

TRU TeamWorks

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

October 23, 2003

The Big Story

Sealed sources: questions and answers



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Feedback

Contact us with feedback or submit your e-mail address for updates. Click [here](#) to e-mail.

WIPP Shipments (as of 10/23/03 at 7:06 a.m.)

Shipments
scheduled to
arrive at WIPP
this week
17

Total shipments
received at WIPP
2,115

Sealed sources have been a topic of discussion lately. Here are answers to some of the questions raised by this topic:

What are sealed sources?

Sealed sources are special nuclear materials encased in capsules designed to prevent the leakage or escape of the nuclear material. For over fifty years sealed sources have been widely used by private and government agencies for calibration purposes, to perform measurements or for research activities.

Where are these sources located?

Because sealed sources have been in use for so long today, many have become excess and unwanted. Sealed sources are stored at more than 100 sites across the country. The DOE Off-Site Source Recovery Project, managed by LANL, recovers, transports and stores radioactive sealed sources that are not being used. The collection and control of sealed sources is a significant homeland security issue.



Why should sealed sources be disposed of at WIPP?

DOE determined that sealed sources containing plutonium-239 (Pu-239), which were used for defense purposes, fit the criteria of TRU waste and can be disposed of at WIPP. This is true for sources used at defense facilities or by private universities that performed research for defense purposes. Also, because Pu-239 sources contain weapons-grade Pu-239, they have always remained under DOE ownership. Before sealed sources can be disposed of at WIPP, approval must be obtained from NMED.

Recovered sealed sources like these are collected and maintained by the Off-Site Source Recovery Project at LANL.

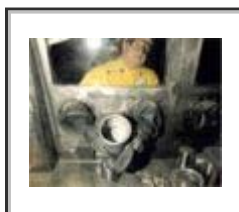
Do unsecured sealed sources represent any safety concerns to the public?

Yes. These radioactive sources were sealed to be used in a variety of workplace settings. An unsecured sealed source could be dangerous if uncontrolled (no chain of custody), or if an individual or perhaps a terrorist attempted to open it and dispersed the radioactive contents. For that reason, Congress identified sealed sources as a homeland security concern in August 2002. WIPP plays an important role to ensure that eligible radioactive sources are permanently isolated from the environment.

Will sealed sources in the WIPP underground present any special safety and health concerns for workers?

No. Sealed sources contain radioactive content within their protective jackets. As WIPP waste, they will also remain inside the waste containers used to transport them to WIPP, just like any other type of waste disposed of in the underground.

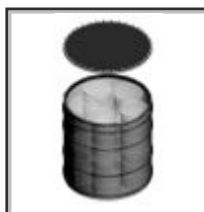
In the news



VE offers a
birds-eye view



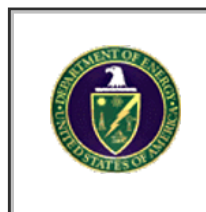
By the
numbers



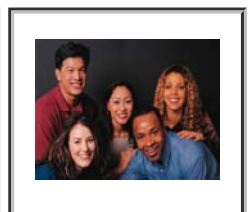
Overpacking...
a real plus



Sounding
the back



Keeping
on course



Our Team
News

Open up. Let's take a look.



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Visual examination, or VE, is what would be considered an "intrusive" method of TRU waste characterization. Because the waste is removed from its container, VE is routinely performed using a glovebox or hot cell to confine airborne alpha particles.

There are three basic applications for visual examination: (1) examination of newly generated waste prior to packaging or repackaging from an old to new container; (2) visual examination in lieu of radiography or (3) a quality control check on drums that are already characterized and certified to verify the accuracy of radiography.



Technicians use glove boxes to visually examine drum contents.

In any case, the VE process starts by pulling the TRU waste from its container. As audio-video cameras run, VE operators identify the drum number and begin sorting through the waste. As they sort, operators recite what they find: "two cloth booties, one glass beaker," and so on. All items are reported on a data sheet and captured on video.

Typically, two equally qualified operators perform VE when packaging waste or when inspecting waste in lieu of radiography. While one sorts through the waste, the other confirms his findings.

Any prohibited item discovered in the waste during VE is removed. The prohibited item may be treated (e.g., aerosol can vented) and returned to the waste stream.

On rare occasions, a prohibited item is found in a certified waste container while VE is performed as part of a quality control check on radiography. This results in a "miscertified" container. The number of times such conditions are discovered forms the basis for calculating the miscertification rate. That rate determines the number of drums in a summary category group (homogeneous waste, soils and gravel or debris waste) that will be required to undergo VE to ensure the quality of the radiography process.

VE, when used to verify the accuracy of waste already radiographed and certified for shipping, is one of the redundant confirmation practices Senate Bill 1424 seeks to eliminate.

The fleet - by the numbers



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The detailed planning needed to increase WIPP shipment rates resembles championship chess. There are a number of variables that play into shipment planning: availability of shipping containers, trucks, trailers and drivers. If essential pieces are out of service, shipments may idle. Each element of the shipping plan relies on the other for success.



WIPP uses specially designed, NRC-approved Type B shipping containers. Approved containers include the TRUPACT-II, the HalfPACT, the RH-72B and the 10-160B. WIPP has 75 TRUPACT-IIs available for use with plans for nine more.

The HalfPACT, designed to accommodate heavier payloads, resembles a small TRUPACT-II. There are 14 HalfPACTs in the WIPP fleet with an additional one awaiting approval for a total of 15.

The RH-72B shipping container is designed to transport remote-handled (RH) TRU waste to WIPP once RH disposal operations begin. To date, DOE has accepted delivery on 12 RH-72Bs.

While shipping containers are essential to shipping waste, they are of little use without trucks and trailers. DOE contracts with two separate transportation carriers: CAST Transportation and Tri-State Motor Transit. Together the companies provide WIPP 28 commercial trucks.

WIPP trailers are a different story. They are specifically designed and manufactured to haul either the TRUPACT-II and HalfPACT shipping casks or the RH-72B. Seventy-five DOE-owned trailers carry the TRUPACT-II and HalfPACT; one trailer is dedicated to the RH-72B, with additional trailers to be procured in the future.



WIPP's trucks, trailers and transportation containers are certainly important, but the right drivers are needed to move the fleet from Point A to Point B. CAST and Tri-State Motor employ approximately 55 WIPP-qualified drivers with impeccable driving records. Finding qualified personnel to fit the bill is difficult, but it's comforting to know that only the best figure into WIPP's shipping plans.

WIPP Shipments

(as of 10/23/03
at 7:06 a.m.)

<p>Shipments scheduled to arrive at WIPP this week 17</p>
<p>Total shipments received at WIPP 2,115</p>
<p>Total Waste Disposed Underground at WIPP</p>
<p>CH drums 45,487</p>
<p>CH standard waste boxes 2,208</p>
<p>CH ten-drum overpacks 471</p>
<p>Cubic meters 15,823</p>

Packing it in



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Total Waste Disposed Underground at WIPP

(as of 10/23/03 at 7:06 a.m.)

CH drums 45,487
CH standard waste boxes 2,208
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Cubic meters 15,823

Vacationers use the words "over packed" in the negative as they struggle to close suitcase zippers. At WIPP, overpacking is a real plus. It's not about compressing contents to fit the container: overpacking is a cost-effective means of packaging potentially damaged TRU waste drums so that they will be safe to handle and ship.



TDOP - The largest of the WIPP overpacks.

Simply explained, overpacks are new containers with structurally questionable containers inside. Thus, the overpack serves as the primary layer of containment. Overpacks are designed to fit inside the TRUPACT-II shipping cask. The TRUPACT-II has inner and outer-containment vessels that provide two additional layers of containment for shipping, both leak-tight.

So why aren't drums that have dents, scratches or surface rust from time in storage repackaged into new 55-gallon drums? Some are! According to Dick Lipinski, WTS principal scientist, "Repackaging involves handling the radioactive waste, which increases the potential for worker exposure to radiation and industrial accidents. Overpacking provides the TRU waste program a far more cost-effective containment alternative to repackaging."

Lipinski adds, "Overpacking to ensure container integrity is just one element of the waste certification process. The wastes inside must still comply to strict waste acceptance and shipping criteria."

There are three overpack configurations:

- **Standard waste box (SWB)** - accommodates four 55-gallon drums. Two per TRUPACT-II.
- **Ten 10-drum overpack (TDOP)** - holds ten 55-gallon drums, one SWB or six 85-gallon drums. One per TRUPACT-II.
- **85-gallon drum overpack** - contains one 55-gallon drum. Six per TDOP; one TDOP per TRUPACT-II.

Petersen, Inc., of Ogden, Utah, a metal fabricator with substantial experience in the aerospace, pipeline and tooling industries, manufactures both the SWB and TDOP for the NTP at a cost of \$2,300 and \$3,300, respectively. To date, more than 274 SWB overpacks, 471 TDOPs and two 85-gallon drums have been disposed underground at WIPP.

Pipe overpacks serve a different, yet significant purpose at WIPP. Their use allows increased amounts of TRU isotopes to be shipped per TRUPACT-II. Look for next week's feature on pipe overpacks in the October 30 edition of *TRU TeamWorks*.

Sounding the back



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In the WIPP underground, sound equates to safety. Experienced miners know the sound they want to hear before work begins.

At the start of each shift, underground service personnel perform a general sweep of work areas to check for broken roof bolts, loose ground or anything else that poses a potential hazard to workers.

"Sounding" is one activity commonly used to gauge the safety of "backs" (roofs) and "ribs" (walls) in areas without rock bolts or other ground support systems.

"Sounding the back" is performed by striking the roof's surface with a long pry bar or roof bolt. Experienced miners can readily hear the difference in the sound made by a solid rock mass compared to the lower-pitched, hollow sound where hidden fractures or separations may be present. If the back is solid, the sounding bar "rings." Fractures or separations create a reverberating sound like a drum. Miners refer to those areas as "drummy."



Gary Chism and Armando Rodriguez, of WTS Integrated Waste Handling Operations, sound the back.

When patches of drummy ground are encountered, they are secured by bolting or pried out and removed. In large areas, drummy ground may have to be mined out. As WIPP underground openings age, fractures and separations may develop as part of the natural process associated with creep and closure. Rock bolts are commonly installed for long-term safety and stability. Virtually all of the WIPP underground has some form of ground support installed in it.

In addition, the Geotechnical Engineering section monitors the underground environment with more than 1,000 instruments to ensure the repository's stability and safety. "It's never a question of whether the ground will move, it's how much and by when," says John VandeKraats, Geotechnical Engineering manager. "Our job is to monitor the ground and anticipate what Mother Nature is likely to do." He indicates that this is done by observing not only what can be seen on the surface, but by monitoring movement inside the rock with instrumentation, boreholes, and even with the response of rock bolts installed for support. Then, trends and modeling are used to predict future movement.

In response to the question: What do we do in freshly mined areas with no instrumentation installed?, VandeKraats says, "We inspect the openings and, of course, sound the back."

WIPP Employees Again Make News for Fire Prevention

For the second time in less than two weeks, quick response to fire by WIPP employees saved property and possibly lives. On Wednesday, Alan Rostro, WTS Communication, had taken his daughters to play at the Playground on the Pecos. He noticed that one of the playground towers caught fire after teenagers had been smoking there. Rostro immediately called 911 and helped arriving firefighters extinguish the fire.

On October 13, Chon Armendariz, Mine Maintenance, was credited with saving the home and life of an elderly resident by calling 911.

DOE charts a strategic course



WIPP and National TRU Waste Program (NTP) employees don't have to read far to see how we fit into DOE's strategic mission: "Protecting national, energy and economic security with advanced science and technology and ensuring environmental cleanup."

How do we fit in? Right there in "ensuring environmental cleanup!" But there's also "advanced science and technology" and "national, energy and economic security." The big question is *how* do we do all that?

The DOE Strategic Plan is the map that keeps our collective work on course. DOE published an easy-to-read document (PDF and text-only formats) on the national website [<http://strategicplan.doe.gov/>] at the end of September, charting our course well into the future -- 25 years, to be exact.

Let's look at NTP and WIPP-related goals for DOE Environmental Management (EM).

Working Smart

Strategic people and organizations excel by planning for success.

<p>DOE Environment Strategic Goal</p> <p>To protect the environment by providing a responsible resolution to the environmental legacy of the Cold War and by providing for the permanent disposal of the Nation's high-level radioactive waste.</p>	<p>Goal 6. ENVIRONMENTAL MANAGEMENT: Accelerate cleanup of nuclear weapons manufacturing and testing sites, completing cleanup of 108 contaminated sites by 2025.</p>
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DOE's Top-to-Bottom Review for EM directed fundamental change in approach, management and performance of the entire nuclear weapons cleanup. The focus is accelerated risk reduction and site closure – transferring DOE real estate after cleanup or maintaining long-term surveillance. By 2025, DOE will clean up 108 of 114 sites. Strategies are in place site-by-site for 18 most significant sites, including the largest: Hanford, INEEL and Savannah River Site. By 2013, all legacy TRU waste now stored will be disposed at WIPP. By 2005, half of Hanford's real estate will be transferred to the U.S. Fish and Wildlife Service. By 2006, Fernald and Mound sites will see complete cleanup, transferring Mound to a community improvement corporation.

Take a look at the plan for yourself. Stay on course by using DOE's strategies to frame your personal and project management goals in FY04.

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Energy Department Launches Program to Support Science and Mathematics Achievement

\$150,000 to be Provided Over Two Years

October 20, 2003 - Washington, D.C. -- The Department of Energy's (DOE) Office of Economic Impact and Diversity has established a new partnership with New Mexico Mathematics, Engineering, Science Achievement Inc. (MESA); the University of New Mexico; and public schools in New Mexico. The partnership will provide educational enrichment for high school and college students in the Albuquerque area majoring in mathematics and science-related courses.

The Office of Economic Impact and Diversity will provide \$150,000 to fund this program over two years. Additional support will be provided by the University of New Mexico, MESA and the city of Albuquerque. "The department encourages students to strengthen their knowledge and skills and to deepen their commitment to pursue careers in science," Secretary of Energy Spencer Abraham said. We are counting on them to be part of the solutions for the many energy-related challenges we face over the next years."

The program consists of program support, incentive awards and student internships.

Program Support

In partnership with the University of New Mexico, students will be provided opportunities to participate in pre-college mathematics and science enrichment programs under the guidance of the university's school of engineering, visits to national laboratories and career counseling sessions.

Incentive Awards

Graduating seniors who meet the specified requirements for academic honors will be eligible for an incentive award to attend the University of New Mexico to pursue a mathematics, science or engineering degree.

Student Internships

After completing the DOE-sponsored MESA program, students entering the University of New Mexico will be eligible to participate in a summer internship program sponsored by the Energy Department at a national laboratory or facility.

-- Source: <http://www.energy.gov>

Audits

The SRS/CCP Annual Recertification Audit is going on this week at SRS.