



NEW MEXICO ENERGY, MINERALS  
& NATURAL RESOURCES DEPARTMENT

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Jennifer A. Salisbury  
CABINET SECRETARY

April 6, 1998

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APR 08 1998

*Stew*  
*Tomie*

MEMORANDUM

NM ENVIRONMENT DEPARTMENT  
OFFICE OF THE SECRETARY

To: Radioactive Waste Consultation Task Force  
John Chavez, Taxation & Revenue Department  
Pete Rahn, State Highway & Transportation Department  
Jennifer A. Salisbury, Energy, Minerals & Natural Resources & Task Force Chair  
Alex Valdez, Department of Health  
Mark Weidler, Environment Department  
Darren White, Department of Public Safety  
Senator Dede Feldman, Advisory Member & Chair  
Radioactive and Hazardous Materials Committee  
Representative John Heaton, Advisory Member and Vice Chair  
Radioactive and Hazardous Materials Committee  
George Chavez, *Ad Hoc* Task Force member  
Curt Sanchez, Office of the Governor

From: Heidi Snow, Sr. Policy Analyst and Task Force Staff *Heidi Snow*

Re: TASK FORCE MEETING ON APRIL 13 IN LOS ALAMOS

Please find enclosed materials to assist you in preparing for the April 13 Task Force meeting in Los Alamos. Included are:

- A tentative agenda;
- Selected pages from the "National TRU Waste Management Plan;"
- Two LANL pamphlets titled "Processing Radioactive Waste for Shipment to WIPP" and "What are We Going to Send to WIPP?" and
- LANL Waste Management Program Information Sheets – "Transuranic Waste" and "Defining Waste Types at Los Alamos National Laboratory."

If you have any questions one these materials or about the meeting, please don't hesitate to call me at 505/827-1377.



Tentative Meeting Agenda

**RADIOACTIVE WASTE CONSULTATION TASK FORCE  
(GOVERNOR'S WIPP TASK FORCE)**

April 13, 1998

Fuller Lodge  
2132 Central Avenue  
Los Alamos, New Mexico

- 1:30 p.m. **CALL TO ORDER/INTRODUCTIONS**  
--Jennifer A. Salisbury, Task Force Chair and Secretary of the  
Energy, Minerals & Natural Resources Department (EMNRD)
- 1:40 p.m. **WELCOMING REMARKS**  
--John Browne, LANL Director (invited)
- 1:50 p.m. **PUBLIC COMMENT (sign up before meeting begins)**
- 2:15 p.m. **WIPP STATUS REPORT**  
--George Dials, Manager  
U.S. Department of Energy-Carlsbad Area Office  
--Robert Neill, Director  
N.M. Environmental Evaluation Group
- 2:45 p.m. **WIPP WASTE CHARACTERIZATION/CERTIFICATION PROCESS**  
--Butch Stroud, DOE-CAO Waste Characterization Manager  
--Dennis Brown, DOE-CAO Quality Assurance Manager  
--LANL officials
- 4:00 p.m. **TOUR of LANL WASTE CHARACTERIZATION/STORAGE FACILITIES**  
(Real-Time Radiography, Passive/Active Neutron, Waste Storage Domes, etc.)
- 5:15 p.m. **ADJOURN**

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NM ENVIRONMENTAL DEPARTMENT  
OFFICE OF THE SECRETARY

# The National TRU Waste Management Plan



**DOE Carlsbad Area Office:**  
*Leadership in Safe and Efficient Cleanup  
of Transuranic Waste*

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APR 08 1998

DOE/NTP-96-1204

Revision 1



## Executive Summary

This National Transuranic (TRU) Waste Management Plan, Revision 1 (Management Plan), addresses significant developments in TRU waste management that have occurred across the U.S. Department of Energy TRU waste

*The Management Plan configuration avoids indefinite storage and accelerates environmental cleanup.*

complex since September 1996. Since that time, the Department has modified its plans and intends to

begin disposal of TRU waste at the Waste Isolation Pilot Plant (WIPP) in May 1998 pending regulatory approval. Waste management at the TRU waste sites has progressed on the basis of improved technology, inventory information, and available funds. For these reasons, the Department's Carlsbad Area Office has updated the TRU waste management configuration first identified in September 1996 to integrate current site-specific waste management planning with transportation planning and with waste handling and disposal capacities at the WIPP. Integrating the various components of the TRU waste complex disposal system ensures that disposal operations at the WIPP can occur consistent with its design capacity. This alleviates a number of concerns related to stored inventories of TRU waste.

Continued storage of TRU waste under current conditions poses problems. Some of this waste, having been stored since the early 1970s, will either need to be repackaged soon in order to maintain proper storage, or be shipped to the WIPP while container integrity allows. Nearly all Federal Facility Compliance Act regulatory agreements are based upon disposal of TRU waste inventories at the WIPP, beginning in the near future. If this does not happen, the sites are required to reconfigure waste in new storage

facilities that comply with Resource Conservation and Recovery Act (RCRA) standards. This process would require container inspection and repackaging that could result in worker exposure to radiation associated with the waste inventories. This additional and potentially unnecessary worker exposure, and the considerable expense associated with maintaining indefinite storage, will be avoided by implementing the provisions of this plan.

The Carlsbad Area Office uses the Management Plan's system performance goals to set the targets necessary to utilize the WIPP's disposal capabilities to the fullest. These goals enable the Department of Energy's national TRU waste management program to achieve:

- **Regulatory compliance** to the fullest extent possible, with all but one site projecting compliance with regulatory agreements. Compliance at another site is projected by an extremely narrow margin. The Management Plan enables most sites to achieve compliance on an accelerated schedule.
- **Risk reduction**, by maximizing the rate of TRU waste disposal.
- **Mortgage reduction**, by ensuring waste is shipped to the WIPP at maximum process capacities (thus enabling facilities to be closed earlier).
- **Effective WIPP utilization**, by ensuring waste shipments closely match the waste handling and disposal capacities of the WIPP, resulting in the maximum possible disposal of stored and newly generated TRU waste by the end of 2006 and beyond.



In addition, the Management Plan provides a basis by which to establish TRU waste management projects and activities throughout the Department of Energy complex. Projects, activities, and schedules are defined in detailed TRU waste processing flow diagrams in Section 5.2.

The Carlsbad Area Office developed the Management Plan configuration to complement the Department's Office of Environmental Management vision of completing environmental cleanup at most sites within a decade. The configuration, broadly defined, consists of a waste management approach, site facilities and operating rates, transportation systems, the WIPP waste handling and disposal operations, and coordinating schedules. Its features include integrating facility construction and waste processing schedules; utilizing multiple-shift operations; coordinating the WIPP waste handling operations and transportation availability; deploying mobile waste characterization capability; coordinating waste workoff campaigns with maintenance of transportation corridors; and applying innovative business practices and technologies.

Implementing this Management Plan configuration requires a significant initial financial investment to continue the progress necessary for producing sufficient quantities of disposal-ready TRU waste. This early investment enables complete disposal of TRU waste inventories from most sites by the end of Fiscal Year (FY) 2006, with a commensurate reduction in the associated risk and mortgage, and the high utilization of the waste handling and disposal capacities of the WIPP. Although the Management Plan resolves many programmatic issues, there remains a need to secure the funding necessary for implementation.

Approximately \$2 billion has been invested since the mid-1970s to construct and certify the WIPP as the nation's designated permanent TRU waste disposal site. The Carlsbad Area Office has determined that the most fiscally responsible course is to support TRU waste management projects as a priority across the complex, commensurate with the guidance provided in this Management Plan. The Carlsbad Area Office therefore recommends that this Management Plan be implemented and that site-specific budgets be developed to support this plan.



The National TRU Waste Management Plan, Revision 1

Table 5-1 Number of Annual Contact-Handled TRU Waste Shipments to WIPP

Site	1998**	1999	2000	2001	2002	2003	2004	2005	2006	Total*
ANL-E	0	18	2	2	1	0	2	1	1	27
Hanford	0	36	106	104	106	105	104	104	105	770
INEEL	19	88	109	98	110	125	371	488	476	1,884
LANL	32	91	174	175	181	163	156	161	132	1,265
LLNL	0	0	25	10	7	4	2	2	4	54
Mound	0	20	25	0	0	0	0	0	0	45
NTS	0	0	37	29	13	10	0	0	0	89
ORNL	0	0	0	0	0	24	24	9	1	58
RFETS	16	233	245	249	251	250	82	26	18	1,370
SRS	0	11	18	18	18	18	18	57	111	269
SQS	0	3	10	8	8	1	2	1	2	35
<b>Total*</b>	<b>67</b>	<b>500</b>	<b>751</b>	<b>693</b>	<b>695</b>	<b>700</b>	<b>761</b>	<b>849</b>	<b>850</b>	<b>5,866</b>

\* Totals reflect rounding of numbers.

\*\* Non-mixed TRU waste.

Table 5-2 Number of Annual Remote-Handled TRU Waste Shipments to WIPP

Site	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total*
Hanford	0	0	0	0	0	0	0	0	19	19
INEEL**	0	0	0	0	0	0	0	0	0	0
LANL	0	0	0	0	0	20	53	49	30	152
ORNL	0	0	0	0	0	128	384	401	395	1,308
SQS	0	0	0	0	0	0	25	48	51	124
<b>Total*</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>148</b>	<b>462</b>	<b>498</b>	<b>495</b>	<b>1,603</b>

\* Totals reflect rounding of numbers.

\*\* Idaho National Engineering and Environmental Laboratory will begin remote-handled TRU waste shipments in FY 2007.

Table 5-3 Number of Intersite TRU Waste Shipments

Intersite Shipment	2003	2004	2005	2006	Total
Contact-Handled Waste from RFETS to INEEL	0	18	0	3	21
Remote-Handled Waste from SRS to ORNL	0	10	8	8	26



*The National TRU Waste Management Plan, Revision 1*

**Table 5-4 Contact-Handled TRU Waste Volume Disposed at WIPP Annually (cubic meters)**

Site	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total*
ANL-E	0	79	9	9	4	0	9	4	4	118
Hanford	0	293	954	877	817	880	802	802	927	6,353
INEEL	130	604	748	673	755	693	2,176	3,058	2,957	11,795
LANL	341	799	1,385	1,369	1,422	1,334	1,293	1,319	1,000	10,263
LLNL	0	0	203	106	68	38	15	15	38	483
Mound	0	87	113	0	0	0	0	0	0	200
NTS	0	0	277	217	97	75	0	0	0	666
ORNL	0	0	0	0	0	210	210	79	9	507
RFETS	120	1,819	1,594	1,543	1,577	1,647	614	195	138	9,247
SRS	0	96	157	157	157	157	157	559	970	2,411
SQS	0	9	34	23	23	8	6	3	6	111
<b>Total*</b>	<b>592</b>	<b>3,786</b>	<b>5,474</b>	<b>4,974</b>	<b>4,921</b>	<b>5,042</b>	<b>5,282</b>	<b>6,034</b>	<b>6,049</b>	<b>42,153</b>

\* Totals reflect rounding of numbers.

**Table 5-5 Remote-Handled TRU Waste Volume Disposed at WIPP Annually (cubic meters)**

Site	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total*
Hanford	0	0	0	0	0	0	0	0	17	17
INEEL**	0	0	0	0	0	0	0	0	0	0
LANL	0	0	0	0	0	18	47	44	27	135
ORNL	0	0	0	0	0	114	342	357	352	1,164
SQS	0	0	0	0	0	0	22	43	45	110
<b>Total*</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>132</b>	<b>411</b>	<b>443</b>	<b>441</b>	<b>1,427</b>

\* Totals reflect rounding of numbers.

\*\* Idaho National Engineering and Environmental Laboratory will begin remote-handled TRU waste shipments in FY 2007.



### **5.2.5 Los Alamos National Laboratory**

#### ***Infrastructure***

The Los Alamos National Laboratory will utilize both mobile and fixed facilities to accommodate required waste processing schedules. Waste stored on Pads 1, 2, and 4 will be retrieved and placed in storage that meets RCRA standards before undergoing certification. Waste requiring size reduction or repackaging will be processed through the Waste Characterization, Reduction, and Repackaging Facility. Drummed waste is being processed currently through a waste characterization string comprised of mobile units supplemented with operations performed in the Radioassay and Nondestructive Testing Facility. Radioassay of standard waste boxes will be performed in a planned box assay system, scheduled to begin operation in FY 1999. Loading of contact-handled TRU waste into TRUPACT-IIIs will be performed in the Radioassay and Nondestructive Testing Facility beginning in FY 1998. Remote-handled TRU waste retrieval, processing, and preparation for shipment will begin in FY 2003 in a planned facility. The waste processing flow at Los Alamos is shown in Figure 5-7.

Los Alamos received certification of its waste processing facilities in September 1997. In so doing, it has demonstrated that its waste processing procedures are in place, the operating personnel are trained, and the characterization equipment and other processes are functioning to meet the required specifications. This certification is a prerequisite to preparing waste for disposal in the WIPP.

#### ***Regulatory Compliance***

The New Mexico Environment Department has issued a Compliance Order regarding regulation of mixed TRU waste at the Los Alamos National Laboratory. The Order did not assume that the

WIPP would open as scheduled or receive an exemption for disposing of mixed waste without treatment to RCRA land disposal treatment standards. As such, provisions are in the Order that require development of treatment technologies for mixed TRU waste by June 30, 1999, and submission of a treatment permit application to the New Mexico Environment Department by December 31, 1999. Treatment of mixed TRU waste would begin within six months of when the treatment permit is issued and be finished by December 31, 2010.

The Department of Energy, however, is planning to open the WIPP in May 1998, and the Land Withdrawal Act Amendment has exempted waste designated for disposal in the WIPP from the need to meet land disposal treatment standards. Agreements of the Compliance Order must be renegotiated after the WIPP is opened. The Compliance Order also requires that the waste on Storage Pads 1, 2, and 4 be brought into compliance with RCRA mixed waste storage standards. This work is ongoing and will be finished on a schedule to comply with the Order. Thus, the Management Plan configuration supports compliance with the intentions of the Compliance Order.





**Los Alamos National Laboratory**  
**Management Plan Configuration Revision 1**  
**Scenario 02.00.01**

December 8, 1997  
 Page 1 of 2

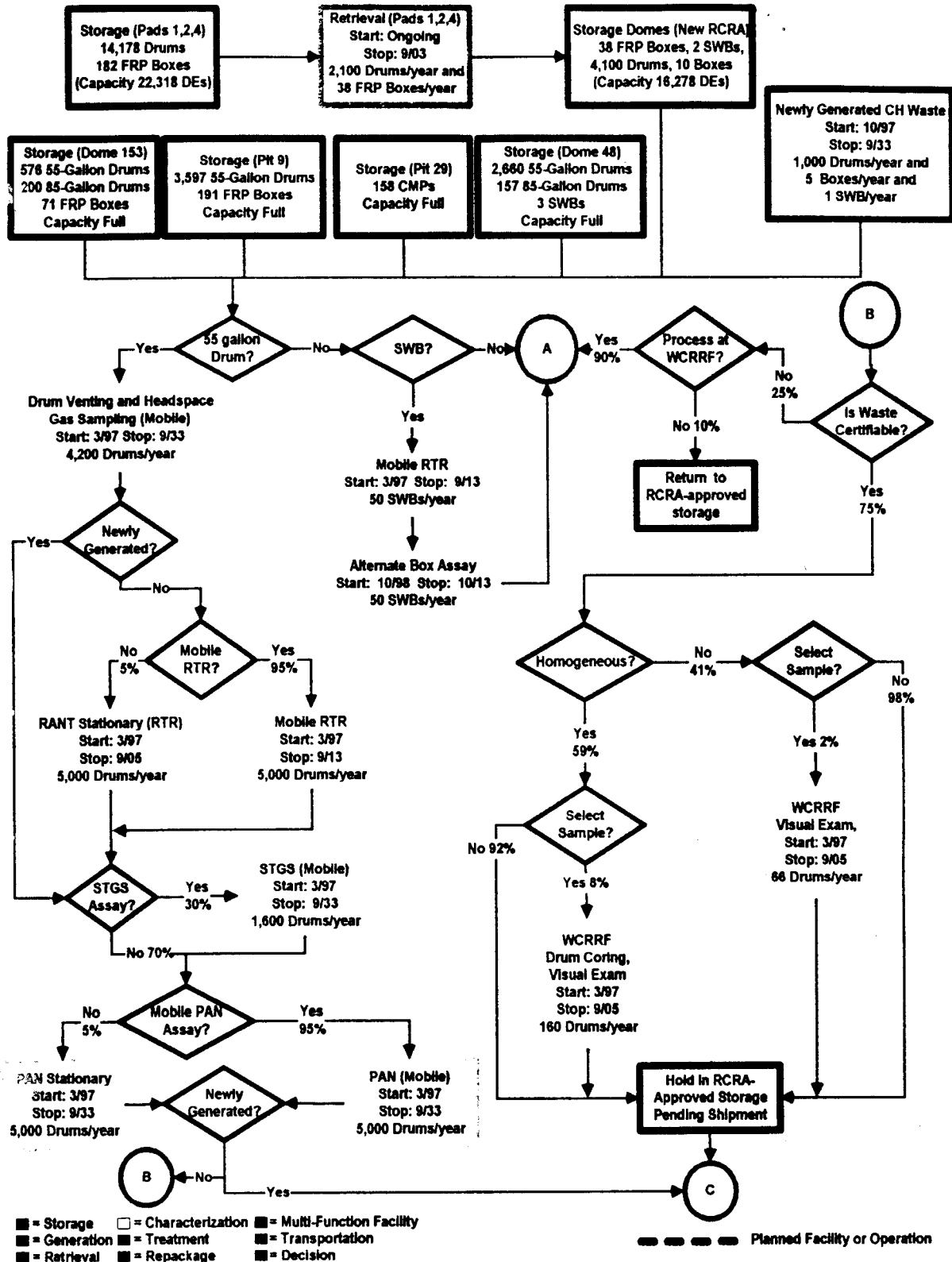


Figure 5-7 Los Alamos National Laboratory Process Flow



Approved by: Bruce LeBrun  
Date: 10/15/97

# Los Alamos National Laboratory Management Plan Configuration Revision 1 Scenario 02.00.01

December 8, 1997  
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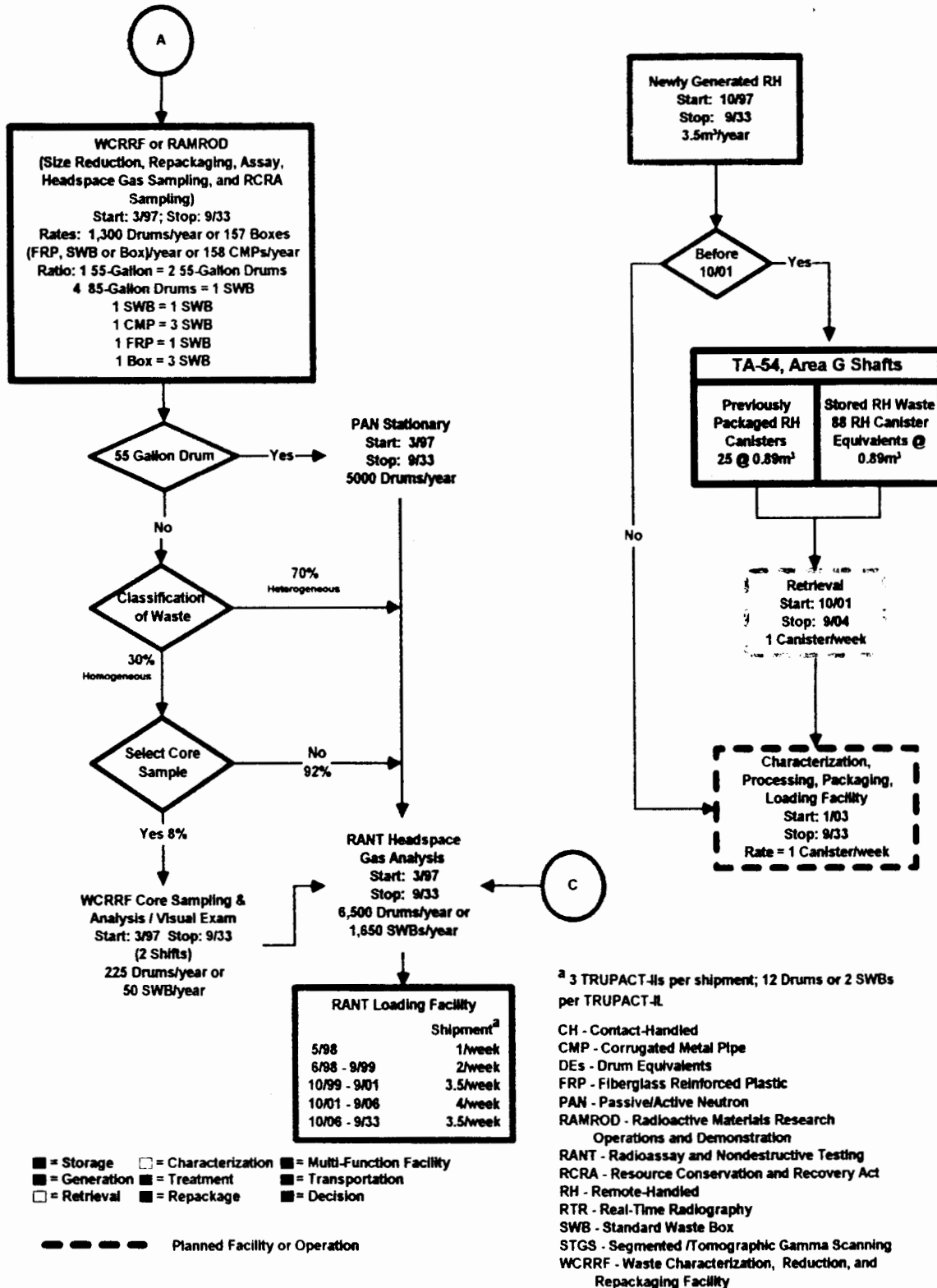
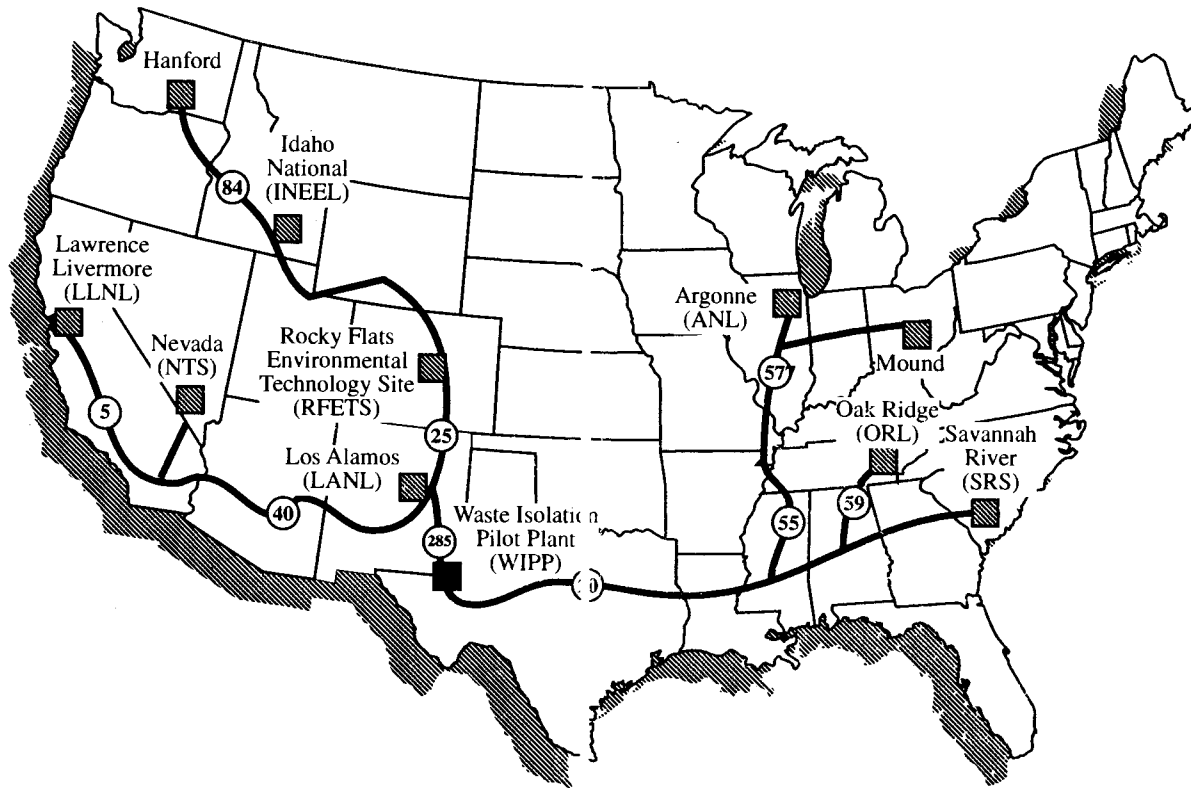


Figure 5-7 Los Alamos National Laboratory Process Flow (continued)

# Proposed Waste Shipment Routes

LALP-98-6



*What are  
We Going  
to Send  
to WIPP?*

## For more information contact:

Carmen M. Rodriguez  
CIO-1, Mail Stop M769  
Los Alamos, New Mexico  
87545

Phone: (505) 665-6770  
FAX: (505) 667-9710  
E-mail: carmenr@lanl.gov

Los Alamos National Laboratory,  
an affirmative action/equal opportunity  
employer, is operated by the University  
of California for the United States  
Department of Energy under contract  
W-7405-ENG-36.



**Los Alamos**  
NATIONAL LABORATORY

## **What will** LANL ship to WIPP?

- Waste contaminated with radioactive elements.
- Lab coats, piping, tools, glassware, etc.

## **Why** do we have to send the waste to WIPP?



The waste is safer when buried 2150 feet below ground. Left where it is, the waste isn't packaged for long term storage. The location of WIPP is isolated, with fewer than 30 people living within ten miles of the site.

## How do we **know** what's in the drum?

### *X-Ray Image*



### *Packaging Records*

Everything that is put into the drums is carefully recorded.

### *Using X-Rays*

X-rays tell us if there is liquid or other prohibited items inside the drum.

### *Opening Drums*

We open randomly selected drums to verify x-ray results and record items one at a time.

### *Careful Measuring*

We measure the type and amount of radioactive material.

### *Checking Contents*

We check and measure contents for unsafe materials like paint or oily rags.

**WIPP SAYS THIS DRUM IS SAFE**

(All requirements for disposal have been met)

## How is radioactive waste characterized at Los Alamos?

Waste characterization and certification is the process used to identify, document and package radioactive waste.

The steps shown here fulfill the requirements and regulations for waste characterization prior to shipment to the Waste Isolation Pilot Plant (WIPP). The standards have been developed on a nationwide level.

All information is compared to a checklist, making sure that requirements are met. The data is then reviewed by the WIPP quality assurance staff before shipment.

## How does LANL *know* what's in the drum?



Workers at LANL carefully measure and record what is put into each drum. The drums contain protective clothing, tools, glassware and equipment contaminated with radioactive elements heavier than uranium (*e.g.*, plutonium). We also document the processes that generate the waste, allowing us to accurately track drum content.

## Are we *sure* about the contents of the drum?

### *Radiography*

With x-ray, we estimate the volume of different types of waste materials and identify prohibited items to segregate (*e.g.*, pressured containers, sealed containers, > 4L, free liquids).



## Do we ever open the drums *just to make sure*?

### *Visual Examinations*

Some drums (a random sampling) are opened and the contents are examined to validate the x-ray process. The waste is repackaged if it is noncompliant (*e.g.*, pyrophorics, liquids, explosives, pressured container, etc.).

## Just how *radioactive* are the contents of the drum?

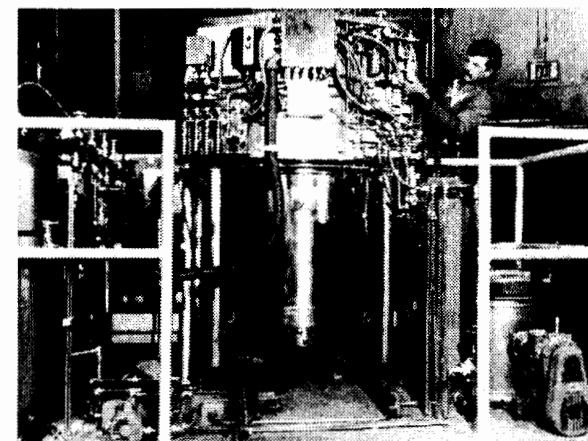
### *Radioassay*

We measure the amount and type of radioactive material in each drum. Each drum meets limits set by national, state, and local agencies.

## Do we check the *chemical* contents of the drum?

### *Headspace Gas Analysis*

The drums are sampled to measure volatile organic compound concentrations (*e.g.*, hydrogen and methane). Levels of hazardous materials contained in drums are restricted by the Department of Transportation, the Environmental Protection Agency, and the Department of Energy.



How do we **guarantee**  
proper handling  
and accuracy?

### *Certification*

The original documentation of drum content is verified.  
Auditable scientific data is collected.  
The information is compared to WIPP acceptance criteria.  
WIPP approves the shipment of the waste before it is sent.

### *For more information contact:*

Carmen M. Rodriguez  
CIO-1, Mail Stop M769  
Los Alamos, New Mexico  
87545

Phone: (505) 665-6770  
FAX: (505) 667-9710  
E-mail: carmenr@lanl.gov

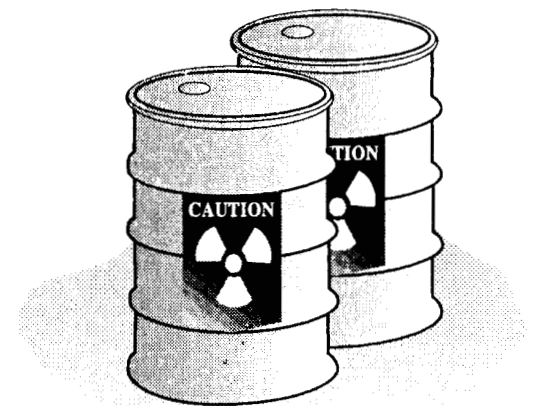


Samples of solidified waste are collected and analyzed for hazardous chemicals.

Los Alamos National Laboratory, an affirmative action/equal opportunity employer, is operated by the University of California for the United States Department of Energy under contract W-7405-ENG-36.

LALP-97-226

## *Processing Radioactive Waste for Shipment to WIPP*



**Los Alamos**  
NATIONAL LABORATORY

# WASTE MANAGEMENT PROGRAM INFORMATION SHEET

## Transuranic Waste

### Description of Waste

Transuranic (TRU) waste is material contaminated with alpha-emitting transuranium radionuclides with half-lives greater than 20 years and radioactive concentrations greater than 100 nCi/g of waste at the time of assay. This definition applies regardless of the waste's source or form.

Transuranium radionuclides are any radionuclides with atomic numbers greater than 92. Examples of TRU waste include wastewater treatment sludges, as well as contaminated equipment, rags, paper, and protective clothing.

Mixed TRU waste consists of TRU waste that contains hazardous components, as defined and regulated by the Resource Conservation Recovery Act. Conservative estimates indicate that 95 percent of Legacy TRU waste at the Laboratory is mixed TRU waste.

Because both waste types are managed together at the Laboratory, they are often collectively referred to as TRU waste, although distinctions between the two are made when necessary.

TRU waste is classified as remote-handled TRU waste if the external exposure rate at the surface of the waste container exceeds 200 mrem/hr; otherwise, the waste is classified as contact-handled.

TRU waste is generated primarily by four facilities at the Laboratory:

- Plutonium Processing Facility (Technical Area, or TA, 55)
- Chemistry and Metallurgy Research (CMR) Facility (TA-3-29)
- The RLWTF, or Radioactive Liquid Waste Treatment Facility (TA-50)
- Waste Characterization, Reduction, and Repackaging (WCRR) Facility (TA-50)

Of these facilities, only TA-55 and CMR generate TRU waste directly. The RLWTF generates TRU waste from the treatment of radioactive liquid waste



*At present, the Laboratory has approximately 8,800 cubic meters of TRU waste in interim storage.*

from TA-55. The WCRR Facility produces it from waste-size-reduction activities of large TRU waste objects. TRU waste from TA-55 and CMR result from activities such as

- plutonium processing,
- pit production,
- plutonium research and development,
- actinide processing and recovery,
- nuclear fuel fabrication,
- analytical chemistry support,
- radioactive source recovery, and
- metallurgy research.

It is anticipated that in the next 10 years another Laboratory facility, the Firing Sites, will begin generating small quantities of TRU waste from its operations with the Dual Axis Radiographic Hydrodynamic Test Facility. The Environmental Restoration Project is expected to generate small amounts of TRU waste within the same time frame.



## Managing Transuranic Waste

Before 1972, the Laboratory disposed of TRU waste in pits or trenches. From 1972 to 1988, the Laboratory moved away from such disposal, and began instead to use earthen covers on pads for contact-handled TRU waste and shafts for remote-handled TRU waste. Since 1988, the Laboratory has stored contact-handled TRU waste in domes on pads.

At present, the Laboratory has approximately 8,800 cubic meters of TRU waste in interim storage. Approximately 100 to 200 cubic meters of TRU waste is generated each year.

In March 1997, the Laboratory began to retrieve TRU waste from earthen-covered pads. The Laboratory may retrieve some TRU waste from pits and shafts in the future.

So what is the status of the TRU waste in interim storage? At present, it is waiting shipment to the Waste Isolation Pilot Plant (WIPP) near Carlsbad, New Mexico. The Laboratory must characterize the TRU waste and certify that it meets WIPP Waste Acceptance Criteria. In September 1997, the Laboratory achieved a national milestone on the road to WIPP when it became the first Department of Energy site to attain certification authority.

The Laboratory anticipates its first shipment to WIPP in 1998. It will take the Laboratory approximately 8.5 years to ship all its TRU waste to WIPP under current funding projections. Some TRU waste may require treatment before it is ready to ship.

## Characterizing the Waste

Laboratory scientists and engineers have developed and built several systems to characterize TRU waste. These include the following:

- a passive/active neutron interrogation system,
- a segmented/tomographic gamma system,
- a drum-venting system,
- a real-time radiography system, and
- a characterization glovebox system.

## For More Information

Your comments are important! The Waste Management Program Office has established various ways to make it easier for you to get information and make your opinions known. Tours of waste management facilities and sites can be periodically arranged.

A toll-free telephone line (1-800-508-4400) is available for you to call with questions regarding the Waste Management Program, to get on the mailing list, or to request additional information. Direct all comments or suggestions to the Waste Management Program Community Principal.

You may also review technical documents at the Los Alamos Outreach Center, located at 1350 Central Avenue, Suite 101, Los Alamos, New Mexico, 87544 (call 505-665-2127 for office hours).

The Waste Management Program  
Community Principal:  
Carmen M. Rodriguez  
Community Involvement and Outreach Office  
Los Alamos National Laboratory, Mail Stop M769  
Los Alamos, NM 87545  
Phone: 505-665-6770 or 1-800-508-4400  
Fax: 505-667-9710  
E-mail Address: [carmenr@lanl.gov](mailto:carmenr@lanl.gov)  
Web Site Address: <http://wmgmt.lanl.gov/>



# WASTE MANAGEMENT PROGRAM INFORMATION SHEET

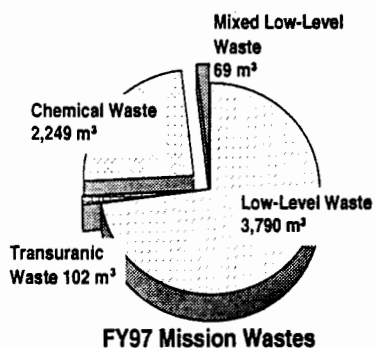
## Defining Waste Types at Los Alamos National Laboratory

Los Alamos National Laboratory's Waste Management Program is responsible for managing chemical and radioactive wastes produced at the Laboratory. These include the following waste types: Medical Waste, Asbestos, Polychlorinated Biphenyls (PCBs), Hazardous Waste, Low-Level Waste, Mixed Low-Level Waste, Transuranic Waste, and Mixed Transuranic Waste. Laboratory wastes fall into one of two categories: Legacy Waste or Newly Generated Waste.

### Legacy Waste

Legacy wastes are those produced when the Laboratory did not have in place a generation-to-disposal management path. Legacy wastes have been placed in interim storage until technologies and facilities are developed to safely and effectively dispose of them. The following waste categories are considered legacy wastes:

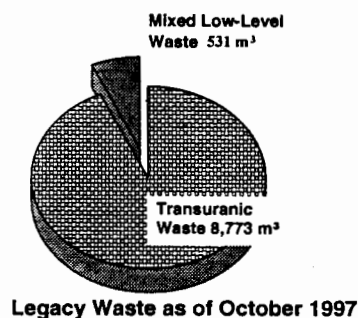
- Mixed Low-Level Waste
- Transuranic and Mixed Transuranic Waste



### Newly Generated Waste

Newly Generated Wastes consist of wastes generated by present and future activities at Los Alamos National Laboratory for which a generation-to-disposal management program is operational. Newly Generated Wastes consist of the following waste types:

- Low-Level Waste
- Medical Waste



- Radioactive Liquid Waste
- Chemical Waste
- Transuranic Waste
- Mixed Low-Level Waste
- Hazardous Waste
- Asbestos
- PCBs

### For More Information

Your comments are important! The Waste Management Program Office has established various ways to make it easier for you to get information and make your opinions known. Tours of waste management facilities and sites can be periodically arranged.

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The Waste Management Program Community Principal:

Carmen M. Rodriguez  
Community Involvement and Outreach Office  
Los Alamos National Laboratory, Mail Stop M769  
Los Alamos, NM 87545  
Phone: 505-665-6770 or 1-800-508-4400  
Fax: 505-667-9710  
E-mail Address: [carmenr@lanl.gov](mailto:carmenr@lanl.gov)  
Web Site Address: <http://wmgmt.lanl.gov/>



*Safely and Compliantly Managing the Minimum Amount of Waste*

**Los Alamos**  
NATIONAL LABORATORY

Environmental Management

## WASTE TYPES AT LOS ALAMOS NATIONAL LABORATORY

Waste Type	Definition	Examples	Present Practices	Future Options
Low-level	<p>This is solid radioactive waste that does not consist of the following:</p> <ul style="list-style-type: none"> <li>• Nuclear fuel rods,</li> <li>• Waste from the processing of nuclear fuels,</li> <li>• Transuranic waste, or</li> <li>• Uranium mill tailings.</li> </ul>	<ul style="list-style-type: none"> <li>• Contaminated building rubble and debris</li> <li>• Contaminated soil from environmental cleanup activities</li> <li>• Wastewater treatment sludges</li> <li>• Contaminated equipment, rags, paper, and protective clothing</li> <li>• Contaminated scrap metals</li> </ul>	<ul style="list-style-type: none"> <li>• On-site disposal</li> <li>• On-site volume reduction</li> </ul>	<ul style="list-style-type: none"> <li>• On- and off-site disposal</li> </ul>
Transuranic	<p>Solid radioactive waste that contains alpha-emitting radionuclides with half-lives greater than 20 years (with concentrations greater than 100 nCi/g.) of waste at the time of assay.</p>	<ul style="list-style-type: none"> <li>• Wastewater treatment sludges</li> <li>• Contaminated equipment, rags, paper, and protective clothing</li> <li>• Solidified liquids from plutonium processing</li> </ul>	<ul style="list-style-type: none"> <li>• On-site storage</li> </ul>	<ul style="list-style-type: none"> <li>• Legacy and Newly Generated waste disposed of at the Waste Isolation Pilot Plant</li> </ul>
Radioactive liquid	<p>Industrial wastewater containing radioactive elements generated in laboratories, machine shops, and other research or industrial facilities.</p>	<ul style="list-style-type: none"> <li>• Water used to machine radioactive parts</li> <li>• Water that results from the chemical processing of radioactive materials</li> <li>• Water from laboratories that perform chemical analyses of radioactive materials</li> </ul>	<ul style="list-style-type: none"> <li>• On-site treatment and disposal</li> </ul>	<ul style="list-style-type: none"> <li>• On-site treatment to minimize releases to the environment</li> </ul>
Chemical	<p>Non-radioactive, regulated waste that requires special treatment, storage, and disposal practices.</p>	<ul style="list-style-type: none"> <li>• Biological</li> <li>• Medical</li> <li>• Asbestos</li> <li>• Hazardous wastes and PCBs</li> </ul>	<ul style="list-style-type: none"> <li>• On-site collection, storage, and repackaging</li> <li>• Off-site disposal</li> </ul>	<ul style="list-style-type: none"> <li>• On-site collection, storage, and repackaging</li> <li>• Off-site disposal</li> </ul>
Mixed low-level	<p>Hazardous wastes defined by the Resource Conservation Recovery Act that are also radioactive.</p>	<ul style="list-style-type: none"> <li>• De-watered sludges</li> <li>• Radioactively contaminated lead</li> <li>• Soil and debris contaminated with heavy metals and radioactivity</li> <li>• Radioactively contaminated lead and miscellaneous organic, inorganic, corrosive, toxic, and reactive materials that are also radioactive</li> </ul>	<ul style="list-style-type: none"> <li>• On-site storage</li> <li>• Off-site treatment and disposal</li> </ul>	<ul style="list-style-type: none"> <li>• Limited on-site storage of newly generated waste</li> <li>• Off-site disposal of all waste</li> </ul>