

WIPP Quick Facts (As of 9-28-09)

7,844

Shipments received since opening
(7,563 CH and 281 RH)

62,866

Cubic meters of waste disposed
(62,733 CH and 133 RH)

121,401

Containers disposed in the
underground
(121,125 CH and 276 RH)

WIPP receives first RH shipment from Vallecitos Nuclear Center



File photo

The Vallecitos Nuclear Center (VNC) has officially shipped to WIPP.

The first shipment of remote-handled transuranic (RH-TRU) from GE Hitachi Nuclear Energy's VNC safely arrived at WIPP early in the morning on September 18. About 30-40 shipments of RH-TRU waste will be made to WIPP from VNC, which is located near Sunol, Calif.

Shipments are slated to be completed in mid-November. As of mid-September, 79 containers have been packaged. Waste packaging will continue through October.

Since April, the VNC characterization and removal processes have been funded through the American Recovery and Reinvestment Act (ARRA). The Carlsbad Field Office (CBFO) and WIPP have received \$172 million in ARRA funds to support cleanup activities.

"ARRA has enabled DOE to significantly accelerate the process of cleaning up small-quantity TRU waste sites across the country, such as VNC," said CBFO Recovery Act Federal Project Director Casey Gadbury. "Our goal is to continue reducing the nation's nuclear waste footprint until the legacy represented by the waste generated by the production of nuclear weapons is complete."

VNC is a privately-owned commercial energy research facility located approximately 40 miles east of San Francisco and about seven miles southwest of Livermore, Calif.

How did the DOE get involved? The TRU waste was generated from research performed by GE for DOE in the 1960s through the 1980s. In 2007, DOE agreed to clean up a hot cell containing defense-related TRU waste.

"This project is a perfect example of the Recovery Act's intent," Gadbury said. "The Recovery Act's goal is to boost the economy, and in this instance, our cleanup will allow a private business to use this hot cell to return it back to its own original commercial interests. I want to congratulate everyone for, once again, handling the packaging, characterization, shipping and disposal processes safely, compliantly and efficiently."

VNC is the sixth site to ship RH-TRU waste to WIPP, following the Idaho National Laboratory, Argonne National Laboratory, Oak Ridge National Laboratory, the Savannah River Site and Los Alamos National Laboratory. As of late September, 278 remote-handled TRU waste shipping containers have been received at WIPP.

CARC honored for services to WIPP



Barn swallows to migrate soon

It's that time of the year again. The migratory barn swallows that have nested at the site will soon be leaving for warmer temperatures.

The nests these birds inhabit cannot be taken down while they still live in them because they are protected by the Migratory Bird Treaty Act. Therefore, by law, we must wait until they have migrated for the winter before their nests can be removed. The birds will be back in the spring.



Above: CARC employees with Stoller (l to r) are Jean White, Ann Beeson, Robert Cruz, Lillian Byrd and Shirley Clark.

"We are honored to receive this recognition from CARC and ACE," said Brian Marshall, Stoller program manager. "CARC has been an integral part of the WIPP team for 18 years by providing employees to support the WIPP records functions, which includes microfilm verification, scanning and copying. CARC's support has helped WIPP maintain our records in a retrievable format."

Dave Rogers, CARC spokesman, said CARC Inc. currently has 13 clients with physical or developmental disabilities, who contract part-time for Stoller.

"The clients are employed according to their abilities," he said. "But what it does is far beyond the work they do. The opportunity to contribute and to have a fulfilling job means everything to these individuals."

The CARC clients are employed at Stoller through ACE.

Building 953 has arrived



On September 14, Building 953 was brought on-site in three sections and placed in between the warehouse and Building 459. The building will house three WTS groups, including security, emergency preparedness and procurement. Employees will begin working in the building toward the end of the year.

The building, which was manufactured by Nortex Modular Solutions, is in line with WIPP's pollution prevention program. The building was designed with low flow plumbing, high-efficiency air conditioning, programmable thermostats, area activated light switches, reflective roofing that will accept photo voltaic solar panels and low "E" thermo-insulated windows.



Above: Stoller employees (l to r) Robert Schrock, Donny Ward, Albert Lopez and Susan Grigg.

"ACE supports people who have disabilities, which may be a barrier to employment," Rogers said. "They are dedicated to building a community that is more accepting of all its citizens and to forming partnerships with business/government agencies and the general public to meeting this objective."

ACE's local council consists of representatives from CARC, the Division of Vocational Rehabilitation (DVR), Carlsbad Municipal Schools, New Mexico State University-Carlsbad, Adelante and the Eddy County DWI Program.

"Working together, we are basically trying to facilitate placement for a variety of individuals, whether they have physical disabilities or developmental disabilities," Rogers said.

CARC has employees at locations throughout Carlsbad, but Rogers believes the WIPP contract is a special source of pride for everyone involved.

"I think what it does is it affirms WIPP's commitment to the community," Rogers said. "WIPP's willingness to employ our clients is a win-win deal. It makes them a better organization. It makes a better life for our clients."

1 million hours without a time lost injury



File photo

One million hours and counting...

WIPP employees recently reached one million work hours without a lost-time injury. This milestone took nearly five months to achieve and the total hours include all WIPP personnel for surface and underground operations, as well as WIPP employees at other sites.

Safety Manager Tim Rotert said it is a credit to WIPP personnel who recognize the

value of working safely in the workplace. He said this milestone is affirmation of a safety culture that is envied throughout industry and government organizations.

“To get the job done safely is to get the job done the WIPP way,” Rotert said. “Congratulations to all employees for this measure of success.”

Earlier this year, WIPP maintained its Volunteer Protection Program (VPP) “Star” status for the fifteenth year. WIPP was the first facility to receive the star status within the DOE complex.

The work done within the million hours includes the completion of Panel 4, filling of Room 7 in Panel 5 and mining in Panel 6. If WIPP continues this streak, 2 million hours is within reach by the end of the year.

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Experiment seeks to test effects of no background radiation on bacteria

It's in the food we eat, the water we drink, the soil we tread and even the air we breathe. It's background radiation and it exists all around us.

But what would happen if you somehow “pulled the plug” on natural background radiation? Would organisms suffer or thrive if they grew up without their constant exposure to background radiation? That's what a consortium of scientists conducting an experiment at WIPP aim to find out.

“We're looking to see if organisms get sick if they don't have stimulus from normal background radiation,” said Roger Nelson, chief scientist with the Department of Energy's Carlsbad Field Office.



Above: NMSU student and Carlsbad Environmental Monitoring and Research Center employee Adrienne Perry, at left, and NMSU Professor Geoffrey Smith, conduct analytical work on bacteria samples in a controlled environment chamber.

It's not the first experiment to capitalize on WIPP's low levels of natural radiation. The Enriched Xenon Observatory (EXO), used in an ongoing particle physics experiment, also takes advantage of the fact that WIPP's underground is not exposed to cosmic rays or the background radiation that usually exists in rock mines. Despite being an underground repository for transuranic radioactive waste, WIPP's underground is effectively radiation-free.

Dr. Raymond Guilmette, director of the Center for Countermeasures Against Radiation with the Lovelace Respiratory Research Institute (LRRI), was one of the scientists who first conceived the idea of a biology experiment at WIPP.

Guilmette said he first became interested in using WIPP for low-dose rate radiobiological studies in the late 1990s. There are several studies that subject bacteria to extremely high levels of radiation, he noted, but they don't provide the same type of information.

Nelson was also an early advocate of using WIPP's underground to conduct biology experiments, but the initial proposal didn't get off the ground.

"The seeds for using WIPP as a low radiation environment for biological studies were sown," Guilmette noted. "In the meantime, I did some studies at LRRI using a lead-shielded incubator and got some provocative results."

Several years later, the DOE began funding the creation of the EXO project in Carlsbad. Nelson felt it was time to try again, but on a shoestring budget. He began working with New Mexico State University's Carlsbad Environmental Monitoring and Research Center (CEMRC) to set something up. NMSU professor Geoffrey Smith became the project's principal investigator. Yair Grof and Jim Conca, both with CEMRC, are also involved with the project. Microbial preparation and some experiment analysis took place at Los Alamos National Laboratory's (LANL) facility at CEMRC.

"It's a technically daunting experiment with potentially intriguing results," noted Smith.

The experiment involves using two different types of bacteria, one of which is very sensitive to radiation and the other which is very resistant.

"It's a bacteria that just puts on sunglasses and says 'bring on the radiation!'" Nelson said about the second strain. The bacteria strains will be grown in both simple and complex growth media, while future experiments will involve growing the bacteria with and without manganese, which is connected with the second strain's ability to resist radiation.



Pictured above: This pre-World War II, seven inch thick steel chamber is used to incubate the below-background treated cells in the WIPP underground.

One-third of the experiment takes place in the WIPP underground, next to the EXO project in the northern end of the repository. The idea is to let the two strains of

bacteria grow side-by-side in an environment where they are receiving virtually no background radiation. In fact, the bacteria incubator has been placed in a pre-World War II steel chamber to eliminate even the slightest amount of background radiation. The bacteria underground will receive essentially zero radiation dose for hundreds of generations.

The rest of the experiment takes place on the surface inside a room in the waste handling building. There, for comparison, the two strains of bacteria grow at natural background radiation levels, and another part of the experiment exposes both types of bacteria to significantly higher levels of radiation above normal background. Potassium chloride, a naturally occurring radioactive material normally used as a dietary salt substitute, is used to provide these higher levels. Researchers can then compare how well the bacteria does at zero, natural and above-natural levels of background radiation.

“The experiment will last until we have enough statistics,” Nelson said. “With 20 or more generations of bacteria a day, there are plenty of genetic opportunities for effects to express themselves.”

Biological effects measured include growth rate, growth yield and protein production. Incubators are used to control temperature, light, humidity and air quality.

The U.S. Department of Energy
Waste Isolation Pilot Plant

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