

Update 2/26/04

Shipments expected for the week of 02/22/04 through 2/28/04: Hanford (2), RFETS (11), SRS (6)

# TRU TeamWorks

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

February 26, 2004

## The Big Story

### WIPP impacts international Waste Management Symposium



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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 02/26/04  
at 7:28 a.m.)

Shipments  
scheduled to  
arrive at WIPP  
2/22/04 - 2/28/04  
19

Total shipments  
received at WIPP  
2,354

Total volume  
disposed at WIPP  
18,067 m<sup>3</sup>

FY04 Performance  
Metrics



The Waste Management (WM) conference held annually in Tucson, Arizona, is an internationally recognized gathering of waste management professionals. The conference consistently draws participation from government and private agencies, universities and research institutions from around the world.

Each year conference organizers focus on current issues in waste management and WIPP consistently garners attention. This year five of the conference's 70 planned topic sessions and 50 technical papers will highlight WIPP-specific and WIPP-related topics. Sessions related to WIPP this year include:

- ◆ Lessons Learned from Five Years and 2,000 Shipments of TRU Waste to the U.S. DOE WIPP
- ◆ Status and Plans at the U.S. DOE WIPP
- ◆ TRU Waste Conditioning and Processing
- ◆ TRU Waste Management Challenges and Issues
- ◆ Poster session – HLW and SNF; TRU; Public Communication, Participation, Education and Training (poster sessions are an alternate way for subject matter experts to present their chosen topics using photographs, illustrations and data).

Chuan-Fu Wu, CBFO senior technical advisor comments on WIPP's role at the symposium: "While WIPP is one of many topics highlighted at the WM conference, we are unique as the world's first operational deep geologic repository for TRU waste. Our operational experience is invaluable to other WM professionals as they tackle their own issues and concerns."

Roger Nelson, CBFO chief scientist agrees. "WIPP is the example to be followed by the rest of the world. We possess groundbreaking experience and knowledge in stakeholder relations, transportation systems, characterization and waste inventorying. WIPP is WM in every sense of the term."

The '04 conference begins Sunday, February 29, and will end on March 4. A technical tour of WIPP was also offered to conference attendees. Eighteen WM participants are scheduled to tour the site tomorrow (Friday).

**Celebrate National Engineers Week - Thank an engineer near you!**

#### In the news



AK is OK



NRC analyses



WIPP-Magnon



Road safe



Wet work II

### AK is OK

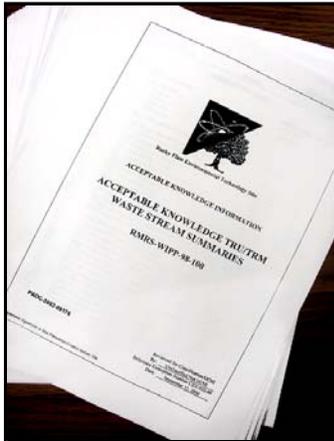


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**Question:** What is acceptable knowledge (AK)?

**Answer:** 1) Web material screened by the MSN butterfly; 2) the abbreviation for Arkansas; or 3) information used to support waste characterization and certification activities.

If you answered 3, you likely work at WIPP. Thumbing through an AK package used to characterize a generator site waste stream, it appears to include every detail: "stainless-steel cans used to manually transfer plutonium-contaminated materials between gloveboxes" or "made up of glass from analytical labs, recovery processes, ceramics and glovebox windows."

Understandably, a substantial amount of waste stream information is compiled to ensure that the waste meets WIPP waste acceptance criteria and can be disposed at WIPP.

Added quality assurance requires that the information itself meets certain standards – "traceability to referenced documents" – before it can be used as AK and a basis for characterization.

AK may include any documentation that describes or verifies waste generator site history, mission and operations, as well as waste stream information used to define the generating process, matrix or any radiological and chemical contaminants.

AK information is gathered by "AK experts" at each site. These experts must meet specific training and qualification requirements. AK information related to a waste stream or group of waste streams is collected into an auditable record that fills several filing cabinets. An AK summary report is then produced to reference AK documentation that supported waste characterization conclusions.

The AK process is heavily scrutinized during CBFO generator site audits because the AK process is the primary method for characterizing waste for shipment to WIPP. For each summary category group (i.e., debris, homogeneous solids, or soil and gravel) at least one container must be traced through the AK process.

Radiography, headspace gas testing, solids sampling and analysis, and nondestructive assay are methods used to confirm the conclusions derived from the AK process. The sites are required to reconcile differences between AK information and the information obtained through waste testing before the waste can be shipped to WIPP.

#### Waste stream information contains some important elements:

- Waste stream and profile number
- Area(s) and building(s) from which the waste stream was or is generated
- Waste stream volume and period of generation
- TRUPACT-II content codes
- Transuranic Waste Baseline Inventory Report information
- Waste generating process described in each building
- References to process flow diagrams
- Material inputs or other information that identify the chemical and radionuclide content of the waste stream and the physical form of the waste.

## The NRC nod



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Most of us are familiar with the rigorous tests that the TRUPACT-II prototype underwent prior to receiving the stamp of approval as a Type B package. But who makes the final determination that a package meets all the necessary requirements? The responsibility lies with the U.S. Nuclear Regulatory Commission (NRC).

An application or Safety Analysis Report for Packaging (SARP) sent to the NRC for new package evaluation must address specific criteria. In general, the application consists of eight chapters that provide information regarding shielding, containment, structural and thermal design, operational detail and how the new container will be maintained.

Supporting data for each chapter may be generated in three ways. Applicants may physically test the new package, perform analysis (i.e., computer modeling), or provide a combination of both to satisfy requirements.



***Drop testing was just one of the many methods used to confirm the TRUPACT-II's durability.***

All SARP applications are assigned a docket number by the NRC and placed in the agency's centralized Public Document Room in Maryland. The Document Room serves as a conduit to the public for accessing licensing documents so that interested parties can follow a package through the evaluation process.

The NRC performs its own independent analyses of the proposed package. In most cases, the agency will analyze the applicant's data using computer programs. The agency prefers to use alternate programs than those used by the applicant to confirm software outputs. The NRC does not perform physical testing; that's the applicant's responsibility.

Once the NRC has performed and reviewed all analyses, it may request supplemental information from the applicant. If the agency approves an application, it will issue a Certificate of Compliance (C of C) for the package SARP.

The NRC provides the applicant a Safety Evaluation Report, that summarizes its review of each chapter. The C of C and SARP become the guiding documents for the manufacture and maintenance of any future packages. NRC must approve any change to these documents.

### WIPP - the land beyond time



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The year is 2050. Native grasses festoon the footprint where WIPP surface facilities once buzzed with activity. Left is a concrete monolith warning visitors not to disturb the wastes buried deep below – and a return to desert silence.

Eons before government geologists and scientists probed the area in search of a suitable place to bury refuse from modern man's weapons, WIPP's 10,240 acres were the domain of aboriginal hunters and gatherers. Artifacts dating from 10,000 B.C. to the late 1800s reveal an early WIPP history.

As part of initial site characterization, the Agency for Conservation Archaeology of Eastern New Mexico University inventoried several sections surrounding the proposed WIPP site in 1976. In 1987, Mariah Associates studied additional portions of the 45 sections, cataloging historical finds on 2,460 acres.

Evidence of prehistoric hearths, burned rock, flaked-stone projectile points and pottery fragments told of small nomadic tribes that had survived the harsh desert landscape, existing on bison, deer, rabbits, agave and mesquite beans. From 600 A.D. onward, the nomadic tribes established trade networks with the Puebla people to the west who exchanged cultivated corn and squash for the nomad's dried meat and hides.

While scouting colonial Spain in the mid-1500s – which included the present-day WIPP site – Conquistadors encountered Jumano and Apachean peoples in the region. Apache descendants would later raid Spanish settlements on horseback.

From 1800 to the early 20<sup>th</sup> Century, European ranchers and farmers settled the area. Sun-bleached fence posts and other structural remnants found within the WIPP land withdrawal area attest to failed homesteads and past ranching activity.

Mariah Associate archaeologists estimate that there is one historical site for every 65 acres of WIPP land. Their data indicate there could be up to 95 significant historical sites within WIPP boundaries. Fourteen are known to be eligible for entry in the National Register of Historical Places – most are prehistoric.

To preserve these cultural resources, DOE documents the historical sites and the condition of any artifacts discovered on WIPP land. Finds are left undisturbed in accordance with Department of Interior guidelines for the benefit of scientific and sociocultural use by present and future generations.



***Historical sites abound within the WIPP land withdrawal footprint.***

### Vehicle safety above and below ground



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If it's bigger than you, get out of the way and stay out of the way! That's one of the eternal truths of the road and as it turns out, it's true in the WIPP underground, too. In fact, there are a number of safety tips that apply equally to driving a car around town and operating a vehicle underground.



"Common sense rules can make getting around in the mine a lot less tricky and a lot safer," says Melody Smith, WTS Industrial Safety and Hygiene. "Preventing injuries is what it's all about." Here are a few above and below ground examples.

#### Safety has the "right-of-way" at all times

Defensive driving saves an untold number of lives and injuries every day. Smart drivers are always on the lookout for those who are distracted. Cell phones, make up, electric razors, maps, etc. are common culprits around town, but the underground also has its distractions. That's why all underground traffic must yield to haul trucks. Drivers of these large trucks may not see you, so if a haul truck approaches, pull over out of the way and stop your vehicle until the truck has passed.

#### Use your headlights

Some newer vehicles automatically turn the headlights on when a vehicle is in operation, regardless of the time of day to increase visibility. That's a good thing, especially when driving on the highway. In the WIPP underground, headlights are required for moving vehicles.

#### Perform a safety check before you drive

At WIPP, everything is checked. Headlights, taillights, brakes, chock block, horn ... but what about our personal vehicles? Oh, that's probably a different story. Often we think about it before a road trip, but seldom before heading to the grocery store. A quick check is a good idea to make sure your vehicle is in safe working condition.

#### Watch your speed

The Mine Safety and Health Administration requires operators to maintain control of equipment while it is in motion. Operating speeds must be consistent with conditions of roadways, clearance, visibility and traffic. On the surface at WIPP, including in parking lots, vehicles are limited to 10 mph. Limits around town and on the roads leading to WIPP are posted, so be sure to obey them. It's worth a few extra minutes to get to your destination safely.

### SNL Hydrology Team -- Part II Otero Mesa study may identify new water resources



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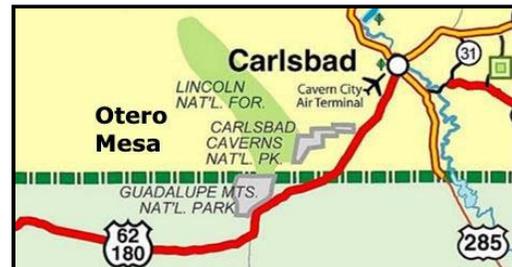
"We've been fortunate to get some highly visible projects," says David Chace about the Sandia National Laboratories (SNL) Small Business Assistance team. An understatement, considering Chace is in the midst of a water resource study in the area of controversial Otero Mesa.

The potentially resource-rich, southern New Mexico wilderness lies within the Salt Groundwater Basin which encompasses more than 2,500 square miles. The mesa is a frequent news topic at the center of debate over oil and gas drilling. Governor Bill Richardson just signed an executive order to protect Otero Mesa natural resources.

Chace and two other SNL Carlsbad Programs Group scientists consult on complex national and/or international groundwater and surface water projects in addition to working for WIPP. The scientists investigate key water issues for New Mexico small businesses. Chace is consulting on four other regional water projects for small businesses in Hope, Weed and Nogal.

#### Back to Otero Mesa

The Otero Mesa groundwater study began two years ago because little data existed about size, accessibility and quality of the aquifer. A group of New Mexico ranchers in the Dell City area want to market water as Last Chance Water Company. An estimated 15 million acre-feet of potable, recoverable groundwater is stored in the Salt Basin Groundwater System, with annual water recharge estimated between 35,000 to 100,000 acre-feet.



*Location of the Otero Mesa in relation to Carlsbad and the New Mexico-Texas border.*



*David Chace, SNL-CPG*

Chace is investigating the potential that there is sufficient groundwater to market this resource to other water-short communities without endangering neighboring water rights or the mesa's future. The state engineer makes the final decision. Next step is a "basin scale flow model," a predictive tool to estimate the impact of pumping water out of the basin.



#### New water sources

"Finding unused sources of water could be a big shot in the arm to keep water-dependent economies alive," says Chace, citing Carlsbad, the Pecos Valley and other communities seeking more reliable, long-term water resources, as well as Alamogordo, Ruidoso and Hope, where demand is exceeding supply because of both population growth and decreasing water availability.

#### Stay tuned

Randall Roberts, SNL geologist and hydrologist, is principal investigator for the Otis community water study. Jesse Roberts, SNL environmental and mechanical engineer, is examining bank erosion and channel diversion impacts to the Pecos River for the Carlsbad Irrigation District.

*Left: The beauty of the Otero Mesa belies the controversy surrounding the potential use of its resources.*

## Announcements



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### WTS employee spotlighted in trade publication

WTS Human Resources employee Tom Fabian was consulted and quoted in a national publication for human resource (HR) professionals. The publication, *Best Practices in HR*, ran an article entitled *Case Study: Manage from Your Feet ... Not Your Seat* in its February 7, 2004, issue. The article addressed the effectiveness of management by walking around. Fabian was consulted for his views on the topic and was extensively quoted within the article itself.

### Audio-gram supports safety focus

In support of WIPP's continual safety focus, WTS Industrial Safety and Hygiene has developed the Safety Audio-Gram, a quick and entertaining safety reminder system that uses a recorded telephone message and WIPPnet, the WIPP intranet. The message is both informative and musical.

To hear this month's recorded message, call SAFE (7233). From outside the WIPP telephone system, that number is "BE-4-SAFety" (234-7233).

WIPPnet users may hear the same message by accessing the ISH web page and clicking on the "Safety Audio-Gram" link in the left column. The February message emphasizes ladder safety.

### Domenici staffers visit WIPP



**Frank Hansen, SNL/CPG describes the underground layout while Paul Shoemaker, SNL/CPG and Russell Williams (center) look on.**

Russell Williams, a legislative aide with Senator Pete Domenici's staff, toured the site last Thursday.



**CBFO Deputy Manager Lloyd Piper discusses the WIPP transportation routes with Scott O'Malia.**

Scott O'Malia serves on the Senate Appropriations, Energy and Water Development Subcommittee for Senator Domenici's office.