ENVIRONMENTAL MANAGEMENT

EM UPDATE

Working Today To Protect Your Future

Summer 2005

AMEM Corner

by Stephen Mellington

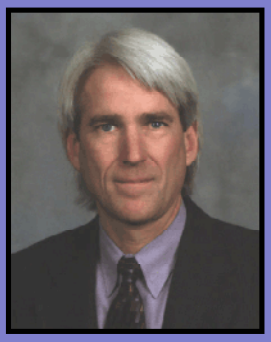
The proposal for the Nevada Site Office to transfer the management of historic nuclear test sites to the Department of Energy's (DOE) Office of Legacy Management has sparked much discussion over the past months, and I would like to take this opportunity to bring everyone up to date on the status of this issue.

In March 2005, Alaska's Project Chariot was the first of nine sites transferred from the Nevada Site Office Environmental Management Program to the DOE Office of Legacy Management. With the transfer, the Office of Legacy Management assumes responsibility over the site's post-closure records and management activities.

Eight additional sites located in Alaska, Colorado, Mississippi, Nevada (outside the Nevada Test Site boundaries), and New Mexico, which are currently managed by the Nevada Site Office, will be transferred to Legacy Management in fiscal year 2007. Other examples of DOE sites that will be transferred to Legacy Management include Rocky Flats in Colorado, Fernald in Ohio, and Mound in Ohio.

The Office of Legacy Management was established in December 2003 to oversee DOE sites where active remediation had been completed. Responsibilities include: long-term surveillance and maintenance, records management, work force restructuring and benefits continuity, property management, land use planning, and community assistance.

I would also like to take this opportunity to welcome aboard Rick Betteridge as the Acting Deputy Assistant Manager for Environmental Management. Rick began his federal career in 1977 in the Nuclear Weapons Testing Program at the Nevada Site Office. He was also Technical Advisor to the Threshold Test Ban Treaty Bilateral Consultative Commission in Geneva, Switzerland. In 1997, he moved from diversifying Nevada Test Site initiatives to Environmental Management activities as the Technology Division Director. Congratulations Rick!



Steve Mellington,
Acting Assistant Manager
Environmental Management
(AMEM)

Rick Betteridge,
Acting Deputy Assistant
Manager Environmental
Management (AMEM)

Located in northwestern Alaska, the remote Chariot site was used for radioactive soil experiments in 1962. When the experiments were complete, the plots, along with the contaminated soil, were consolidated and covered with five feet of native soil. The radioisotopes remained intact until 1993 when Nevada Site Office Environmental Management scientists successfully remediated the site.

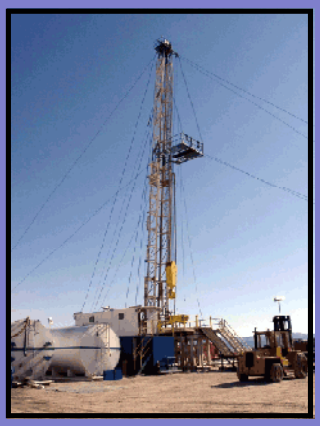
Frenchman Flat Source Term Paper to be Released Soon

by Nick Duhe

In an effort to quantify the amount of radionuclides that remain at the Nevada Test Site's Frenchman Flat location, Stoller-Navarro Joint Venture (a contractor for the National Nuclear Security Administration Nevada Site Office) is preparing what is called a Source Term Paper on Frenchman Flat.

Researchers use the phrase source term in risk assessment studies when they are estimating the amount and chemical form of a contaminant released to the environment from a specific source over a certain period of time. In the case of Frenchman Flat, source term refers to radionuclides that were released as a result of a series of historical underground nuclear tests.

Using data collected over many years from the Underground Test Area Project (UGTA) and the Radionuclide Migration Program, Stoller-Navarro is creating a model and developing a paper showing the results of this very detailed and complex data. The paper is scheduled to be released September 15, 2005, and will be available in the Nevada Site Office Public Reading Facility known as the Nuclear Testing Archive, at 755 East Flamingo Road, Las Vegas, Nevada.



Underground Test Area drill rig at well ER-5-3 on Frenchman Flat at the Nevada Test Site.

Frenchman Flat is an area within the Nevada Test Site that was used by the U.S. Department of Energy and the U.S. Department of Defense for nuclear testing.

NTS Supports Complex Cleanup with New Disposal Cell

by Dona Merritt

Disposing waste safely and efficiently is what Nevada Test Site (NTS) Disposal Operations is all about. The impending arrival of some unique waste packages from West Valley, New York, is giving Disposal Operations the opportunity to demonstrate this commitment as well as its ability to respond to new disposal challenges. The challenge in this case: to construct and operate a disposal cell designed for large, extremely heavy containers of low-level waste.

The disposal cell, known as Pit 16, is located within the Area 5 Radioactive Waste Management Complex and was designed to accommodate 168 feet long semi-trucks with trailers that are fitted with 22 axles. To handle the extreme lengths of these trucks, Pit 16's exit ramp was constructed with a 300-degree turning radius. In addition, both the entrance and exit to the new disposal cell were designed to be used exclusively for the disposal of bulk and classified low-level waste - waste that could weigh in excess of 350,000 lbs. These are just a few of the numerous features that distinguish this disposal cell from the other nine open at the Area 5 Radioactive Waste Management Complex.

NTS Disposal Operations is willing to be flexible with waste generators to support the receipt and disposal of such unique waste packages as long as an approved waste generator meets the requirements of the strict Nevada Test Site Waste Acceptance Criteria. Doug Clark, the Area 5 Radioactive Waste Management Complex Facility Manager says this flexibility "demonstrates the Nevada Test Site's capability to accept approved waste of any shape, size, weight, or complexity in a safe manner."

Disposal Operations personnel, who dispose standard containers of low-level waste (e.g., drums, boxes, and cargo containers) on a weekly basis, maintain a strict adherence to safety. This vigilance is reflected in the more than 210,000 hours worked since the last lost-time accident. The significance of this achievement is magnified when considering that 5.5 million cubic feet of low-level waste was disposed during this period. With approximately six million cubic feet of remaining capacity in existing low-level waste disposal cells, the mission to maintain this high safety standard will continue on into the future.

Pit 16 at the Area 5 Radioactive Waste Management Complex.

The West Valley Demonstration Project Act of 1980 gave the U.S. Department of Energy responsibility to cleanup, close, and turnover the site to the state of New York. The site, which covers 200 acres, is one of 30 low-level waste generators in the United States approved by the Nevada Test Site for waste disposal. Since becoming an approved generator in July 2001, West Valley has shipped more than 50,000 cubic feet of low-level waste to the Nevada Test Site for disposal. In addition to the Nevada Test Site, West Valley ships radioactive waste to Envirocare of Utah for disposal. Cleanup and closure of the West Valley Demonstration Project is scheduled to be completed in 2012.

Kits in the Pits

by Nick Duhe

Everyday, personnel at the Nevada Test Site Area 5 Radioactive Waste Management Complex (RWMC) face a variety of issues - issues like waste shipment schedules, paperwork, weather conditions, and… kit foxes? Yes, kit foxes. This is one variable Doug Clark, the Bechtel Nevada Area 5 RWMC Facility Manager, never counted on. According to Clark, there are about a dozen kit foxes, both adult and juvenile, living in the culverts along the road entering the Area 5 RWMC at the Nevada Test Site.

Kit Fox

Although if you are not paying close attention, you might miss a kit fox altogether. An adult kit fox, which measures only about one-foot in height, 30 inches in length, and weighs about as much as a house cat, is the second smallest dog in the world. Clark says the babies look like they would fit in the palm of your hand.

As natives of the desert, the kit fox has been observed on the arid landscape of the Nevada Test Site for years. Its diet consists mainly of desert rodents, especially kangaroo rats and deer mice, but also includes rabbits, insects, grasses, berries, and cactus fruit. Kit foxes also enjoy the occasional sandwich, says Clark, who makes a point of keeping his out of reach.

The kit fox's schedule keeps it hidden from sight most of the time. As nocturnal creatures, they are specially equipped with elliptical pupils that give them night vision equal to a cat as wells large ears (three-inches long) that serve as excellent sound receivers, like satellite dishes, which are perfect for hunting at night.

Temporary fences around the foxes' dens were installed in order to give them some privacy during the day from the many inquisitive onlookers. If you happen to find yourself near the Area 5 RWMC, remember to keep the noise to a minimum. Kit foxes are trying to get some sleep.

Grant Program Nears End

by Michelle Meade

Lincoln County Microwave Communications Tower

As sites across the U.S. Department of Energy (DOE) Complex reach their cleanup goals, shipments of low-level waste to the Nevada Test Site (NTS) for permanent disposal are declining. Consequently, the Emergency Preparedness Grant Assistance Program, which is funded through the low-level waste disposal program, is tapering off as well. But what a difference the program has made!

For the past five years, the Emergency Preparedness Grant Assistance Program has made significant contributions to rural communities throughout Nevada-providing unprecedented levels of emergency preparedness training and resources. Since 2000, the NTS Waste Management Program has charged waste generators a fee of $0.50 per cubic foot of waste disposed at the NTS to fund the grant program. The grant benefits six counties (Clark, Elko, Esmeralda, Lincoln, Nye, and White Pine) impacted by the rerouting of low-level waste out of the Las Vegas Valley. The Nevada Division of Emergency Management (NDEM), who administers the allotments on an annual basis, will continue to provide funding to these counties until funds are exhausted.

For Fire Chief, Jeff Knudtson of the West Wendover Fire Department in Elko County, the funding provided its Hazmat Technician Response team with much-needed equipment and emergency response training. "We wouldn't have any of the equipment we have now if it weren't for this grant," said Knudtson. He further credited the grant for the team's newly acquired training. "Every member of the department (3 full-time and 25 volunteers) is now certified in: firefighting, auto extrication, high and confined space rope rescue, Emergency Medical Training (EMT) basic medical response, all hazard specialized response to radiological and hazardous materials incidents, building code compliance, fire inspections, arson investigation, and public education."

Margie Gunn, Director of the Office of Emergency Management, coordinates the allocation of Lincoln County's grant funding. Gunn commented on the recent ground breaking of a new firehouse in Pioche, saying, "Lincoln County Emergency Response personnel are so excited they don't know what to do with themselves." The funds were also responsible for Lincoln County's new ambulances and a vital communication system powerful enough to reach all parts of the county. "Without the help of this grant," according to Gunn, "we could not have accomplished what we have in the past five years."

To date, more than $8 million in funds have been distributed to affected counties-funds that were obviously put to good use…funds that will continue to make a tremendous difference in the years to come.

EM Partner - Desert Research Institute

by Angela Ramsey

With more than 40 years of environmental research experience in Nevada, the Desert Research Institute (DRI) is a valuable partner of the National Nuclear Security Administration Nevada Site Office (NNSA/NSO) - providing a tremendous level of technical and scientific support to Environmental Management (EM) projects at the Nevada Test Site and other locations where United States government-related testing occurred.

A division of the Nevada System of Higher Education, DRI currently employs more than 500 faculty, staff, and students at three separate campuses in Reno and Las Vegas. Professionals from a variety of disciplines, including geology, archaeology, biology, etc., employ a multi-disciplinary approach to tackle a wide-range of scientific challenges. At any given time, DRI is likely involved in some 300 projects around the world.

Currently, DRI is working with EM on many important initiatives. DRI is helping to perform groundwater modeling at the Nevada Test Site where more than 800 underground nuclear test were conducted. Such models help scientists evaluate the potential flow and transport of contaminants in groundwater and the risks associated with this movement. In addition, DRI manages the NNSA/NSO-sponsored Community Environmental Monitoring Program, which enlists the help of community members to maintain 26 monitoring stations that surround the test site. These stations collect information on airborne radiation levels and climatic conditions (see article in this issue: Citizens Play Major Role in Environmental Monitoring Program).

DRI utilizes its diverse expertise on a number of other EM efforts as well. Work for EM's Waste Management Program includes a current study on the adequacy of flood control structures in waste disposal areas during flash floods. In addition, DRI archaeologists are examining cultural resources found on the Nevada Test Site. Scientists are looking at artifacts from over a 10,000 year time period, ranging from the earliest Native American to Euro-American settlements to the Cold War.

NNSA/NSO's EM Program would like to thank DRI for its invaluable contribution on these projects and many more not mentioned here. As EM continues to search for sound environmental solutions to complex environmental challenges, DRI proves time and again to be a distinguished partner.

For more information on DRI, visit http://www.dri.edu/.

Citizens Play Major Role in Environmental Monitoring Program

by Angela Ramsey

Braving heat, cold, wind, rain, and snow… residents from communities surrounding the Nevada Test Site (NTS) make routine visits to outdoor monitoring stations to assist in a widespread environmental monitoring effort. These important community members are part of what is known as the Community Environmental Monitoring Program (CEMP), a cooperative program between the National Nuclear Security Administration Nevada Site Office (NNSA/NSO) and the Desert Research Institute (DRI).

HOW IT WORKS…

The CEMP network is comprised of 26 monitoring stations located throughout Nevada and southwestern Utah. Each station is equipped with a number of specialized instruments that collect environmental information, such as weather conditions and airborne radiation levels (for which samples are sent away for analysis and the results ultimately published for the public). Participating community members are in charge of maintaining the equipment and forwarding air filters to DRI for analysis. NNSA/NSO provides funding and equipment for the program; DRI employs and trains the community participants while providing technical support.

WHO ARE COMMUNITY ENVIRONMENTAL MONITORS?

The DRI selects Community Environmental Monitors (CEMs) who are respected members of the communities that surround the NTS (many CEMs are high school teachers). DRI personnel train CEMs to not only maintain equipment at monitoring stations, but to be informed spokespersons for the CEMP program itself. In addition, NNSA/NSO and DRI provide CEMs with annual refresher courses so they are prepared to answer questions on topics ranging from radiation to climatic issues.

MORE ON ENVIRONMENTAL MONITORING….

At each CEMP monitoring station, the following instruments provide data for analysis:

- Particulate Sampler - detects radioactivity by collecting air particles, which are analyzed by an independent laboratory for radioactivity.
- Thermoluminescent Dosimeter (TLD) - measures the ambient, or "natural background" levels of radiation.
- Exposure Rate Recorder - records continuous measurements of radiation exposure rates.
- Microbarograph - measures and records barometric pressure, which is useful in interpreting the radiation exposure rate records.
- Weather Instruments - record air temperature, humidity, wind speed and direction, solar radiation, barometric pressure, and precipitation data.

Continued on next page

Citizens Play Major Role in Environmental Monitoring Program

(continued)

These monitoring instruments connect to a datalogger that immediately displays radiation levels and climatic conditions. This information is transmitted via satellite to the Western Regional Climate Center in Reno, Nevada and is updated several times a day at http://www.cemp.dri.edu/.

Public understanding of the monitoring results is key to the success of the CEMP. Once the data has been analyzed by an independent laboratory, NNSA/NSO and DRI summarize the average values for each station and the entire network, and show deviations from the expected range values. These summaries are available in reports, which are distributed to affected communities. For more information on the CEMP, visit http://www.dees.dri.edu/Projects/tedh_cemp.htm.

Annual Workshop Updates Generators on NTS Disposal Operations

by Dona Merritt

Sunny skies and warm weather welcomed approximately 120 participants to the annual Nevada Test Site Low-Level Waste Generator Workshop, held April 25 through 28, 2005, at the National Nuclear Security Administration Nevada Site Office facility in North Las Vegas, Nevada.

Representatives from approved and candidate radioactive waste generating sites across the U.S. Department of Energy and U.S. Department of Defense complexes participated in the four-day workshop. Activities included briefings by Nevada Site Office Environmental Management staff, networking sessions to share information, and tours of Yucca Mountain and the Nevada Test Site.

Workshop participants tour the real-time radiography equipment at the Nevada Test Site.

After two years of accelerated cleanup, combined with the impending closure of several facilities, many generators came to the workshop seeking answers to specific challenges encountered at their sites. Finding disposal facilities for mixed low-level waste and the status of mixed low-level waste acceptance at the Nevada Test Site was a topic that spurred much interest and discussion. The implementation of real-time radiography to verify waste package contents generated considerable questions and information exchanges throughout the workshop as well.

Many of the questions posed by generators will be addressed in Revision 6 to the Nevada Test Site Waste Acceptance Criteria scheduled to be issued by Thanksgiving 2005. The document outlines the requirements all generators must follow in order to ship waste to the Nevada Test Site. Compliance with the criteria is verified regularly by the Nevada Site Office Radioactive Waste Acceptance Program. For more information on RWAP go to http://www.nv.doe.gov/library/factsheets/DOENV_671_Rev1.pdf.

In addition, the Radioactive Waste Acceptance Program recently began conducting monthly conference calls with the generators. Generators provided favorable feedback on the calls via an online workshop survey. Results from the survey, which included 64 workshop participants, will be used to focus and enhance the information provided generators during the monthly calls and at next year's workshop.

Work Continues at Test Cells

By Nick Duhe

Following the dramatic demolition of a five foot-thick shielding wall at Test Cell A, work at the facility is coming to an end. It is time now for the Industrial Sites Project to turn its attention to Test Cell A's bigger sister - Test Cell C.

Test Cell C was constructed in 1961 as part of the Nuclear Rocket Development Station, which included three rocket test stands (Test Cell A, Test Cell C, and Engine Test Stand-1). The complex, which is located in Area 25 of the Nevada Test Site, also includes the Reactor Maintenance, Assembly and Disassembly (RMAD) and the Engine Maintenance, Assembly and Disassembly (EMAD) buildings. These facilities were used as part of Project Rover to manufacture and test the nuclear rocket engines being developed by the national laboratories for missile propulsion and long-term space travel.

Test Cell C is one of eight sites included in the U.S. Department of Energy's Deactivation and Decommissioning Program at the Nevada Test Site. To date, four sites have been completed with Test Cell C next on the list. Deactivation and decommissioning activities will focus on the main building (noted as 3210 on figure A), the north part of the concrete pad (also known as the reactor pad), the moveable shed, and the shield wall portion of the main building. The main building is approximately 12,400 square feet, constructed of reinforced concrete, and contains a basement, ground floor, and two second level rooms. The reactor pad measures approximately 49,931 square feet.

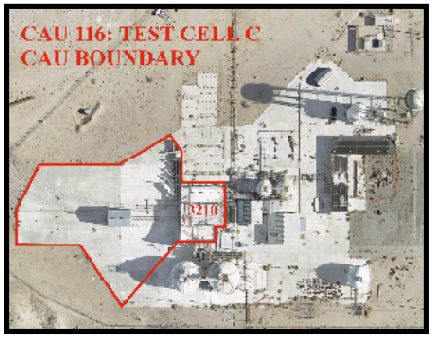


Figure A

According to Mike Kruzic, a Bechtel Nevada Environmental Restoration task manager, the approach to be used to deactivate and decommission Test Cell C

Continued on next page

Original sign in Area 25 showing all agencies involved

Project Rover

The nuclear rocket program, Project Rover, was a joint effort between the Atomic Energy Commission (AEC), predecessor to the U.S. Department of Energy, and the National Aeronautics and Space Administration (NASA) Nuclear Propulsion Office. Typically, a reactor and engine were assembled in RMAD or EMAD and then transported to a test cell via a connecting railroad line. Test Cell C contained the horizontal test stand for the rocket engine, and Test Cell A supported the nuclear rocket's reactor development. The project was terminated in 1973 after a successful nuclear rocket test took place.

Work Continues at Test Cells

(Continued)

will be very similar to the deactivation and decommissioning of Test Cell A. Remediation steps include the following: 1) mitigating safety hazards, which includes removing hazardous materials such as asbestos containing material, lead, and mercury, draining and purging piping of fluids or gases, removing radiological impacted materials and Polychlorinated Biphenyls; 2) characterizing and decontaminating the reactor's concrete pad and impacted concrete surfaces; 3) demolishing and properly disposing of building material, including exterior piping .

Crews at Test Cell C are presented with some challenges not found at Test Cell A. For instance, the facility has a large basement and it is difficult for heavy equipment, like the hydraulic processor and track hoe, to reach sections in the center. Another challenge is the nuclear furnace piping which runs throughout Test Cell C. Workers will need to trace the piping first to find out its exact locations in the building and then perform assessments to determine the extent of radionuclide contamination in the pipes. Another challenge is determining the extent of contamination on the outside of the building, which occurred during a Project Rover test on a reactor.

Work is winding down at Test Cell A as crews finish cleanup and removal of debris at the site. Activities at Test Cell C are scheduled to start in October 2005 and will continue for two and a half years.

For more information on the Nuclear Rocket Development Station visit http://www.nv.doe.gov/library/factsheets/DOENV_707_Rev1.pdf

WIPP It…Good!

by Michelle Meade

Come December 2005, the legacy transuranic (TRU) waste drum shipping campaign will come to a close. Since the campaign began in January 2004, thirty-eight TRU waste shipments originating from the Nevada Test Site (NTS) have been shipped to the Waste Isolation Pilot Plant (WIPP) without incident.

Since the 1970's, the NTS has been the storage site for approximately 1,800 drums (55-gallon and 85-gallon overpacks) and 58 oversized boxes of TRU waste destined for permanent disposal at WIPP near Carlsbad, New Mexico. Most of the waste, which was generated by weapons research at Lawrence Livermore National Laboratory, has been temporarily stored at the Area 5 Radioactive Waste Management Complex on the NTS in a steel-framed, fabric-covered structure known as the TRU Pad Cover Building.

TRU Pad Cover Building before waste removal began.

TRU Pad Cover Building near the end of waste removal.

Prior to being accepted at WIPP, the waste had to undergo onsite characterization, which was performed by Bechtel Nevada and the WIPP's Central Characterization Project. Characterization includes: radiography, non-destructive assay, headspace gas sampling, and repackaging the contents of some drums through a glovebox to remove prohibited items.

Continued on next page

What is legacy transuranic waste?

The legacy transuranic waste currently stored at the Nevada Test Site was generated as part of a U.S. nuclear weapons research and development program. This legacy waste, which was shipped to the NTS for storage between 1974 and 1990, includes protective clothing and miscellaneous equipment contaminated with transuranic elements.

What is the Waste Isolation Pilot Plant?

The Waste Isolation Pilot Plant, or WIPP, is the world's first underground repository licensed to safely and permanently dispose of transuranic waste left from the research and production of nuclear weapons. After more than 20 years of scientific study, public input, and regulatory struggles, the facility's opening in 1999 was based on the fact that the salt formation has been stable for more than 200 million years. Facility operators place the transuranic waste in disposal rooms mined 2,150 feet underground in a 2,000-foot thick salt formation.

Visit http://www.wipp.ws/ for more information on the Waste Isolation Pilot Plant.

WIPP It…Good!

(continued)

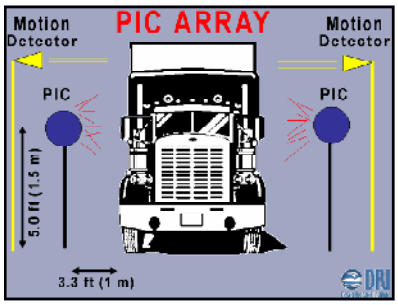
Although the shipping campaign of the drums is nearing the end, the TRU Project now faces a new challenge - reducing the physical size and repackaging TRU waste currently found in oversized boxes. The TRU Project is currently pursuing a contractor to head this effort with the expectation that disposal of remaining TRU waste is to be completed by December 30, 2007.

Please visit http://www.nv.doe.gov/library/factsheets/DOENV_787_Rev1.pdf for more information on the Transuranic Waste Project at the Nevada Test Site.

Independent Study Finds Negligible Exposure from Low-Level Radioactive Waste Shipments to Nevada Test Site

by Dona Merritt

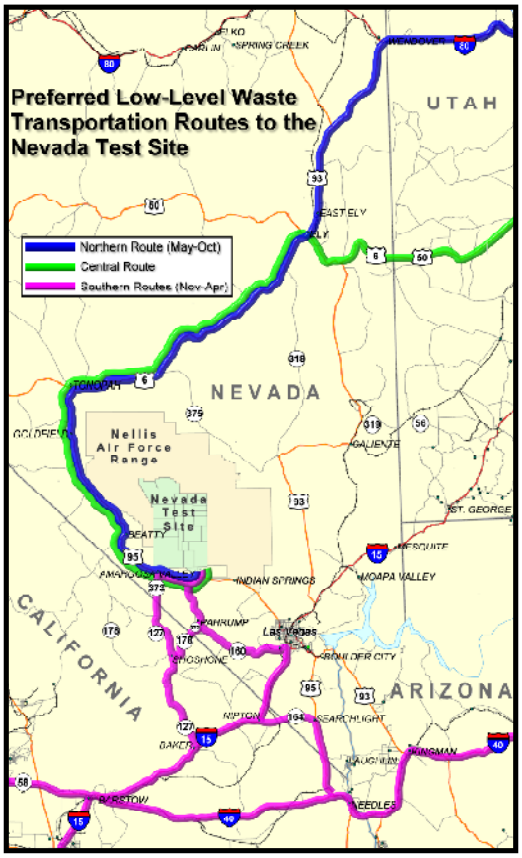
Recently published results from a Desert Research Institute (DRI) transportation study verify that residents near low-level waste shipment routes to the Nevada Test Site are exposed to insignificant amounts of radiation. The study, conducted between February 13 and December 31, 2003, measured more than 1,000 trucks, of which 68 percent measured levels indistinguishable from background.



DRI conducted the independent study to address concerns expressed by residents in communities along these routes. Most low-level waste shipments travel along highways and, in many cases, through rural communities. Residents perceive they receive higher cumulative doses of radiation than larger cities because trucks travel more slowly through their communities and occasionally stop when passing through the heart of their towns.

In order to accurately measure any possible gamma radiation emitted by the shipments and assess actual exposure to residents, DRI selected a technology called pressurized ion chambers, or PICs. A total of four PICs were stationed at a roadside pullout along the highway that leads to the Nevada Test Site's main gate. Automated motion sensors positioned on each side of the driveway were used to detect shipments entering and exiting the station. Once trucks were in place, PICs on both sides and each end of the driveway took readings at a height of 5 feet and a distance of 3.3 feet to simulate potential radiation exposure to an average adult's chest organs. For the purpose of comparison, the equipment was programmed to then take background radiation readings once the truck driveway was empty.

Continued on next page



For more information regarding low-level waste transportation and a larger map visit:

http://www.nv.doe.gov/library/factsheets/DOENV_990.pdf

Independent Study Finds Negligible Exposure from Low-Level Radioactive Waste Shipments to the Nevada Test Site

(continued)

Information obtained from the PICs was used in the development of several cumulative exposure scenarios detailed in the published report. "This study represents the largest set of data on potential exposure from low-level radioactive waste trucks in transit that have ever been collected. Although about 10 percent of the trucks were between about 6 and 40 times background, none of the trucks were close to exceeding any U.S. Department of Energy or U.S. Department of Transportation shipping limits for low-level waste," said David S. Shafer, Ph.D., a DRI researcher.

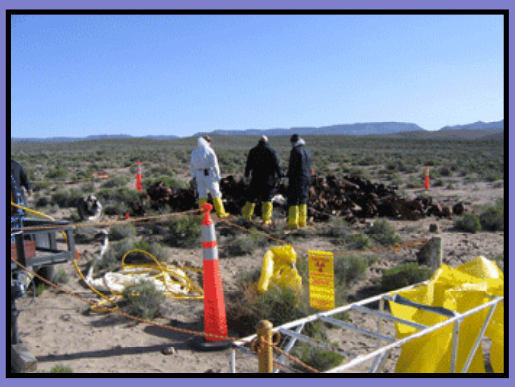
Gathering the amount of information needed for the study could not have been accomplished without the voluntary participation of waste generators approved to ship low-level waste to the Nevada Test Site. Although generators are bound by U.S. Department of Transportation regulations, their willingness to participate in the study, as well as follow the strict guidelines outlined in the Nevada Site Office's Transporting Low-Level Waste to the Nevada Test Site, shows a sincere commitment to public safety.

An electronic copy of the final report titled, Assessing Potential Exposure from Truck Transport of Low-level Radioactive Waste to the Nevada Test Site, will be available at http://www.osti.gov/bridge/. Study results will also be available for review in hard copy at the Nevada Site Office Public Reading Facility, known as the Nuclear Testing Archive, which is located at 755 East Flamingo Road in Las Vegas, Nevada.

Contracting Team Cleans Up Unexploded Ordnance at the Nevada Test Site

by Joe Johnston

From February 2 to April 29, 2005, Stoller-Navarro Joint Venture (SNJV), a contractor for the National Nuclear Security Administration Nevada Site Office, coordinated an extensive effort to clear munitions and explosives of concern (MEC) remaining in Areas 7 and 18 on the Nevada Test Site. The objective of this project was to safely locate, identify, remove, destroy, detonate, and/or finally dispose of these materials below ground.



Unexploded ordnance removal activities in Area 18 of the Nevada Test Site.

For many years, the U.S. Government has utilized the expansive Nevada Test Site for defense training exercises and missions. Unexploded ordnance and munitions and explosives of concern are the result of such training activities.

In order to find these potentially dangerous materials, technicians used special, anomaly-finding equipment. A device known as a towed array, which consists of three high sensitivity metal detection sensor, was used to perform digital geophysical mapping. A global positioning system, hand-held magnetometers, and other metal detectors were also used. Weston (one of the five contractors that make up the SNJV) carried out the clearance action of unexploded ordnance (UXO). The team performed well over 6,000 excavations and identified more than 1,000 MEC.

All excavated debris was segregated into appropriate categories (e.g., potentially hazardous and non-hazardous scrap), prepared for on-site transfer, and then staged for on-site disposal by SNJV. Materials with the potential for explosion and UXO were evaluated to determine whether they could be safely moved to a detonation area or required detonation in place.

Crews proceeded extremely carefully when working with the MEC materials. The items in question were visually examined for markings and other external features such as size, shape, and external fittings. MEC items were handled by UXO-qualified personnel only, and activities were restricted to daylight hours. As materials were removed, the remaining holes in the ground were rechecked to ensure no other material remained, and the holes were refilled and packed.

After all site reconnaissance and intrusive collection activities were completed, SNJV successfully detonated all recovered MEC items. Items included fuses, motors, landmines, small arms, rockets, bombs, mortars, and various warheads. As a precautionary measure, the Nevada Test Site Fire Department and emergency medical personnel were present during the detonation phase.

The project was a success because safety was the top priority. Observing this philosophy, along with strict guidelines, allowed SNJV to produce positive results… as well as gain valuable experience that will benefit future projects.

From Testing to Monitoring: Stakeholders' Perspectives on Nevada Test Site Groundwater Issues

by Carla Sanda

A prominent part of southern Nevada's landscape is the Mojave Desert. At first glance, it simply looks like miles of undisturbed rock, sage, and cactus -- but it is home to many residents and a wide array of wildlife including wild horses, bighorn sheep, burros, many species of birds, eagles, reptiles, and the endangered desert tortoise. The Mojave stretches from wide-open plains to mountainous areas, with climate characterized by extreme variation in daily temperature and an average annual precipitation of less than 5 inches. Needless to say, water is an extremely valuable commodity that is treasured and protected.

Kathleen Peterson, Underground Test Area Committee Chair, briefs stakeholders at a recent meeting in Amargosa Valley, Nevada.

A major steward of the Mojave's landscape is the Nevada Test Site (NTS), located approximately 65 miles northwest of Las Vegas, Nevada. The NTS played a key role in our nation's defense by serving as the primary proving ground for both conventional and nuclear weapons testing. In fact, from 1951 to 1992, the United States government conducted 828 underground nuclear tests at the NTS at depths up to 4,800 feet beneath the desert's surface. About one-third of these tests occurred near or below the water table, which resulted in some radioactive contamination of the groundwater at the NTS. The U.S. Department of Energy (DOE) began preliminary hydrologic research at the NTS in the 1970s; however, formalized groundwater studies did not begin until 1989 when the DOE funded its national Environmental Management (EM) program to deal with the legacy of the nuclear age. That same year, the NTS launched the Underground Test Area Project (UGTA) to begin an intensive groundwater studies program. Faced with the reality that no proven, cost-effective method currently existed for remediating deep, extensive groundwater contamination, the UGTA project team set out to develop an effective, long-term monitoring system to provide a better understanding of the source and extent of contamination and predict the potential for migration of contaminated groundwater off the NTS to surrounding private lands.

To date, scientists have not discovered any groundwater contamination from NTS activities beyond the site's boundaries. This determination is based on the periodic sampling of approximately 40 water sources (i.e., wells and springs) surrounding the NTS.

It is easy to understand then why the issue of groundwater contamination at the NTS has been a long-time concern of the Community Advisory Board for NTS Programs (CAB). Shortly after its formation, the CAB organized the UGTA Committee to focus on issues related to groundwater. After many years of careful study, discussions, and stakeholder feedback related to the potential for contaminated groundwater to migrate beyond the NTS borders into private land, the UGTA Committee raised questions and concerns regarding the strategy's viability for predicting

Continued on next page

From Testing to Monitoring: Stakeholders' Perspectives on NTS Groundwater Issues

(continued)

potential off-site contaminant migration. As a result and at the CAB's request, the DOE agreed to fund an independent peer review of the UGTA strategy. Upon completion of the peer review in 2001, DOE implemented several recommendations and then went a step further to respond to and support the CAB concerns related to groundwater and the UGTA project's strategy. In August 2002, DOE's Assistant Manager for Environmental Management provided a unique opportunity to the UGTA Committee by requesting UGTA Committee members continue their in-depth study and select a site at the NTS for a potential future groundwater monitoring well.

DOE provided maps, reams of technical reports, and briefings to the CAB and community at large on subjects ranging from computer modeling and data analysis to risk assessment. Technical project managers met often with committee members, which resulted in candid dialogue and a better overall understanding of project intricacies. In addition, DOE provided funds for university technical support and encouraged representatives from the U.S. Geological Survey and the State of Nevada to support the committee's activities. In turn, the CAB met with stakeholders in rural communities bordering the NTS, provided briefings to community groups on their work, and invited citizens to participate in the CAB's study.

At its December 2004 public meeting in Beatty, Nevada, the CAB announced the results of its three-year study and provided recommendations to DOE and stakeholders on the location of a monitoring well network aimed at providing early information related to potential contaminant migration. In her briefing, Kathleen Peterson, Chairperson of the UGTA Committee, said that "It is the area downgradient and southwest of Pahute Mesa that is of immediate concern to the CAB - not only due to the fact that major nuclear tests were conducted in this region - but because it is directly upgradient of the residents of Oasis Valley, Beatty, and Amargosa." As a result, the CAB recommended that a system of three wells be strategically placed in this region designed to collect highly important data including geology, water levels, geochemistry, and groundwater ages. Ms. Peterson added that, "These three wells could show us how much further radionuclides have been transported beyond an existing groundwater well, the general direction of groundwater flow in that area, and may also add to our understanding of the hydrologic characteristics of the region. In our opinion, it is most important to understand the nature of groundwater movement in this area. The longer the routes of the flow path, the greater the degree of potential attenuation of contaminants by adsorption, radioactive decay, and dilution. The resulting data would also strengthen DOE's groundwater flow models, decrease the degree of uncertainty in one of the most important areas of the study, and would satisfy a need to include the elements of risk and monitoring in the UGTA strategy."

> Established in 1994, the CAB is a formal group of volunteer, non-partisan citizens organized to provide stakeholder feedback to the U.S. Department of Energy's Nevada Site Office Environmental Management Program.

CAB members continue to work with DOE on fine-tuning the specifics of their recommendation and are preparing a detailed report that will capture their research and final recommendations. DOE has expressed appreciation for the CAB's focus on this initiative and is looking forward to receiving and reviewing its final report, which is expected later this year.

Drilling Program Overcomes Challenges at the NTS

by Angela Ramsey

Whether battling extreme weather conditions or overcoming technical issues, the Underground Test Area Project (UGTA) met a number of challenges while drilling three new wells on the Nevada Test Site (NTS).

The first two wells were drilled in the rugged, northern terrain of Rainier Mesa. Snowy conditions plagued the project from the beginning, blocking access roads and causing delays in work. Before drilling on the first well could even begin, UGTA personnel were forced to blast through a thick bed of rock to construct the pad for the drill rig. Despite these challenges, each Rainier Mesa well was completed below the static water table (the first at 5,000 feet and the second at 3,500 feet). UGTA will sample each well during the well development and testing phase later this summer.

The third and final well, located in the more central area of the NTS known as Shoshone Mountain, is still under construction. While drilling proved to be a challenge yet again, UGTA successfully reached a depth of 4,000 feet and will soon complete the well with development and testing beginning next fiscal year.

The price tag on a well can reach $3.5 million, but varies depending upon drilling locations and the depths to which wells are drilled.

These wells and others like them are being constructed to provide UGTA with detailed hydrogeologic information beneath the NTS. Data collected from the wells provide the necessary input parameters for the development of NTS-specific geologic flow and transport models. Models provide scientists with three-dimensional predictions of how contaminants move over time in relation to previous nuclear test cavities. These models then provide the basis and support needed for the development of a sound, long term monitoring system.

For more information on the UGTA Project and its activities, visit our website at http://www.nv.doe.gov/library/factsheets/DOENV_915.pdf.

Crews clear road to access Rainier Mesa well site.

CAB Visits Drilling Site

The Community Advisory Board's Underground Test Area (UGTA) Committee recently visited the Rainier Mesa site to better understand the intricacies of drilling deep wells in remote areas. The Board has made significant contributions to the UGTA Project over the years by providing community perspectives on the often controversial issue of groundwater monitoring (see article in this issue: From Testing to Monitoring).

Employee Of The Month

April 2005.....Chris Baker

May 2005.....Bruce Stolte

June 2005.....Pete Sanders

Nevada Test Site Public Tours 2005 Schedule

September 20, 2005

October 26, 2005

November 22, 2005

February 22, 2006

March 23, 2006

April 26, 2006

May 24, 2006

June 20, 2006

Low Level Radiocative Waste Management Site

Sedan Cater

Railroad Bridge

Apple II House

Tour participants will visit historic nuclear test locations, such as Sedan Crater, as well as observe areas where work activities are currently taking place, like the Low-Level Radioactive Waste Management Sites The tour covers approximately 250 miles. Call (702) 295-0944 for more information.

Questions should be directed to:
Office of Public Affairs
702-295-3521

U.S. Department of Energy
National Nuclear Security Administration
Nevada Site Office
Office of Environmental Management
P.O. Box 98518
Las Vegas, NV 89193-8518

EM Update is published by:
Office of Environmental Management
Nevada Site Office

Story Editor:
Angela Ramsey

Layout:
Nick Duhe

To request information on Environmental Management activities, including the CAB, e-mail your request to the address below.

Include your name, address, phone number and information request.

Envmgt@nv.doe.gov