

Shipments expected this week: Hanford (2), LANL (3), RFETS (10), SRS (6)

TRU TeamWorks

A weekly e-newsletter for the Waste Isolation Pilot Plant team

September 18, 2003

The Big Story Characterization Operations completed at ANL-E



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WIPP Shipments
(as of 9-18-03 at 7:17 a.m.)

21	Shipments scheduled to arrive at WIPP this week
2,020	Total shipments received at WIPP

Months of dedication and teamwork have paid off for WIPP Central Characterization Project (CCP) employees working at Argonne National Laboratory - East (ANL-E). Characterization activities at the site have successfully completed, overcoming numerous technical challenges.

Characterization methods at the site were reorganized in early 2003 after a determination was made to open each drum to remove any items prohibited for disposal at WIPP. Since then, the team has characterized and shipped more than 400 drums of debris waste to WIPP. The last two shipments of waste are scheduled to occur by the end of this month.

In addition to characterizing the original population of debris drums, and "daughter" waste drums that resulted from drum opening and remediation, ANL-E site management asked CCP personnel to characterize an additional 29 debris waste drums. CBFO approved the added work scope, and the CCP team completed the work in early August. Much of the mobile characterization equipment docked at the site will now be, or has already been, moved to other facilities around the nation.

The WIPP team has also characterized a group of homogeneous solid waste drums for disposal at WIPP. The homogeneous solid waste will be shipped to WIPP this fall. An audit of the processes required to approve the homogeneous wastes for shipment to WIPP was completed in late August in Carlsbad. Homogeneous waste requires additional characterization steps beyond those required for debris wastes. Last month's audit demonstrated that these additional requirements were met for the ANL-E homogeneous wastes.

"The National TRU Program is pleased to complete its work at ANL-E and is already preparing for the next characterization mission," says Farok Sharif, NTP manager. "Our CCP team, including the project office in Carlsbad, did an outstanding job on this project."

Bob Billet, ANL-E project manager, agrees. "The ANL-E team has demonstrated exceptional teamwork, safety and dedication during the last several months. Our WIPP employees and subcontractors, Bartlett Nuclear Services, Eberline and Bio Imaging Research and the ANL-E organizations have stepped up in every way to make this project a success. I'm proud of the work we have done here and the manner in which we worked together to complete our mission."



Above: Members of the ANL-E team line up on the occasion of their first debris shipment to WIPP. From left: Bob Billett, Tommy Mojica, Rick Castillo, Larry Bolden (Bartlett Nuclear Services), Abe Romo, L. J. Walker, Ron Mojica (no longer with WTS) and Wes Root. Not shown are Beverly Medlin, Harvey Padilla and Michael Williams.


In the news



Oversize waste boxes



Training for public safety



Salt hoist keeps going and going



Is that an umbrella?



NMJC changes lives



WIPP Team Members News

DOE to solicit proposals for new NDA/NDE technologies



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NDA/NDE are non-intrusive characterization techniques.

NDA, used to determine the waste's radiological properties, is accomplished by measuring gamma rays and neutrons emanating from the container, then "back calculating" to determine radiological properties of the contents and distribution.

NDE uses X-rays and a video system to inspect waste container contents. Operators can verify the waste's physical form, identify objects and ensure the absence of prohibited items.

Exciting developments are taking place in the world of TRU waste. DOE has announced it will seek bids to develop non-destructive assay and non-destructive examination (NDA/NDE) technologies for characterizing large container waste. Two Program Research and Development Announcements (PRDA) will soon be issued to prospective bidders.

Each PRDA is a solicitation that contains specifications for technology development, deployment and demonstration. Although NDA/NDE is routinely performed on small containers such as 55-gallon drums as part of the process of characterizing waste destined for WIPP, technology for large containers (5'X5'X8') that meet WIPP characterization requirements does not exist.

Why is large container NDA/NDE so important that EM-50 and CBFO are initiating and funding its development? Nearly 24 percent of the legacy TRU waste inventory has no clear path for disposal. It consists of TRU-contaminated items too large to fit in smaller containers and large containers are not transportable in the TRUPACT-II or HalfPACT. But they could be shipped in the TRUPACT-III, which is planned to be available in 2005.

The capability to characterize oversize container contents without opening the container will reduce repackaging costs, the risk of radiation exposure to workers and the number of shipments required to transport the waste to WIPP.

Private companies and national labs will be invited to develop the technology in three phases.

Phase I: Evaluate characterization techniques and propose conceptual model

Bidders will develop a technical approach, schedule design and cost estimates for full-scale NDA/NDE systems. One system for each method will be chosen to continue to Phase II.

Phase II: Demonstration to validate conceptual model

Selected systems will be deployed to the Savannah River Site (SRS) to demonstrate their capabilities with full-scale system construction and operation.

Phase III: Certification

Certification audits for their use at SRS will set the stage for duplication at other DOE sites.

According to Dan Taggart, LANL/CB, one of the subject matter experts developing the solicitations, the development of these technologies makes sense. "The estimated savings from not resizing and repackaging large container waste is estimated to be in the area of \$1.5 billion," says Taggart. "Characterizing TRU waste in large containers will reduce risks and introduce complex-wide efficiencies to the system."

The SRS contracting office will be responsible for procurement activities associated with the acquisition. The successful NDA and NDE systems will be built and operated at SRS in conjunction with the Centralized Confirmation Project.



Oversize TRU waste boxes are located at many DOE sites.

WIPP trains for public safety

WIPP trucks have logged millions of miles hauling TRU waste to WIPP for final disposal, and WIPP drivers are arguably some of the safest drivers on the roads today. As part of DOE's commitment to public safety, WIPP offers emergency response training along WIPP routes.

Since WIPP opened in 1999, WIPP trucks have been involved in only two accidents with no injuries and minor damage to WIPP rigs. WIPP drivers were not faulted in either incident. In fact, in one case, authorities say that if it had not been for evasive action on the part of the WIPP truck driver, the driver of the passenger vehicle that collided with a WIPP truck might have sustained serious injuries.

WIPP's six in-house emergency response trainers travel an average of 45 days per year offering Command and Control, hazardous materials, radiation detection instrument use and hospital courses to states and tribal government emergency responders around the country. The training is offered at no expense to the states, cities and tribes that choose to take advantage of it.



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Photos above were taken at a WIPPTREX exercise in Georgia.

To date, classroom and hands-on instruction have been provided to over 23,000 emergency responders. Full-scale WIPPTREX exercises involving actual TRUPACT-II shipping containers (minus the TRU waste) have been conducted in nine states and three tribal nations, giving state and federal agencies in those locations a chance to test and improve response skills.

Other training courses include instruction to hospital and medical personnel for handling and treating TRU contaminated victims, should the need arise. While this specialized training is conducted by a contract company, it too is offered at no expense to participating agencies.

The collateral benefit to states and tribes has been invaluable. Hazardous material spills occur frequently on our nation's highways, and WIPP-trained first responders will have an edge.

They don't make 'em like they used to



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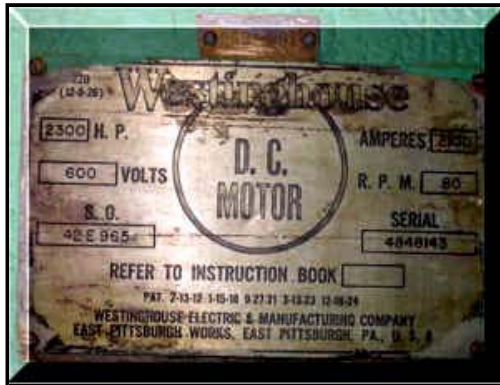
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**Total Waste Disposed
Underground at WIPP**
(as of 9/18/03 at 7:17 a.m.)

44,440	CH drums
2,052	CH standard waste boxes
386	CH ten-drum overpacks
14,927	Cubic meters

The year was 1924. Calvin Coolidge was president, the U.S. economy was booming and Johnny Weissmuller, best known as the silver screen's first Tarzan, collected two gold medals in swimming competition at the Paris Olympics. Good things came out of the 1920s, including a double drum Nordberg hoist—notable, because it's the same hoist in service today at the WIPP salt shaft. "Unbelievable" you think. Not according to salt hoist cognizant engineer Norm Siepel. "In fact," says Siepel, "the hoist's motor was built by Westinghouse Electric two years later in 1926."



"Next month the salt hoist will be 79 years old," Siepel continued. "Nordberg made them too good; they can last forever." Montreal Mining Company was the hoist's original owner. The company's 1924 specifications called for a "cylindrical drum hoist" with speeds of 1,000 feet per minute and load capacity of 13,500 pounds of ore per trip. The hoist was first used to mine iron ore in Ironwood, Michigan.

In the mid-'60s, Cementation West, an international shaft sinking contractor, purchased the hoist and moved it to Saskatoon, Canada, where it likely was used to mine potash. Finally in 1969, the hoist was shipped to Superior, Arizona, to mine copper. Cementation was one of several companies that bid on outfitting the WIPP salt shaft in 1981. The company knew precisely which hoist it would use when it was awarded the contract, one that had been sitting idle for 14 years in a Tucson yard. You guessed it! In 1981, the hoist was shipped to Carlsbad. Its motor, brakes and electric drive were overhauled and upgraded to meet WIPP standards in 1987.



Master control station



Salt hoist head frame



Hoist motor (green) and synchronous motor generator

The salt hoist boasts:

- A 2300 hp, direct-drive, direct-current motor
- Two 10-foot wide drums, ten feet in diameter (only one drum is used)
- 2900 feet of 1½ inch twisted high strength wire rope
- Two hoist speeds: 800 FPM* with personnel and 1800 FPM for salt
- An eight-ton payload capacity
- Approximately 120 trips per day

*feet per minute

Siemag, a German company, has since bought Nordberg, but continues to supply parts, service and independent annual hoist inspections. When asked about the hoist's durability, WIPP hoistman Earl Rector states, "These old hoists don't know how to quit."

Keeping the lights on at WIPP



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Without electrical power, not much could be accomplished at WIPP. That's why power generation is so important to Facility Operations.

In the event electrical power is interrupted, WIPP has a central uninterruptible power source, diesel back-up generators and procedures that help guarantee essential equipment can still be powered. If the power supply to WIPP is interrupted, procedures require that diesel generators be brought on-line within 30 minutes of the interruption.

Additionally, the WIPP site recently upgraded with two independent utility power sources. The upgrade provides full power capability to the site, even if one of the utility power sources fails. Throughout the years, many enhancements have been made to the electrical distribution system at WIPP. Although we can't control all factors that might jeopardize WIPP power sources, we can plan for them. One of those is Mother Nature.

When natural events like lightning, high winds and hail are severe enough, they can cause disturbances to the utility sources that will activate the protective devices of the WIPP electrical system and may "trip" certain power feeds.



Air Intake Shaft Lightning Protection System



These umbrella-looking devices are part of WIPP's dissipation array.

There are two prevailing theories on how to protect against lightning. One thought is to intentionally draw the lightning to a designated place by use of lightning rods, thus preventing strikes at other locations. The second theory is to prevent strikes from occurring by providing large surface areas called dissipation arrays, which dissipate ions. Dissipation arrays prevent a localized point charge to draw lightning.

You may have noticed those strange looking umbrella devices located on top of the hoists and around the site. They, along with other devices, are part of the lightning protection system, a dissipation array that acts like an invisible force field.

"As far as I know, there hasn't been a lightning strike within the protected boundary since the lightning protection system was installed," says WIPP senior engineer Al Boyd.

NMJC: training workers to ‘fill the pipeline’



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Life changed dramatically this month for Jay Funderburk and Kevin Bennett. Two of WIPP’s new waste-handlers-in-training are immersed in nuclear facility culture, where all work is “by the book.”

Funderburk left a City of Hobbs environmental job. Bennett was employed at a Hobbs radiator repair business. Actually, their transformation began months ago when they enrolled in radiological control and waste-handling courses at New Mexico Junior College (NMJC).

The DOE Carlsbad Field Office and WTS partnered with NMJC for an August 2002 startup of a flexible curriculum that begins with one preparatory short course. Students pursue 15 or 33-hour certificates or an associate degree in applied science. Funderburk and Bennett earned 15-hour certificates, preparing them for the initial DOE qualifying exam.

"NMJC has created an excellent resource to fill WIPP’s workforce pipeline with qualified candidates," says David Chavez, Technical Training manager, who helped organize the program at its inception.

Bob Wade and other WTS Integrated Waste Operations managers helped program director Olav Amundsen—an engineer who makes regular WIPP site visits-develop curriculum. They recruit Amundsen’s students, too. "He prepared us well for understanding the program-the procedures, qualifications-and how everything is done by the book," says Bennett. Their work demands math and science proficiency.

Twenty-seven enrolled in the first class a year ago. Classes now average 10 students. Radiological workers are needed at nuclear waste management facilities across New Mexico and the United States. Throughout the life of the repository, WIPP will need these skilled workers. Until another ramp-up, waste operations are at capacity with 28 radiological control technicians and 34 waste handlers.

Next semester, three core courses will be on-line to accommodate working students. "The outlook with new facilities like the uranium enrichment plant [Lea County] and, possibly, the modern pit facility is great," Amundsen says. "We will continue to be an integral part in training workers for WIPP and new facilities in the area."

NMJC’s efforts enhance the regional applicant pool, speed up worker qualification and improve outlook for worker retention. "It’s definitely given us a better-quality candidate," Wade says. NMJC teaches the CL-100 series of DOE requirements. Worker qualification continues with WIPP-specific CL-200 on-the-job training.

Funderburk and Bennett readily agree their education and effort are paying off.

Contact Olav Amundsen: 505-392-5335 (Ext. 265) or 800-657-6260 or eamundsen@nmjc.cc.nm.us.

**Working Smart:
Education Pays**

Number of students completing NMJC certificates to date	6
Number hired at WIPP	4
Number from Lea County	3



Students participating in the NMJC radiological and waste handling program convene for class with Olav Amundsen, program director.



Left to right: Jay Funderburk, Olav Amundsen and Kevin Bennett.

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NMED has issued rulings on six Class 2 permit modification requests (PMR) to the WIPP Hazardous Waste Facility Permit (HWFP). Four of the requests were approved and two denied. Below is a summary of the PMRs. For further details, consult the Class 2 Permit Modification Package available on the WIPP homepage at <http://www.wipp.ws/rcradox/rfc/C2CombinedPMR05-12-03.pdf>. Details on the PMR to revise the Polychlorinated Biphenyl (PCB) Prohibition are available at http://www.wipp.ws/rcradox/rfc/C2RemovePCB_Prohibition.pdf.

Packaging-Specific Drum Age Criteria for New Approved Waste Containers - DOE submitted this PMR to establish packaging-specific and default DAC values for newly added containers. The methodology used to determine the packaging-specific DAC values for the newly approved waste containers is the methodology stipulated in Section B1-1a(3) of Attachment B1 in the HWFP. **Request denied.**

Removal of Booster Fans - DOE submitted this PMR to remove all references to booster fans and airflow reversal modes of operation in the underground ventilation system. The WIPP ventilation system was upgraded with the addition of the Air Intake Shaft and additional surface fans. These additions negated the need for booster fans in the underground. **Request approved.**

LANL Sealed Sources Waste Streams Headspace Gas Sampling and Analysis Requirements - This PMR assigned headspace gas volatile organic compound (VOC) concentration values in lieu of headspace gas sampling and analyses. This included radioactive sources that are sealed and certified as U.S. Department of Transportation special form radioactive material that do not contain VOCs. This modification request delineated the criteria for assigning VOC values in lieu of headspace gas sampling and analysis for characterizing waste containers with sealed sources. Compliance with the defined criteria must be determined and documented as part of the LANL acceptable knowledge record and the LANL visual examination technique. **Request denied.**

Remove Formaldehyde as a Required Analytical Parameter for LANL - DOE submitted PMR to remove formaldehyde as a required test analyte for LANL TRU waste. Deleting this analyte will not affect the requirements or procedures by which LANL samples other required analytes in TRU waste. This simply alleviates the necessity to sample and test for this analyte known not to be present in the TRU waste. **Request approved.**

Add Hazardous Waste Numbers - DOE submitted this PMR to NMED to add hazardous waste numbers to the approved list which would allow WIPP to receive and dispose of waste containing these chemical constituents. The addition of these hazardous waste numbers will enable RFETS to dispose of its TRU waste that continues to carry these numbers, even after treatment. **Request approved.**

Revise Polychlorinated Biphenyl (PCB) Prohibition - DOE submitted this PMR to revise the current restriction in the HWFP that prevents WIPP from disposing of PCB wastes in excess of 50 ppm. No additional operational changes would be necessary at WIPP to accommodate waste containing PCBs (i.e., transportation, waste handling and disposal). **Request approved.**