

NNSS Commemorates 60 Years; Looks Forward to the Future

The name has changed, and the new mission has evolved into a 21st century focus on threat reduction and homeland security, but the Nevada National Security Site – formerly known as the Nevada Test Site – celebrates 60 years of rich history this year.

From 1951 to 1992, there were 928 nuclear tests involving 1,021 detonations at the test site. The Site played a vital role in the United States winning the Cold War. Today, the NNSS still plays a vital role in fighting terrorism, training first responders and helping to ensure that the nation's nuclear weapons stockpile remains safe and reliable.

As the NNSS charts a course to a future supporting the U.S. agenda for global non-proliferation, the Site once again will be at the forefront with the creation of the National Center for Nuclear Security (NCNS). The NCNS will be one of several missions that ensure our neighbors comply with treaties while U.S. agencies train to prepare for any threat that may cross our nation's borders.

For more on NCNS, see page 3.



The Nevada National Security Site celebrates 60 years in 2011.



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SITELINES

NSO/NNSS Hosts Regional Science Bowl



The National Nuclear Security Administration Nevada Site Office (NNSA/NSO) recently hosted the 2011 Regional Science Bowl in Las Vegas. Some 32 schools from around the region competed in science and mathematics for a chance to represent the region in the National Science Bowl in April in Washington D.C. Here, Nevada Site Office Public Affairs Director Darwin Morgan (top row, second from left) presents a check to the winning team, Coronado High School of Henderson, Nev.

For more on Science Bowl, see page 8.

Cook Visit Hails Growing Future of NNSS

Deputy Administrator's Two-Day Visit Includes Site Tour

Hailing the Nevada National Security Site's (NNSS) future in arms treaty verification and stockpile stewardship, National Nuclear Security Administration (NNSA) Deputy Administrator for Defense Programs Dr. Donald Cook paid a visit to Nevada recently to take a tour and discuss the site's future with federal and contractor employees.

"On one hand we need to pay attention to non-proliferation and arms control treaties and on the other hand we must modernize our nuclear deterrent," Cook told employees at one of several meetings held in January at the NNSS and North Las Vegas facilities.

He said Nevada will always be a preferred site for work with nuclear materials because of its size and the buffer it provides to the greater population.

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National Nuclear Security Administration (NNSA) Deputy Administrator for Defense Programs Dr. Donald Cook addresses employees during a recent visit.



Fire Training

NNSS Fire & Rescue places an emphasis on multi-discipline training.

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Mixed Waste Facility

EM holds an opening ceremony for a new mixed waste facility in Area 5.

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NSTec's Griess Named Safety Professional of the Year



The National Nuclear Security Administration (NNSA) has named Gerhardt (Gary) R. Griess the 2010 NNSA Management and Operating (M&O) Contractor Safety Professional of the Year. As director of Environment, Health, Safety & Quality for National Security Technologies, LLC (NSTec), Griess is responsible for environmental programs, industrial hygiene, ecological and environmental monitoring, occupational safety, quality assurance, aviation safety, explosives safety, radiological control, and the Nuclear Testing Archives for NSTec, the M&O contractor for the Nevada National Security Site (NNSS).

These awards recognize distinguished service

and outstanding safety-related achievements and contributions that serve to accomplish the NNSA mission. At an all-hands meeting in Amarillo, Texas, NNSA Administrator Thomas D'Agostino also presented the Federal Safety Professional of the Year Award to Bryan T. Rhodes, the Fire Protection Engineer at the Pantex Site Office (PXSO).

"In our line of work, operating at the highest levels of safety and security is an absolute necessity and these gentlemen exemplify the excellence, professionalism and drive to do better that each of us should aspire to," said NNSA Deputy Administrator for Defense Programs Dr. Don Cook. "An emphasis on continuous improvement is engrained in the safety culture, but that same idea is also essential to the future of the nuclear security enterprise as we invest the resources we need to accomplish our mission and implement the president's nuclear security agenda."

Griess demonstrated outstanding leadership in orchestrating a value-added integrated approach to implementation of the NSTec Environment Safety & Health program.

Due in part to this initiative, NSTec was awarded in 2010 the Department of Energy (DOE) Voluntary Protection Program Superior Star Award, which cited NSTec as a leader in safety and health performance. Griess also led the NNSA, NSTec Aviation Programs to receive the DOE Office of Aviation Management – Jeff Snow Aviation Program Memorial Award and the General Services Administration Federal Aviation Program Award (Small Programs) during 2010.

"This richly deserved award recognizes Gary as best-in-class; a consummate professional who has improved all aspects of safety at our sites," NSTec President Stephen Younger said. "Every employee has benefitted from his efforts and I am exceptionally proud of his accomplishments."

First Subjects in Mountain Lion Study Give a Sobering Account of Survival

Biologists leading a two-year study on the behavior of mountain lions living on or near the Nevada National Security Site (NNSS) are gathering information on two new subjects. Preliminary results indicate that the recently collared mountain lions, or *pumas*, are roaming faster and further than expected, and that surviving the winter can be a losing battle, even for relatively healthy lions.

Puma 1, a 2 to 3-year old female, was captured on the morning of December 13, 2010, on Timber Mountain, located on the western edge of the NNSS. A week and a half later, trappers were able to snare and sedate a second female (a 5 to 6-year old) in the north central region of the NNSS. Before being released, each lion was fitted with a Global Positioning System (GPS) satellite collar to record its location six times per day.

Tracking results immediately showed the team, made up of scientists from the U.S. Geological Survey (USGS) and National Security Technologies, LLC (NSTec), just how far and how fast these mountain lions are ranging. Puma 1 left the NNSS, traveled to Bare Mountain near the town of Beatty, NV and then returned to the site,

where it was last tracked near the northern border of the NNSS. Puma 2 roamed more than 20 miles to the Nevada Test and Training Range (north of the NNSS) where it was found dead, presumably from starvation.



Puma 2 was captured, collared, and then released in late December 2010 in the north-central region of the NNSS.

While the loss of Puma 2 was difficult for the team, it wasn't entirely unexpected. "Winters are tough times for mountain lions, and this is when we see the most losses," said W. Kent Ostler, senior scientist with NSTec. "Though the deer herd experienced a rebound in 2010,"

he explained, "overall numbers have been down due to low precipitation in the growing seasons of the past few years." Ostler went on to say that Puma 2 appeared to be in good health at the time of capture, but researchers had documented only one kill (a coyote) during the entire month she was tracked. The team believes a post-mortem examination of the body will provide a more definitive cause of death.

Eventually, the two-year study, funded by the U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office, will include a total of eight mountain lions. Tracking the animals over time will hopefully shed light on where these elusive predators live, what they eat, and how best to manage potential risks to workers who have experienced an increase in mountain lion sightings over the past five years.

"Even though the risk of an employee being attacked by a mountain lion is extremely low (only one attack has ever been documented at the NNSS)," said Federal Project Director Peter Sanders, "we want to assess where the risk is the highest since some new projects are being conducted in mountain lion habitat."

Dr. David Mattson, a USGS wildlife biologist who is heading up the study, hopes the research at the NNSS will someday contribute to a long-term study that monitors mountain lion populations on a regional scale. Since 2003, USGS researchers have been able to track more than 60 mountain lions from northwestern Arizona to southwestern Utah.

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Mountain Lion Facts

Weight: 90-130 pounds (female);
140-160 pounds (male)

Size: 6-8 feet in length (including tail)

Life Span: 10-12 years in the wild;
up to 20 years in captivity

Range: 10 square miles to 350 square miles; a
typical female ranges fewer miles than
a male

Habitat: Grasslands, swamps, and mountains
throughout the Americas

Diet: Deer, rabbits, coyotes, young horses

NCNS Breaks New Ground in Non-Proliferation

Nevada National Security Site Home to New Global Threat Reduction Effort

The recent name change at the Nevada National Security Site (NNSS) to reflect a more diverse 21st century mission will do more than just usher in a new period of stockpile stewardship and homeland security. The former testing ground for America's nuclear arsenal will now be the home of a national-level collaboration designed to significantly reduce the threat of nuclear weapons on a global level.

Last year, the National Nuclear Security Administration dedicated \$10 million to create the National Center for Nuclear Security (NCNS) at the NNSS. The goal of the NCNS is to use the unique infrastructure and technical capabilities of the Site to conduct experiments that will aid in detection, verification and compliance with non-proliferation and arms control treaties as well as test ban agreements.

This year, the NCNS has "opened its doors" and already several experiments are being readied for execution later this year. The NCNS integrates large-scale technological disciplines in science and engineering, and partners with experts from the National Laboratories together with those at NNSS to advance the state of the art in non-proliferation, treaty verification, and nuclear forensics through both research and the conduct of field experiments.

"With the advent of the NCNS effort, the NNSS is in an inimitable position to serve national security interests and be one of the major contributors to arms control," said Peter Munding, who oversees NCNS for the Nevada Site Office. "The collaboration with the national laboratories and other national departments in these scientific developments is a natural progression, testing to reduction, for the NNSS."

Creation of the NCNS falls in line with President Obama's emphasis on curbing the spread of nuclear weapons and ensuring existing stockpiles are safe and secure. One of the most important aspects is determining whether treaty nations are living up to their agreements.

Three areas of focus for the NCNS will include: **Treaty Verification** – develop, test, and train on new arms control verification technologies; **Non-proliferation** – develop, test, and train on technologies to find weapons of mass destruction (WMD) and methodology to defeat terrorist nuclear devices; and **Nuclear Forensics** – exercise equipment and methods at actual (legacy) nuclear event locations and on-site inspection exercises and training.

An important activity for the NCNS is the Source Physics Experiments (SPE): a set of investigations designed to examine seismic waves beneath the earth's surface. SPE modeling, or simulation, will enable scientists to learn to differentiate between normal seismic activity beneath the earth's surface e.g. earthquakes, and those created by underground nuclear tests.

If a rogue nation were to test a nuclear device underground, the ground waves emitted would be differentiated from background of natural phenomena and more importantly be able to attribute the activity back to its source thereby allowing national and world leadership to hold the rogue accountable. In the future, the NCNS will conduct and support a host of investigations into high-energy experiments, sensor development as well as serve as a training site for inspectors.

"NCNS success depends on robust partnership with the best and brightest cadre of researchers from the National Security Enterprise

and government agencies such as Defense Threat Reduction Agency to solve complex real-world verification, detection and characterization challenges that require the capabilities and infrastructure at the Nevada National Security Site," said Dr. Ping Lee, director of NCNS for National Security Technologies (NSTec).

NNSS Addresses Safety, Security With New Cell Phone Policy

The Nevada National Security Site (NNSS) has taken a pro-active approach to improving safety and security, both at the Site and at the North Las Vegas location, with a new policy regarding the use of cell phones and Blackberry devices.

The new policy calls for no cell phone usage at all while driving in a government vehicle, to include texting, e-mailing or pager. It also outlines no use of a government-issued phone or Blackberry at all in a personal vehicle.

Nevada Site Office Manager Steve Mellington said he is extremely concerned with statistics that show a dramatic increase in the number of cell phone-related accidents, and that the emphasis on safety has become paramount – not just at NNSS but throughout the National Nuclear Security Administration (NNSA) complex.

He recently highlighted the new phone policy, as well as placing an emphasis on obeying all posted speed limit signs at both the NNSS and North Las Vegas locations. "The speed limits (in NLV) are posted at 15 mph, and 10 mph in some places – it doesn't take that much longer to get from Point A to Point B by obeying the signs," Mellington said. "It is absolutely imperative that employees think safety when operating vehicles at our facilities."

The cell phone policy, which took effect in February, also loosens some restrictions for allowing personal camera-equipped cell phones into various work locations. The change allows for employees across the Nevada Enterprise to bring their camera cell phones into areas known as property protection areas.

Property protection areas are secure areas at the NNSS and NLV complex. Limited areas are those where classified work is conducted. Camera phones still are not permitted in limited areas at the NNSS. Other devices also now allowed in property protection areas include iPod/MP3 players, e-Books (Kindles, Nooks, etc.), iPads and other similar type PDAs.

Restrictions regarding cameras remain in place, and security is authorized to conduct random searches to ensure compliance with the new policy.

Cook Visit *Continued from page 1*

Dr. Cook was appointed to his current position and sworn in as NNSA's fifth deputy administrator in June 2010 by President Barack Obama. He is responsible for managing the U.S. nuclear security enterprise of laboratories and manufacturing facilities.

Cook's tour extended throughout the NNSA complex to include the three national laboratories and four plants. The Nevada Site Office was his last stop.

Cook discussed with employees the President's current nuclear agenda, which through the new START Treaty will reduce the current stockpile to about 700 active launchers and fewer than 1,550 warheads within seven years. Part of the challenge will be in modernizing the current stockpile without building new weapons or active testing.

Cook said he's passionate about verification and transparency, and highlighted NNSS's reputation for working with the utmost speed and accuracy in all of its programs. He hopes to expand that efficiency throughout the complex, and has asked that all site office managers report directly to him.

Part of enhancing the mission of NNSA will be focusing on what he says are four key elements: people, stockpile, infrastructure and business practices. He applauded NNSS employees for the efforts they've made in all four areas. "Everyone



Cook talks with Gene Christianson at the Joint Actinide Shock Physics Experimental Research (JASPER) facility.

here has a role in identifying and managing risk," Cook said.

Cook answered questions from employees, including those about growth at facilities like the U1A complex and the Device Assembly Facility. He also presented service awards to LaTonya Burke (20 years) and Judith Liebarger (10 years) and personally thanked them for their commitment to the NNSS mission.

DENSE PLASMA FOCUS FUSION: NNSS SPEARHEADING GROWTH IN FIELD

NNSS DPF Machine Among Most Powerful in the World

The Nevada National Security Site (NNSS) is now operating physics machines that create the same fusion process as the sun.

While scientists around the world are working on fusion projects hoping to produce clean, “carbon-free” economical energy, the Nevada Site Office and NNSS management and operating contractor National Security Technologies (NSTec) are overseeing significant breakthroughs in the field of Dense Plasma Focus (DPF).

“For brief instants we can now bring the sun to Las Vegas,” said Dr. E. “Chris” Hagen, manager of the Dense Plasma Focus Fusion projects. “In a space that is smaller than a vitamin pill, we produce a bright flash of fusion, lasting less than a millionth of a second; in that short time, a million-million (10^{12}) fusions occur.”

The sun, like most stars, uses tremendous heat and pressure to fuse hydrogen atoms together, forming helium. Humans are composed mostly of oxygen, carbon, and hydrogen, while the massive sun is mostly made of the light gasses, hydrogen and helium. The solar fusion process that has been going on for billions of years is slowly making heavier elements out of the hydrogen and helium fuel. This fusion process produces massive amounts of energy that radiates into the solar system; the tiny fraction of this solar energy that hits the earth makes life on Earth possible.

Similarly, the newest of the DPF fusion machines, named “Gemini” after the twin stars Castor and Pollux, has grown to be the largest and most powerful operating DPF in the world. The NNSS’s machine is now part of an international research community that is exploring the specific plasma physics that creates the conditions for these machines to succeed.

“Worldwide, DPF research ranges from the practical to the esoteric,”

Hagen said. “Gleaning from the many branches of physics (plasma, nuclear, and astrophysics to name a just few), DPF runs the gamut from pulsed power applications and detection system development, all the way to lithography, medical isotope production, and even clean energy generation.”

DPF machines at NNSS are supporting research at Sandia, Los Alamos, and Lawrence Livermore National Laboratories by providing short intense bursts of fusion-born neutrons and photons. The national laboratories test and perfect the detection systems that then qualify for use in premiere scientific facilities such as the National Ignition Facility, the “Z” machine at Sandia, and at the NNSS. There are two large machines and several smaller ones available for use.

DPFs are also used for many other purposes including designing and testing systems that can be used for Homeland Security. For example, the short intense pulses emitted by the DPF, coupled with sensitive detectors, create efficient and effective tools for finding “hidden” material (thus supporting anti-terrorist and non-proliferation missions).

In Las Vegas, DPF research includes a vibrant team of researchers, among them students visiting from the United States Naval Academy, collaborations with the Nevada System of Higher Education, and students from University of Nevada, Las Vegas (UNLV) who, through their innovation and teamwork, have dramatically bolstered the success of these machines. They created evolutions in DPF that are now recognized as new technological assets.

Robert O’Brien and Daniel Lowe, both UNLV Nuclear Engineering PhD candidates, expressed enthusiasm over being able to go from “class to lab” with real hands-on experiments. “The ability to work on bona fide experiments with state-of-the-art pulsed fusion – and support Homeland Security topics – has given me a genuine sense of contribution,” said Lowe.

“We created simulations for DPF that we were actually able to prove and validate in laboratory experiments,” said O’Brien. “For example, we were able to validate a DT (deuterium/tritium) yield from a DD (deuterium/deuterium) fueled DPF reaction, possibly demonstrating reaction product burning, similar to solar processes.”

Hagen said the machines, laboratories, and experimental design and execution make excellent platforms for education and training. The NNSS has hosted students from a variety of educational institutions. The UNLV students have participated in high-level engineering designs of large (many tons) systems. They helped guide



United States Naval Academy Midshipman Steven Malinoski (left) and United States Military Academy Cadet Joshua Kornmann work on a key component of the DPF.

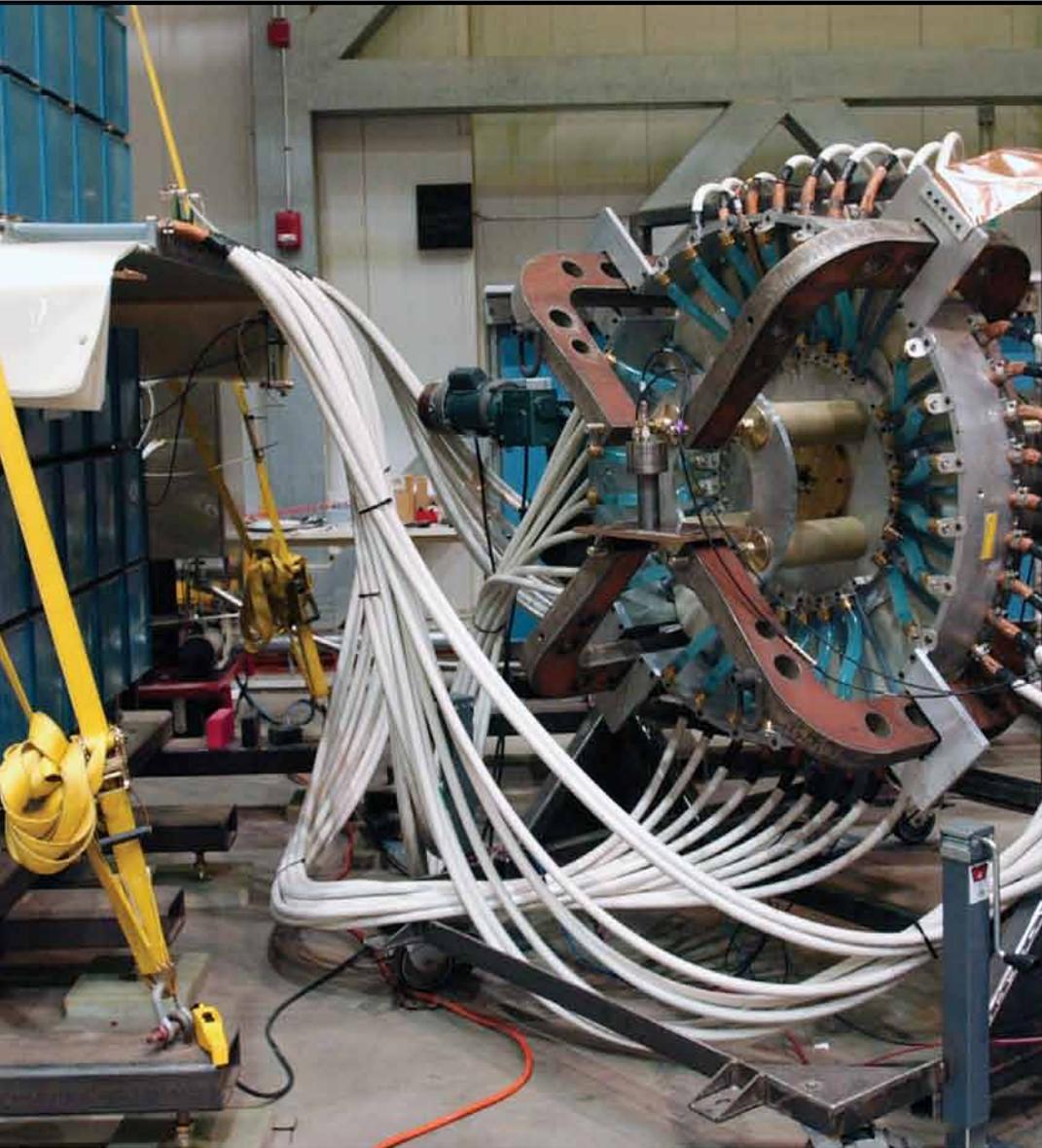
NNSS DENSE PLASMA FOCUS RESEARCH CELEBRATES 1000TH SHOT

The Dense Plasma Focus (DPF) “Gemini” machine at the Nevada National Security Site (NNSS) recently celebrated its 1000th shot.

Dr. E. “Chris” Hagen, manager of the Dense Plasma Focus Fusion project, said the milestone represents the ending of one research phase in DPF and the beginning of another. The Gemini is the fourth DPF in a planned progression of sources, representing a thousand-fold increase in energy storage from the first machine, and a factor of 10,000 increase in output.

“The Gemini started out as a Site Directed Research and Development project, an experiment in and of itself, that asked the questions, Can you make a high voltage high current DPF work? If it works can you make it reliable? If you can make it reliable, how powerful can you make it?,” Hagen said.

These questions have now been answered, and the source itself is no longer a research project; with the 1000th shot, the Gemini machine now supports scientific and engineering research. Gemini has become a flexible and powerful tool for NSTec, the National Laboratories, and visiting scientists to use for their experimental purposes, Hagen said.

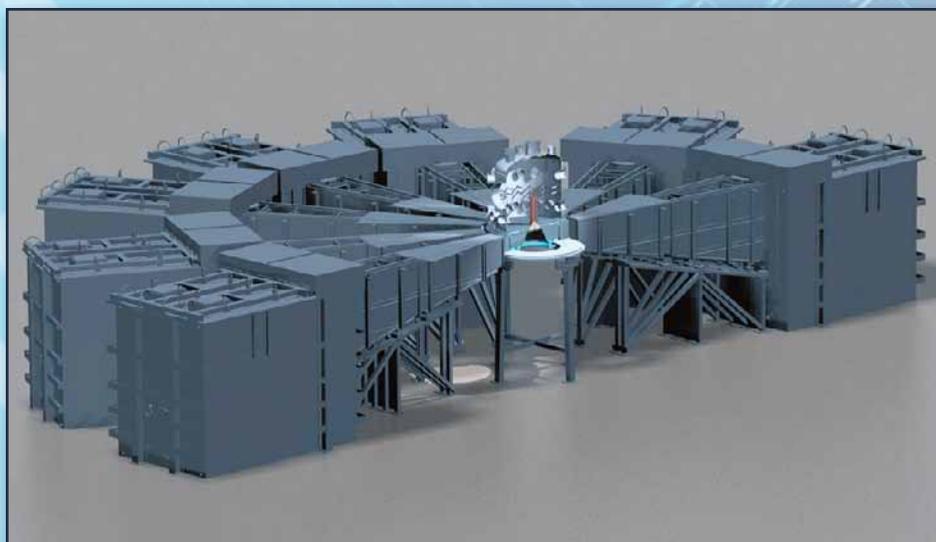


DPF source tube and power delivery cables.

the detailed design, construction, testing, and qualification of these systems.

One example is a detection system that is now in use at the world class “Z” facility at Sandia. The students used their engineering expertise to do the mechanical design of the system; they used the shielding code MCNPX (software used for neutron transport calculations) to do the physics portion of the design. The system was fabricated in-house at the North Las Vegas facility Machine Shop, and then proven at the DPF facility to meet Sandia Laboratory’s experimental requirements. For the students, being part of a real process from beginning to end cemented the value of all the elements they learned in the classroom.

According to Hagen, there is a bright future for the NSTec fusion machines. Experiments in support of future national laboratory initiatives at NNSS are planned. “As we discover new applications, we have an increasing amount of work supporting new customers. The sources themselves continue to improve and are considered among the best in the world,” Hagen said.



Dense Plasma Focus Source driven by Augmented Test Logistic Assembly System (Conceptual design).



Anthony Montoya, Larry Robbins and Steve Molnar are re-assembling the DPF source. The source has been modified to meet specific experimental requirements.

NNSS Fire and Rescue Training Raises the Bar High

First Responders from Across State Rely on Site Expertise

When first responders from around the state recently journeyed out to the Nevada National Security Site (NNSS) for a week-long national-level hazardous materials (HAZMAT IO) training class, they turned to the highly trained NNSS Fire and Rescue Department to coordinate local and state expertise in hazmat operations.

Over the past 10 years, the NNSS Fire and Rescue has become a lead agency, reaching out to Las Vegas Fire and Rescue, the U.S. Forest Service, Nye and Pahrump county fire and police, as well as units from Mesquite, Reno and Creech Air Force Base in teaching the ins and outs of hazmat rescue.

"We're pretty unique in the training we offer, so we're able to open our doors to a lot of people," said NNSS Deputy Chief John Rynes, who oversees training at the NNSS. "In the process, we've now established ourselves as a fire department in the Las Vegas Valley that has a lot of credibility."

Indeed, the NNSS Fire and Rescue training department has come a long way from its origins in a department whose history can be traced back to the atomic tests of the 1950s.

Originally established to provide vehicle, structure and aircraft fire support for national laboratory personnel conducting tests at the former Nevada Test Site, the NNSS Fire and Rescue department today specializes in everything from nuclear firefighting, confined space rescue, and wildland firefighting, to structural collapse, tower and trench rescue, and low-and high-angle rescue, among others.



Swift water rescue has become an important part of training at the NNSS.

As the need for such services evolved, Rynes said the department would contract with outside companies to provide training, sometimes at a considerable expense. Today, the NNSS Fire and Rescue is a self-contained unit, with numerous in-house trainers who can certify firefighters at state and national levels.

"Having people within our own department who go out and receive training in some of the most highly specialized areas and bring back the information ensures that we keep our operations affordable, and that we keep our people at the highest level of certification that we've ever had," Rynes said.

NNSS Fire and Rescue has six master instructors: Larry Ayala, Brett Benson, Dan Crays, John Dwyer, Kerry MacKey and Mike Worthen.

Training Evolution

Fireservice at NNSS underwent major evolution from the 1970s to the early 1990s when nuclear testing was scaled back and the mission evolved into more disciplines. Gone were firefighting operations geared toward just supporting nuclear testing. The site began conducting more highly



Brett Benson



Dan Crays



John Dwyer



Kerry MacKey



Larry Ayala



Mike Worthen

scientific experiments in the late 1990s and early 2000s as well as counterterrorism classes, outdoor high-hazard experiments and other homeland security and Department of Defense missions.

The NNSS Fire and Rescue Department also evolved to keep pace with the change. The Emergency Medical Service was the first to upgrade its training standards and equipment to meet state-and national-level certifications. Then came the fire service, which saw its immediate role



NNSS Fire and Rescue personnel train more than 16,000 hours annually.

transition into wildland firefighting, hazardous materials response and technical rescue, while maintaining structural and vehicle firefighting capabilities.

"We trained to excel in many areas," said NNSS Fire Chief Charles Fauerbach. "That included establishing a technician-level (hazardous materials) team. All of our firefighters also trained to some level of Emergency Medical Technician (EMT) qualifications, and Paramedics trained to the State of Nevada, Entry Level Firefighter. We've become quite good at handling everything from traffic accidents and fires on (U.S.) 95 to mutual aid responses to communities in Nye County."

By the mid-2000s, training was the primary focus of the department with firefighters putting in more than 16,000 hours of training annually. Rynes said establishing a new NNSS Fire Training Grounds was also instrumental. The facility has helicopter and truck fuselages, buildings for rappelling and rescue, underground trenches and building mazes, and a nuclear firefighting support building.

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NNSS Fire Station's Energy Efficient Design Earns Gold Certification

The U.S. Green Building Council has announced that the new fire station at the Nevada National Security Site (NNSS) has been selected for the Leadership in Environmental and Engineering Design (LEED) Gold certification for its energy-efficient design and features.

The Nevada Site Office and NNSS contractor National Security Technologies (NSTec) were notified in February that Fire Station 1 in Mercury, which was opened in October 2010, had received Gold status. Fire Station 2, which also was opened in October, received Gold status in December.

In the United States and in a number of other countries around the world, LEED certification is the recognized standard for measuring building

sustainability. Achieving LEED certification is the best way for a company to demonstrate that its building project is truly "green."

Construction began on both fire stations in April 2009. Both stations were completed on time and at a cost of about \$35 million, significantly under the original \$42 million budget. A ribbon-cutting ceremony was held Oct. 6 for the smaller Station No. 2, located in Area 6, about 22 miles north of Mercury. On Oct. 13, a formal ceremony opened the larger Station No. 1, built in Mercury, known as Area 23 of the Site. Combined, the stations encompass more than 40,000 square feet of space.

"These stations modernize our facilities, bring our fire stations into compliance with current standards, and enable us to support the NNSS for many years to come," said Steve Younger, president of NSTec, the management and operating contractor for NNSS.

The LEED green building rating system -- developed and administered by the U.S. Green Building Council, a Washington D.C.-based, nonprofit coalition of building industry leaders -- is designed to promote design and construction practices that increase profitability while reducing the negative environmental impacts of buildings and improving occupant health and well-being.

New Facility to Hold Mixed Waste at NNSS

In December 2010, a new state-of-the-art disposal cell was completed at the Nevada National Security Site (NNSS), under budget and ahead of schedule. This excavated unit, permitted under the requirements of the *Resource Conservation and Recovery Act (RCRA)*, received its first mixed low-level radioactive waste package in January 2011.

The opening of the facility was highly anticipated for a number of waste generators throughout the U.S. Department of Energy (DOE) Complex seeking permanent disposal for their mixed waste, of which was generated through environmental cleanup activities.

Located at the NNSS Area 5 Radioactive Waste Management Complex, the 150-foot-wide by 300-foot-long by 20-foot-deep unit is one of few RCRA-permitted facilities in the nation. Under RCRA, the cell is permitted to accept a "mix" of both low-level radioactive waste and hazardous material, which can include debris, soil, trash, equipment, tools and protective clothing.

Apart from its unique purpose as a "mixed waste" facility, the new cell comes with a special design feature as well. "The facility," as described by Federal Project Director Frank DiSanza "is lined with a five-layer geoliner made of plastic and an

earthen-like material that will absorb and move soil moisture into a leachate collection tank." "The cell is very well engineered," DiSanza said.



Workers test the leachate collection system.

The State of Nevada Division of Environmental Protection issued the final permit that authorizes the operation of the new mixed waste disposal unit, which replaces a cell that closed at the end of November 2010. Prior to issuing the permit, the State conducted a rigorous design review, which involved several design iterations, and performed multiple inspections during construction.

Built to hold approximately 25,000 cubic meters of waste, "the facility provides a sound, safe disposal option for generators who meet the NNSS' strict waste acceptance criteria," DiSanza said. "Working with the generators, the NNSS is able to perform an important function for ongoing cleanup efforts at the NNSS and across the DOE Complex."



During construction, workers lined the unit with a five-layer geoliner.

NNSS Dedicates New Waste Disposal Unit

Local, state and federal officials and of the Nevada Site-specific Advisory Board gathered at the Nevada National Security Site (NNSS) recently to commemorate the completion of the new mixed waste disposal unit (MWDU) at the NNSS. The Nevada Site Office hosted the ceremony at the Area 5 Radioactive Waste Management Site (RWMS).

The event began with a private morning ceremony at the MWDU, where a small group of attendees observed tribal representative, Richard Arnold of the Southern Paiute Nation, perform a traditional Indian blessing. The group then watched as workers placed the first mixed waste package in the disposal unit.

Following the package placement, the group joined a larger audience at the Area 5 RWMS operations building for a series of dedication speeches to recognize the federal employees, contractors, and subcontractors who contributed to the project's success. Representatives from the management and operating contractor for the NNSS, National Security Technologies, and subcontractor, Andrews Engineering, were acknowledged for their stellar performance during the design, permitting, and construction phases.

Christine Gelles, director of Disposal Operations at U.S. Department of Energy (DOE) Environmental Management Headquarters, described the MWDU opening as "a culmination of five years of careful planning," and praised the NNSS for its support of Complex-wide cleanup efforts, calling the site a "key element to our (DOE's) continued progress."

NNSS Workers Recognized for Life Saving Efforts

Quick-Thinking, Heimlich Maneuver Saves DAF Worker



John Ross

As a former U.S. Marine and WSI-Nevada Team pro force guard, John Ross trained many years in First Aid and life-saving procedures such as cardiopulmonary resuscitation (CPR) and the Heimlich maneuver.

Fortunately for one of his work colleagues, Ross and co-worker Dean Fore were able to recall that training in time to save a co-worker from choking on a piece of food recently.

Ross, a millwright foreman and Fore, a carpenter foreman at the Device Assembly Facility (DAF), were eating lunch with their colleagues when one of them, Aaron Fisher, began choking. "It came from out of nowhere," recalls Ross, who insists he's hardly a hero for saving his fellow worker. "It took a couple of thrusts (of the Heimlich) before he started breathing again. I figured anybody would have done that for me."

Ross and Fore, along with Nevada National Security Site (NNSS) firefighter Quentin Aukeman, were recognized recently for their efforts to save lives.

Aukeman, a fire captain and Honor Guard commander with NNSS Fire and Rescue, was on his way to his home in Pahrump in February when he encountered a house fire. Although he didn't have protective equipment, he climbed through a window to try to save three children. Thick black smoke forced him to abandon the rescue to save his own life. He was treated at a hospital for smoke inhalation.

"It was probably the dumbest thing I've ever done in my life, but faced with the same set of circumstances, I'd do it again," Quentin told the local media. "I couldn't sit by. No firefighter could."

Ross said his colleague was grateful he was able



Dean Fore

to administer the Heimlich successfully, which had dislodged the food in a matter of seconds.



Quentin Aukeman

"It definitely shook him up a little bit. It's just one of those things that happens – I'm glad he's alright," Ross said. Adds Fore, "I'm glad we receive First Aid and CPR training, so we were prepared to save Aaron's life."

But Ross's supervisor, Gary Gardner, isn't surprised at the men's quick thinking and fast reaction. He said all 17 people who work in the maintenance shop at DAF have similar training and have, over the years, saved other people in choking situations.

"All of our guys are trained in a similar fashion – John is an exemplary subject because he also got military training," Gardner said. "All of our guys are highly-trained. They're fantastic – I couldn't ask for a better group of guys."

Henderson School Wins Regional Science Bowl Tournament

The Coronado High School team of Henderson, Nev. marched through a 32-team, double-elimination tournament to win the U.S. Department of Energy's 20th Annual Nevada Regional Science Bowl. Held Saturday, February 26, on the campus of the University of Nevada, Las Vegas and Vegas PBS studios, the Coronado team claimed a trip to Washington D.C. to represent the region and a \$5,000 check for their school.

Teams from Nevada, Arizona, and Utah tested their math and science knowledge during the competition.

High school teams were quizzed on all science disciplines, including astronomy, biology, chemistry, earth science, general science, mathematics and physics. Each team of students was tested in a fast-paced question and answer format resembling the TV game show Jeopardy.

This year marked the first time Vegas PBS taped "Final Four," in a new partnership with the Nevada National Security Site Nevada Site Office and National Security Technologies (NSTec), which coordinates the event. The finals will be shown on April 13 at 7:30pm, as well as on demand on the Vegas PBS internet site.

Placing second and winning a prize of \$2,500 for their school was the team from Palo Verde High School of Las Vegas.

Third place and a \$1,500 check went to Centennial High School "Blue" team of Las Vegas. The Meadows School "Blue" team of Las Vegas took fourth and won \$1,000 for their school. Other teams that placed in the tournament were:

Fifth Place - \$500

The Meadows School "Green" team, Las Vegas,

Nevada

Douglas High School, Minden, Nevada

Seventh Place - \$300

Shadow Ridge High School, Las Vegas, Nevada
Bishop Manogue High School, Reno, Nevada

Ninth Place - \$100

Reno High School, Reno, Nevada
Churchill County High School, Fallon, Nevada
Carson High School, Carson City, Nevada
Spanish Springs High School, Sparks, Nevada

The team from Coronado High School will participate in the U.S. Department of Energy's National Science Bowl Competition, April 28 - May 2, 2011, in Washington D.C.



Two high school teams compete against each other during each round for a Jeopardy-style Q&A in science and mathematics. Later, teams advanced to the finals, which were taped at the PBS Vegas studios in Las Vegas.



Here, the eventual champion, Coronado High School (top) competes against last year's champ, Palo Verde High.



Emcee Nate Tannenbaum asks questions of the teams during the televised portion of competition.

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Fire and Rescue Training Continued from page 6

"We've even had Las Vegas Fire and Rescue hazmat crews come out and practice live acid spills in coordination with the Area 5 Nonproliferation Test and Evaluation Complex," Rynes said. "The uniqueness of the NNSS and the missions we support makes this an ideal place to reach out to other agencies."

Validating for Credibility

Training programs at NNSS are far-reaching, and NNSS firefighters now can certify in everything they need to do the job – from Driver Operator and Officer I and II levels, Entry-Level Firefighting and Professional Firefighting I and II classes – to Wildland Type I and II certifications. The Fire and Rescue Training Grounds are also used by the Mine Rescue Team for specialized activities in support of their mission. The department also is qualified to certify Hazardous Materials Technicians at the site who work in Industrial Hygiene (IH) and Radiation Control (RCTs), among others.

With the emphasis in training has come a push toward validation, and Rynes said certifying response personnel to state and national levels provides a level of recognition

and expertise that NNSS Fire and Rescue personnel have never seen.

"This is very important – when you can validate your training, it gives credibility to your entire organization," Rynes said. "All our fire trainers are master instructors. That's another reason why so many outside agencies do turn to us for assistance."

Although the NNSS Fire and Rescue considers its robust Fire Prevention program one of its "Shining Stars" – the department responds to very few fire-related incidents on the NNSS each year – Rynes said the growing number of future missions at the site all but ensures the emphasis on training will continue for a long time to come.

"We'll always have certain requirements we have to meet, but we also have individual needs and we fine-tune ourselves through training," Rynes said. "Because we're responsible for so many venues and certifications, we've dedicated our time to preparing ourselves for any kind of emergency. That makes us one of the best-prepared fire and rescue departments around."