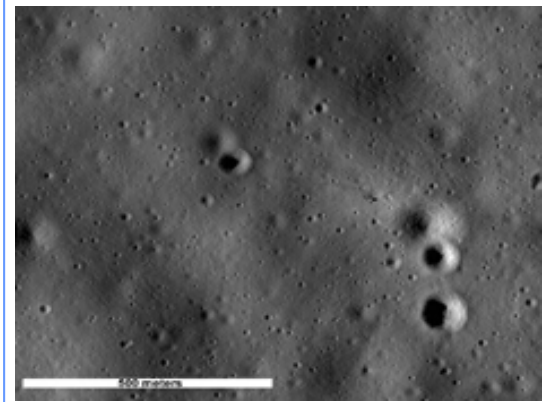
---

- FAQs/QUESTIONS
- SUBJECT INDEX
- SITEMAP
- SEARCH
- CONTACT US
- ABOUT US
- HELP
- ACRONYMS
- FOIA
- PRIVACY ACT
- WEBSITE POLICIES
- HOME PAGE

[Home](#) > [Library](#) > [SiteLines](#)

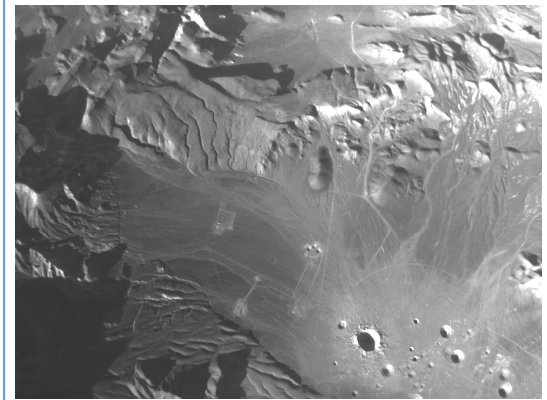
## NASA Moon Project Lands at NTS

The Nevada Test Site has a long storied past that involves, at its core, the safety and security of the nation. It was, for many years, the proving ground for the U.S. nuclear deterrent. Even though there has not been a nuclear device tested there in more than 17 years, the undisturbed remnants of those tests now provide a new use for the benefit of our space program.



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*The above is a lunar lander photograph of the surface of the moon.*



[Click to Enlarge](#)

*This is a photograph of the surface at the NTS. The large crater is Sedan Crater.*

The Remote Sensing Laboratory (RSL) recently took part in a NASA project that will one day help the NASA lunar lander orient itself for the orbital transition prior to landing on the moon's surface.

The Autonomous Landing and Hazard Avoidance Technology (ALHAT) Project is funded by NASA to develop an integrated Autonomous Guidance, Navigation and Control (AGNC) hardware and software system capable of detecting and avoiding surface hazards and guiding humans and cargo safely, precisely and repeatedly to designated lunar landing sites.

ALHAT uses sensors to look at ground and compare the data to a reference map to determine the lander's location. The main sensor used to find safe landing zones is the Light Detection and Ranging (LIDAR) sensor, which takes pictures of the shapes of an area rather than the color, essentially providing an elevation map.

The combination of a flat desert floor, mountainous terrain, and cratered landscape at NTS provided the perfect mock lunar surface for the team to test their equipment. The purpose of the field test was to fly their instrument suite at specific altitudes and at specific times of day over the mock lunar surface in order to test the terrain-relative navigation capabilities of ALHAT system. The timing of each mission was very specific because the sun's shadow in the craters needed to be at precise angles.

The NASA team and RSL Aviation crew logged over 32 flight hours over the NTS as well as Death Valley at various altitudes and lighting conditions. More than 350,000 images and 650,000 frames of LIDAR data were taken from the aircraft during the flights. A tremendous amount of coordination was necessary because of the specific timing needs and the fact that the NTS airspace is directly adjacent to the Nellis Air Force Range airspace. The RSL team worked very closely with both the Air Force and the Intelligence Community to ensure that no sensitive or classified areas were compromised or photographed during the flights.

"We were glad to be part of such an exciting program," said Dr. Shelly Freid, who led the RSL side of the project. "There were many early, early mornings and definitely some complicated issues to work through, but the RSL staff really went the extra mile to complete the mission – I was very proud of our people."

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# LIBRARY

U.S. Department of Energy  
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U.S. DOE/NNSA - Nevada Site Office

- Table of Contents
- Milestones
- News
- NTS Public Tours
- Factsheets
- Speakers Bureau
- Acronyms
- Mailing List
- Information Request
- Publishing Information
- Questions/Contact
- Masthead
- Archives

---

- FAQs/QUESTIONS
- SUBJECT INDEX
- SITEMAP
- SEARCH
- CONTACT US
- ABOUT US
- HELP
- ACRONYMS
- FOIA
- PRIVACY ACT
- WEBSITE POLICIES
- HOME PAGE

[Home](#) > [Library](#) > [SiteLines](#)

## NNSA/NSO Share Ideas at LDRD Symposium

The National Nuclear Security Administration Nevada Site Office (NNSA/NSO) joined the National Laboratories and NNSA production sites at the 2009 NNSA Laboratory Directed Research and Development (LDRD) Symposium in August at the Ritz-Carlton Hotel in Washington, D.C. The theme of this year's conference was "Innovation for Our Nation: Strengthening America's Infrastructure Security."



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*NSO's Manuel Manard talks with NSTec's Ping Lee during the LDRD symposium in Washington D.C.*

The symposium included presentations from: Sandia National Laboratories, Los Alamos National Laboratory, Lawrence Livermore National Laboratory and the Nevada Test Site.

The LDRD program promotes highly innovative and exploratory research to respond to present national security mission needs and anticipate future ones. The program funds projects that pursue technological solutions to the most urgent challenges facing our nation or that promote science and engineering foundations that will lead to new research and development.

"The LDRD program keeps NNSA's national laboratories at the forefront of science and technology and allows us to address emerging threats while attracting and nurturing the best talent in the world," said NNSA Administrator Tom D'Agostino in a media release. "As a result of our



nation's investment in nuclear security, our nuclear security enterprise is in a position to generate landmark accomplishments for peers to emulate and the nation to utilize."

The all-day symposium looked at current and future LDRD investments that the NNSA national laboratories, site and plants are making to protect the nation's critical infrastructure from terrorism, sabotage, global climate change and natural disasters. Symposium topics included cyber systems, power grid, energy resources, borders and seaports, bioterrorism, and transportation systems.

The symposium included a keynote presentation by William Brinkman, director of the U.S. Department of Energy's Office of Science, and William Bryan, deputy assistant secretary, DOE Office of Electricity Delivery and Energy Reliability.

Additionally, scientists, engineers, and managers in the NNSA LDRD program discussed ongoing research in areas that affect critical infrastructure security issues, and a panel of officials from industry, academia and government discussed the current and future research and development challenges facing our nation's critical infrastructure from a technical perspective.

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U.S. Department of Energy  
National Nuclear Security Administration

U.S. DOE/NNSA - Nevada Site Office

- Table of Contents
- Milestones
- News
- NTS Public Tours
- Factsheets
- Speakers Bureau
- Acronyms
- Mailing List
- Information Request
- Publishing Information
- Questions/Contact
- Masthead
- Archives

---

- FAQs/QUESTIONS
- SUBJECT INDEX
- SITEMAP
- SEARCH
- CONTACT US
- ABOUT US
- HELP
- ACRONYMS
- FOIA
- PRIVACY ACT
- WEBSITE POLICIES
- HOME PAGE

[Home](#) > [Library](#) > [SiteLines](#)

## RSL Wins Prestigious U.S. DOE Awards

The Remote Sensing Laboratory (RSL) Aviation Program of the National Nuclear Security Administration Nevada Site Office (NNSA/NSO) has been presented with two prestigious awards for excellence and innovation in aviation management and administration, operations, maintenance, training and safety.

The RSL Aviation Program team—comprised of the NNSA and its contractor National Security Technologies, LLC (NSTec) — was recently awarded the Department of Energy Jeff Snow Aviation Program Memorial Award. RSL Aviation Manager Joseph Ginanni also received the U.S. General Services Administration (GSA) Federal Aviation Professional Award. RSL’s Rick Fischer received an Honorable Mention for the DOE John Cooley Aviation Operations/Support Professional Memorial Award. All of the awards recognize outstanding contributions to the safety, efficiency, and effectiveness of one or more aspects of a federal flight program.

Ginanni oversees the Aviation Services Department of the RSL at Nellis and Andrews Air Force Bases. The program provides aerial support to the NNSA Office of Emergency Response, which protects people from nuclear or radiological attacks or accidents. NNSA aircraft can be used to track radiation from events such as the release of radiation from a power plant; a radiological dispersal device; improvised nuclear device incidents; or an actual nuclear weapon. The aircraft and its support team would serve as first responders in the event of a nuclear or radiological incident.

“We thank Mr. Ginanni for his outstanding oversight of this program and are proud to have people of his exceptional skill and talent serving throughout the nuclear security enterprise,” said NNSA Administrator Thomas D’Agostino during presentation of the award in July. “From

stockpile stewardship to international nonproliferation efforts to emergency response, NNSA is committed to excellence in every aspect of nuclear security. That wouldn't be possible without the hard work and dedication of people like Mr. Ginanni and others like him across our enterprise."

The DOE awards have poured in for RSL over the past decade, with the honors representing some of the highest that can be bestowed on a program by the DOE Office of Aviation Management. RSL won the DOE Jeff Snow Memorial Award for the third time. It is named for the Wackenhut Services Inc.-Savannah River Site Aviation Manager who died in 2000. RSL also has twice won the General Services Administration Federal Aviation Award for Small Programs. Ginanni has won the DOE Federal Aviation Professional of the Year four times.

"Our RSL aviation folks help ensure our nation is secure from radiological and nuclear threats," said Bob Summers, director of NSTec's Homeland Security and Defense Applications. "We're fortunate that they are the best aviation folks in their category. They represent the best aviation professionals in DOE and in the Nation."

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U.S. DOE/NNSA - Nevada Site Office

- [Table of Contents](#)
- [Milestones](#)
- [News](#)
- [NTS Public Tours](#)
- [Factsheets](#)
- [Speakers Bureau](#)
- [Acronyms](#)
- [Mailing List](#)
- [Information Request](#)
- [Publishing Information](#)
- [Questions/Contact](#)
- [Masthead](#)
- [Archives](#)

---

- [FAQs/QUESTIONS](#)
- [SUBJECT INDEX](#)
- [SITEMAP](#)
- [SEARCH](#)
- [CONTACT US](#)
- [ABOUT US](#)
- [HELP](#)
- [ACRONYMS](#)
- [FOIA](#)
- [PRIVACY ACT](#)
- [WEBSITE POLICIES](#)
- [HOMEPAGE](#)

[Home](#) > [Library](#) > [SiteLines](#)

## CDC Urges Precautions During Flu Season

Flu season has arrived, and the Centers for Disease Control (CDC) is recommending three action steps to help protect you against the flu.

### STEP 1 – Take Time to Get Vaccinated

CDC recommends a yearly seasonal flu vaccine as the first and most important step in protecting against seasonal flu. The seasonal flu vaccine protects against the three seasonal viruses that research suggests will be most common.

Vaccination is especially important for people at high risk of serious flu complication, including young children, pregnant women, people with chronic health conditions like asthma, diabetes, heart and lung disease, and people 65 years and older.

It is important to note that the seasonal vaccine will not protect against novel H1N1. A new vaccine against novel H1N1 is being produced and will be available in the coming months.

### STEP 2 – Take Everyday Preventative Actions

Cover your nose and mouth with a tissue when you cough or sneeze. Throw the tissue in the trash after you use it. Wash your hands often with soap and water, especially after you cough or sneeze. Alcohol-based hand cleaners are also effective.

Avoid touching your eyes, nose or mouth. Germs spread this way.

Try to avoid close contact with sick people.

### **STEP 3 – Take Flu Antiviral Drugs if Recommended**

If you get seasonal or novel H1N1 flu, antiviral drugs can treat the flu. Antiviral drugs are prescription medicines (pills, liquid, or an inhaled powder) that fight against the flu by keeping flu viruses from reproducing in your body.

Antiviral drugs can make your illness milder and make you feel better faster. They may also prevent serious flu complications. Antiviral drugs are not sold over-the-counter and are different from antibiotics.

For treatment, antiviral drugs work best if started within the first two days of symptoms.

Occupational Medicine does not stock antiviral drugs as a rule, and suggests that if you do develop flu-like symptoms, you contact your primary care physician who can provide further direction and medication if warranted.

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- Table of Contents
- Milestones
- News
- NTS Public Tours
- Factsheets
- Speakers Bureau
- Acronyms
- Mailing List
- Information Request
- Publishing Information
- Questions/Contact
- Masthead
- Archives

---

- FAQs/QUESTIONS
- SUBJECT INDEX
- SITEMAP
- SEARCH
- CONTACT US
- ABOUT US
- HELP
- ACRONYMS
- FOIA
- PRIVACY ACT
- WEBSITE POLICIES
- HOME PAGE

[Home](#) > [Library](#) > [SiteLines](#) > Milestones

## Milestones

### National Security Technologies

#### 40 years

Maryann Schaack

#### 35 years

Delia Gomez

#### 30 years

B Sexton, Vernon Hall

#### 25 years

Bonnie Spencer, Charlene Evans, Frederick Muchow, Michael Frehner

#### 20 years

Carrie Brugger, Jay Chotirmal, Leslie Drake, Morris Clark, Randy Summers, Rick Rieckmann

#### 15 years

Rhonda Beauchene, Ashley Burns, Carolyn Lima, Eleno Ramos, Mark Froehlich, Mark McMahon, Michael Gibo, Patrick Morris

#### 5 years

Andrew Huie, Bernard Meehan, David Schwellenbach, Eddie Reyes, Fred

Garcia Jr., Gordon Parker, Joe Huerta, John Hellier, John Scrivani, Kirsten Kellogg, Michael Hanson, Robert Kanning, Ronald Tillman Sr., Shawn Mooney.

WSI

**25 years**

Richard Gomez, Aaron Kramer, Jeffrey Monty and Anniah Randolph

**10 years**

Terrance Fagan, William Gomer, Phillip Mertz, Terry Scobee.

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