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U.S. DEPARTMENT OF ENERGY INTERIM MIXED WASTE INVENTORY REPORT: WASTE STREAMS, TREATMENT CAPACITIES AND TECHNOLOGIES VOLUME 3: SITE SPECIFIC-ILLINOIS THROUGH NEW YORK APRIL 1993

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U.S. Department of Energy Interim Mixed Waste Inventory Report: Waste Streams, Treatment Capacities and Technologies

April 1993

Volume 3

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U.S. Department of Energy Interim Mixed Waste Inventory Report: Waste Streams, Treatment Capacities and Technologies

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14.0 ILLINOIS

There are two Illinois facilities that generate, expect to generate, and/or store DOE-managed mixed waste:

- 14.1 Argonne National Laboratory - East
- 14.2 Site A/Plot M

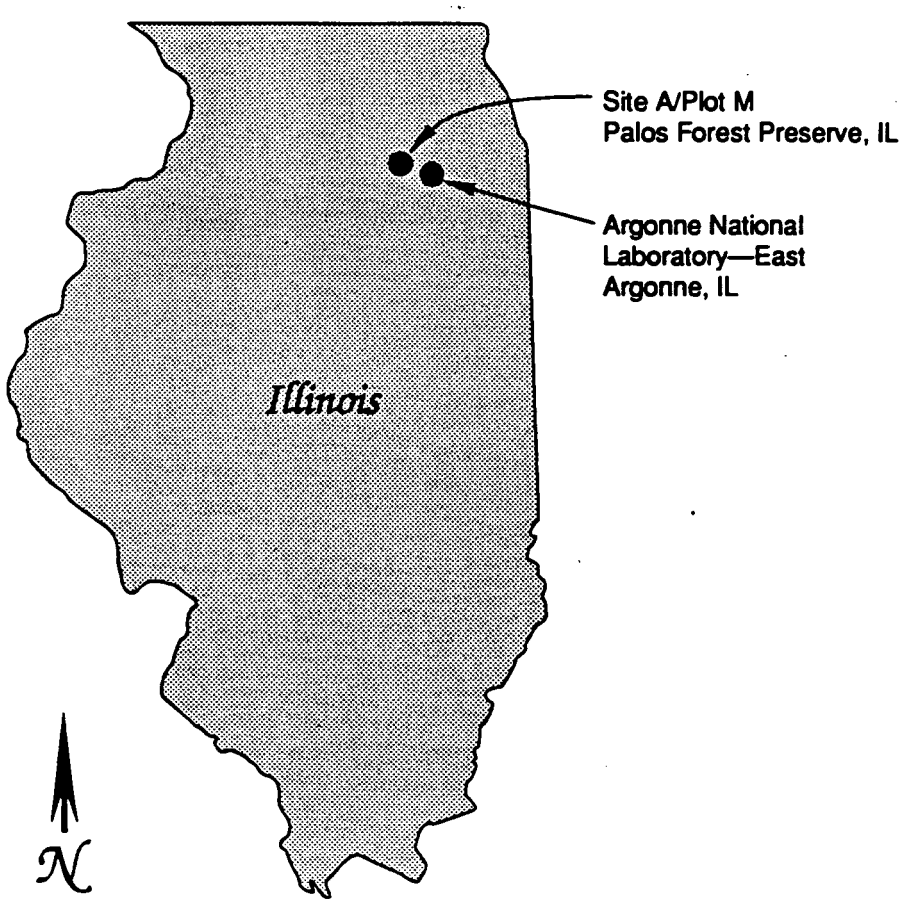

Figure 14-1. Illinois Facilities that Generate, Expect to Generate, and/or Store DOE-managed Mixed Waste.

14.1 Argonne National Laboratory - East

Site Summary

The Argonne National Laboratory - East (ANL-E), located in Argonne, Illinois, 35 km southeast of Chicago, on a 6.9-km^2 tract. ANL-E's mission is a multi-program research and development laboratory that conducts basic and applied research on advanced fission reactors and in the physical, life, and environmental sciences to support development of energy technologies. About 100 m^3 of mixed wastes have been generated as a result of operations conducted in performing these missions.

Transuranic (TRU) Waste. ANL-E currently stores about 1.9 m^3 of mixed TRU (MTRU) waste and projects that 1.6 m^3 of additional TRU wastes will be generated through the end of 1997. This waste, like other MTRU, will be processed as needed (characterized, repackaged, immobilized) to meet the waste acceptance criteria of the Waste Isolation Pilot Plant (WIPP). Planned disposal of TRU waste is at WIPP.

There are no existing facilities at ANL-E that can treat TRU [and mixed low-level waste (MLLW)]. Currently, the ANL-E MTRU inventory is not being treated. Currently, there are no planned facilities that could be used to process TRU waste.

Mixed Low-Level Waste. ANL-E currently stores about 96 m^3 of MLLW, which includes low-level waste and TRU waste reclassified as MLLW. Roughly 30 m^3 of MLLW is projected to be generated through the end of 1997.

There is 1 existing MLLW treatment facility at ANL-E, the Alkali Metal Reaction Booth. There are no additional planned facilities for pretreatment or treatment.

General

ANL-E is located on a 6.9-km^2 tract in Argonne, Illinois (Figure 14-1), 35 km southeast of Chicago. Activities at ANL-E include nuclear reactor design, synchrotron radiation accelerator design, and environmental research programs. The Laboratory is operated for the DOE by the University of Chicago and has approximately 4000 employees.

14.1.1 Mixed Waste

ANL-E reports 10 mixed waste streams in the inventory of operations waste. Of these, 8 are mixed low-level waste streams and 2 are MTRU waste streams. Table 14.1-1 summarizes the total volume and mass of these 2 types of mixed wastes generated at ANL-E. The total volume currently in inventory at ANL-E is about 98 m^3 (about 160,000 kg). The data presented are verified through December 31, 1992. No high-level waste (HLW) streams are generated.

14.1.1.1 High Level Waste

There is no HLW at ANL-E.

Table 14.1-1
Mixed Wastes at Argonne National Laboratory - East

Waste Type/Matrix	Number of Waste Streams	Inventory		Number of Waste Streams	Five-Year Projection	
		(m^3)	(kg)		(m^3)	(kg)
WASTE TYPE -- MLLW						
CH -alpha, Organic Liquids	1	5.96	3,501.00	1	0.72	576.00
CH -alpha, Aqueous Liquid	1	3.10	3,079.00	1	3.60	1,465.00
CH, Inorganic Sludges/particulates	1	28.50	34,002.00	1	7.50	9,006.00
CH -alpha, Inorganic Sludges/particulates	1	17.70	17,700.00	1	12.60	12,600.00
CH, Organic Debris	2	2.78	1,676.00	0	0.00	0.00
CH -alpha, Lab Packs Without Metals	1	32.44	35,046.00	1	2.05	22.10
CH -alpha, Elemental Lead	1	5.40	61,492.00	1	3.36	38,304.00
Sub-Total MLLW:	8	95.88	156,496.00	6	29.83	61,973.10
WASTE TYPE -- MTRU						
CH -alpha, Aqueous Liquid	1	1.50	1,680.00	1	1.50	1,440.00
CH -alpha, Inorganic Sludges/particulates	1	0.44	264.10	1	0.12	0.60
Sub-Total MTRU:	2	1.94	1,944.10	2	1.62	1,440.60
TOTAL:	10	97.82	158,440.10	8	31.45	63,413.70

14.1.1.2 Mixed Transuranic Waste

ANL-E lists 2 MTRU streams stored on-site having an approximate volume of 1.9 m^3 (approximately 1,900 kg). These MTRU streams are subject to the land disposal requirements (LDR). MTRU waste volumes represent less than 2 percent of the total volume of operational wastes.

Within the next 5 years ANL-E expects to generate approximately 1.6 m^3 (1,400 kg) of mixed TRU waste and will minimize the generation of these waste streams through the use of good operating practices. These waste streams consist of an aqueous liquid generated at various on-site labs and considered a corrosive liquid, and an inorganic sludge/particulate generated from the on-site IFR Lab-Scale Electron Refinery Vessel in Building 205.

The 2 MTRU streams contain only RCRA characteristic waste codes: D002, D004, D005, D006 and D009. The BDAT for D002 is deactivation to remove the characteristic of corrosivity. The BDAT for the other RCRA hazardous waste codes (wastes exhibiting the characteristic of toxicity) include technologies such as precipitation, stabilization, or chemical reduction followed by precipitation or stabilization.

The IFR Lab-Scale Electron Refinery vessel waste contains contaminants with D005 and D006 hazardous waste codes. Based upon the BDAT used to develop the concentration based LDR requirements for these waste codes, precipitation or stabilization can be used to treat this waste stream.

BDATs have been identified for each hazardous waste code for each waste stream reported by ANL-E; however, each MTRU waste stream contains more than 1 waste code and the specific treatment technology needed for each waste stream is still being investigated.

14.1.1.3 Mixed Low-Level Waste

ANL-E classifies 8 waste streams, or 80 percent of the total number, as operational MLLW. MLLW account for 98 percent of the total volume of operational wastes. Of the total volume currently stored, 96 percent or 94 m^3 is subject to the LDR requirements. One waste stream containing contaminated animal parts and carcasses is not subject to the LDR. This waste stream was generated prior to the effective date of Illinois receiving mixed waste authority. An estimated 30 m^3 of MLLW will be generated in the next 5 years.

Waste streams generated at ANL-E are classified into physical and chemical matrix categories of organic debris, aqueous liquids, inorganic sludges/particulates, organic liquids, elemental lead, and lab packs without metals. The largest of the 6 categories is inorganic sludges/particulates, making up 48 percent, or 47 m^3, of the MLLW volume. The waste streams in this waste category include sludges generated by cleaning retention tanks and sewer lines, evaporator/concentrator bottoms wastes, and refinery waste. ANL-E estimates they will generate 20 m^3 of inorganic sludge/particulate wastes in the next 5 years. Aqueous liquids make up the smallest portion, 3 percent or 3.1 m^3, of MLLW generated, and consist of flammable wastes resulting from various scientific research activities conducted in the on-site laboratory.

All 8 MLLW waste streams are characterized using both process knowledge and sampling and analysis. By examining product information prior to use (e.g., Material Safety Data Sheets), applying knowledge on the process that generated the waste, and using analytical results, ANL-E has determined the basis for applying EPA hazardous waste codes to each waste stream. Seven waste streams at ANL-E have been sufficiently characterized to have EPA hazardous waste codes assigned to them. One waste stream has

not been adequately analyzed for RCRA characteristics. There are additional low level wastes that have not adequately analyzed for RCRA characteristics and for which process knowledge is incomplete. Characterization of these 8 waste streams indicates that all are beta and gamma emitters and can be contact-handled during waste management. All waste streams except the organic debris and part of the inorganic sludges/particulates are alpha emitters.

All waste streams contain RCRA characteristics waste codes, specifically D001, D002, D005, D006, D007, D008, D009, D010, and D011. The BDAT for waste codes D001 and D002 require that deactivation treatment be used to remove the hazardous characteristics of the waste due to its ignitability and corrosivity. The BDAT for the waste codes D005 - D011 require technologies be used to remove the metal component of the waste stream. Such technologies include precipitation, stabilization, microencapsulation, metals recovery, and chemical reduction. The specific BDAT technology required for each waste code is identified by waste stream in the waste profile sheets. The Alkali Metal Reaction Booth may be used, if it becomes operational, to remove the reactivity components for the D003 waste codes contained in a waste.

Three additional waste codes have been identified in certain MLLW streams: F001, F003, and F005. These waste codes represent spent solvents and are identified in scintillation vials, radioactive flammable wastes, and in tank clean-out sludge. All 3 are considered non-wastewaters, and incineration is the associated BDAT.

14.1.2 Treatment Facilities and Technology

One Alkali Metal Reaction Booth (Tables 14.1-2 and Table 14.1-3) is used to oxidize and combust alkali sodium, potassium, and lithium metals. Treatment begins by melting the metal with electric heaters. Inert gas (argon) is used to pressurize the container, and the molten metal flows through heated tubing to a clean, dry burn tray. The metal is heated using an oxyacetylene torch until it ignites and burns. As the metal burns, it is agitated with a steel poker to react as much metal as possible. The alkali oxide is treated with steam to further react any unreacted metal. Water is added in small amounts to dissolve the alkali oxide residue. The solution is diluted with more water and sent to a retention tank to await treatment in the Argonne wastewater treatment facility. The booth is part of an ongoing research program and is not part of a general waste treatment process.

14.1.3 Technology Development

The availability of waste management technologies has been examined for all ANL mixed wastes. For some wastes, technologies exist or are considered readily available based on previous commercial sector or the DOE experience. No significant process modifications are required for the treatment of waste streams with this determination.

In many cases, the determination has been made that the technology exists but has to be modified for application to ANL mixed wastes. Most technology development efforts fall in this group. Modifications may include adaptations of design and operation to assure containment of radionuclides. Other modifications may be aimed at treatment of the mixed waste matrix. The ANL site-specific treatment technology is being adapted from processes developed for radioactive only materials processes or other applications. For example, the incinerator development efforts at ANL and throughout DOE, were

Table 14.1-2
Argonne National Laboratory - East
Mixed Waste Treatment Facilities
Existing, Plan to Use for Mixed Wastes

Facility/System	Treatment Type(s)	Allowable Waste		Ident. Of MW Streams To Be Treated	Capacity (m3/yr) **	Date Avail. For Use **
		Radioactive Type(s) *	Physical/Chemical Matrix			
Alkali Metal Reaction Booths (1)	Chemical Oxidation	MLLW, CH	Alkali Metals	To Be Determined	To Be Determined	Year To Be Determined

* ALPHA refers to transuranic alpha greater than 10 nCi/g

** Because DOE is still in the planning/conceptual stage, in the design stages, or in the construction stage for these facilities, schedules and capacities are subject to changes based on the availability of funds, results of treatability studies, permit issuance, etc.

Note (1): Design capacity = 120 lbs per hour.

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Table 14.1-3
Argonne National Laboratory - East
Current and Planned Facilities - Treatment Category
Mixed Waste Treatment Facilities

Facility/System	Operating Status *	Feed Types	Final Waste Form	HLW MTRU MLLW	Alpha **	RH CH	Hg	Other Toxic Metals	Toxic Organics
Alkali Metal Reaction Booths	Exists, Plan To Use, Year To Be Determined	Alkali Metals	To Be Determined	MLLW		CH			

* Because DOE is still in the planning/conceptual stage, in the design stages, or in the construction stage for these facilities, schedules and capacities are subject to changes based on the availability of funds, results of treatability studies, permit issuance, etc.

** Transuranic alpha greater than 10 nCi/g.

originated for incineration of low-level or transuranic wastes, (or for experiments on coal burning at ANL). When RCRA requirements were imposed the incinerators were tested and/or operations modified to meet the incineration-destruction requirements for polychorinated biphenyls (PCBs) and RCRA organic constituents. Other ANL examples include, development and adaptation of commercially available evaporators for concentrating process streams, of resin exchange materials for removing fission products and actinides, and of filtration systems for RCRA metals.

The site-specific technology development activities, which appear in summaries at the end of this chapter, support Argonne's Waste Management Operations. Typically, the processes being developed will be installed to handle existing ANL mixed wastes and potentially serve as pilot facilities for treating mixed wastes at other DOE facilities. Since ANL-E has relatively small amounts of mixed waste ($< 100m^3$) development there is not a broad range of development activities. The examination of an unvented thermal treatment process may provide an acceptable treatment alternative for some mixed wastes containing spent solvents (F001, F003, and F005) for which incineration is the BDAT.

For some wastes the decision has not been made on the availability of treatment technology. If the wastes are not yet well enough characterized from sampling or process knowledge, the necessary evaluations of potential treatment processes cannot be carried out.

For other wastes the analysis and review is still going on. For this latter set of wastes it would seem likely that technology with or without modification is available.

Site-specific technology development activities with numerically indexed narrative descriptions (following the Waste Profile Sheets) and tables of titles are presented in following sections of this chapter as well as in Appendix B. The following site-specific technology development activities lists site-specific technology development activities which are potentially applicable to the treatability groups and BDATs identified in Chapter 6.0 are list below. Additionally, crosscutting technology development activities not assigned to treatability groups are included. Where BDAT is indicated as NA, or is blank, the technology development activity does not link to specific BDAT RCRA treatment functions, but is intended to provide other supporting functions.

Site-Specific Technology Development Activities

BDAT:INCIN

Summary Tech Area ID: waste destruction & stabilization

88 Unvented Thermal Process for Treatment of ANL Mixed Waste

BDAT:LLEXT

Summary Tech Area ID: chemical physical treatment

336 Processing of New Brunswick Laboratory Plutonium Wastes

BDAT:PRECP

Summary Tech Area ID:chemical physical treatment

337 Preparation of a Preliminary Waste Treatment Plan and Installation of a Filtration System for nonTRU Mixed Waste

BDAT:RCORR

Summary Tech Area ID:chemical physical treatment

58 Technology Development for Concentrating Process Streams

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BDAT:RMETL

Summary Tech Area ID:chemical physical treatment

58 Technology Development for Concentrating Process Streams

257 Resin Exchange

336 Processing of New Brunswick Laboratory Plutonium Wastes

14.1.4 Environmental Restoration Program

There is some potential for groundwater contamination from on-site point sources such as the 800 Area Landfill, the 317/319/ENE Area, and various underground storage tanks and solid waste management units located throughout the site. Environmental restoration activities include preparations to close and remediate the 800 Area Landfill that was formerly used to dispose of some hazardous materials and is currently being closed as a sanitary landfill; remediation activities at 317/319/ENE Area, 570 Holding Pond and Sawmill Creek, underground storage tank removal; and lime sludge removal. Ongoing EM activities also include decontamination and decommissioning of the Experimental Boiling Water Reactor (EBWR), the CP-5 Reactor, and the Hot Cells. The environmental restoration work has been completed on the fabrication of a training mock-up of the Experimental Boiling Water Reactor (EBWR) vessel with simulated reactor internals, and is approximately 30 percent complete with this and the CP-5 Reactor projects. Work is beginning at the Hot Cells, which produce 90 percent of the off-site radiation dose at ANL-E. More information on the contaminated media associated with environmental restoration activities provided in Chapter 2.

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PROFILE

SHEETS

Argonne National Laboratory - East

ANL-E-WPS-1

April 1993

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ROADMAP TO WASTE PROFILE SHEETS (WPS)

Waste Profile Sheets (WPS) have been compiled in this report for each of the mixed waste streams identified at the different DOE sites. Each WPS is a concise summary of the information required by the FFCAct-1992, with waste stream specific data primarily derived from the Waste Management Information System (WMIS) database. Each WPS consists of the following items:

Header: The information in the header in each WPS includes the State, the official name of the site, an identification number, an identifying waste stream name, the waste type, and the waste matrix. The identification number is either a number assigned by the WMIS database or a number assigned by the site. The waste stream name is a unique identifier which corresponds to the name used in the WMIS database, or is assigned by the site. The waste type is either HLW, MTRU, or MLLW. The waste matrix corresponds to the categories (or their further subdivisions) defined earlier based on the physical and chemical form of the waste.

Waste Stream Description and Source: This section of the WPS presents a short description of the source of the waste and the waste stream characteristics.

Inventory Table: The inventory table in each WPS reports the volume (m^3) and/or mass (kg) of each waste stream currently in storage, and projected to be generated in the next five years. The table also indicates the date assumed in calculating the current and projected inventories. As required by the FFCAct-1992, the table also differentiates between waste not subject to LDR and that subject to LDR for the current inventory.

Treatability Group: This section lists the name of the treatability group to which the waste stream belongs.

Treatment Status, Technology Status: This section of the WPS lists the status of the technology that could be applied to the waste stream for compliance with the LDR. This section provides information on if the waste stream is currently being treated, and if technology options and facilities for the treatment exist.

Radiation Characteristics Section: This section of the WPS provides additional information on the radiological characteristics of the waste (in addition to characterizing the waste stream as HLW, MTRU, or MLLW). This section of the WPS specifies whether the waste stream is contact handled or remote handled, if the radionuclides are alpha or beta/gamma emitters, and if they contain activation products.

Radiation Effects Section: As required by the FFCAct-1992, this section of the WPS lists possible effects of the radiological characteristics of the waste stream on treatment technologies that could be applicable to that waste stream. For example, radiation levels may require remote handling of the waste and affect the design and operation of the treatment facility. The presence of volatile radionuclides may require the containment of all off-gases from the treatment system.

Waste Minimization Activities: As required by the FFCAct-1992, this section of the WPS provides information on the waste minimization practices being used for the waste stream. This section provides information on if the waste minimization practices include good operating practices, technology changes, raw material changes, product changes, etc.

EPA Code: This table of the WPS reports the EPA hazardous waste codes applicable to the waste stream, the basis for assigning the codes (process knowledge or sampling/analysis), the LDR basis (which is either technology based or concentration based), and the BDAT for each of the EPA hazardous waste codes.

In summary, the WPS for each waste stream, along with the site sections in the report for each State (Section B), summarize the site-specific information required by the FFCAct-1992.

State: Illinois	ID #: 852
Site: ARGONNE NATIONAL LABORATORY - EAST	
Waste Stream Name: EVAPORATOR/CONCENTRATOR BOTTOM WASTE	
Matrix: Inorganic Sludges/Particulates	Waste Type: MLLW

Waste Stream Description and Source:

The waste stream is a low-level radioactive wastebottoms waste. Waste stream named "Evaporator/ Concentrator System" was a duplicate of this waste stream. It has now been deleted. Various aqueous radioactive wastes (non-RCRA regulated) generated at different research facilities are collected and processed in Evaporator/Concentrator assembly. Concentrator bottom waste is then absorbed in an approved absorbent material. Aqueous radioactive wastes are process in the evaporator/concentrator system in Building 306. The amount of water being treated has been reduced, thus decreasing the amount of evaporator/concentrator bottom waste.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	28.5	34,002.0	28.5	34,002.0	7.5	9,006.0

Treatability Group:

MLLW CH, Inorganic Sludges/Particulates, Toxic Metals w/ Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started. The Environmental Waste Management Technical Staff knows of no technology available to treat this waste that would eliminate or separate the hazardous component.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g
3) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:

1) Certain isotopes of U, Pu, Am, Cm, Cf, Np and Th are non-accountable if present below specific levels, and require different levels of safeguards, depending on the amount present. Treatments resulting in concentration of the material can result in the "roll up" of large volumes of non-accountable wastes into a smaller volume of accountable waste or change a mixed low-level waste to a TRU waste.
2) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
3) High beta or gamma levels in contact with organics can result in radiolysis, with production of

State: Illinois **ID #: 852**

Site: ARGONNE NATIONAL LABORATORY - EAST

Waste Stream Name: EVAPORATOR/CONCENTRATOR BOTTOM WASTE

Matrix: Inorganic Sludges/Particulates **Waste Type: MLLW**

hydrogen gas and formation of free radicals that attack structural materials, particularly steel. The buildup of hydrogen gas and embrittlement of structural materials are important considerations, in storage, design, and operation of treatment facilities, and in stabilization of the final waste form.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.
2) Technology changes: process changes; equipment, piping, or layout changes; automation; changes in operational settings; and energy, water conservation.

General Comments:

The amount of water being treated has been reduced, thus decreasing the amount of evaporator/concentrator bottoms waste.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D006B	Conc.	Stabilization
D007	Conc.	Chemical Reduction followed by Stabilization
D009C	Conc.	Thermal Recovery of Metals; Acid Leaching; Stabilization; or Incineration

State: Illinois	ID #: 853
Site: ARGONNE NATIONAL LABORATORY - EAST	
Waste Stream Name: RADIOACTIVE CORROSIVE WASTE - TRU	
Matrix: Aqueous Liquid	Waste Type: MTRU

Waste Stream Description and Source:

Various combinations of corrosive waste in different volumes are generated as a result of scientific research. Some containers are well characterized while characterization continues on others.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	1.5	1,680.0	1.5	1,680.0	1.5	1,440.0

Treatability Group:

MTRU CH/AL, Aqueous Liquid, Toxic Metals w/ Mercury

Treatment Status:

Treatment of most mixed transuranic waste to meet LDR treatment standards is not applicable because DOE plans to ship these wastes to the Waste Isolation Pilot Plant (WIPP), pending issuance of a No-Migration Determination of the operational phase. Pretreatment to meet the WIPP Waste Acceptance Criteria may be required.

Technology Status:

Not Applicable.

Radiation Characteristics:

1) Transuranic contaminants
2) Contact-handled
3) Volatile radionuclide
4) Beta/gamma emitter
5) Activation Products
6) Alpha emitter, 10-100 nCi/g
7) Alpha emitter, < 10 nCi/g
8) Radionuclides or radiation level unknown

Waste-Specific Radiation Effects on Treatment:

1) High alpha activity in contact with organics or water can result in radiolysis, with production of hydrogen gas, methane and other degradation products. The buildup of hydrogen gas and radiation interaction with the waste form can affect storage, design and operation of treatment facilities, and stability of the final waste form.
2) Treatments using chemical separation could result in concentration of certain isotopes of uranium and plutonium to form a critical mass; concentration of polonium or plutonium in contact with beryllium could result in production of neutrons.
3) Certain isotopes of U, Pu, Am, Cm, Cf, Np and Th are non-accountable if present below specific

State: Illinois **ID #: 853**

Site: ARGONNE NATIONAL LABORATORY - EAST

Waste Stream Name: RADIOACTIVE CORROSIVE WASTE - TRU

Matrix: Aqueous Liquid **Waste Type: MTRU**

levels, and require different levels of safeguards, depending on the amount present. Treatments resulting in concentration of the material can result in the "roll up" of large volumes of non-accountable wastes into a smaller volume of accountable waste or change a mixed low-level waste to a TRU waste.

4) Daughter products of alpha emitters may cause problems, i.e., production of radon gas, emissions from short-lived daughter products, and potential chemical incompatibility of daughter products.
5) Radioactive decay may produce significant amounts of heat that needs to be considered during treatment and disposal.
6) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.
7) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
8) High beta or gamma levels in contact with organics can result in radiolysis, with production of hydrogen gas and formation of free radicals that attack structural materials, particularly steel. The buildup of hydrogen gas and embrittlement of structural materials are important considerations, in storage, design, and operation of treatment facilities, and in stabilization of the final waste form.
9) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.
10) Treatment must consider radioactive off-gases to protect the public and treatment facility personnel from releases.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

General Comments:

Needs sample analysis for characterization.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002A	Tech.	Deactivation
D004	Conc.	Vitrification
D006B	Conc.	Stabilization
D009C	Conc.	Thermal Recovery of Metals; Acid Leaching; Stabilization; or Incineration

State: Illinois	**ID #: 854**
Site: ARGONNE NATIONAL LABORATORY - EAST	
Waste Stream Name: SCINTILLATION VIALS	
Matrix: Lab Packs without Metals	**Waste Type: MLLW**

Waste Stream Description and Source:

Scintillation Vial waste was and is being generated through various biological and chemical research at the Lab. These vials are organic based (xylene, toluene, acetone) and contain various radio-isotopes. The radio-isotopes are not known in all cases.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	32.4	35,046.0	32.4	35,046.0	2.1	22.1

Treatability Group:

MLLW CH/AL, Lab Packs without Metals, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Assessing technologies to determine if the technology exists, and if so, whether it needs modification. The Environmental Waste Management Technical Staff has just begun to assess technologies which may be used to treat this waste. One possibility is a system which will evaporate the hazardous constituents. Any assessment of available technologies made by the ANL-E Environmental and Waste Management Technical Staff to date should be considered in its earliest stage with no timetable yet developed to complete said assessment.

Radiation Characteristics:

1) Transuranic contaminants
2) Contact-handled
3) Volatile radionuclide
4) Beta/gamma emitter
5) Alpha emitter, 10-100 nCi/g
6) Alpha emitter, < 10 nCi/g
7) Radionuclides or radiation level unknown

Waste-Specific Radiation Effects on Treatment:

1) Certain isotopes of U, Pu, Am, Cm, Cf, Np and Th are non-accountable if present below specific levels, and require different levels of safeguards, depending on the amount present. Treatments resulting in concentration of the material can result in the "roll up" of large volumes of non-accountable wastes into a smaller volume of accountable waste or change a mixed low-level waste to a TRU waste.
2) High beta or gamma levels in contact with organics can result in radiolysis, with production of

State: Illinois	**ID #: 854**
Site: ARGONNE NATIONAL LABORATORY - EAST	
Waste Stream Name: SCINTILLATION VIALS	
Matrix: Lab Packs without Metals	**Waste Type: MLLW**

hydrogen gas and formation of free radicals that attack structural materials, particularly steel. The buildup of hydrogen gas and embrittlement of structural materials are important considerations, in storage, design, and operation of treatment facilities, and in stabilization of the final waste form.

3) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.
4) Treatment must consider radioactive off-gases to protect the public and treatment facility personnel from releases.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.
2) Raw material changes: raw material purification; and substitution.
3) Product change: product substitution and conservation; and change in product composition.

General Comments:

Some wastes (labpacks) with inadequate documentation will be sampled and characterized.
The inventory amounts are based on the size and weight of the drums including the sorbent material (vermiculite).
This waste stream has been reduced greatly by education of researchers to hazardous materials and RCRA law.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
F003	Conc.	Incineration
F005A	Conc.	Incineration

The alternate LDR treatment standards for labpacks is incineration as a method of treatment and a requirement for the incinerator residues to meet the treatment standards for the TC toxic metals (i.e., D004-D008, and D010-D011).

State: Illinois | ID #: 855
Site: ARGONNE NATIONAL LABORATORY - EAST
Waste Stream Name: RADIOACTIVE FLAMMABLE WASTE
Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:

Various combinations of flammable waste in different volume are generated as a result of scientific research at the the Lab. The chemical composition and radionuclides concentrations are generally well documented but not always.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	6.0	3,501.0	6.0	3,501.0	0.720	576.0

Treatability Group:

MLLW CH/AL, Organic Liquids, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Assessing technologies to determine if the technology exists, and if so, whether it needs modification. The Environmental Waste Management Technical Staff has just begun to assess technologies which may be used to treat this waste. One possibility is a system which will evaporate off the hazardous constituents. Any assessment to date should be considered in an early stage with no timetable yet developed to complete said assessment.

Radiation Characteristics:

1) Transuranic contaminants
2) Contact-handled
3) Volatile radionuclide
4) Beta/gamma emitter
5) Alpha emitter, 10-100 nCi/g
6) Alpha emitter, < 10 nCi/g
7) Radionuclides or radiation level unknown

Waste-Specific Radiation Effects on Treatment:

1) High alpha activity in contact with organics or water can result in radiolysis, with production of hydrogen gas, methane and other degradation products. The buildup of hydrogen gas and radiation interaction with the waste form can affect storage, design and operation of treatment facilities, and stability of the final waste form.
2) Treatments using chemical separation could result in concentration of certain isotopes of uranium and plutonium to form a critical mass; concentration of polonium or plutonium in contact with beryllium could result in production of neutrons.

State: Illinois	**ID #: 855**
Site: ARGONNE NATIONAL LABORATORY - EAST	
Waste Stream Name: RADIOACTIVE FLAMMABLE WASTE	
Matrix: Organic Liquids	**Waste Type: MLLW**

3) Certain isotopes of U, Pu, Am, Cm, Cf, Np and Th are non-accountable if present below specific levels, and require different levels of safeguards, depending on the amount present. Treatments resulting in concentration of the material can result in the "roll up" of large volumes of non-accountable wastes into a smaller volume of accountable waste or change a mixed low-level waste to a TRU waste.
4) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
5) High beta or gamma levels in contact with organics can result in radiolysis, with production of hydrogen gas and formation of free radicals that attack structural materials, particularly steel. The buildup of hydrogen gas and embrittlement of structural materials are important considerations, in storage, design, and operation of treatment facilities, and in stabilization of the final waste form.
6) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.
7) Treatment must consider radioactive off-gases to protect the public and treatment facility personnel from releases.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.
2) Raw material changes: raw material purification; and substitution.
3) Product change: product substitution and conservation; and change in product composition.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
F003	Conc.	Incineration
F005A	Conc.	Incineration

State: Illinois	**ID #: 856**
Site: ARGONNE NATIONAL LABORATORY - EAST	
Waste Stream Name: SOLID (MIXED) WASTE	
Matrix: Elemental Lead	**Waste Type: MLLW**

Waste Stream Description and Source:

Solid (lead) radioactive wastes are generated from D2D projects and spent lead casks and some storage pots. These wastes are both surface contaminated and/or activated. Originated from numerous buildings on-site.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	5.4	61,492.0	5.4	61,492.0	3.4	38,304.0

Treatability Group:

MLLW CH/AL, Elemental Lead, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Assessing technologies to determine if the technology exists, and if so, whether it needs modification. The Environmental Waste Management Technical Staff has just begun to assess technologies which may be used to treat this waste. Any assessment to date should be considered in its infancy stage with no timetable yet developed to complete said assessment. An off-site contractor with experience in treating mixed lead wastes has been considered to treat this waste. The radioactive lead would be separated from the non-radioactive lead.

Radiation Characteristics:

1) Transuranic contaminants
2) Contact-handled
3) Beta/gamma emitter
4) Activation Products
5) Radionuclides or radiation level unknown

Waste-Specific Radiation Effects on Treatment:

1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.
2) Certain isotopes of U, Pu, Am, Cm, Cf, Np and Th are non-accountable if present below specific levels, and require different levels of safeguards, depending on the amount present. Treatments resulting in concentration of the material can result in the "roll up" of large volumes of non-accountable wastes into a smaller volume of accountable waste or change a mixed low-level waste to a TRU waste.

State: Illinois **ID #: 856**

Site: ARGONNE NATIONAL LABORATORY - EAST

Waste Stream Name: SOLID (MIXED) WASTE

Matrix: Elemental Lead **Waste Type: MLLW**

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.
2) Product change: product substitution and conservation; and change in product composition.

General Comments:

The history of some lead materials are unknown. There are "orphan" lead shielding pots and sheets with no documented history.
Inventory is approximate as brought the attention of Waste Management Department via waste disposal requisitions. There is lead on-site which still has not been declared a waste. Therefore, the five-year projection can change significantly depending on if and when the lead is declared a waste.
Additional Radiation Effects on treatment: Dust control, and worker exposure.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

State: Illinois	ID #: 857
Site: ARGONNE NATIONAL LABORATORY - EAST	
Waste Stream Name: CONTAMINATED ANIMAL PARTS	
Matrix: Organic Debris	Waste Type: MLLW

Waste Stream Description and Source:

Animals were injected with various radioactive nuclides for research purposes. Animal carcasses and parts were preserved in formaldehyde solution. This type of waste is no longer generated.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
2.5	1,500.0	0.000	0.000	2.5	1,500.0	0.000	0.000

Treatability Group:

MLLW CH, Organic Debris

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Assessing technologies to determine if the technology exists, and if so, whether it needs modification. The Environmental Waste Management Technical Staff has just begun to assess technologies which may be used to treat this waste. One possibility is to incinerate this waste at an off-site facility with the ash returned to Argonne. The incineration process would most likely change the RCRA hazard rating. Any assessment to date should be considered in its infancy stage with no timetable yet developed to complete said assessment.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Radionuclides or radiation level unknown

Waste-Specific Radiation Effects on Treatment:

1) Certain isotopes of U, Pu, Am, Cm, Cf, Np and Th are non-accountable if present below specific levels, and require different levels of safeguards, depending on the amount present. Treatments resulting in concentration of the material can result in the "roll up" of large volumes of non-accountable wastes into a smaller volume of accountable waste or change a mixed low-level waste to a TRU waste.

Waste Minimization Activities:

1) Not Applicable.

State: Illinois **ID #: 857**

Site: ARGONNE NATIONAL LABORATORY - EAST

Waste Stream Name: CONTAMINATED ANIMAL PARTS

Matrix: Organic Debris **Waste Type: MLLW**

General Comments:

A sampling and analysis plan to further characterize these wastes has been prepared. It is suspected that this waste stream may exceed TCLP for organics. Technology assessment has begun based on the presence of radionuclides and formaldehyde.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

No applicable RCRA Codes have been identified.

State: Illinois	**ID #: 858**
Site: ARGONNE NATIONAL LABORATORY - EAST	
Waste Stream Name: RADIOACTIVE (FISSION PROD) CORROSIVE	
Matrix: Aqueous Liquid	**Waste Type: MLLW**

Waste Stream Description and Source:

The waste stream is low-level, radioactive, corrosive waste. Various combinations of corrosive waste in different volume are generated as a result of scientific research. Some have other RCRA characteristics such as heavy metals. The chemical compositions and their concentrations are generally well documented (non-TRU contaminated). The five year projected volume may decrease with changing lab projects.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	3.1	3,079.0	3.1	3,079.0	3.6	1,465.0

Treatability Group:

MLLW CH/AL, Aqueous Liquid, Toxic Metals w/ Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Assessing technologies to determine if the technology exists, and if so, whether it needs modification. The Environmental Waste Management Technical Staff has just begun to assess technologies which may be used to treat this waste. One possibility is a system which will neutralize the pH of the waste followed by filtration of the hazardous constituents. Any assessment to date should be considered in its earliest stage with no timetable yet developed to complete said assessment.

Radiation Characteristics:

1) Contact-handled
2) Volatile radionuclide
3) Beta/gamma emitter
4) Alpha emitter, 10-100 nCi/g
5) Alpha emitter, < 10 nCi/g
6) Radionuclides or radiation level unknown

Waste-Specific Radiation Effects on Treatment:

1) High alpha activity in contact with organics or water can result in radiolysis, with production of hydrogen gas, methane and other degradation products. The buildup of hydrogen gas and radiation interaction with the waste form can affect storage, design and operation of treatment facilities, and stability of the final waste form.
2) Treatments using chemical separation could result in concentration of certain isotopes of

uranium and plutonium to form a critical mass; concentration of polonium or plutonium in contact with beryllium could result in production of neutrons.

3) Certain isotopes of U, Pu, Am, Cm, Cf, Np and Th are non-accountable if present below specific levels, and require different levels of safeguards, depending on the amount present. Treatments resulting in concentration of the material can result in the "roll up" of large volumes of non-accountable wastes into a smaller volume of accountable waste or change a mixed low-level waste to a TRU waste.
4) Daughter products of alpha emitters may cause problems, i.e., production of radon gas, emissions from short-lived daughter products, and potential chemical incompatibility of daughter products.
5) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
6) High beta or gamma levels in contact with organics can result in radiolysis, with production of hydrogen gas and formation of free radicals that attack structural materials, particularly steel. The buildup of hydrogen gas and embrittlement of structural materials are important considerations, in storage, design, and operation of treatment facilities, and in stabilization of the final waste form.
7) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.
8) Treatment must consider radioactive off-gases to protect the public and treatment facility personnel from releases.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.
2) Technology changes: process changes; equipment, piping, or layout changes; automation; changes in operational settings; and energy, water conservation.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002A	Tech.	Deactivation
D006B	Conc.	Stabilization
D007	Conc.	Chemical Reduction followed by Stabilization
D008B	Conc.	Stabilization
D009C	Conc.	Thermal Recovery of Metals; Acid Leaching; Stabilization; or Incineration

State: Illinois	**ID #: 859**
Site: ARGONNE NATIONAL LABORATORY - EAST	
Waste Stream Name: CONTAMINATED ANIMAL PARTS	
Matrix: Organic Debris	**Waste Type: MLLW**

Waste Stream Description and Source:

Animals were injected with various radioactive nuclides for research purposes. Animal carcasses and parts contaminated with cadmium were preserved in lime. This type of waste is no longer generated.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.280	176.0	0.280	176.0	0.000	0.000

Treatability Group:

MLLW CH, Organic Debris, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Assessing technologies to determine if the technology exists, and if so, whether it needs modification.

Radiation Characteristics:

1) Radionuclides or radiation level unknown
2) Beta/gamma emitter
3) Contact-handled

Waste-Specific Radiation Effects on Treatment:

Not reported.

Waste Minimization Activities:

Not reported.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D006B	Conc.	Stabilization

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical,

State: Illinois	**ID #: 859**
Site: ARGONNE NATIONAL LABORATORY - EAST	
Waste Stream Name: CONTAMINATED ANIMAL PARTS	
Matrix: Organic Debris	**Waste Type: MLLW**

or thermal), macro/microencapsulation or sealing.

State: Illinois	ID #: 1160
Site: ARGONNE NATIONAL LABORATORY - EAST	
Waste Stream Name: IFR LAB SCALE ELECTRON REFINERY WASTE	
Matrix: Inorganic Sludges/Particulates	Waste Type: MTRU

Waste Stream Description and Source:

Solid radioactive waste is generated from an Electro Refinery Vessel in which electron transport mechanism is used to collect Pu and Cd while Uranium and other fission products are separated out. A small amount of waste (~10 ml) is generated on a continuous basis as well as a vessel clean out projects when the whole content of the vessel is discarded. Plutonium and cadmium are collected during a lab separation procedure. The wastes are collected at Building 205.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.440	264.1	0.440	264.1	0.120	0.600

Treatability Group:

MTRU CH/AL, Inorganic Sludges/Particulates, Toxic Metals w/o Mercury

Treatment Status:

Treatment of most mixed transuranic waste to meet LDR treatment standards is not applicable because DOE plans to ship these wastes to the Waste Isolation Pilot Plant (WIPP), pending issuance of a No-Migration Determination of the operational phase. Pretreatment to meet the WIPP Waste Acceptance Criteria may be required.

Technology Status:

Not Applicable.

Radiation Characteristics:

1) Transuranic contaminants
2) Contact-handled
3) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:

1) High alpha activity in contact with organics or water can result in radiolysis, with production of hydrogen gas, methane and other degradation products. The buildup of hydrogen gas and radiation interaction with the waste form can affect storage, design and operation of treatment facilities, and stability of the final waste form.
2) Treatments using chemical separation could result in concentration of certain isotopes of uranium and plutonium to form a critical mass; concentration of polonium or plutonium in contact with beryllium could result in production of neutrons.
3) Daughter products of alpha emitters may cause problems, i.e., production of radon gas, emissions from short-lived daughter products, and potential chemical incompatibility of daughter products.

State: Illinois **ID #: 1160**

Site: ARGONNE NATIONAL LABORATORY - EAST

Waste Stream Name: IFR LAB SCALE ELECTRON REFINERY WASTE

Matrix: Inorganic Sludges/Particulates **Waste Type: MTRU**

4) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
5) High beta or gamma levels in contact with organics can result in radiolysis, with production of hydrogen gas and formation of free radicals that attack structural materials, particularly steel. The buildup of hydrogen gas and embrittlement of structural materials are important considerations, in storage, design, and operation of treatment facilities, and in stabilization of the final waste form.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D005	Conc.	Chemical Precipitation; or Stabilization
D006B	Conc.	Stabilization

State: Illinois	**ID #: 2072**
Site: ARGONNE NATIONAL LABORATORY - EAST	
Waste Stream Name: TANK CLEAN-OUT SLUDGE	
Matrix: Inorganic Sludges/Particulates	**Waste Type: MLLW**

Waste Stream Description and Source:
Retention tanks and sewer lines cleaned of sludge.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	17.7	17,700.0	17.7	17,700.0	12.6	12,600.0

Treatability Group:
MLLW CH/AL, Inorganic Sludges/Particulates, Toxic Organics and Metals w/ Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams. The Environmental Waste Management Technical Staff has just begun to assess technologies which may be used to treat this waste. Any assessment to date should be considered in its infancy stage with no timetable yet developed to complete said assessment.

Radiation Characteristics:
1) Alpha emitter, 10-100 nCi/g
2) Alpha emitter, < 10 nCi/g
3) Radionuclides or radiation level unknown
4) Transuranic contaminants
5) Beta/gamma emitter
6) Contact-handled
7) Volatile radionuclide

Waste-Specific Radiation Effects on Treatment:
1) High alpha activity in contact with organics or water can result in radiolysis, with production of hydrogen gas, methane and other degradation products. The buildup of hydrogen gas and radiation interaction with the waste form can affect storage, design and operation of treatment facilities, and stability of the final waste form.
2) Certain isotopes of U, Pu, Am, Cm, Cf, Np and Th are non-accountable if present below specific levels, and require different levels of safeguards, depending on the amount present. Treatments resulting in concentration of the material can result in the "roll up" of large volumes of non-accountable wastes into a smaller volume of accountable waste or change a mixed low-level waste to a TRU waste.
3) Daughter products of alpha emitters may cause problems, i.e., production of radon gas,

State: Illinois	**ID #: 2072**
Site: ARGONNE NATIONAL LABORATORY - EAST	
Waste Stream Name: TANK CLEAN-OUT SLUDGE	
Matrix: Inorganic Sludges/Particulates	**Waste Type: MLLW**

emissions from short-lived daughter products, and potential chemical incompatibility of daughter products.

4) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
5) High beta or gamma levels in contact with organics can result in radiolysis, with production of hydrogen gas and formation of free radicals that attack structural materials, particularly steel. The buildup of hydrogen gas and embrittlement of structural materials are important considerations, in storage, design, and operation of treatment facilities, and in stabilization of the final waste form.
6) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.
7) Treatment must consider radioactive off-gases to protect the public and treatment facility personnel from releases.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

General Comments:

The amount of clean-out sludge can change dramatically depending on the clean-up activities, building rehab projects, and decontamination/decommissioning activities.

State: Illinois **ID #: 2072**

Site: ARGONNE NATIONAL LABORATORY - EAST

Waste Stream Name: TANK CLEAN-OUT SLUDGE

Matrix: Inorganic Sludges/Particulates **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D005	Conc.	Chemical Precipitation; or Stabilization
D006B	Conc.	Stabilization
D007	Conc.	Chemical Reduction followed by Stabilization
D008B	Conc.	Stabilization
D009C	Conc.	Thermal Recovery of Metals; Acid Leaching; Stabilization; or Incineration
D010	Conc.	Stabilization
D011	Conc.	Stabilization
F001	Conc.	Incineration
F003	Conc.	Incineration
F005A	Conc.	Incineration

DE-4692

TECHNOLOGY

DEVELOPMENT

SUMMARIES

Argonne National Laboratory - East

ANL-E-TDS-1

April 1993

035

Target Site: Argonne National Laboratory East

Location site: Argonne National Laboratory East

Programs/Facilities Supported:
Argonne's Waste Management Operations

ID: 58

Program Title: Technology Development for Concentrating Process Streams.

Summary Description:
Waste and product solutions are being generated throughout the DOE complex. Evaporation of these stream minimizes and reduces disposal costs. The purpose of the program is to develop an evaporator for concentrating radioactive streams and recycling the acidic, decontaminated distillates. This program will take advantage of commercial evaporator advances over the past 30 years. The goal is to develop a remote, criticality-safe-by-geometry evaporator.

Summary Purpose/Need:

The purpose of the program is to develop an evaporator for concentrating radioactive streams and recycling the acidic, decontaminated distillates. High decontamination factors are a requirement for this equipment. Decontamination factors of 4,000,000 were achieved in the laboratory-scale evaporator. LICON designed evaporators have also been operated remotely in the commercial-sector. This is another requirement of this system. LICON's technology is state-of-the-art and is much improved over DOE's 30 year old evaporator technology. Design of an evaporator for this project is at the R&D design stage. The basic design is based on a commercially-available evaporator designed by LICON Inc. (Pensacola Florida).

Summary Result/Endpoint/Deliverable:

Activities this year will center around the design and installation of 2 low-level waste evaporators at ANL. Data from this evaporator will be used to design a remotely operable, criticality-safe-by-geometry pilot-scale evaporator. The pilot-scale unit will then be used to design a full-scale remotely operable, criticality-safe-by-geometry evaporator for installation at another DOE site for in-plant testing.

BDAT: RCORR RMETL
Functional Areas: chemical physical treatment
evaporation
material recycle

Target Site: Argonne National Laboratory East

Location site: Argonne National Laboratory East

Programs/Facilities Supported:
Argonne's Waste Management Operations, the process will be installed to handle existing ANL mixed wastes and serve as a pilot for treating organic mixed wastes at other DOE facilities.

ID: 88

Program Title: Unvented Thermal Process for Treatment of ANL Mixed Waste

Summary Description:

The current effort has as its goal the demonstration of a new concept for destroying organic materials in mixed wastes in a process that does not release gaseous products of combustion to the environment. Work is being proposed for funding by EM that would complete the development needed to install the appropriate equipment at ANL for handling the mixed wastes now on hand. After pilot-scale testing, the fluidized bed technology would be transferable to other DOE facilities with similar mixed waste streams.

Summary Purpose/Need:

The process appears to be inherently safe and reliable. Upset conditions do not cause release of unreacted organics. For these reasons, the process should be more easily licensed in heavily populated areas than standard to the environment incinerators. The process is being developed because it appears to be more reliable in avoiding release of unburned organic material than any other process we know of.

The proposed system can also be retrofitted to existing incinerators. The offgas is directed through the proposed system and then recirculated to the incinerator with oxygen addition. At ANL, the system will be used with direct injection of organic liquids into the fluidized bed. The system could also be used as an add-on to existing incinerators such as a rotary kiln to process the off-gas provided oxygen is used for burning. Under these circumstances, the spent lime would probably be calcined in a separate fluidized bed and then recycled to minimize solid waste by-products. The system is capable of removing all acid gases including CO2, SO2, HBr and HC1.

Summary Result/Endpoint/Deliverable:

An existing 15-cm dia. fluidized-bed reactor which has been used for experiments on fluidized bed burning of coal is being converted for use in destroying organic waste materials. In this project, the appropriate reaction temperatures will be established for rapid reaction of CO2 with lime. After bench scale efforts, the process will be installed to handle existing ANL mixed wastes. In later studies organic materials containing chlorides, bromides and sulfides will be tested to determine the suitability of the process for other DOE sites such as LLNL, LANL, SRP, and RF.

BDAT: INCIN
Functional Areas: waste destruction & stabilization
offgas technology

Target Site: Argonne National Laboratory East

Location site: Argonne National Laboratory East

Programs/Facilities Supported:

Argonne's Waste Management Operations, Pilot scale demonstration which will treat waste at ANL

ID: 257

Program Title: Resin Exchange

Summary Description:

A separations scheme based on existing, commercially available materials that function as ion exchange media has been developed. Chemicals were developed by Argonne National Laboratory for use in separation of fission products and actinides from reprocessing solutions. The chemicals in their original form were to be used in organic solvent extraction processes in contact with aqueous acid solutions of radioactivity. Recently, a company has begun manufacturing solid media developed by ANL to which these chemicals are attached, allowing use of the extraction method without organic solvents. It is, however, necessary to use an acid solution and to limit the amount of non-acid nitrate.

Summary Purpose/Need:

This program will treat batches up to 200 liters of low level alpha containing wastes currently stored at ANL. These wastes cannot currently be treated.

Summary Result/Endpoint/Deliverable:

The endpoint of this project will be a pilot scale demonstration which will treat waste at ANL.

BDAT: RMETL
Functional Areas: chemical physical treatment
radionuclide removal

Target Site: Argonne National Laboratory East

Location site: Argonne National Laboratory East

Programs/Facilities Supported:

Argonne's Waste Management Operations, processing of plutonium-containing TRU waste solutions for Waste Management Operations at Argonne National Laboratory. This program supports the program titled "TRUEX Technology-Based Development", ADS No. CH-A-1061-00.

ID: 336

Program Title: Processing of New Brunswick Laboratory Plutonium Wastes

Summary Description:

Analytical residues solutions have been accumulating at the New Brunswick Laboratory and at Argonne National Laboratory. These residues contain approximately 120 grams plutonium plus other TRU elements in various acid concentrations. This program is designed to treat these wastes, converting the liquid to a non-TRU waste that can be disposed of. The recovered plutonium will be converted to metal and returned to DOE. This program will show the applicability of the TRUEX process for treating "real" wastes, and will demonstrate the applicability of the Generic TRUEX model in designing flowsheets.

Summary Purpose/Need:

There is currently no disposal method for these wastes. This program is designed to treat these wastes, converting the liquid to a non-TRU waste that can be disposed of. The recovered plutonium will be converted to metal and returned to DOE. There is a significant cost benefit to removing TRU components from the waste. If the TRU concentration can be reduced to less than 100nCi/g, then disposal of the waste in deep underground repositories is not needed. Disposal can be accomplished as grout in shallow underground storage vaults. Demonstration of the TRUEX process on these waste solutions shows the applicability of this process for processing TRU wastes at Hanford, Los Alamos, Idaho, and Rocky Flats. TRUEX is the base technology for processing wastes in the underground storage tanks at Hanford, Washington.

Summary Result/Endpoint/Deliverable:

Endpoint of this program is the successful processing of all 6 batches of waste, and the return of the separated plutonium to the DOE defense complex. Demonstration of the TRUEX process on these waste solutions shows the applicability of this process for processing TRU wastes at Hanford, Los Alamos, Idaho, and Rocky Flats.

BDAT: LLEXT RMETL
Functional Areas: chemical physical treatment
high efficiency separation
removal of problem constituents
material recucle

Target Site: Argonne National Laboratory East

Location site: Argonne National Laboratory East

Programs/Facilities Supported:

Argonne's Waste Management Operations, Building 306

ID: 337

Program Title: Preparation of a Preliminary Waste Treatment Plan and Installation of a Filtration System for non-TRU Mixed Waste

Summary Description:

Demonstrate the treatment of mixed wastes that contain both toxic/hazardous metals and radioactive components. Pretreatment includes precipitation of RCRA metals, thereby generating a filtrate that contains metal concentrations below levels specified by RCRA. The amount of RCRA concentrate in the evaporator bottoms will be reduced.

Summary Purpose/Need:

At this time, Argonne does not have any method approved and permitted for processing wastes containing RCRA-metals. This process will provide that capability. The chemistry and equipment being incorporated into this treatment facility are described in the literature, but what we are doing is putting the system together to treat a variety of waste streams. This project directly supports Waste Management Operations, Argonne National Laboratory.

Summary Result/Endpoint/Deliverable:

Both the pretreatment process and the filtration equipment setup are currently in the final design stages. Some of the equipment for the filter skid has been purchased. A draft of a preliminary treatment plan will be prepared, the design of a filtration system that can remove solids from a variety of mixed-waste slurries will be completed, and a feasibility study will begin. The current schedule is to have the filter skid installed and operable in Building 306 in 1993. The design of the pretreatment facility was completed by April 1993. These systems will have been designed specifically for treating non-TRU mixed wastes. A treatability study will begin in 1993. If the technology is demonstrated, ANL may ask to permit this process.

BDAT: PRECP
Functional Areas: chemical physical treatment
removal of problem constituents
flocculation/precipitation

14.2 Site A/Plot M Palos Forest Preserve

Site A and Plot M are located approximately 20 miles southwest of the city of Chicago in the Palos Forest Preserve. Site A was used to support nuclear reactor development activities from 1943 to 1954, including the operation of 2 reactors. Plot M is a small parcel of land (about 1 acre) that was used to dispose of the radioactive waste from operations at Site A, and at the University of Chicago. Site A was decommissioned in 1956 after the programs that were formerly conducted at the site had been transferred to Argonne National Laboratory - East. The decommissioning activities included procedures to contain the radioactive materials left at the site, and the decontamination and demolition of site structures.

In 1973, tritium was found in 2 of the 5 picnic area wells in the Red Gate Woods Area at concentrations above background levels but below EPA drinking water standards. In response to this finding, a monitoring program was established to determine the migration pathway of water from Plot M to the picnic area wells, in order to determine if other buried radionuclides or waste constituents had migrated, and to characterize the radiological and nonradiological contamination in the area. The monitoring program is still operating, and the results are provided in annual environmental monitoring reports.

A more extensive characterization program has recently been initiated following discovery in 1990 of a small sample of uranium metal in a previously unknown sanitary landfill area near Site A. Phase I of this program, which was completed in 1991, included surface and near surface radiological surveys of Site A, Plot M, Red Gate Woods Picnic Area, 4 areas identified as possibly having been used as either barrow pits or sanitary landfills from a 1946 aerial map, and access roads and trails. Surface and shallow subsurface soil samples, as well as sediment samples, were also collected for radiological evaluation. Eighteen locations were identified as having elevated radiation levels within Site A and 2 of the suspect locations; sampling indicated that there was no radioactivity at 6 of the locations.

Phase II of the characterization program includes sampling and measurements of outlying areas, ground penetrating radar and magnetometry surveys, deeper subsurface sampling, and further investigation to determine if underground fuel tanks are still buried on-site. Sampling and monitoring of all outlying areas and the ground penetrating radar survey were completed in 1991.

Short-term remedial actions and the erection of a fence are planned for 1993. The need for additional remedial action at Site A and Plot M will be determined when the characterization activity has been completed. Additional characterization activities are planned for 1993. A small amount of mixed waste is expected to be generated from these characterization activities and any required remedial actions. More detailed information on contaminated media associated with environmental restoration activities is found in Chapter 2.

15.0 IOWA

There is only one Iowa facility that generates, expects to generate, and/or stores DOE-managed mixed waste, Ames Laboratory.

Figure 15-1 shows the location of this facility.

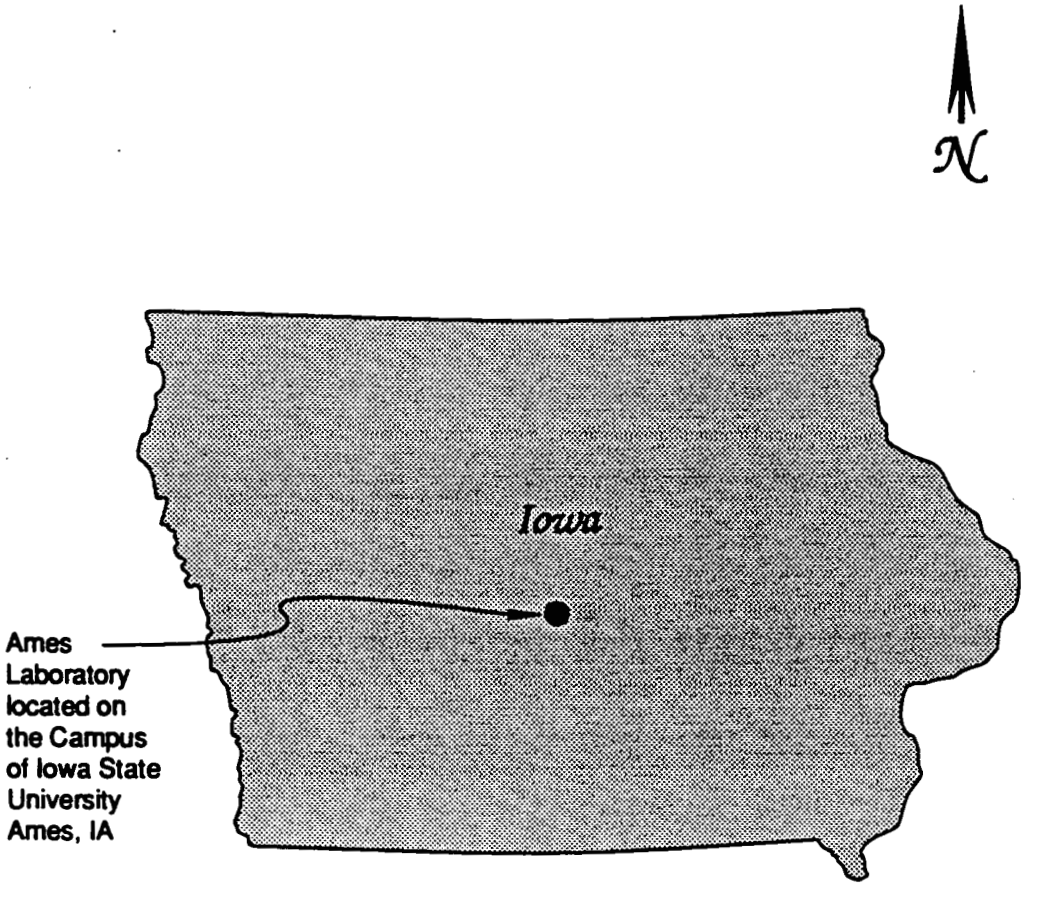

Figure 15-1. Iowa Facility that Generates, Expects to Generate, and/or Stores DOE-managed Mixed Waste.

15.1 Ames Laboratory

Site Summary

The Ames Laboratory, located in Ames, Iowa, conducts basic research in materials and chemical sciences, as well as related research in materials reliability and non-destructive evaluation. About 0.15 m^3 of mixed low-level waste (MLLW) has been generated by research activities. Waste streams are named, described, and their sources identified in the Ames Waste Profile Sheets (WPS). All of this waste is characterized by process knowledge and is subject to LDR. No additional operations waste is projected to be generated through the end of 1997; however, an additional amount of mixed waste could be generated during environmental restoration activities at Ames during the next 5 years. Three waste codes and 4 BDATs apply as detailed in the Ames WPS. The waste minimization action for all wastes is "change in operations status". Certain isotopes are nonaccountable if present below specific levels, and require different levels of safeguards, depending on the amount present.

Two-thirds of the Ames waste (0.10 m^3) has been shipped off-site and is awaiting treatment. Existing technology requires adaptation to treat the remaining 0.05 m^3 of waste.

General

Ames Laboratory is the only the DOE facility in the State of Iowa that has generated mixed waste in the past or that will potentially generate mixed waste in the next 5 years. Ames Laboratory is located in Ames, Iowa, on the campus of Iowa State University, which operates the Laboratory for the DOE (Figure 15-1). DOE owns 10 buildings on the campus. The primary missions of Ames Laboratory are to conduct pure and applied research in physical, mathematical, and engineering sciences that underlie energy technologies, to solve complex materials problems in energy production and use, to train new scientists and engineers, and to conduct technology transfer. Ames Laboratory has 600 full- and part-time employees.

As a result of phased-out contracts and changes in laboratory procedures and practices, Ames Laboratory no longer generates mixed waste through operations. However, additional mixed waste streams may result from environmental restoration during the next 5 years.

Ames Laboratory has 0.15 m^3 of MLLW in storage from past operations of which 0.10 m^3 has been shipped offsite for treatment. The waste contains low levels of alpha or beta and gamma radiation and can be contact handled. All the waste is subject to the provisions of the LDR. Ames does not expect to generate any mixed operations waste within the next 5 years. Ames does not have any mixed waste treatment facility in use or planned at this time, although treatment for all the mixed waste in storage has been identified. Ames plans to dispose of all stored mixed waste in 1993. As indicated, two-thirds of the waste in storage (0.10 m^3) has been shipped off-site and is awaiting treatment. The technology needed to treat the remaining 0.05 m^3 has been identified, but the existing technology requires adaptation to treat the waste.

15.1.1 Mixed Waste

Table 15.1-1 shows sources of stored mixed waste from past operations and indicates that no new generation of mixed waste is expected from any of these sources. The small volume of stored MLLW was reported as 3 streams, all of which are stored operations waste from past laboratory activities. These streams consist of contaminated lead from laboratory plumbing, excess aqueous solution of uranium

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Table 15.1-1
Mixed Wastes at Ames Laboratory

Waste Type/Matrix	Number of Waste Streams	Inventory		Number of Waste Streams	Five-Year Projection	
		(m^3)	(kg)		(m^3)	(kg)
WASTE TYPE -- MLLW						
CH -alpha, Aqueous Liquid	1	<0.10	7.50	0	0.00	0.00
CH, Lab Packs With Metals	1	<0.10	4.00	0	0.00	0.00
CH, Elemental Lead	1	0.10	680.00	0	0.00	0.00
Sub-Total MLLW:	3	0.15	691.50	0	0.00	0.00
TOTAL:	3	0.15	691.50	0	0.00	0.00

sulfate left over from a chemical engineering process used 10 years ago, and various small analytical reference samples from a recent DOE contract supporting Oak Ridge National Laboratory.

Detailed quantitative and qualitative information for each operations waste stream may be found in the WPS.

15.1.2 Treatment Facilities and Technology

There are no treatment facilities at Ames Laboratory.

15.1.3 Technology Development

There is no site-specific technology development for Ames Laboratory.

15.1.4 Environmental Restoration Program

Ames laboratory is applying its experience in materials testing to develop innovative techniques for investigating contaminated sites. A major environmental concern is to characterize and, if necessary, to remediate a closed chemical waste disposal site at the facility. Environmental restoration accomplishments include approval by the State of Iowa of the Remedial Investigation/Feasibility Study work plan for the Chemical Disposal Site. Environmental restoration activities also include assessment and potential remediation associated with a previously removed leaking underground storage tank. Nine inactive sites are being characterized.

The leaking underground storage tank was removed 20 years ago and was replaced with an emergency generator diesel fuel tank. The tank had been used to store diesel fuel. Fuel that leaked was not cleaned up at the time of tank removal, and soil borings and ground water monitoring wells installed in 1988 indicate diesel contamination of soil and potentially of ground water. The existing fuel tank does not leak but will need to be upgraded by 1998 in accordance with State of Iowa statutes.

The inactive chemical disposal site, which has been identified as a potential source of ground water and surface water contamination, resulted from 9 approved burials between 1958 and 1966. Monitoring wells were installed in 1989 to determine if chemical contaminants had migrated to ground water. To date, results indicate that no contaminants have migrated off site. The State of Iowa has included the chemical disposal site in the State's Registry of Abandoned and Uncontrolled Waste Sites, but has given it a "C" classification indicating that it does not present a significant threat to public health or the environment.

The Laboratory has identified 9 sites in the Ames area as the result of past activities and remediation efforts. These sites will be reviewed and tested to determine if any residual contamination attributable to lab operations, associated with the Manhattan Project and the Atomic Energy Commission, still exists. The Laboratory has subcontracted to characterize the sites, intending to release them for unrestricted use. A work plan will be submitted for DOE and Iowa Department of Natural Resources (DNR) approvals, then a field investigation will be performed. During this investigation the subcontractor will remove any contamination attributable to Ames Laboratory. A final report will be submitted for DOE and DNR approvals.

Environmental restoration activities at Ames Laboratory are expected to generate an additional amount of mixed waste. The most likely source of this mixed waste is the closed chemical disposal site. The amount of mixed waste that could result from remedial action activities would depend on the integrity of the buried waste containers and the extent of contaminant migration. More detailed information on contaminated media associated with environmental restoration activities is provided in Chapter 2.

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WASTE

PROFILE

SHEETS

Ames Laboratory

AMES-WPS-1

April 1993

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ROADMAP TO WASTE PROFILE SHEETS (WPS)

Waste Profile Sheets (WPS) have been compiled in this report for each of the mixed waste streams identified at the different DOE sites. Each WPS is a concise summary of the information required by the FFCAct-1992, with waste stream specific data primarily derived from the Waste Management Information System (WMIS) database. Each WPS consists of the following items:

Header: The information in the header in each WPS includes the State, the official name of the site, an identification number, an identifying waste stream name, the waste type, and the waste matrix. The identification number is either a number assigned by the WMIS database or a number assigned by the site. The waste stream name is a unique identifier which corresponds to the name used in the WMIS database, or is assigned by the site. The waste type is either HLW, MTRU, or MLLW. The waste matrix corresponds to the categories (or their further subdivisions) defined earlier based on the physical and chemical form of the waste.

Waste Stream Description and Source: This section of the WPS presents a short description of the source of the waste and the waste stream characteristics.

Inventory Table: The inventory table in each WPS reports the volume (m^3) and/or mass (kg) of each waste stream currently in storage, and projected to be generated in the next five years. The table also indicates the date assumed in calculating the current and projected inventories. As required by the FFCAct-1992, the table also differentiates between waste not subject to LDR and that subject to LDR for the current inventory.

Treatability Group: This section lists the name of the treatability group to which the waste stream belongs.

Treatment Status, Technology Status: This section of the WPS lists the status of the technology that could be applied to the waste stream for compliance with the LDR. This section provides information on if the waste stream is currently being treated, and if technology options and facilities for the treatment exist.

Radiation Characteristics Section: This section of the WPS provides additional information on the radiological characteristics of the waste (in addition to characterizing the waste stream as HLW, MTRU, or MLLW). This section of the WPS specifies whether the waste stream is contact handled or remote handled, if the radionuclides are alpha or beta/gamma emitters, and if they contain activation products.

Radiation Effects Section: As required by the FFCAct-1992, this section of the WPS lists possible effects of the radiological characteristics of the waste stream on treatment technologies that could be applicable to that waste stream. For example, radiation levels may require remote handling of the waste and affect the design and operation of the treatment facility. The presence of volatile radionuclides may require the containment of all off-gases from the treatment system.

Waste Minimization Activities: As required by the FFCAct-1992, this section of the WPS provides information on the waste minimization practices being used for the waste stream. This section provides information on if the waste minimization practices include good operating practices, technology changes, raw material changes, product changes, etc.

EPA Code: This table of the WPS reports the EPA hazardous waste codes applicable to the waste stream, the basis for assigning the codes (process knowledge or sampling/analysis), the LDR basis (which is either technology based or concentration based), and the BDAT for each of the EPA hazardous waste codes.

In summary, the WPS for each waste stream, along with the site sections in the report for each State (Section B), summarize the site-specific information required by the FFCAct-1992.

State: Iowa	**ID #: 0000000001**
Site: AMES LABORATORY	
Waste Stream Name: ANALYTICAL REFERENCE STANDARDS	
Matrix: Lab Packs with Metals	**Waste Type: MLLW**

Waste Stream Description and Source:

This stream consists of compounds of the major non-radioactive elements have been "spiked" with up to 5% by weight with normal Uranium or Thorium. There are appoximately 200 surplus samples which weigh about 20 grams each.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.040	4.0	0.040	4.0	0.000	0.000

Treatability Group:

MLLW CH, Lab Packs with Metals, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time. Treatment identified but requires adaptation.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Certain isotopes of U, Pu, Am, Cm, Cf, Np and Th are non-accountable if present below specific levels, and require different levels of safeguards, depending on the amount present. Treatments resulting in concentration of the material can result in the "roll up" of large volumes of non-accountable wastes into a smaller volume of accountable waste or change a mixed low-level waste to a TRU waste.

Waste Minimization Activities:

1) Change in operations status; process interruptions; work stoppages; mission changes; and new processes.

State: Iowa **ID #: 0000000001**

Site: AMES LABORATORY

Waste Stream Name: ANALYTICAL REFERENCE STANDARDS

Matrix: Lab Packs with Metals **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D006B	Conc.	Stabilization

The alternate LDR treatment standards for labpacks is incineration as a method of treatment and a requirement for the incinerator residues to meet the treatment standards for the TC toxic metals (i.e., D004-D008, and D010-D011).

State: Iowa | ID #: 0000000002

Site: AMES LABORATORY

Waste Stream Name: CONTAMINATED LEAD

Matrix: Elemental Lead | Waste Type: MLLW

Waste Stream Description and Source:

This stream is lead pipe, lead plumbing traps, and lead waste line caulking. The wastestream was generated by the tear out and renovation of old laboratory spaces. The drain lines and trap have small amounts of residual contamination.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.100	680.0	0.100	680.0	0.000	0.000

Treatability Group:

MLLW CH, Elemental Lead, Toxic Metals w/o Mercury

Treatment Status:

Currently being treated off-site using Amalgamation and Biodegradation technologies at a TBD facility. Contaminated lead is being shipped to Scientific Ecology Group fordecontamination.

Technology Status:

Technology exists. No modifications are necessary.

Radiation Characteristics:

1) Beta/gamma emitter
2) Alpha emitter, < 10 nCi/g
3) Contact-handled

Waste-Specific Radiation Effects on Treatment:

1) Certain isotopes of U, Pu, Am, Cm, Cf, Np and Th are non-accountable if present below specific levels, and require different levels of safeguards, depending on the amount present. Treatments resulting in concentration of the material can result in the "roll up" of large volumes of non-accountable wastes into a smaller volume of accountable waste or change a mixed low-level waste to a TRU waste.

Waste Minimization Activities:

1) Change in operations status; process interruptions; work stoppages; mission changes; and new processes.

Generation of this waste stream has peaked. Future D&D work may produce a small amount of this stream, but none is anticipated at this time.

State: Iowa
ID #: 0000000002
Site: AMES LABORATORY
Waste Stream Name: CONTAMINATED LEAD
Matrix: Elemental Lead
Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008B	Conc.	Stabilization

State: Iowa
ID #: 0000000003
Site: AMES LABORATORY
Waste Stream Name: URANIUM SULFATE
Matrix: Aqueous Liquid
Waste Type: MLLW

Waste Stream Description and Source:
This stream consists of excess chemicals left over from a chemical engineering process used ten years ago.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.010	7.5	0.010	7.5	0.000	0.000

Treatability Group:
MLLW CH/AL, Aqueous Liquid, Ignitable, Corrosive, or Reactive Only

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology assessment has not started.

Radiation Characteristics:
1) Beta/gamma emitter
2) Alpha emitter, 10-100 nCi/g
3) Contact-handled

Waste-Specific Radiation Effects on Treatment:
1) Certain isotopes of U, Pu, Am, Cm, Cf, Np and Th are non-accountable if present below specific levels, and require different levels of safeguards, depending on the amount present. Treatments resulting in concentration of the material can result in the "roll up" of large volumes of non-accountable wastes into a smaller volume of accountable waste or change a mixed low-level waste to a TRU waste.

Waste Minimization Activities:
1) Change in operations status; process interruptions; work stoppages; mission changes; and new processes.

Ames Laboratory is not generating any new mixed waste. The existing streams are the result of past activity.

State: Iowa **ID #: 0000000003**

Site: AMES LABORATORY

Waste Stream Name: URANIUM SULFATE

Matrix: Aqueous Liquid **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002C	Tech.	Deactivation

16.0 KENTUCKY

There is only one Kentucky facility that generates, expects to generate, and/or stores DOE-managed mixed waste, the Paducah Gaseous Diffusion Plant.

Figure 16.1 shows the location of this facility.

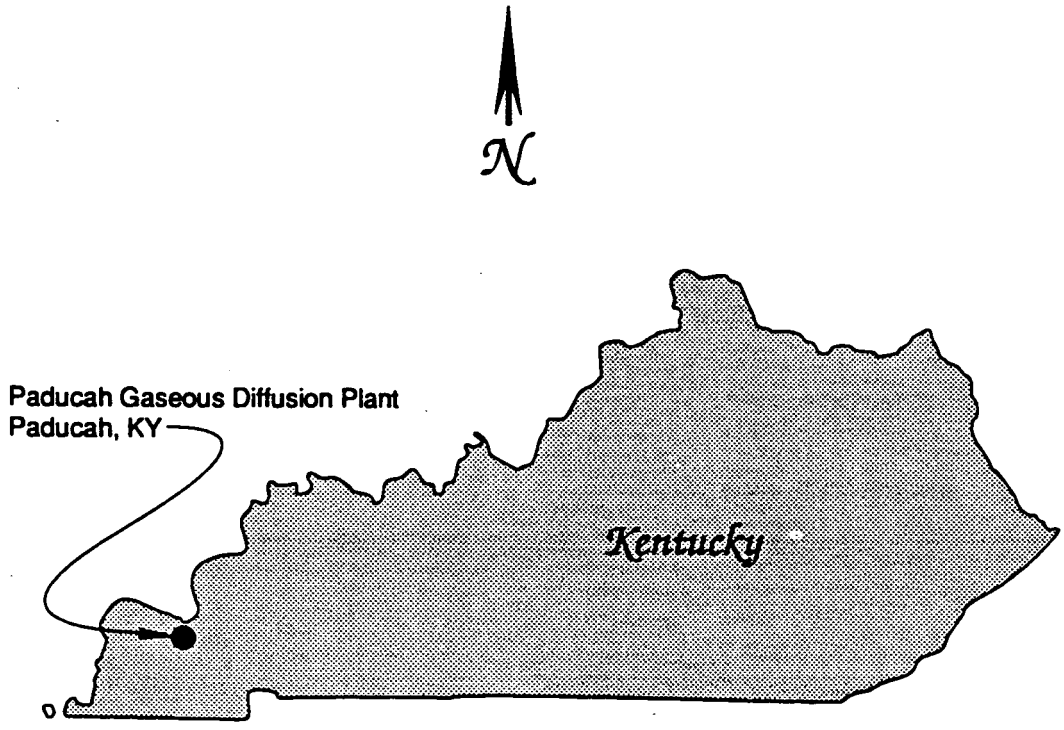

Figure 16.1 Kentucky Facility that Generates, Expects to Generate, and/or Stores DOE-managed Mixed Waste.

16.1 Paducah Gaseous Diffusion Plant

Site Summary

The Paducah Gaseous Diffusion Plant (PGDP) mission is to produce low-enrichment uranium for the nuclear power industry. About 200 m^3 (Table 16.1-1) of mixed wastes have been generated as a result of operations conducted in performing this mission.

The DOE report in response to Section 3021(a)3 RCRA as modified by the FFCAct-1992 is detailed in Tables 16.1-2 and 16.1-3 and in the following individual waste type sections. Tables 16.1-2 and 16.1-3 detail treatment facility capacities and the wastes that have been assigned to individual on-site facilities. Assignments of other wastes will be made by the site in the future after assignment options are fully evaluated.

Site Description

PGDP encompasses 3 km^2 and is included in a 13.8 km^2 tract of DOE-owned property, located 10.6 km west of Paducah, Kentucky (Figure 16-1). The Plant consists of 4 major process cascade buildings, control facilities, feed and withdrawal facilities, supporting utilities, laboratories, and offices. PGDP is operated for the DOE by Martin Marietta Energy Systems, Inc. and employs 1,200 people.

PGDP has reported 51 current and projected total mixed waste streams. Thirty-two of these streams have been active in the past and will continue to be active in the future. Six streams have ceased to be active, but waste from past activity is in storage awaiting disposition. Thirteen new streams are anticipated in the future, including 1 environmental restoration stream for which volumes and masses were not reported. Additional streams from environmental restoration activities may be generated in the next 5 years.

16.1.1 Mixed Wastes

16.1.1.1 High-Level Waste

There is no high-level waste and none is expected to be generated at PGDP.

16.1.1.2 Mixed Transuranic Waste

Mixed transuranic waste (MTRU) at PGDP is currently managed and reported as 2 distinct waste streams and accounts for about 7 percent of the on-site inventory. Not all of the waste reported in these 2 streams are considered TRU. The streams consist of similar wastes that have been grouped for ease of storage and handling. Full characterization of all waste containers is not complete. The alpha level of many drums is just below TRU limits. To date, only 9 of the drums currently in storage (1.8 m^3) contain alpha-emitting radionuclides >100 nCi/gm. Neither of these streams is anticipated to be active in the future, and their reporting relates only to current inventories. Both streams are reported as contact-handled. Waste codes have been assigned to these 2 streams on the basis of process knowledge. Some quantities of the waste are subject to LDR. The current strategy for managing this inventory involves shipment to the Waste Isolation Pilot Plant (WIPP). One of the MTRU streams is aqueous liquid, and will need to be solidified in order to be transported and received by the WIPP. Additional treatment of these 2 streams may be necessary to meet the waste acceptance criteria of WIPP. Together, these streams represent 13.6 m^3 of material in their current form.

Table 16.1-1
Mixed Wastes at Paducah Gaseous Diffusion Plant

Waste Type/Matrix	Number of Waste Streams	Inventory		Number of Waste Streams	Five-Year Projection	
		(m^3)	(kg)		(m^3)	(kg)
WASTE TYPE – MLLW						
CH, Organic Liquids	7	34.04	34,128.00	9	96.07	96,125.00
CH, Aqueous Liquid	3	5.48	5,486.00	10	64.34	64,442.50
CH, Organic Sludges/particulates	1	10.10	10,091.00	0	0.00	0.00
CH, Inorganic Sludges/particulates	9	23.20	23,307.00	7	20.05	20,125.00
CH, Organic Debris	1	17.52	17,516.00	1	90.90	90,910.00
CH, Inorganic Debris	3	12.63	12,680.00	2	10.20	10,225.00
CH, Heterogeneous Debris	1	23.30	23,328.00	1	2.30	2,270.00
CH, Lab Packs With Metals	2	21.70	21,789.00	3	43.71	44,015.00
CH, Lab Packs Without Metals	0	0.00	0.00	1	0.23	225.00
CH, Compressed Gases	1	1.09	1,096.00	1	5.50	5,480.00
CH, Batteries	1	1.30	1,301.00	1	2.30	2,275.00
CH, Multiple	1	11.60	11,547.00	1	5.70	5,680.00
CH, Other	4	23.83	23,836.00	6	38.81	38,825.00

Table 16.1-1 (Continued)
Mixed Wastes at Paducah Gaseous Diffusion Plant

Waste Type/Matrix	Number of Waste Streams	Inventory		Number of Waste Streams	Five-Year Projection	
		(m^3)	(kg)		(m^3)	(kg)
WASTE TYPE – MTRU						
Sub-Total MLLW:	34	185.79	186,105.00	43	380.11	380,597.50
WASTE TYPE – MTRU						
CH -alpha, Aqueous Liquid	1	7.51	7,511.00	0	0.00	0.00
CH -alpha, Inorganic Sludges/particulates	1	6.04	6,040.00	0	0.00	0.00
Sub-Total MTRU:	2	13.55	13,551.00	0	0.00	0.00
TOTAL:	36	199.34	199,656.00	43	380.11	380,597.50

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Table 16.1-2
Paducah Gaseous Diffusion Plant
Mixed Waste Treatment Facilitiies
Currently in Use for Mixed Wastes

Facility/System	Treatment Type(s)	Allowable Waste		Ident. Of MW Streams To Be Treated	Normal Operating Capacity (m3/yr)
		Radioactive Type(s) *	Physical/Chemical Matrix		
C-400-D Lime Precipitation Unit (1)	Chemical Precipitation, Neutralization	MLLW, CH	Aqueous Liquids	PGDP 0000000016	136.1

* ALPHA refers to transuranic alpha greater than 10 nCi/g

Note (1): Reported capacity is batch volume processed in 1991.

Table 16.1-3
Paducah Gaseous Diffusion Plant
Compaction, Evaporation, Shredding, Sorting, Size Reduction, and Packaging Facilities Currently in Use for Mixed Wastes

Facility/System	Treatment Type(s)	Allowable Waste		Ident. Of MW Streams To Be Treated	Normal Operating Capacity (m3/yr)
		Radioactive Type(s) *	Physical/Chemical Matrix		
C-400-C Evaporator (1)	Evaporation	MLLW, CH	Aqueous Liquids	0000000012	19.6

* ALPHA refers to transuranic alpha greater than 10 nCi/g
Note (1): Reported capacity is batch volume processed in 1991.

16.1.1.3 Mixed Low-Level Waste

Forty-nine of the 51 streams reported by PGDP are mixed low-level waste (MLLW). PGDP currently stores about 186 m^3 of MLLW. Approximately 380 m^3 of MLLW is projected to be generated through the end of 1996.

Only 48.1 m^3 (about 24 percent of the inventory in storage) is reported to be subject to LDR. PGDP has reported that of the 37 MLLW waste streams with inventory in storage, the entire amount of 4 streams and only part of 4 others are subject to the provisions of LDR. EPA waste codes for 11 streams have been organized on the basis of sampling and analysis. The remaining waste codes were organized on the basis of process knowledge.

Two aqueous waste streams are currently being treated on-site at the C-400-C Nickel Stripper Evaporation Unit and the C-400-D Lime Precipitation Unit. Waste treated in the C-400-C Nickel Stripper Unit undergoes evaporation, which does not actually treat the hazardous components in the mixed waste. Wastes treated in the C-400-D Lime Precipitation Unit are neutralized to remove the corrosive nature of the waste. Wastes are further treated by lime precipitation and filtration to remove heavy metals. Each of these treatments produces a sludge, which requires further treatment, and are listed in this inventory as additional waste streams.

Ten liquid wastes streams are on the K-25 Site TSCA incinerator burn plan for treatment at the K-25 Site TSCA incinerator in Oak Ridge, Tennessee. If the K-25 Site TSCA incinerator were to accept solids, other streams from PGDP could also be processed there. Streams of liquids sent to the K-25 Site TSCA facility must meet K-25 waste acceptance criteria for approval. Shipments of liquid MLLW to the incinerator are under way. Several shipments are planned for FY 93-94. The proposed dates for shipments to the incinerator are listed on the individual Waste Profile Sheets, which follow this section. The incinerator ash would still be considered mixed waste and would require further treatment such as stabilization before disposal. After treatment, a delisting petition would need to be submitted. Stabilized waste will still be disposed of in a RCRA-permitted facility.

While treatment technology may exist, further characterization and analysis is needed to determine appropriate treatment methods. No treatment methods have been determined for 22 existing mixed waste streams which comprise 81 percent of the total stored mass of MLLW. Treatment methods have not yet been determined for the 14 future mixed low-level waste streams. No treatment has been identified for sludges, solids, lab packs, or for the streams with the waste form listed as "other." The waste form "other" usually indicates a combination of waste forms grouped according to a common hazardous component, such as mercury. A study is currently in progress at PGDP to identify appropriate treatments for all waste streams. That study is near completion and results will be released later this year.

16.1.2 Treatment Facilities

16.1.2.1 Existing Treatment Facilities

Two facilities are currently used to treat mixed waste at the PGDP Site: the C-400-D Lime Precipitation Unit and the C-400-C Evaporator. Both units produce waste water that is discharged to the environment. Sludges and solids generated by the treatments are collected and stored for further treatment. Tables 16.1-2 and 16.1-3 summarize the types, capacities, and uses of existing treatment facilities.

The C-400-D Lime Precipitation Unit neutralizes and precipitates liquid wastes containing uranium, acids, and heavy metals. The solids collected during precipitation are packaged and stored in a hazardous storage facility. Once treated, the wastewater is discharged through the PGDP effluent discharge system. The wastewater is analyzed and then discharged to the environment if appropriate. The unit processes both mixed and hazardous or radioactive only waste. The 1991 operating capacity was 136.1 m^3. The capacity could be increased through additional work shifts. The permit for this unit limits volume per batch, but does not specify a maximum number of batches per year.

The C-400-C Evaporator is used to concentrate stripper solution generated from the removal of nickel from nickel-plated steel parts. The sludge is packaged and sent to a hazardous or mixed waste storage facility. The facility cannot accept solutions containing high-level radioactive constituents or poychorinated biphenyls (PCBs). It can treat corrosive solutions containing low-level radioactive constituents and heavy metals. The facility operates in a batch mode and treated 19.6 m^3 of stripper solution in 1991. The water evaporated in the treatment enters the environment after passing through high efficiency particulate air (HEPA) filters. The permit for this unit limits volume per batch, but does not specify a maximum number of batches per year.

16.1.2.2 Planned Treatment Facilities

One new treatment facility, the Waste Water Treatment Facility, is currently planned. This facility is summarized in Table 16.1-4. There is no construction start date yet available.

16.1.2.3 Treatment Facility Summary

Tables 16.1-5 and 16.1-6 provide a comprehensive summary of the capabilities of current and planned treatment facilities at PGDP. The tables list the physical form of both the feed and the treatment product(s), the current operating status of the plant, and whether the facility is intended for MTRU, MLLW, or both. The tables also summarize other relevant waste acceptance parameters for the facility, marking parameters that are acceptable. The assumption has been made that the legal limitations, and the technological limitations of a facility will be identical. These tables indicate if a facility is capable of treating remote-handled waste, as opposed to contact-handled waste only. The table also summarizes other relevant waste acceptance parameters related to the chemical composition of the waste. Parameters marked as acceptable are still subject to concentration limitations. Additional waste acceptance criteria for each of the existing treatment units are listed in PGDP's RCRA Part B permit.

The maximum operating capacities of the 2 existing treatment facilities have not been determined. The units process batches as needed rather than being operated on a regular schedule. The Lime Precipitation Unit is used for other wastes not regarded as mixed waste, and the volumes listed in Table 16.1-2 and 16.1-3 are the volumes of all materials processed in 1991.

Table 16.1-4
Paducah Gaseous Diffusion Plant
Mixed Waste Treatment Facilities
Planned or Under Construction for Mixed Wastes

Facility/System	Treatment Type(s)	Allowable Waste		Ident. Of MW Streams To Be Treated	Design Capacity (m3/yr) **	Date Avail. For Treating MW **
		Radioactive Type(s) *	Physical/Chemical Matrix			
Wastewater Treatment System (1)	To Be Determined	MLLW, CH	Liquids	To Be Determined	To Be Determined	Year To Be Determined

* ALPHA refers to transuranic alpha greater than 10 nCi/g

** Because DOE is still in the planning/conceptual stage, in the design stages, or in the construction stage for these facilities, schedules and capacities are subject to changes based on the availability of funds, results of treatability studies, permit issuance, etc.

Note (1): Contaminants treated TBD.

Table 16.1-5
Paducah Gaseous Diffusion Plant
Current and Planned Facilities - Treatment Category
Mixed Waste Treatment Facilities

Facility/System	Operating Status *	Feed Types	Final Waste Form	HLW MTRU MLLW	Alpha **	RH CH	Hg	Other Toxic Metals	Toxic Organics
C-400-D Lime Precipitation Unit	Operating	Aqueous Liquids	Liquid, Sludge	MLLW		CH		√	
Wastewater Treatment System	Planned, Year To Be Determined	Liquids	Liquids, Sludges	MLLW		CH			

* Because DOE is still in the planning/conceptual stage, in the design stages, or in the construction stage for these facilities, schedules and capacities are subject to changes based on the availability of funds, results of treatability studies, permit issuance, etc.

** Transuranic alpha greater than 10 nCi/g.

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Table 16.1-6
Paducah Gaseous Diffusion Plant
Current and Planned Facilities - Treatment Category
Compaction, Evaporation, Shredding, Sorting, Size Reduction, and Packaging Facilities

Facility/System	Operating Status *	Feed Types	Final Waste Form	HLW MTRU MLLW	Alpha **	RH CH	Hg	Other Toxic Metals	Toxic Organics
C-400-C Evaporator	Operating	Aqueous Liquids	Sludge	MLLW		CH			

* Because DOE is still in the planning/conceptual stage, in the design stages, or in the construction stage for these facilities, schedules and capacities are subject to changes based on the availability of funds, results of treatability studies, permit issuance, etc.

** Transuranic alpha greater than 10 nCi/g.

Neither of the treatment facilities at PGDP treat all the hazardous components which may be present in the mixed waste. Both treatment units achieve volume reduction, with water vapor or waste water released to the environment and a more concentrated waste form resulting from the treatment. The solid waste from each treatment then requires further treatment. Tables 16.1-2 and 16.1-3 show which streams are currently being treated on-site at PGDP. The wastes being treated on-site represent only 19 percent of the total mixed waste inventory in storage and 34 percent of the volume of waste predicted in the 5-year inventory.

Numerous waste streams are not assigned to treatment facilities since technology options are not yet analyzed. These waste streams are indicated in the PGDP WPS. PGDP submitted a treatment strategy plan for streams subject to LDR on March 31, 1993. Studies will continue until 1995.

16.1.3 Technology Development

There is no site-specific technology development activities for PGDP.

16.1.4 Environmental Restoration Program

Both on-site and off-site areas are contaminated, primarily with uranium, PCBs, technetium, and trichloroethylene. Remedial action activities were initiated at the site in November 1988 to address the solid waste management units/areas of concern and off-site ground water contamination.

The PGDP environmental restoration activities investigate and remediate the site under 3 regulatory agreements and/or permits. The off-site ground water contamination is being investigated under an Administrative Consent Order with EPA under CERCLA Sections 104 and 106. The investigation and remediation of PGDP solid waste management units/areas of concern are being conducted under a Kentucky RCRA Permit and an EPA Hazardous and Solid Waste Amendment Permit, which became effective in August 1991. An Agreement-in-Principle between DOE and the State of Kentucky for the oversight of environmental restoration activities and environmental monitoring programs at the site became effective in May 1991. PGDP is expected to be added to EPA's National Priorities List in FY 93, after which negotiations will be initiated on a Federal Facility Agreement.

Environmental restoration accomplishments include initiation of a site investigation for groundwater contamination, including the approval by EPA of the Phase I site investigation report, and completion of Phase II fieldwork, completion of engineering design for Waste Holding Facilities, and completion of the removal of two 10,000-gallon leaking underground storage tanks. More detailed information on the contaminated media associated with environmental restoration activities is in Chapter 2.

WASTE

PROFILE

SHEETS

Paducah Gaseous Diffusion Plant

ROADMAP TO WASTE PROFILE SHEETS (WPS)

Waste Profile Sheets (WPS) have been compiled in this report for each of the mixed waste streams identified at the different DOE sites. Each WPS is a concise summary of the information required by the FFCAct-1992, with waste stream specific data primarily derived from the Waste Management Information System (WMIS) database. Each WPS consists of the following items:

Header: The information in the header in each WPS includes the State, the official name of the site, an identification number, an identifying waste stream name, the waste type, and the waste matrix. The identification number is either a number assigned by the WMIS database or a number assigned by the site. The waste stream name is a unique identifier which corresponds to the name used in the WMIS database, or is assigned by the site. The waste type is either HLW, MTRU, or MLLW. The waste matrix corresponds to the categories (or their further subdivisions) defined earlier based on the physical and chemical form of the waste.

Waste Stream Description and Source: This section of the WPS presents a short description of the source of the waste and the waste stream characteristics.

Inventory Table: The inventory table in each WPS reports the volume (m^3) and/or mass (kg) of each waste stream currently in storage, and projected to be generated in the next five years. The table also indicates the date assumed in calculating the current and projected inventories. As required by the FFCAct-1992, the table also differentiates between waste not subject to LDR and that subject to LDR for the current inventory.

Treatability Group: This section lists the name of the treatability group to which the waste stream belongs.

Treatment Status, Technology Status: This section of the WPS lists the status of the technology that could be applied to the waste stream for compliance with the LDR. This section provides information on if the waste stream is currently being treated, and if technology options and facilities for the treatment exist.

Radiation Characteristics Section: This section of the WPS provides additional information on the radiological characteristics of the waste (in addition to characterizing the waste stream as HLW, MTRU, or MLLW). This section of the WPS specifies whether the waste stream is contact handled or remote handled, if the radionuclides are alpha or beta/gamma emitters, and if they contain activation products.

Radiation Effects Section: As required by the FFCAct-1992, this section of the WPS lists possible effects of the radiological characteristics of the waste stream on treatment technologies that could be applicable to that waste stream. For example, radiation levels may require remote handling of the waste and affect the design and operation of the treatment facility. The presence of volatile radionuclides may require the containment of all off-gases from the treatment system.

Waste Minimization Activities: As required by the FFCAct-1992, this section of the WPS provides information on the waste minimization practices being used for the waste stream. This section provides information on if the waste minimization practices include good operating practices, technology changes, raw material changes, product changes, etc.

EPA Code: This table of the WPS reports the EPA hazardous waste codes applicable to the waste stream, the basis for assigning the codes (process knowledge or sampling/analysis), the LDR basis (which is either technology based or concentration based), and the BDAT for each of the EPA hazardous waste codes.

In summary, the WPS for each waste stream, along with the site sections in the report for each State (Section B), summarize the site-specific information required by the FFCAct-1992.

State: Kentucky | ID #: 0000000001

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: MISCELLANEOUS FLAMMABLE WASTES

Matrix: Lab Packs with Metals | Waste Type: MLLW

Waste Stream Description and Source:

This stream consists of a multitude of liquid and solid wastes considered ignitable under RCRA. The stream includes cements, adhesives, paints, and other wastes. The stream is generated from maintenance and other routine activities or may be wastes considered excess, spent, or otherwise unusable.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
21.6	21,623.0	0.000	0.000	21.6	21,623.0	42.3	42,275.0

Treatability Group:

MLLW CH, Lab Packs with Metals, Ignitable, Corrosive, or Reactive Only

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) High beta or gamma levels in contact with organics can result in radiolysis, with production of hydrogen gas and formation of free radicals that attack structural materials, particularly steel. The buildup of hydrogen gas and embrittlement of structural materials are important considerations, in storage, design, and operation of treatment facilities, and in stabilization of the final waste form.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

State: Kentucky	**ID #: 0000000001**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: MISCELLANEOUS FLAMMABLE WASTES	
Matrix: Lab Packs with Metals	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration

The alternate LDR treatment standards for labpacks is incineration as a method of treatment and a requirement for the incinerator residues to meet the treatment standards for the TC toxic metals (i.e., D004-D008, and D010-D011).

State: Kentucky	ID #: 0000000002
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: TEHP/HEXANE	
Matrix: Organic Liquids	Waste Type: MLLW

Waste Stream Description and Source:

This stream consists of equal portions of tri-(2-ethyl hexyl) phosphate and hexane. The mixture is used to perform UF6 sample analysis at the C-710 toll sample analysis laboratory.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.590	586.0	0.000	0.000	0.590	586.0	0.460	455.0

Treatability Group:

MLLW CH, Organic Liquids

Treatment Status:

Plan to treat off-site. This stream is on the PGDP portion of the K-25 TSCA Incinerator burn plan for treatment. The ash resulting from treatment must then be analyzed to determine if hazardous characteristics still exist. If the hazardous characteristic is gone, the ash is no longer mixed waste.

Technology Status:

Technology exists. No modifications are necessary.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) High beta or gamma levels in contact with organics can result in radiolysis, with production of hydrogen gas and formation of free radicals that attack structural materials, particularly steel. The buildup of hydrogen gas and embrittlement of structural materials are important considerations, in storage, design, and operation of treatment facilities, and in stabilization of the final waste form.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

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State: Kentucky **ID #: 0000000002**

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: TEHP/HEXANE

Matrix: Organic Liquids **Waste Type: MLLW**

General Comments:

The LDR effective date for this stream was 05/08/92.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
D002A	Tech.	Deactivation

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State: Kentucky | ID #: 0000000003

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: WASTE MINERAL SPIRITS

Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:

The waste is generated as a result of routine maintenance activities related to the C-724 and C-725 paint shops. Waste consists of paint thinners (MEK, xylene, mineral spirits) and solid residues. Waste consists of mostly liquids, however paint solids (i.e. pigments) settle out in bottom of drum and it is possible to find several inches of solids in some drums.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
4.6	4,646.0	0.000	0.000	4.6	4,646.0	9.1	9,095.0

Treatability Group:

MLLW CH, Organic Liquids, Ignitable, Corrosive, or Reactive Only

Treatment Status:

Plan to treat off-site. The Oak Ridge TSCA Incinerator has been approved for this waste. The incinerator ash must then be analyzed to determine that the hazardous characteristic no longer exists. If the hazardous characteristic is gone, the ash is not mixed waste.

Technology Status:

Technology exists. No modifications are necessary.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) High beta or gamma levels in contact with organics can result in radiolysis, with production of hydrogen gas and formation of free radicals that attack structural materials, particularly steel. The buildup of hydrogen gas and embrittlement of structural materials are important considerations, in storage, design, and operation of treatment facilities, and in stabilization of the final waste form.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

State: Kentucky **ID #: 0000000003**

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: WASTE MINERAL SPIRITS

Matrix: Organic Liquids **Waste Type: MLLW**

2) Technology changes: process changes; equipment, piping, or layout changes; automation; changes in operational settings; and energy, water conservation.
3) Waste avoidance due to recycling/reuse: solvent, oil, and metals recycling; chemical exchange and reuse; and packaging material reuse.

General Comments:
The LDR effective date for this stream was 05/08/92.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration

State: Kentucky	**ID #: 0000000004**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: DISCARDED BATTERIES	
Matrix: Batteries	**Waste Type: MLLW**

Waste Stream Description and Source:

The stream consists of batteries that are considered spent and no longer usable. The stream consists of scrap batteries which have failed EP and TCLP testing. This does not consist of lead acid batteries such as automotive batteries. Types included are Gell Cell, mercury, nickel cadmium, and lithium batteries.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
1.3	1,301.0	0.000	0.000	1.3	1,301.0	2.3	2,275.0

Treatability Group:

MLLW CH, Batteries, Toxic Metals w/ Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) High beta or gamma levels in contact with organics can result in radiolysis, with production of hydrogen gas and formation of free radicals that attack structural materials, particularly steel. The buildup of hydrogen gas and embrittlement of structural materials are important considerations, in storage, design, and operation of treatment facilities, and in stabilization of the final waste form.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

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State: Kentucky **ID #: 0000000004**

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: DISCARDED BATTERIES

Matrix: Batteries **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001E	Tech.	Deactivation
D002A	Tech.	Deactivation
D003D	Tech.	Deactivation
D006A	Tech.	Thermal Recovery of Metals
D008B	Conc.	Stabilization
D009C	Conc.	Thermal Recovery of Metals; Acid Leaching; Stabilization; or Incineration

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State: Kentucky	**ID #: 0000000005**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: METHYL ETHYL KETONE PEROXIDE	
Matrix: Lab Packs without Metals	**Waste Type: MLLW**

Waste Stream Description and Source:

This stream consists of spent solutions or unused portions of methyl ethyl ketone peroxide from the C-710 laboratory.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	0.230	225.0

Treatability Group:

MLLW CH, Lab Packs without Metals, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

General Comments:

The LDR effective date for this stream was 05/08/92.

State: Kentucky	**ID #: 0000000005**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: METHYL ETHYL KETONE PEROXIDE	
Matrix: Lab Packs without Metals	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
D035		Not currently prohibited under the LDR Program.

The alternate LDR treatment standards for labpacks is incineration as a method of treatment and a requirement for the incinerator residues to meet the treatment standards for the TC toxic metals (i.e., D004-D008, and D010-D011).

State: Kentucky	**ID #: 0000000006**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: MISCELLANEOUS ACIDS AND BASES	
Matrix: Multiple	**Waste Type: MLLW**

Waste Stream Description and Source:

Waste stream is generated from used (spent materials) or from excess materials. The stream includes oxalic acid, phosphoric acid, acidic samples, lab residues, and other miscellaneous bases. Waste stream also includes liquids and solids in both pure forms and diluted forms.

This waste stream includes lab packs without metals, and lab packs with metals.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
11.6	11,547.0	0.000	0.000	11.6	11,547.0	5.7	5,680.0

Treatability Group:

MLLW CH, Multiple

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g
4) Radionuclides or radiation level unknown

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) High beta or gamma levels in contact with organics can result in radiolysis, with production of hydrogen gas and formation of free radicals that attack structural materials, particularly steel. The buildup of hydrogen gas and embrittlement of structural materials are important considerations, in storage, design, and operation of treatment facilities, and in stabilization of the final waste form.
3) Certain isotopes of U, Pu, Am, Cm, Cf, Np and Th are non-accountable if present below specific levels, and require different levels of safeguards, depending on the amount present. Treatments resulting in concentration of the material can result in the "roll up" of large volumes of non-accountable wastes into a smaller volume of accountable waste or change a mixed low-level waste to a TRU waste.

State: Kentucky	**ID #: 0000000006**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: MISCELLANEOUS ACIDS AND BASES	
Matrix: Multiple	**Waste Type: MLLW**

4) Daughter products of alpha emitters may cause problems, i.e., production of radon gas, emissions from short-lived daughter products, and potential chemical incompatibility of daughter products.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

General Comments:

The LDR effective date for this stream was 05/08/92.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002A	Tech.	Deactivation
D002B	Tech.	Deactivation

The alternate LDR treatment standards for labpacks is incineration as a method of treatment and a requirement for the incinerator residues to meet the treatment standards for the TC toxic metals (i.e., D004-D008, and D010-D011).

State: Kentucky | ID #: 0000000007

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: FLUORINE CELL ELECTROLYTE

Matrix: Aqueous Liquid | Waste Type: MLLW

Waste Stream Description and Source:

This stream could be generated from a spill, a change of plant function, or from changing out of spent electrolyte from fluorine cells located at C-410.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	0.003	2.5

Treatability Group:

MLLW CH, Aqueous Liquid, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) High beta or gamma levels in contact with organics can result in radiolysis, with production of hydrogen gas and formation of free radicals that attack structural materials, particularly steel. The buildup of hydrogen gas and embrittlement of structural materials are important considerations, in storage, design, and operation of treatment facilities, and in stabilization of the final waste form.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

State: Kentucky **ID #: 0000000007**

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: FLUORINE CELL ELECTROLYTE

Matrix: Aqueous Liquid **Waste Type: MLLW**

General Comments:

The LDR effective date for this stream was 05/08/92.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002A	Tech.	Deactivation
D004	Conc.	Vitrification

State: Kentucky **ID #: 0000000008**

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: CHROMIC ACID TANK LIQUID

Matrix: Aqueous Liquid **Waste Type: MLLW**

Waste Stream Description and Source:

This waste can be either spent chromic acid from the C-400 process cleaning facility or could be excess chromic acid due to a program change at the facility.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	2.7	2,725.0

Treatability Group:

MLLW CH, Aqueous Liquid, Toxic Metals w/ Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) High beta or gamma levels in contact with organics can result in radiolysis, with production of hydrogen gas and formation of free radicals that attack structural materials, particularly steel. The buildup of hydrogen gas and embrittlement of structural materials are important considerations, in storage, design, and operation of treatment facilities, and in stabilization of the final waste form.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

State: Kentucky | ID #: 0000000008

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: CHROMIC ACID TANK LIQUID

Matrix: Aqueous Liquid | Waste Type: MLLW

General Comments:

1) The five year projections reflect quantities allowed in the PGDP Part B permit. 2) The LDR effective date for this stream was 05/08/92.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002A	Tech.	Deactivation
D004	Conc.	Vitrification
D005	Conc.	Chemical Precipitation; or Stabilization
D006B	Conc.	Stabilization
D007	Conc.	Chemical Reduction followed by Stabilization
D008B	Conc.	Stabilization
D009C	Conc.	Thermal Recovery of Metals; Acid Leaching; Stabilization; or Incineration
D010	Conc.	Stabilization
D011	Conc.	Stabilization

State: Kentucky	**ID #: 0000000009**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: TRIOXIDE TANK LIQUID	
Matrix: Aqueous Liquid	**Waste Type: MLLW**

Waste Stream Description and Source:

This stream is trioxide solution from chemical process cleaning building C-400. The waste could be spent solution, spill cleanup residue, or excess solution due to program changes. To date, no waste has been generated.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	2.7	2,725.0

Treatability Group:

MLLW CH, Aqueous Liquid, Toxic Metals w/ Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) High beta or gamma levels in contact with organics can result in radiolysis, with production of hydrogen gas and formation of free radicals that attack structural materials, particularly steel. The buildup of hydrogen gas and embrittlement of structural materials are important considerations, in storage, design, and operation of treatment facilities, and in stabilization of the final waste form.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

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State: Kentucky **ID #: 0000000009**

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: TRIOXIDE TANK LIQUID

Matrix: Aqueous Liquid **Waste Type: MLLW**

General Comments:

1) Values in the five year projection reflect amounts listed in the PGDP Part B Permit. 2) The LDR effective date for this stream was 05/08/92.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002B	Tech.	Deactivation
D004	Conc.	Vitrification
D005	Conc.	Chemical Precipitation; or Stabilization
D006B	Conc.	Stabilization
D007	Conc.	Chemical Reduction followed by Stabilization
D008B	Conc.	Stabilization
D009C	Conc.	Thermal Recovery of Metals; Acid Leaching; Stabilization; or Incineration
D010	Conc.	Stabilization
D011	Conc.	Stabilization

State: Kentucky	ID #: 0000000010
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: HYDROCHLORIC ACID TANK LIQUID	
Matrix: Aqueous Liquid	Waste Type: MLLW

Waste Stream Description and Source:

This waste stream can potentially be generated from spills or program changes involving the cleaning tanks at C-400.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	2.7	2,725.0

Treatability Group:

MLLW CH, Aqueous Liquid, Toxic Metals w/ Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) High beta or gamma levels in contact with organics can result in radiolysis, with production of hydrogen gas and formation of free radicals that attack structural materials, particularly steel. The buildup of hydrogen gas and embrittlement of structural materials are important considerations, in storage, design, and operation of treatment facilities, and in stabilization of the final waste form.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

State: Kentucky | ID #: 0000000010

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: HYDROCHLORIC ACID TANK LIQUID

Matrix: Aqueous Liquid | Waste Type: MLLW

General Comments:

1) Five year projections reflect quantities listed in the PGDP Part B permit. 2) The LDR effective date for this stream was 05/08/92.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002A	Tech.	Deactivation
D004	Conc.	Vitrification
D005	Conc.	Chemical Precipitation; or Stabilization
D006B	Conc.	Stabilization
D007	Conc.	Chemical Reduction followed by Stabilization
D008B	Conc.	Stabilization
D009C	Conc.	Thermal Recovery of Metals; Acid Leaching; Stabilization; or Incineration
D010	Conc.	Stabilization
D011	Conc.	Stabilization

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State: Kentucky | ID #: 0000000011

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: AQUEOUS SOLUTIONS WITH HEAVY METALS

Matrix: Aqueous Liquid | Waste Type: MLLW

Waste Stream Description and Source:

This stream consists of a variety of aqueous solutions that contain one or more RCRA heavy metals. The streams consists of spent solutions, spill clean-ups, etc.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	2.7	2,725.0

Treatability Group:

MLLW CH, Aqueous Liquid, Toxic Metals w/ Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) High beta or gamma levels in contact with organics can result in radiolysis, with production of hydrogen gas and formation of free radicals that attack structural materials, particularly steel. The buildup of hydrogen gas and embrittlement of structural materials are important considerations, in storage, design, and operation of treatment facilities, and in stabilization of the final waste form.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.
2) Technology changes: process changes; equipment, piping, or layout changes; automation; changes in operational settings; and energy, water conservation.
3) Product change: product substitution and conservation; and change in product composition.

State: Kentucky **ID #: 0000000011**

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: AQUEOUS SOLUTIONS WITH HEAVY METALS

Matrix: Aqueous Liquid **Waste Type: MLLW**

General Comments:

The LDR effective date for this stream was 05/08/92.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002A	Tech.	Deactivation
D004	Conc.	Vitrification
D005	Conc.	Chemical Precipitation; or Stabilization
D006B	Conc.	Stabilization
D007	Conc.	Chemical Reduction followed by Stabilization
D008B	Conc.	Stabilization
D009C	Conc.	Thermal Recovery of Metals; Acid Leaching; Stabilization; or Incineration
D010	Conc.	Stabilization
D011	Conc.	Stabilization

State: Kentucky | ID #: 0000000012
Site: PADUCAH GASEOUS DIFFUSION PLANT
Waste Stream Name: NICKEL STRIPPER SOLUTIONS
Matrix: Aqueous Liquid | Waste Type: MLLW

Waste Stream Description and Source:

Nickel stripper solution is used to strip nickel from a steel base. Spent solution is currently treated by concentration in the C-400-C nickel stripper evaporation unit. (See stream named Nickel Stripper Solid Residue.) This stream would consist of the unused or untreated solution.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	25.0	25,000.0

Treatability Group:

MLLW CH, Aqueous Liquid, Toxic Metals w/o Mercury

Treatment Status:

Currently being treated on-site at the C-400-C Evaporator facility. This stream undergoes only volume reduction at the C-400-C Evaporator. The treatment does not render the stream non-hazardous. The residue from treatment is included in this inventory but programmatic changes could result in this stream being generated.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) High beta or gamma levels in contact with organics can result in radiolysis, with production of hydrogen gas and formation of free radicals that attack structural materials, particularly steel. The buildup of hydrogen gas and embrittlement of structural materials are important considerations, in storage, design, and operation of treatment facilities, and in stabilization of the final waste form.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

State: Kentucky **ID #: 0000000012**

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: NICKEL STRIPPER SOLUTIONS

Matrix: Aqueous Liquid **Waste Type: MLLW**

General Comments:

The LDR effective date for this stream was 05/08/92.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002B	Tech.	Deactivation
D006B	Conc.	Stabilization
D007	Conc.	Chemical Reduction followed by Stabilization
D008B	Conc.	Stabilization

State: Kentucky	ID #: 0000000013
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: NICKEL STRIPPER SOLID RESIDUE	
Matrix: Inorganic Sludges/Particulates	Waste Type: MLLW

Waste Stream Description and Source:

This stream consits of sludge generated from treatment (evaporation) of C-400-C nickel stripper solution. The stream also consists of PPE and filters contaminated with sludge.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
4.3	4,331.0	0.000	0.000	4.3	4,331.0	4.5	4,545.0

Treatability Group:

MLLW CH, Inorganic Sludges/Particulates, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) High beta or gamma levels in contact with organics can result in radiolysis, with production of hydrogen gas and formation of free radicals that attack structural materials, particularly steel. The buildup of hydrogen gas and embrittlement of structural materials are important considerations, in storage, design, and operation of treatment facilities, and in stabilization of the final waste form.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

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State: Kentucky **ID #: 0000000013**

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: NICKEL STRIPPER SOLID RESIDUE

Matrix: Inorganic Sludges/Particulates **Waste Type: MLLW**

General Comments:
The LDR effective date for this stream was 05/08/92.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002B	Tech.	Deactivation
D006B	Conc.	Stabilization
D007	Conc.	Chemical Reduction followed by Stabilization
D008B	Conc.	Stabilization

State: Kentucky | ID #: 0000000014

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: TRANSURANIC WASTE LIQUID

Matrix: Aqueous Liquid | Waste Type: MTRU

Waste Stream Description and Source:

This stream is liquid generated from the technetium recovery process or neptunium recovery process from C-400 and C-746-B.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
7.5	7,511.0	0.000	0.000	7.5	7,511.0	0.000	0.000

Treatability Group:

MTRU CH/AL, Aqueous Liquid, Toxic Metals w/o Mercury

Treatment Status:

Treatment of most mixed transuranic waste to meet LDR treatment standards is not applicable because DOE plans to ship these wastes to the Waste Isolation Pilot Plant (WIPP), pending issuance of a No-Migration Determination of the operational phase. Pretreatment to meet the WIPP Waste Acceptance Criteria may be required.

Technology Status:

Not Applicable.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Transuranic contaminants

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) High beta or gamma levels in contact with organics can result in radiolysis, with production of hydrogen gas and formation of free radicals that attack structural materials, particularly steel. The buildup of hydrogen gas and embrittlement of structural materials are important considerations, in storage, design, and operation of treatment facilities, and in stabilization of the final waste form.
3) High alpha activity in contact with organics or water can result in radiolysis, with production of hydrogen gas, methane and other degradation products. The buildup of hydrogen gas and radiation interaction with the waste form can affect storage, design and operation of treatment facilities, and stability of the final waste form.
4) Treatments using chemical separation could result in concentration of certain isotopes of

State: Kentucky	**ID #: 0000000014**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: TRANSURANIC WASTE LIQUID	
Matrix: Aqueous Liquid	**Waste Type: MTRU**

uranium and plutonium to form a critical mass; concentration of polonium or plutonium in contact with beryllium could result in production of neutrons.

5) Certain isotopes of U, Pu, Am, Cm, Cf, Np and Th are non-accountable if present below specific levels, and require different levels of safeguards, depending on the amount present. Treatments resulting in concentration of the material can result in the "roll up" of large volumes of non-accountable wastes into a smaller volume of accountable waste or change a mixed low-level waste to a TRU waste.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

General Comments:

The LDR effective date for this stream was 05/08/92.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002A	Tech.	Deactivation
D007	Conc.	Chemical Reduction followed by Stabilization

State: Kentucky | ID #: 0000000015
Site: PADUCAH GASEOUS DIFFUSION PLANT
Waste Stream Name: TRU AND TECHNETIUM WASTE
Matrix: Inorganic Sludges/Particulates | Waste Type: MTRU

Waste Stream Description and Source:

This stream includes solid and liquid wastes generated as part of the recovery efforts for technicium. Waste stream consists of spill cleanup equipment (Personal Protective Equipment and solids) and residue. This stream will not be generated in the future.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
4.2	4,204.0	1.8	1,836.0	6.0	6,040.0	0.000	0.000

Treatability Group:

MTRU CH/AL, Inorganic Sludges/Particulates, Toxic Metals w/o Mercury

Treatment Status:

Treatment of most mixed transuranic waste to meet LDR treatment standards is not applicable because DOE plans to ship these wastes to the Waste Isolation Pilot Plant (WIPP), pending issuance of a No-Migration Determination of the operational phase. Pretreatment to meet the WIPP Waste Acceptance Criteria may be required.

Technology Status:

Not Applicable.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Transuranic contaminants

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) High beta or gamma levels in contact with organics can result in radiolysis, with production of hydrogen gas and formation of free radicals that attack structural materials, particularly steel. The buildup of hydrogen gas and embrittlement of structural materials are important considerations, in storage, design, and operation of treatment facilities, and in stabilization of the final waste form.
3) High alpha activity in contact with organics or water can result in radiolysis, with production of hydrogen gas, methane and other degradation products. The buildup of hydrogen gas and radiation interaction with the waste form can affect storage, design and operation of treatment facilities, and stability of the final waste form.

State: Kentucky **ID #: 0000000015**

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: TRU AND TECHNETIUM WASTE

Matrix: Inorganic Sludges/Particulates **Waste Type: MTRU**

4) Treatments using chemical separation could result in concentration of certain isotopes of uranium and plutonium to form a critical mass; concentration of polonium or plutonium in contact with beryllium could result in production of neutrons.
5) Certain isotopes of U, Pu, Am, Cm, Cf, Np and Th are non-accountable if present below specific levels, and require different levels of safeguards, depending on the amount present. Treatments resulting in concentration of the material can result in the "roll up" of large volumes of non-accountable wastes into a smaller volume of accountable waste or change a mixed low-level waste to a TRU waste.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

General Comments:

The LDR effective date for this stream was 05/08/92.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002A	Tech.	Deactivation
D007	Conc.	Chemical Reduction followed by Stabilization

State: Kentucky | ID #: 0000000016

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: URANIUM SALVAGE

Matrix: Aqueous Liquid | Waste Type: MLLW

Waste Stream Description and Source:

This stream consists of aqueous liquid and acidic liquid uranium bearing solutions created from analytical activities in C-710 laboratory. The liquid can contain both radionuclides and heavy metals.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	20.5	20,455.0

Treatability Group:

MLLW CH, Aqueous Liquid, Toxic Metals w/o Mercury

Treatment Status:

Currently being treated on-site at the C-400-D Lime Precipitation Unit facility. This stream undergoes only volume reduction at the C-400-D Lime Precipitation Unit Facility. Treatment reduces the volume of the waste but does not treat all the hazardous components.

Technology Status:

Technology exists. No modifications are necessary.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

None. The radiation concentrates in the precipitate, but the potential for exposure is low.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

General Comments:

The LDR effective date for this stream was 05/08/92.

State: Kentucky	**ID #: 0000000016**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: URANIUM SALVAGE	
Matrix: Aqueous Liquid	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002A	Tech.	Deactivation
D006B	Conc.	Stabilization
D007	Conc.	Chemical Reduction followed by Stabilization
D008B	Conc.	Stabilization

State: Kentucky	ID #: 0000000017
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: AQUEOUS CLEANER	
Matrix: Aqueous Liquid	Waste Type: MLLW

Waste Stream Description and Source:

This stream is spent cleaner used to degrease equipment. The cleaner is an aqueous solution prepared from bulk concentrated commercial cleaner having the name "Blue Gold". Analytical results show the solution may contain lead and uranium.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
3.3	3,288.0	0.000	0.000	3.3	3,288.0	3.6	3,635.0

Treatability Group:

MLLW CH, Aqueous Liquid, Toxic Metals w/o Mercury

Treatment Status:

Plan to treat off-site. This stream is listed in the PGDP portion of the K-25 TSCA Incinerator burn plan and is approved for treatment. The incinerator ash will require testing (and possibly additional treatment) to assure the hazardous characteristics of the waste no longer exist.

Technology Status:

Technology exists. No modifications are necessary.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.
2) Technology changes: process changes; equipment, piping, or layout changes; automation; changes in operational settings; and energy, water conservation.
3) Product change: product substitution and conservation; and change in product composition.

State: Kentucky	**ID #: 0000000017**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: AQUEOUS CLEANER	
Matrix: Aqueous Liquid	**Waste Type: MLLW**

General Comments:
The LDR effective date for this stream was 05/08/92.

EPA CODES
Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002B	Tech.	Deactivation
D008B	Conc.	Stabilization

State: Kentucky	**ID #: 0000000018**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: MISCELLANEOUS REACTIVE WASTES	
Matrix: Other	**Waste Type: MLLW**

Waste Stream Description and Source:

This stream in intended to cover a variety of reactives which could be generated at PGDP, as the result of either use or disposal of excess chemicals. This stream could consist of a variety of waste forms.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	4.5	4,545.0

Treatability Group:

MLLW CH, Other

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

General Comments:

1) Because of the miscellaneous nature of this stream, the stream could be classified as either waste-water or non-wastewater.
2) The LDR effective date for this stream was 05/08/92.

State: Kentucky **ID #: 0000000018**

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: MISCELLANEOUS REACTIVE WASTES

Matrix: Other **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003A	Conc.	Chemical Oxidation followed by Alkaline Chlorination
D003B	Tech.	Deactivation
D003C	Tech.	Deactivation
D003D	Tech.	Deactivation
D003E	Tech.	Deactivation

State: Kentucky	**ID #: 0000000019**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: ARSENIC BEARING COMPOUND	
Matrix: Lab Packs with Metals	**Waste Type: MLLW**

Waste Stream Description and Source:

Waste stream consists of arsenic bearing compounds which can be present in unused excess laboratory chemicals. The stream will be excess laboratory chemicals. This is a waste stream that has not yet been produced.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	0.910	910.0

Treatability Group:

MLLW CH, Lab Packs with Metals, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

General Comments:

1) The assumption was made that the waste would be packaged as lab packs with metals.
2) The LDR effective date for this stream was 05/08/92.

State: Kentucky	**ID #: 0000000019**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: ARSENIC BEARING COMPOUND	
Matrix: Lab Packs with Metals	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D004	Conc.	Vitrification

The alternate LDR treatment standards for labpacks is incineration as a method of treatment and a requirement for the incinerator residues to meet the treatment standards for the TC toxic metals (i.e., D004-D008, and D010-D011).

State: Kentucky | ID #: 0000000020

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: SOLID MATERIALS CONTAINING TOXIC METALS

Matrix: Heterogeneous Debris | Waste Type: MLLW

Waste Stream Description and Source:

This stream consists of a variety of solids which contain heavy metals. These solids consist of glass beads, filters, Zorball, and hydrolyzed UF6. Some wastes result from process activities; other wastes are result of spill cleanup activities.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
23.3	23,328.0	0.000	0.000	23.3	23,328.0	2.3	2,270.0

Treatability Group:

MLLW CH, Heterogeneous Debris, Toxic Metals w/ Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

General Comments:

The LDR effective date for this stream was 05/08/92.

State: Kentucky **ID #: 0000000020**

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: SOLID MATERIALS CONTAINING TOXIC METALS

Matrix: Heterogeneous Debris **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D004	Conc.	Vitrification
D005	Conc.	Chemical Precipitation; or Stabilization
D006B	Conc.	Stabilization
D007	Conc.	Chemical Reduction followed by Stabilization
D008B	Conc.	Stabilization
D009C	Conc.	Thermal Recovery of Metals; Acid Leaching; Stabilization; or Incineration
D010	Conc.	Stabilization
D011	Conc.	Stabilization

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: Kentucky **ID #: 0000000021**

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: ASH RECIEVERS

Matrix: Inorganic Sludges/Particulates **Waste Type: MLLW**

Waste Stream Description and Source:

This stream consists of ash containing uranium and metal contaminants. The waste stream was generated when UF4 was fluorinated in a gas flow chamber in C-410. The solid waste or ash was not gaseous and fell into the ash receiver.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
7.3	7,273.0	0.000	0.000	7.3	7,273.0	0.000	0.000

Treatability Group:

MLLW CH, Inorganic Sludges/Particulates, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) Treatments using chemical separation could result in concentration of certain isotopes of uranium and plutonium to form a critical mass; concentration of polonium or plutonium in contact with beryllium could result in production of neutrons.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

State: Kentucky **ID #: 0000000021**

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: ASH RECIEVERS

Matrix: Inorganic Sludges/Particulates **Waste Type: MLLW**

General Comments:

The LDR effective date for this stream was 05/08/92.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D004	Conc.	Vitrification
D007	Conc.	Chemical Reduction followed by Stabilization

State: Kentucky | ID #: 0000000022

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: URANIUM PRECIPITATE

Matrix: Inorganic Sludges/Particulates | Waste Type: MLLW

Waste Stream Description and Source:

This steam is generated when non-RCRA cleaning solutions generated from decontamination activities are treated by C-400-D lime precipitation unit. Although the feed solutions are not RCRA related, the precipitate from this treatment process has been shown to be RCRA. All batches of sludge are tested for hazardous components.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
9.2	9,225.0	0.000	0.000	9.2	9,225.0	3.6	3,635.0

Treatability Group:

MLLW CH, Inorganic Sludges/Particulates, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

General Comments:

The LDR effective date for this stream was 05/08/92.

State: Kentucky **ID #: 0000000022**

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: URANIUM PRECIPITATE

Matrix: Inorganic Sludges/Particulates **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D006B	Conc.	Stabilization
D007	Conc.	Chemical Reduction followed by Stabilization
D008B	Conc.	Stabilization

State: Kentucky	**ID #: 0000000023**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: GOLD DISSOLVER SLUDGE	
Matrix: Inorganic Sludges/Particulates	**Waste Type: MLLW**

Waste Stream Description and Source:

This stream consists of sludge generated from C-400 Gold Dissolver Process. The waste consists of a filter cake generated from the C-400-D lime precipitation process; the filter cake contains uranium and other metals. No future generation of this stream is expected, however the PGDP Part B Permit allows the listed quantities to be produced.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.003	3.0	0.000	0.000	0.003	3.0	0.025	25.0

Treatability Group:

MLLW CH, Inorganic Sludges/Particulates, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) Certain isotopes of U, Pu, Am, Cm, Cf, Np and Th are non-accountable if present below specific levels, and require different levels of safeguards, depending on the amount present. Treatments resulting in concentration of the material can result in the "roll up" of large volumes of non-accountable wastes into a smaller volume of accountable waste or change a mixed low-level waste to a TRU waste.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

State: Kentucky **ID #: 0000000023**

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: GOLD DISSOLVER SLUDGE

Matrix: Inorganic Sludges/Particulates **Waste Type: MLLW**

General Comments:
The LDR effective date for this stream was 05/08/92.

EPA CODES
Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D006B	Conc.	Stabilization
D008B	Conc.	Stabilization

State: Kentucky	**ID #: 0000000024**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: CHROMIUM BEARING LIQUIDS AND SOLIDS	
Matrix: Other	**Waste Type: MLLW**

Waste Stream Description and Source:

This stream consists of liquids and solids containing chromium above TCLP limits, including spent articles, spent materials (respirator cartridges) and spill cleanup debris and recycled water. This stream could possibly contain metals having many different waste forms.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
11.3	11,250.0	0.000	0.000	11.3	11,250.0	9.1	9,090.0

Treatability Group:

MLLW CH, Other, Toxic Organics and Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) High beta or gamma levels in contact with organics can result in radiolysis, with production of hydrogen gas and formation of free radicals that attack structural materials, particularly steel. The buildup of hydrogen gas and embrittlement of structural materials are important considerations, in storage, design, and operation of treatment facilities, and in stabilization of the final waste form.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.
2) Technology changes: process changes; equipment, piping, or layout changes; automation; changes in operational settings; and energy, water conservation.

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State: Kentucky **ID #: 0000000024**

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: CHROMIUM BEARING LIQUIDS AND SOLIDS

Matrix: Other **Waste Type: MLLW**

General Comments:

This waste stream can consist of a variety of waste categories. The LDR effective date for this stream was 05/08/92.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D007	Conc.	Chemical Reduction followed by Stabilization
D008B	Conc.	Stabilization
D018		Not currently prohibited under the LDR Program.

State: Kentucky	**ID #: 0000000025**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: MAGNESIUM FLUORIDE PELLETS	
Matrix: Inorganic Debris	**Waste Type: MLLW**

Waste Stream Description and Source:

This stream was spent magnesium fluoride trap mix generated from filtering Tc-99 out of the process gas stream in the cascade building at C-310. This stream is no longer being generated, but inventories from past generation are stored at PGDP.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
3.3	3,340.0	0.000	0.000	3.3	3,340.0	0.000	0.000

Treatability Group:

MLLW CH, Inorganic Debris, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) High beta or gamma levels in contact with organics can result in radiolysis, with production of hydrogen gas and formation of free radicals that attack structural materials, particularly steel. The buildup of hydrogen gas and embrittlement of structural materials are important considerations, in storage, design, and operation of treatment facilities, and in stabilization of the final waste form.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

State: Kentucky	**ID #: 0000000025**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: MAGNESIUM FLUORIDE PELLETS	
Matrix: Inorganic Debris	**Waste Type: MLLW**

General Comments:
The LDR effective date for this stream was 05/08/92.

EPA CODES
Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D007	Conc.	Chemical Reduction followed by Stabilization

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: Kentucky | ID #: 0000000026

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: SODIUM DICHROMATE

Matrix: Inorganic Sludges/Particulates | Waste Type: MLLW

Waste Stream Description and Source:

This stream is spent sodium dichromate solids resulting from metal plating activities at C-400.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.250	249.0	0.000	0.000	0.250	249.0	0.570	565.0

Treatability Group:

MLLW CH, Inorganic Sludges/Particulates, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

General Comments:

The LDR effective date for this stream was 05/08/92.

State: Kentucky	**ID #: 0000000026**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: SODIUM DICHROMATE	
Matrix: Inorganic Sludges/Particulates	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D007	Conc.	Chemical Reduction followed by Stabilization

State: Kentucky	**ID #: 0000000027**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: POTASSIUM DICHROMATE FILTER CAKE	
Matrix: Inorganic Sludges/Particulates	**Waste Type: MLLW**

Waste Stream Description and Source:

This stream is filter cake resulting from treatment of potassium dichromate solution. The potassium dichromate solution was generated at C-720 to clean parts. The residue was generated in the Pilot Lab, which has been discontinued. Further generation of this waste is not anticipated.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.100	104.0	0.000	0.000	0.100	104.0	0.000	0.000

Treatability Group:

MLLW CH, Inorganic Sludges/Particulates, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

General Comments:

1) Generation of this waste is listed in the PGDP Part B permit.
2) The LDR effective date for this stream was 05/08/92.

State: Kentucky **ID #: 0000000027**

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: POTASSIUM DICHROMATE FILTER CAKE

Matrix: Inorganic Sludges/Particulates **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D007	Conc.	Chemical Reduction followed by Stabilization

State: Kentucky	ID #: 0000000028
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: CASCADE VACUUM DUST	
Matrix: Inorganic Sludges/Particulates	Waste Type: MLLW

Waste Stream Description and Source:
This stream is dust and particulates removed from cascade equipment during maintenance activities.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.155	155.0	0.000	0.000	0.155	155.0	1.8	1,815.0

Treatability Group:
MLLW CH, Inorganic Sludges/Particulates, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology assessment has not started.

Radiation Characteristics:
1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:
1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) Certain isotopes of U, Pu, Am, Cm, Cf, Np and Th are non-accountable if present below specific levels, and require different levels of safeguards, depending on the amount present. Treatments resulting in concentration of the material can result in the "roll up" of large volumes of non-accountable wastes into a smaller volume of accountable waste or change a mixed low-level waste to a TRU waste.

Waste Minimization Activities:
1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

State: Kentucky **ID #: 0000000028**

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: CASCADE VACUUM DUST

Matrix: Inorganic Sludges/Particulates **Waste Type: MLLW**

General Comments:

The LDR effective date for this stream was 05/08/92.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D007	Conc.	Chemical Reduction followed by Stabilization

State: Kentucky | ID #: 0000000029
Site: PADUCAH GASEOUS DIFFUSION PLANT
Waste Stream Name: TRIOXIDE SLUDGE
Matrix: Inorganic Sludges/Particulates | Waste Type: MLLW

Waste Stream Description and Source:
This stream is sludge periodically removed from trioxide cleaning tank at C-400. The waste can also be generated when the cleaning tank solution is changed out.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.200	226.0	0.000	0.000	0.200	226.0	0.450	450.0

Treatability Group:
MLLW CH, Inorganic Sludges/Particulates, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology assessment has not started.

Radiation Characteristics:
1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:
1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) Certain isotopes of U, Pu, Am, Cm, Cf, Np and Th are non-accountable if present below specific levels, and require different levels of safeguards, depending on the amount present. Treatments resulting in concentration of the material can result in the "roll up" of large volumes of non-accountable wastes into a smaller volume of accountable waste or change a mixed low-level waste to a TRU waste.

Waste Minimization Activities:
1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

State: Kentucky **ID #: 0000000029**

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: TRIOXIDE SLUDGE

Matrix: Inorganic Sludges/Particulates **Waste Type: MLLW**

General Comments:
The LDR effective date for this stream was 05/08/92.

EPA CODES
Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D007	Conc.	Chemical Reduction followed by Stabilization
D008B	Conc.	Stabilization

State: Kentucky | ID #: 0000000030

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: MISCELLANEOUS LEAD BEARING WASTE

Matrix: Inorganic Debris | Waste Type: MLLW

Waste Stream Description and Source:

Miscellaneous lead contaminated solids (weights, shot, bricks), PPE, brass turnings or chips, and brass parts. Waste is generated by firing range activities and cleanup, spent light bulbs, and machine metals operations.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
9.2	9,213.0	0.000	0.000	9.2	9,213.0	9.1	9,090.0

Treatability Group:

MLLW CH, Inorganic Debris, Toxic Metals w/ Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

General Comments:

The LDR effective date for this stream was 05/08/92.

State: Kentucky **ID #: 0000000030**

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: MISCELLANEOUS LEAD BEARING WASTE

Matrix: Inorganic Debris **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008B	Conc.	Stabilization
D009C	Conc.	Thermal Recovery of Metals; Acid Leaching; Stabilization; or Incineration

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: Kentucky | ID #: 0000000031

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: HOT WATER RINSE TANK SLUDGE

Matrix: Inorganic Sludges/Particulates | Waste Type: MLLW

Waste Stream Description and Source:

This stream is sludge from tank bottoms resulting from C-400 hot water tank cleanup. When tank solutions are changed out, the water in the tank does not test positive for hazardous components, but the sludge at the bottom does.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
1.7	1,741.0	0.000	0.000	1.7	1,741.0	9.1	9,090.0

Treatability Group:

MLLW CH, Inorganic Sludges/Particulates, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

General Comments:

The LDR effective date for this stream was 05/08/92.

State: Kentucky	**ID #: 0000000031**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: HOT WATER RINSE TANK SLUDGE	
Matrix: Inorganic Sludges/Particulates	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008B	Conc.	Stabilization

State: Kentucky	**ID #: 0000000032**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: ALKALI CLEANING TANK LIQUID	
Matrix: Aqueous Liquid	**Waste Type: MLLW**

Waste Stream Description and Source:

This stream is liquid from the alkali cleaning tank in C-400. The stream results when liquid is changed out.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
1.8	1,825.0	0.000	0.000	1.8	1,825.0	0.140	135.0

Treatability Group:

MLLW CH, Aqueous Liquid, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) High beta or gamma levels in contact with organics can result in radiolysis, with production of hydrogen gas and formation of free radicals that attack structural materials, particularly steel. The buildup of hydrogen gas and embrittlement of structural materials are important considerations, in storage, design, and operation of treatment facilities, and in stabilization of the final waste form.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

State: Kentucky **ID #: 0000000032**

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: ALKALI CLEANING TANK LIQUID

Matrix: Aqueous Liquid **Waste Type: MLLW**

General Comments:

The LDR effective date for this stream was 05/08/92.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002B	Tech.	Deactivation
D008B	Conc.	Stabilization

State: Kentucky | ID #: 0000000033

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: MISCELLANEOUS MERCURY BEARING WASTE

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Spent batteries, mercury liquid contaminated with dirt and debris, lab solutions, clothing and absorbants contaminated with mercury, glass, metal, and plaster. Stream consists of spent materials, spill cleanup, used mercury, and unused waste mercury.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.450	455.0	0.000	0.000	0.450	455.0	1.4	1,360.0

Treatability Group:

MLLW CH, Other, Toxic Metals w/ Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.
2) Product change: product substitution and conservation; and change in product composition.

General Comments:

The LDR effective date for this stream was 05/08/92.

State: Kentucky ID #: 0000000033

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: MISCELLANEOUS MERCURY BEARING WASTE

Matrix: Other Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D009A	Tech.	Incineration; or Mercury Roast/Retort
D009B	Tech.	Mercury Roast/Retort
D009C	Conc.	Thermal Recovery of Metals; Acid Leaching; Stabilization; or Incineration
D009D	Tech.	Amalgamation
D009E	Tech.	Incineration
U151	Tech.	Amalgamation

State: Kentucky	**ID #: 0000000034**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: MISCELLANEOUS SELENIUM BEARING WASTE	
Matrix: Other	**Waste Type: MLLW**

Waste Stream Description and Source:

The stream is designed to handle miscellaneous selenium wastes that do not belong in the Selenium Rectifiers stream. This stream would contain liquids and/or solids hazardous for selenium. Waste could result from spills, unused materials, or spent materials.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	0.450	450.0

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

General Comments:

The LDR effective date for this stream was 05/08/92.

State: Kentucky	**ID #: 0000000034**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: MISCELLANEOUS SELENIUM BEARING WASTE	
Matrix: Other	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D010	Conc.	Stabilization

State: Kentucky	**ID #: 0000000035**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: SELENIUM RECTIFIERS	
Matrix: Inorganic Debris	**Waste Type: MLLW**

Waste Stream Description and Source:

Selenium rectifiers are electrical components that have a selenium oxide coating. Waste stream results from repairs or change out of components.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.127	127.0	0.000	0.000	0.127	127.0	1.1	1,135.0

Treatability Group:

MLLW CH, Inorganic Debris, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

General Comments:

The LDR effective date for this stream was 05/08/92.

State: Kentucky	**ID #: 0000000035**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: SELENIUM RECTIFIERS	
Matrix: Inorganic Debris	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D010	Conc.	Stabilization

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: Kentucky	**ID #: 0000000036**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: PHOTOGRAPHIC FIXER SOLUTION	
Matrix: Aqueous Liquid	**Waste Type: MLLW**

Waste Stream Description and Source:

This stream is aqueous waste solutions resulting from photographic and x-ray emulsions used in the C-100 photo lab, C-710 laboratory, and C-720 QE laboratory.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.370	373.0	0.000	0.000	0.370	373.0	4.3	4,315.0

Treatability Group:

MLLW CH, Aqueous Liquid, Toxic Metals w/o Mercury

Treatment Status:

Plan to treat off-site. Waste will be treated by incineration and this stream is included in the PGDP portion of the K-25 TSCA Incinerator burn plan. The incinerator ash must undergo further testing (and possibly additional treatment) to meet the concentration limits for land disposal specified in 40 CFR 268.41.

Technology Status:

Technology exists. No modifications are necessary.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

General Comments:

The LDR effective date for this stream was 05/08/92.

State: Kentucky	**ID #: 0000000036**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: PHOTOGRAPHIC FIXER SOLUTION	
Matrix: Aqueous Liquid	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D011	Conc.	Stabilization

4692

State: Kentucky | ID #: 0000000037

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: SPENT SOLVENTS

Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:

This stream consists of spent solvent liquids generated at PGDP and having EPA codes F001, F002, F003, F004, and F005. This waste stream is the result of degreasing uses, solvent uses, spill cleanup, etc.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.611	611.0	0.200	200.0	0.811	811.0	36.4	36,360.0

Treatability Group:

MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:

Currently being treated off-site at the K-25 Site TSCA Incinerator facility. This waste is currently listed in the burn plan for PGDP portion of the K-25 TSCA Incinerator. The incinerator ash resulting from treatment will still be F listed, and must be tested with TCLP to see if it meets the requirements of 40 CFR 268.41.

Technology Status:

Technology exists. No modifications are necessary.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) Certain isotopes of U, Pu, Am, Cm, Cf, Np and Th are non-accountable if present below specific levels, and require different levels of safeguards, depending on the amount present. Treatments resulting in concentration of the material can result in the "roll up" of large volumes of non-accountable wastes into a smaller volume of accountable waste or change a mixed low-level waste to a TRU waste.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

State: Kentucky	**ID #: 0000000037**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: SPENT SOLVENTS	
Matrix: Organic Liquids	**Waste Type: MLLW**

2) Product change: product substitution and conservation; and change in product composition.

General Comments:
The LDR effective date for this stream was 11/08/86.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F001	Conc.	Incineration
F002	Conc.	Incineration
F003	Conc.	Incineration
F004	Conc.	Incineration
F005A	Conc.	Incineration
F005B	Tech.	Incineration

State: Kentucky | ID #: 0000000038
Site: PADUCAH GASEOUS DIFFUSION PLANT
Waste Stream Name: SPENT SOLVENT SOLIDS
Matrix: Organic Debris | Waste Type: MLLW

Waste Stream Description and Source:

This stream consists of solids containing spent solvents or mixed with spent solvents. This stream will consist of rags, wood pellets, sludge, and PPE, all contaminated with solvents. The waste stream results from uses of solvents (solvent rags) or spill cleanups or recovery of TCE at C-400. The stream can also include dirt resulting from spill cleanup activities.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
1.5	1,516.0	16.0	16,000.0	17.5	17,516.0	90.9	90,910.0

Treatability Group:

MLLW CH, Organic Debris, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time. The K-25 TSCA Incinerator currently will not accept solids and is therefore not permitted to treat this stream.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) High beta or gamma levels in contact with organics can result in radiolysis, with production of hydrogen gas and formation of free radicals that attack structural materials, particularly steel. The buildup of hydrogen gas and embrittlement of structural materials are important considerations, in storage, design, and operation of treatment facilities, and in stabilization of the final waste form.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.
2) Product change: product substitution and conservation; and change in product composition.

State: Kentucky **ID #: 0000000038**

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: SPENT SOLVENT SOLIDS

Matrix: Organic Debris **Waste Type: MLLW**

General Comments:

This stream has the potential to contain heavy metals that have not yet been identified, in addition to those waste codes already listed.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F001	Conc.	Incineration
F002	Conc.	Incineration
F003	Conc.	Incineration
F004	Conc.	Incineration
F005A	Conc.	Incineration
F005B	Tech.	Incineration

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: Kentucky | ID #: 0000000039

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: TRICHLOROETHYLENE

Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:

This waste stream consists of solutions containing trichloroethylene which results from degreasing operations or activities.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	3.1	3,121.0	3.1	3,121.0	15.6	15,605.0

Treatability Group:

MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:

Plan to treat off-site. This waste is currently listed in the PGDP portion of the K-25 Site TSCA Incinerator's burn plan.

Technology Status:

Technology exists. No modifications are necessary.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) High beta or gamma levels in contact with organics can result in radiolysis, with production of hydrogen gas and formation of free radicals that attack structural materials, particularly steel. The buildup of hydrogen gas and embrittlement of structural materials are important considerations, in storage, design, and operation of treatment facilities, and in stabilization of the final waste form.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.
2) Raw material changes: raw material purification; and substitution.
3) Product change: product substitution and conservation; and change in product composition.

State: Kentucky **ID #: 0000000039**

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: TRICHLOROETHYLENE

Matrix: Organic Liquids **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D040		Not currently prohibited under the LDR Program.
F001	Conc.	Incineration

State: Kentucky | ID #: 0000000040

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: WASTE OILS

Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:

This stream consists of vegetable and petroleum based lubricating oils that come from a variety of equipment and sources. The oil may or may not contain RCRA metals from equipment bearing wear. The oil may or may not contain organic constituents listed as characteristically hazardous. The oil is produced from routine maintenance or from draining of oil-containing equipment prior to disposal of the equipment.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
10.7	10,722.0	12.5	12,500.0	23.2	23,222.0	22.7	22,725.0

Treatability Group:

MLLW CH, Organic Liquids, Toxic Organics and Metals w/o Mercury

Treatment Status:

Plan to treat off-site. This waste will be treated at the Oak Ridge TSCA Incinerator with partial shipment anticipated in 1993. Due to the D008 waste code, the incinerator ash may require stabilization to meet land disposal restriction concentration limits specified in 40 CFR 261.

Technology Status:

Technology exists. No modifications are necessary.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

General Comments:

This waste stream contains the entire inventory for the combined waste streams #40 and #41 in the PGDP Part B permit.

State: Kentucky **ID #: 0000000040**

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: WASTE OILS

Matrix: Organic Liquids **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008B	Conc.	Stabilization
D018		Not currently prohibited under the LDR Program.

State: Kentucky	ID #: 0000000041
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: WASTE OILS	
Matrix: Organic Liquids	Waste Type: MLLW

Waste Stream Description and Source:

This stream consists of vegetable and petroleum based lubricating oils that come from a variety of equipment and sources. The oil may or may not contain RCRA metals from equipment bearing wear. The oil may or may not cotain organic constituents listed as characteristically hazardous. The oil is produced from routine maintenance or from draining of oil-containing equipment prior to disposal of the equipment.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Treatability Group:

MLLW CH, Organic Liquids

Treatment Status:

Plan to treat off-site. This waste will be treated at the Oak Ridge TCSA Incinerator with partial shipment anticipated in 1993. Due to the D008 waste code, the incinerator ash may require stabilization to meet land disposal restriction concentration limits specified in 40 CFR 261.

Technology Status:

Technology exists. No modifications are necessary.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

General Comments:

This waste stream is the companion to waste stream #40 that was combined in the PGPD Part B permit. The inventory for this waste stream is included as part of the total inventory for waste stream #40.

EPA CODES

State: Kentucky	**ID #: 0000000041**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: WASTE OILS	
Matrix: Organic Liquids	**Waste Type: MLLW**

Waste Characterization Basis: Process Knowledge

No applicable RCRA Codes have been identified.

State: Kentucky | ID #: 0000000042

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: OFFSET BLANKET AND ROLLER WASH

Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:

This stream consists of product which contains perchloroethylene generated from the C-100 print shop through degreasing and cleaning activities.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	2.2	2,270.0

Treatability Group:

MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time. This stream is listed on the PGDP permit, but is no longer being generated. This waste stream could potentially be produced again, depending on program changes.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

General Comments:

The LDR effective date for this stream was 05/08/92.

State: Kentucky	**ID #: 0000000042**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: OFFSET BLANKET AND ROLLER WASH	
Matrix: Organic Liquids	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
D039		Not currently prohibited under the LDR Program.

State: Kentucky	ID #: 0000000043
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: METHANOL ACETONE	
Matrix: Organic Liquids	Waste Type: MLLW

Waste Stream Description and Source:
This stream is spent solution used as a solvent or degreaser.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	0.910	905.0

Treatability Group:
MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:
Have not identified a planned facility for this waste stream at this time. Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Technology Status:
Technology assessment has not started.

Radiation Characteristics:
1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:
1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:
1) Product change: product substitution and conservation; and change in product composition.

General Comments:
The LDR effective date for this stream was 05/08/92.

State: Kentucky	**ID #: 0000000043**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: METHANOL ACETONE	
Matrix: Organic Liquids	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
F003	Conc.	Incineration

State: Kentucky | ID #: 0000000044

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: DIBUTYL CARBITOL AND SPENT SOLVENTS

Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:

This stream is spent solutions used as solvents, degreasers, and also xylene/dibutyl carbitol used as an extractant and scintillation solution for radioactive analysis in the C-710 uranium analysis laboratory.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.009	9.0	0.530	530.0	0.539	539.0	2.7	2,695.0

Treatability Group:

MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:

Plan to treat off-site. Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Technology Status:

Technology exists. No modifications are necessary.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

1092

State: Kentucky **ID #: 0000000044**

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: DIBUTYL CARBITOL AND SPENT SOLVENTS

Matrix: Organic Liquids **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
F001	Conc.	Incineration
F003	Conc.	Incineration

State: Kentucky	**ID #: 0000000045**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: PCB/SOLVENT CONTAMINATED OIL	
Matrix: Organic Liquids	**Waste Type: MLLW**

Waste Stream Description and Source:

Stream consists of oil contaminated with PCB and solvents. Stream originates from maintenance and laboratory activities.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	1.2	1,203.0	1.2	1,203.0	6.0	6,015.0

Treatability Group:

MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:

Currently being treated off-site at the K-25 Site TSCA Incinerator facility. This stream is approved for treatment (the PGDP portion of the K-25 TSCA Incinerator burn plan) for treatment at the Oak Ridge Incinerator. The treatment produces incinerator ash which requires further treatment.

Technology Status:

Technology exists. No modifications are necessary.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) High beta or gamma levels in contact with organics can result in radiolysis, with production of hydrogen gas and formation of free radicals that attack structural materials, particularly steel. The buildup of hydrogen gas and embrittlement of structural materials are important considerations, in storage, design, and operation of treatment facilities, and in stabilization of the final waste form.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

4692

State: Kentucky	**ID #: 0000000045**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: PCB/SOLVENT CONTAMINATED OIL	
Matrix: Organic Liquids	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
F003	Conc.	Incineration
F005A	Conc.	Incineration

State: Kentucky	**ID #: 0000000046**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: SILVER CYANIDE	
Matrix: Lab Packs with Metals	**Waste Type: MLLW**

Waste Stream Description and Source:

Silver cyanide solutions generated through excess lab material no longer needed, and through spent lab solutions from C-710 laboratory.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.100	166.0	0.000	0.000	0.100	166.0	0.500	830.0

Treatability Group:

MLLW CH, Lab Packs with Metals, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

General Comments:

The LDR effective date for this stream was 07/08/87.

State: Kentucky **ID #: 0000000046**

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: SILVER CYANIDE

Matrix: Lab Packs with Metals **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003A	Conc.	Chemical Oxidation followed by Alkaline Chlorination
D011	Conc.	Stabilization
F007	Conc.	Alkaline Chlorination followed by Chemical Precipitation; and Stabilization

The alternate LDR treatment standards for labpacks is incineration as a method of treatment and a requirement for the incinerator residues to meet the treatment standards for the TC toxic metals (i.e., D004-D008, and D010-D011).

State: Kentucky | ID #: 0000000047

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: PENTACHLOROPHENOL

Matrix: Organic Sludges/Particulates | Waste Type: MLLW

Waste Stream Description and Source:

Waste stream consists of unused Naphchlor-G fungicide. The waste is 85 to 95% pentachlorphenol. Use of this material has been discontinued at PGDP, but waste is in storage from past use.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	10.1	10,091.0	10.1	10,091.0	0.000	0.000

Treatability Group:

MLLW CH, Organic Sludges/Particulates, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

1) Technology changes: process changes; equipment, piping, or layout changes; automation; changes in operational settings; and energy, water conservation.
2) Raw material changes: raw material purification; and substitution.

General Comments:

The LDR effective date for this stream was 11/08/88.

State: Kentucky **ID #: 0000000047**

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: PENTACHLOROPHENOL

Matrix: Organic Sludges/Particulates **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D037		Not currently prohibited under the LDR Program.
F027	Conc.	Incineration

State: Kentucky | ID #: 0000000048

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: MISC. DISCARDED LABORATORY CHEMICALS

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Laboratory chemicals, and unused materials such as industrial supplies. Items are discarded because they have exceeded shelf life or due to programmatic changes. The lab chemicals will be discarded as lab packs and will not contain any mercury. The discarded industrial supplies may have various P and U codes that cannot be determined until generation occurs.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.130	131.0	0.000	0.000	0.130	131.0	0.660	655.0

Treatability Group:

MLLW CH, Other

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) High beta or gamma levels in contact with organics can result in radiolysis, with production of hydrogen gas and formation of free radicals that attack structural materials, particularly steel. The buildup of hydrogen gas and embrittlement of structural materials are important considerations, in storage, design, and operation of treatment facilities, and in stabilization of the final waste form.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

State: Kentucky **ID #: 0000000048**

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: MISC. DISCARDED LABORATORY CHEMICALS

Matrix: Other **Waste Type: MLLW**

General Comments:

This is a catch-all category, therefore nearly every waste code is possible. It is also possible that any waste category could be present in this stream. The LDR effective date for this stream was 05/08/92. Many codes likely apply, but no applicable RCRA codes have been identified.

EPA CODES

Waste Characterization Basis: Process Knowledge

No applicable RCRA Codes have been identified.

State: Kentucky | ID #: 0000000049

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: MISCELLANEOUS TCLP WASTES

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Stream consists of laboratory samples, chromate water, and fluorescent bulbs. Streams consists of items which have failed the TCLP test. The stream is generated by spill cleanup, spent materials, etc. Cause of generation can vary from maintenance to process activities.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
12.0	12,000.0	0.000	0.000	12.0	12,000.0	22.7	22,725.0

Treatability Group:

MLLW CH, Other

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) High beta or gamma levels in contact with organics can result in radiolysis, with production of hydrogen gas and formation of free radicals that attack structural materials, particularly steel. The buildup of hydrogen gas and embrittlement of structural materials are important considerations, in storage, design, and operation of treatment facilities, and in stabilization of the final waste form.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.
2) Raw material changes: raw material purification; and substitution.
3) Product change: product substitution and conservation; and change in product composition.

State: Kentucky	**ID #: 0000000049**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: MISCELLANEOUS TCLP WASTES	
Matrix: Other	**Waste Type: MLLW**

General Comments:

This stream can consist of a variety of wastes forms and categories. The LDR effective date for this stream was 05/08/92. Many waste codes likely apply, but no applicable RCRA codes have been identified.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

No applicable RCRA Codes have been identified.

State: Kentucky | ID #: 0000000050

Site: PADUCAH GASEOUS DIFFUSION PLANT

Waste Stream Name: MULTISOURCE LEACHATE FROM TSD FACILITIES

Matrix: Aqueous Liquid | Waste Type: MLLW

Waste Stream Description and Source:

Leachate collected from TSD facilities and from maintenance. Stream results from restoration activity, maintenance, and spill cleanup.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Treatability Group:

MLLW CH, Aqueous Liquid, Toxic Organics and Metals w/ Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

General Comments:

1) The LDR effective date for this stream was 05/08/92.
2) F039 is a code associated with leachate. After treatment of the leachate, the residue must be tested for all hazardous components listed in 40 CFR 261 Appendix VII.
3) This waste stream has not yet been generated and five year projections are uncertain.

State: Kentucky	**ID #: 0000000050**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: MULTISOURCE LEACHATE FROM TSD FACILITIES	
Matrix: Aqueous Liquid	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F039	Conc.	Incineration; or Fuel Substitution (Organics) followed by Stabilization (Metals)

State: Kentucky	**ID #: 0000000051**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: AEROSOL CANS	
Matrix: Compressed Gases	**Waste Type: MLLW**

Waste Stream Description and Source:

Stream is aerosol cans with surface contamination. The cans are not punctured and contain product or propellant. These aerosol cans contain a variety of products, including solvents or flammable liquids. Aerosol cans which are not empty may still be classified as hazardous wastes.

Current Inventory as of December 31, 1991						Projected Generation 1992 through 1996	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
1.1	1,096.0	0.000	0.000	1.1	1,096.0	5.5	5,480.0

Treatability Group:

MLLW CH, Compressed Gases

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

1) Raw material changes: raw material purification; and substitution.
2) Product change: product substitution and conservation; and change in product composition.

General Comments:

The LDR effective date for this stream was 05/08/92.

State: Kentucky	**ID #: 0000000051**
Site: PADUCAH GASEOUS DIFFUSION PLANT	
Waste Stream Name: AEROSOL CANS	
Matrix: Compressed Gases	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001D	Tech.	Deactivation
D003C	Tech.	Deactivation

17.0 MAINE

Maine has one facility that generates, expects to generate, and/or stores DOE-managed mixed waste, the Portsmouth Naval Shipyard.

Figure 17.1 shows the location of this facility.

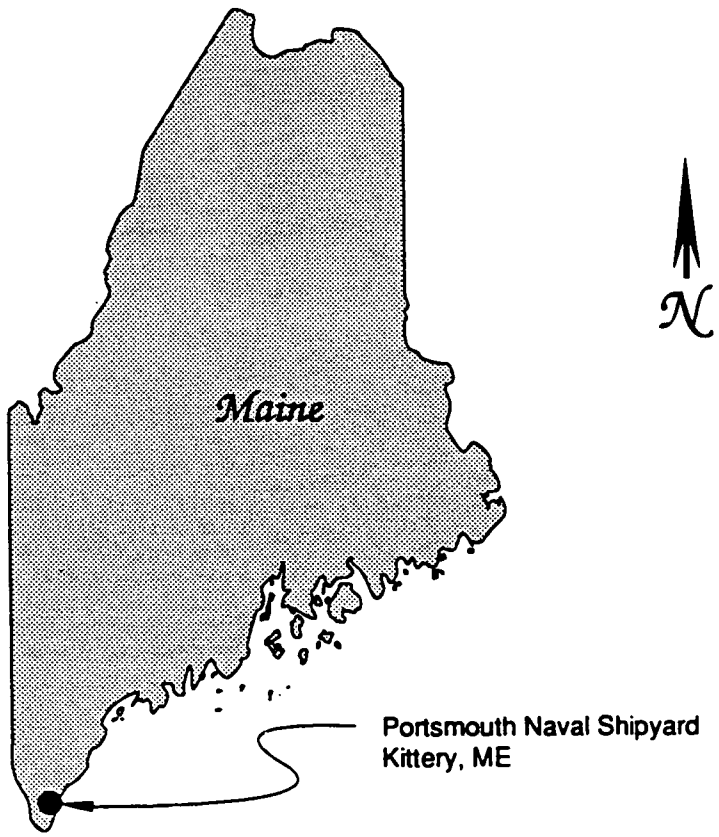

Figure 17-1. Maine Facility that Generates, Expects to Generate, and/or Stores DOE-Managed Mixed Waste.

17.1 Portsmouth Naval Shipyard

Portsmouth Naval Shipyard (PNS) is located on Seavey Island in the Piscataqua River, south of Kittery, Maine (Figure 17-1). The shipyard is a U.S. Navy facility that repairs, overhauls, and maintains Navy ships, including nuclear-powered ships. Drydocks, cranes, waste-handling facilities, and offices are located at the shipyard. Activities relating to naval nuclear propulsion systems are performed in accordance with the requirements and authority of the Naval Nuclear Propulsion Program. As described in Section 1.3, the Naval Nuclear Propulsion Program is a joint DOE and Department of Navy program responsible for all activities relating to naval nuclear propulsion. The only mixed waste generated by the shipyard is mixed low-level waste (MLLW).

17.1.1 Mixed Waste

17.1.1.1 High-Level Waste

There is no high-level waste currently stored or expected to be generated at the PNS.

17.1.1.2 Mixed Transuranic Waste

There is no mixed transuranic waste currently stored or expected to be generated at the PNS.

17.1.1.3 Mixed Low-Level Waste

PNS has in storage as of December 31, 1992, 0.14 m^3 (35 kg) of MLLW consisting of heterogeneous debris [lead chips and lead-contaminated rags from machining operations (Table 17.1-1)]. Since the State of Maine currently has base RCRA authority but does not have authority to regulate the hazardous constituents of mixed waste, this waste is not subject to the LDR storage prohibitions. The 5-year projected generation of mixed waste is about 0.2 m^3 (13.6 kg) (Table 17.1-1).

The mixed waste generated at PNS is MLLW resulting from ship overhaul, decommissioning, or routine maintenance in the shipyard. All waste streams are contact-handled, beta/gamma emitters with Co-60 as the primary radionuclide, and is characterized by sampling and analysis.

Waste minimization includes eliminating wherever technically allowed, the use of acetone and other F-listed solvents, lead- and chromium-based paints, lead shielding in disposal containers, and chemical paint removers that generate hazardous waste.

17.1.2 Treatment Facilities

Only small quantities of mixed waste are generated at PNS. As of this date, no treatment facilities for this waste have been identified. There are no existing or planned treatment facilities at the PNS. Where possible, RCRA simple treatment in the accumulation container will be performed in accordance with applicable regulations.

17.1.3 Technology Development

Since radiation levels are not of significance to affect treatment, these mixed waste streams should require technology comparable to that used in treating similar hazardous, but non-radioactive waste streams.

Table 17.1-1
MIXED WASTES AT PORTSMOUTH NAVAL SHIPYARD

Waste Type/Matrix	Number of Waste Streams	Inventory		Number of Waste Streams	Five-Year Projection	
		(m^3)	(kg)		(m^3)	(kg)
WASTE TYPE -- MLLW						
CH, Heterogeneous Debris	1	0.14	35.00	0	0.00	0.00
CH, Inorganic Sludges/particulates	0	0.00	0.00	1	0.20	13.60
Sub-Total MLLW:	1	0.14	35.00	1	0.20	13.60
TOTAL:	1	0.14	35.00	1	0.20	13.60

Concentration of radionuclides in treatment residues will need to be considered. There are no site-specific technology development activities for PNS.

17.1.4 Excess Heavy Metal Bearing Equipment

During equipment decommissioning, every effort is made to separate lead-bearing and other heavy metal components from the radioactive parts of the equipment to avoid declaring the entire unit mixed waste. The excess equipment containing recyclable heavy metals in storage at the shipyard as of December 31, 1992, was 10.7 m^3 (23,650 kg), with approximately 34 m^3 (44,200 kg) expected to become excess in the next 5 years.

WASTE

PROFILE

SHEETS

Portsmouth Naval Shipyard

PNS-WPS-1

April 1993

ROADMAP TO WASTE PROFILE SHEETS (WPS)

Waste Profile Sheets (WPS) have been compiled in this report for each of the mixed waste streams identified at the different DOE sites. Each WPS is a concise summary of the information required by the FFCAct-1992, with waste stream specific data primarily derived from the Waste Management Information System (WMIS) database. Each WPS consists of the following items:

Header: The information in the header in each WPS includes the State, the official name of the site, an identification number, an identifying waste stream name, the waste type, and the waste matrix. The identification number is either a number assigned by the WMIS database or a number assigned by the site. The waste stream name is a unique identifier which corresponds to the name used in the WMIS database, or is assigned by the site. The waste type is either HLW, MTRU, or MLLW. The waste matrix corresponds to the categories (or their further subdivisions) defined earlier based on the physical and chemical form of the waste.

Waste Stream Description and Source: This section of the WPS presents a short description of the source of the waste and the waste stream characteristics.

Inventory Table: The inventory table in each WPS reports the volume (m^3) and/or mass (kg) of each waste stream currently in storage, and projected to be generated in the next five years. The table also indicates the date assumed in calculating the current and projected inventories. As required by the FFCAct-1992, the table also differentiates between waste not subject to LDR and that subject to LDR for the current inventory.

Treatability Group: This section lists the name of the treatability group to which the waste stream belongs.

Treatment Status, Technology Status: This section of the WPS lists the status of the technology that could be applied to the waste stream for compliance with the LDR. This section provides information on if the waste stream is currently being treated, and if technology options and facilities for the treatment exist.

Radiation Characteristics Section: This section of the WPS provides additional information on the radiological characteristics of the waste (in addition to characterizing the waste stream as HLW, MTRU, or MLLW). This section of the WPS specifies whether the waste stream is contact handled or remote handled, if the radionuclides are alpha or beta/gamma emitters, and if they contain activation products.

Radiation Effects Section: As required by the FFCAct-1992, this section of the WPS lists possible effects of the radiological characteristics of the waste stream on treatment technologies that could be applicable to that waste stream. For example, radiation levels may require remote handling of the waste and affect the design and operation of the treatment facility. The presence of volatile radionuclides may require the containment of all off-gases from the treatment system.

Waste Minimization Activities: As required by the FFCAct-1992, this section of the WPS provides information on the waste minimization practices being used for the waste stream. This section provides information on if the waste minimization practices include good operating practices, technology changes, raw material changes, product changes, etc.

EPA Code: This table of the WPS reports the EPA hazardous waste codes applicable to the waste stream, the basis for assigning the codes (process knowledge or sampling/analysis), the LDR basis (which is either technology based or concentration based), and the BDAT for each of the EPA hazardous waste codes.

In summary, the WPS for each waste stream, along with the site sections in the report for each State (Section B), summarize the site-specific information required by the FFCAct-1992.

State: Maine | ID #: 0000000002
Site: PORTSMOUTH NAVAL SHIPYARD
Waste Stream Name: LEAD CONTAMINATED DEBRIS
Matrix: Heterogeneous Debris | Waste Type: MLLW

Waste Stream Description and Source:
Lead chips from machining operation and rags containing lead residue.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.142	35.0	0.000	0.000	0.142	35.0	0.000	0.000

Treatability Group:
MLLW CH, Heterogeneous Debris, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary. Technology to treat this waste should be consistent with technology needed to treat equivalent solely hazardous waste.

Radiation Characteristics:
1) Contact-handled
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
Radiation levels are not expected to cause significant radiological problems during treatment; treatment would be similar to that done on non-radioactive hazardous waste having the same characteristics. Concentration of radionuclides in treatment residue will be considered. Predominant radionuclide is Co-60.

Waste Minimization Activities:

Waste is no longer generated.

EPA CODES
Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008B	Conc.	Stabilization

State: Maine ID #: 0000000002

Site: PORTSMOUTH NAVAL SHIPYARD

Waste Stream Name: LEAD CONTAMINATED DEBRIS

Matrix: Heterogeneous Debris Waste Type: MLLW

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: Maine | ID #: 0000000003

Site: PORTSMOUTH NAVAL SHIPYARD

Waste Stream Name: PAINT CHIPS CONTAINING LEAD

Matrix: Inorganic Sludges/Particulates | Waste Type: MLLW

Waste Stream Description and Source:
Paint removed from radioactive surfaces.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	0.200	13.6

Treatability Group:
MLLW CH, Inorganic Sludges/Particulates ,Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time. Simple treatment by stabilization in accumulation container in accordance with applicable regulations.

Technology Status:
Technology exists. No modifications are necessary. Technology to treat this waste should be consistent with technology neede to treat equivalent solely hazardous waste.

Waste-Specific Radiation Effects on Treatment:
Radiation levels are not expected to cause significant radiological problems during treatment; treatment would be similar to that done on non-radioactive hazardous waste having the same characteristics. Predominant radionuclide is Co-60.

Waste Minimization Activities:
1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.
2) Waste avoidance due to recycling/reuse: solvent, oil, and metals recycling; chemical exchange and reuse; and packaging material reuse.

Use of lead-based paint has been eliminated wherever technically feasible.

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State: Maine | ID #: 0000000003

Site: PORTSMOUTH NAVAL SHIPYARD

Waste Stream Name: PAINT CHIPS CONTAINING LEAD

Matrix: Inorganic Sludges/Particulates | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008B	Conc.	Stabilization

18.0 MISSOURI

There are three Missouri facilities that generate, expect to generate, and/or store DOE-managed mixed waste.

- 18.1 Kansas City Plant
- 18.2 University of Missouri
- 18.3 Weldon Springs Site - EM-40

Figure 18-1 shows the location of these facilities.

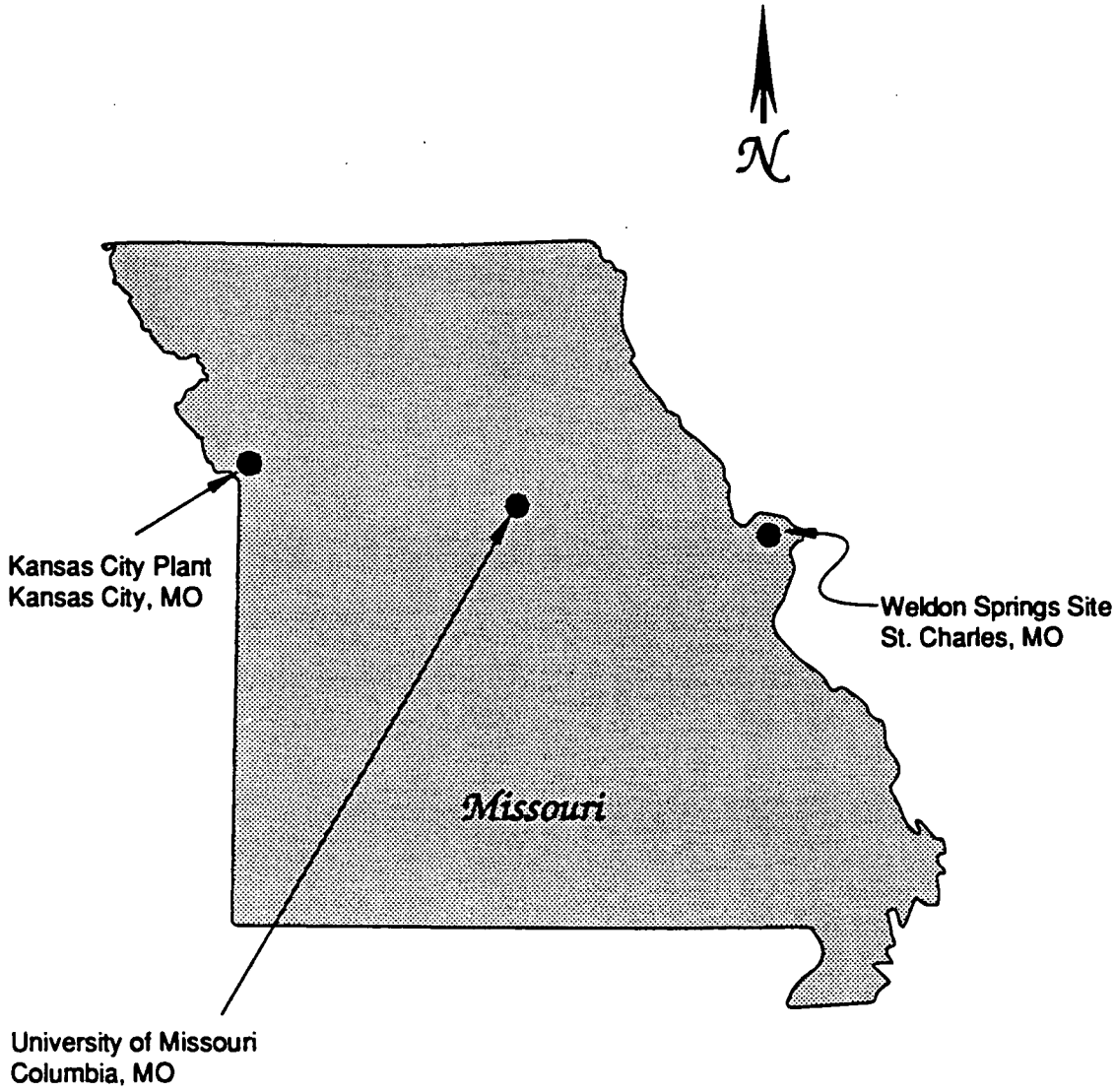

Figure 18-1. Missouri Facilities that Generate, Expect to Generate, and/or Store DOE-managed Mixed Waste.

18.1 Kansas City Plant

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Site Summary

The Kansas City Plant (KCP), located about 15 km south of downtown Kansas City, Missouri, (Figure 18-1) produces electrical, electronic, electro-mechanical, plastic, and nonfissionable metal components for nuclear weapons. About 5.4 m^3 of mixed low-level waste (MLLW) has been generated by site activities. Waste streams are named, described, and their sources identified in the Kansas City Plant Waste Profile Sheets (WPS). All this waste is characterized by process knowledge. No MLLW is projected to be generated through the end of 1997. Seven waste codes and 11 BDAT apply as detailed in the Kansas City Plant WPS. Waste segregation has been used to minimize mixed waste generation.

General

KCP is operated by Allied Signal Inc. for the DOE. KCP occupies about 0.55 km^2, with the manufacturing operations housed in 300,000 m^2 of building space. In addition to its manufacturing activities, KCP stores non-nuclear spare parts for nuclear weapons systems, and provides developmental hardware for research programs at DOE laboratories. The Plant has a work force of about 4500 employees.

18.1.1 Mixed Waste

KCP currently has 5 MLLW streams. The total volume and weight of stored waste are roughly 5.4 m^3 and 4300 kg (Table 18.1-1). Because these wastes were placed into storage prior to the effective date of the regulations, they are not currently subject to the LDR storage prohibitions. No additional mixed waste is expected to be generated during the next 5 years (See Table 18.1-1).

The 5 waste streams consist of classified and unclassified electronic assemblies; Cs-137 sources stored in lead shielding; phase II-D/20 waste, which is debris generated by decontamination and decommissioning of a classified process; and debris from the cleanup of a defective commercial PM-147 radioactive source. Many of the electronic assemblies, both classified and unclassified, are encased in plastics. These units contain radioactive gap tubes soldered to printed circuit boards. Some assemblies have been irradiated to examine the effects of radiation on their functionality. The debris waste streams are tentatively classified as mixed waste while their initial characterization is being reviewed. The RCRA constituents include lead and silver in the electronic assemblies, while the characterization of the debris waste streams is under evaluation. The primary radioactive isotopes are Kr-85, Ni-63, Pm-147, C-14, Cs-137, Co-60, and depleted uranium. The Cs-137 waste stream may, in fact, not be mixed waste; a determination will be made following further characterization.

18.1.2 Treatment Facilities

There are no treatment facilities at KCP, and none are planned for the future. However, irradiated components are allowed to decay in storage. Future segregation of hazardous and low-level components is expected to effectively prevent future generation of mixed waste.

Table 18.1-1
Mixed Wastes At Kansas City Plant

Waste Type/Matrix	Number of Waste Streams	Inventory		Number of Waste Streams	Five-Year Projection	
		(m^3)	(kg)		(m^3)	(kg)
WASTE TYPE – MLLW						
CH, Organic Debris	2	1.61	1,079.80	0	0.00	0.00
CH, Heterogeneous Debris	2	2.82	2,345.50	0	0.00	0.00
CH, Elemental Lead	1	1.00	835.00	0	0.00	0.00
Sub-Total MLLW:	5	5.43	4,260.30	0	0.00	0.00
TOTAL:	5	5.43	4,260.30	0	0.00	0.00

18.1.3 Technology Development

There are no site-specific technology development activities for KCP.

WASTE

PROFILE

SHEETS

KANSAS CITY PLANT

KC-WPS-1

April 1993

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Waste Profile Sheets (WPS) have been compiled in this report for each of the mixed waste streams identified at the different DOE sites. Each WPS is a concise summary of the information required by the FFCAct-1992, with waste stream specific data primarily derived from the Waste Management Information System (WMIS) database. Each WPS consists of the following items:

Header: The information in the header in each WPS includes the State, the official name of the site, an identification number, an identifying waste stream name, the waste type, and the waste matrix. The identification number is either a number assigned by the WMIS database or a number assigned by the site. The waste stream name is a unique identifier which corresponds to the name used in the WMIS database, or is assigned by the site. The waste type is either HLW, MTRU, or MLLW. The waste matrix corresponds to the categories (or their further subdivisions) defined earlier based on the physical and chemical form of the waste.

Waste Stream Description and Source: This section of the WPS presents a short description of the source of the waste and the waste stream characteristics.

Inventory Table: The inventory table in each WPS reports the volume (m^3) and/or mass (kg) of each waste stream currently in storage, and projected to be generated in the next five years. The table also indicates the date assumed in calculating the current and projected inventories. As required by the FFCAct-1992, the table also differentiates between waste not subject to LDR and that subject to LDR for the current inventory.

Treatability Group: This section lists the name of the treatability group to which the waste stream belongs.

Treatment Status, Technology Status: This section of the WPS lists the status of the technology that could be applied to the waste stream for compliance with the LDR. This section provides information on if the waste stream is currently being treated, and if technology options and facilities for the treatment exist.

Radiation Characteristics Section: This section of the WPS provides additional information on the radiological characteristics of the waste (in addition to characterizing the waste stream as HLW, MTRU, or MLLW). This section of the WPS specifies whether the waste stream is contact handled or remote handled, if the radionuclides are alpha or beta/gamma emitters, and if they contain activation products.

Radiation Effects Section: As required by the FFCAct-1992, this section of the WPS lists possible effects of the radiological characteristics of the waste stream on treatment technologies that could be applicable to that waste stream. For example, radiation levels may require remote handling of the waste and affect the design and operation of the treatment facility. The presence of volatile radionuclides may require the containment of all off-gases from the treatment system.

Waste Minimization Activities: As required by the FFCAct-1992, this section of the WPS provides information on the waste minimization practices being used for the waste stream. This section provides information on if the waste minimization practices include good operating practices, technology changes, raw material changes, product changes, etc.

EPA Code: This table of the WPS reports the EPA hazardous waste codes applicable to the waste stream, the basis for assigning the codes (process knowledge or sampling/analysis), the LDR basis (which is either technology based or concentration based), and the BDAT for each of the EPA hazardous waste codes.

In summary, the WPS for each waste stream, along with the site sections in the report for each State (Section B), summarize the site-specific information required by the FFCAct-1992.

State: Missouri | ID #: 0000000037

Site: KANSAS CITY PLANT

Waste Stream Name: PHASE 2 - D/20 WASTE (CLASSIFIED)

Matrix: Heterogeneous Debris | Waste Type: MLLW

Waste Stream Description and Source:

This waste stream is soil, concrete, sand, filters, paper and drain pipe. This is decontamination/clean-up waste from an area where a classified operation was performed. Final characterization is pending.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
2.1	2,088.2	0.000	0.000	2.1	2,088.2	0.000	0.000

Treatability Group:

MLLW CH, Heterogeneous Debris, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

1) Not Applicable.

General Comments:

Waste is no longer generated.
Contains depleted Uranium.

State: Missouri	**ID #: 0000000037**
Site: KANSAS CITY PLANT	
Waste Stream Name: PHASE 2 - D/20 WASTE (CLASSIFIED)	
Matrix: Heterogeneous Debris	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F003	Conc.	Incineration
F005A	Conc.	Incineration

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: Missouri | ID #: 0000000161

Site: KANSAS CITY PLANT

Waste Stream Name: ENCAPSULATED ASSEMBLIES (CLASSIFIED)

Matrix: Organic Debris | Waste Type: MLLW

Waste Stream Description and Source:

Encapsulated electronic assemblies. Scrap or obsolete encapsulated assemblies containing radioactive gap tubes and printed circuit boards. Note: These assemblies are encapsulated in plastics.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.310	229.3	0.000	0.000	0.310	229.3	0.000	0.000

Treatability Group:

MLLW CH, Organic Debris, Toxic Metals w/ Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time. This waste stream is amenable to segregation.

Technology Status:

Technology exists. No modifications are necessary.

Radiation Characteristics:

1) Contact-handled

Waste-Specific Radiation Effects on Treatment:

1) Treatment must consider radioactive off-gases to protect the public and treatment facility personnel from releases.

Waste Minimization Activities:

A procedure to de-pot electronic assemblies and segregate low-level and hazardous components prior to storage has been adopted. Current inventories will be segregated and this segregation process will eliminate future generation of this waste stream.

State: Missouri **ID #: 0000000161**

Site: KANSAS CITY PLANT

Waste Stream Name: ENCAPSULATED ASSEMBLIES (CLASSIFIED)

Matrix: Organic Debris **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation
D009D	Tech.	Amalgamation

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: Missouri	**ID #: 0000000162**
Site: KANSAS CITY PLANT	
Waste Stream Name: ELECTRONIC ASSEMBLIES (UNCLASSIFIED)	
Matrix: Organic Debris	**Waste Type: MLLW**

Waste Stream Description and Source:

Scraped, D-tested, or obsolete electronic assemblies which have a radioactive component. These waste streams are scrap and obsolete circuit boards with gap tubes, sealed sources, or other radioactive material as part of the assembly. Some of these assemblies have been irradiated in a nuclear reactor.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
1.3	850.5	0.000	0.000	1.3	850.5	0.000	0.000

Treatability Group:

MLLW CH, Organic Debris, Toxic Metals w/ Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time. This waste stream is amenable to segregation.

Technology Status:

Technology exists. No modifications are necessary.

Radiation Characteristics:

1) Contact-handled

Waste-Specific Radiation Effects on Treatment:

1) Treatment must consider radioactive off-gases to protect the public and treatment facility personnel from releases.

Waste Minimization Activities:

A procedure to de-pot electronic assemblies and segregate low-level and hazardous components prior to storage has been implemented. This will eliminate all but irradiated assemblies from this waste stream. Irradiated parts will be allowed to decay in storage.

State: Missouri | ID #: 0000000162

Site: KANSAS CITY PLANT

Waste Stream Name: ELECTRONIC ASSEMBLIES (UNCLASSIFIED)

Matrix: Organic Debris | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation
D009D	Tech.	Amalgamation

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: Missouri **ID #: 0000000794**

Site: KANSAS CITY PLANT

Waste Stream Name: EQUIPMENT SOURCES IN LEAD PIGS

Matrix: Elemental Lead **Waste Type: MLLW**

Waste Stream Description and Source:

This waste stream is excess Cesium 137 sources stored in lead shielding. Equipment sources where equipment was no longer needed and was declared excess. This waste does not meet the strict definition of mixed waste under the EPA OSWER guidance.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
1.000	835.0	0.000	0.000	1.000	835.0	0.000	0.000

Treatability Group:

MLLW CH, Elemental Lead, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:

Remote-handled if shielding removed.

Waste Minimization Activities:

This material is a candidate for reuse/recovery.

General Comments:

Radionuclides include Cs-137.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008B	Conc.	Stabilization

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State: Missouri **ID #: 0000002122**

Site: KANSAS CITY PLANT

Waste Stream Name: PM 147 CLEANUP WASTE

Matrix: Heterogeneous Debris **Waste Type: MLLW**

Waste Stream Description and Source:

This waste stream is clean-up material. Debris waste and contaminated equipment was generated from clean-up operations of an inadvertent release from a defective commercial source. This waste was previously named "PM-147 Cleanup Waste".

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.740	257.3	0.000	0.000	0.740	257.3	0.000	0.000

Treatability Group:

MLLW CH, Heterogeneous Debris, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Not reported.

General Comments:

Waste is no longer generated.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008B	Conc.	Stabilization

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the

State: Missouri	**ID #: 0000002122**
Site: KANSAS CITY PLANT	
Waste Stream Name: PM 147 CLEANUP WASTE	
Matrix: Heterogeneous Debris	**Waste Type: MLLW**

following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

18.2 University of Missouri

The University of Missouri is located in Columbia, Missouri (Figure 18-1). The University is contracted by Rockwell International to conduct experiments to separate radioactive actinide elements from Purex spent fuel for DOE. No spent fuel has yet been used in the study; only pure actinides are present in the waste generated. The waste that has been generated by this testing is being managed by the University as radioactive waste. However, full RCRA characterization has not been completed. The experimental separation process uses cadmium salts in solution which may be a MTRU waste. The current inventory consists of 0.42 m^3 of waste will an expected generation rate of 0.21 m^3 per year for the next 4 years.

DOE plans to decontaminate the hot cells to their original condition at the completion of testing. Decontamination and decommissioning could generate up to 4.2 m^3 of mixed waste. Current waste inventories will be fully characterized prior to receipt by DOE. This waste volume is not included in the of decontamination and decommissioning wastes estimated in Chapter 2, because DOE has not initiated a remedial action program on this facility yet.

18.3 Weldon Spring Site

Site Summary

The Weldon Spring Site is located in St. Charles County, Missouri about 30 miles west of St. Louis. The site consists of a 0.88 km^2 chemical plant area and a 0.04 km^2 limestone quarry located on Missouri (State) Route 94. Both areas of the site are closed to the public, and the surrounding land is owned by the Federal and State governments. The U.S. Department of the Army used the chemical plant area as an ordnance works to produce nitroaromatic explosives in the 1940s, and the AEC, the predecessor agency of the DOE, processed uranium and thorium ores at the plant from 1957 to 1966. The EPA listed the quarry on its National Priorities List in 1987 and added the chemical plant area in 1989. In 1986, DOE signed a Federal Facility Agreement (FFA) with EPA Region VII to formalize cleanup plans and activities in accordance with the CERCLA process. Both parties signed an amended agreement that became effective in 1992, and an additional amendment to include the State of Missouri is under way.

General

The chemical plant area contains the following radioactively and chemically contaminated features: about 40 structures that extend over one-third of the site, 4 waste impoundments (raffinate pits), and 2 natural ponds that together contain about 180,000 m^3 of sludge and sediment and 60 million gallons of water covering about 38 acres, and 2 dump areas that cover about 10 acres. The quarry currently contains about 75,000 m^3 of radioactively and chemically contaminated rubble (including process equipment and structural debris), drummed and unconfined wastes, and other solid material; about 3 million gallons of water has ponded over about 0.5 acres at its base. Ground water has been contaminated at both the chemical plant area and the quarry. Based on the existing cleanup schedule for the site, much of the mixed waste currently in storage is expected to be treated for disposal within the next 6-8 years. Data describing the mixed waste currently in storage is given in the following tables.

Removal actions began in 1987 to address potential health and safety issues and to stabilize the site, including building dismantling and chemical consolidation with controlled storage of the resultant material. Most of the mixed waste at the Site resulted from the latter action. Removal actions also have been conducted to pump and treat contaminated surface water from impoundments at the chemical plant area and the quarry. Water treatment plants have been constructed at both areas, and the quarry plant began operating in December 1992. A mobile treatment plant is also in use at the site. The residuals generated by these treatment plants account for much of the 5-year projections of MLLW from operations at the site. Additional MLLW will be generated from removal and remedial actions at the site, such as miscellaneous wastes from building dismantlement and waste consolidation. These projections, combined with the current inventory represent the total volume expected to be generated by environmental restoration activities over the next 5 years.

18.3.1 Mixed Waste

Only mixed low-level waste (MLLW) have been generated at Weldon Spring. No high-level or transuranic wastes exist at the site.

The inventory of MLLW at Weldon Spring is composed almost entirely of drummed materials resulting from consolidation and containerization of waste chemicals abandoned at the facility. The site inventory is approximately 86m^3 (Table 18.3-1). Wastes in this current inventory have been characterized by a

Table 18.3-1
Mixed Wastes At Weldon Spring Site

Waste Type/Matrix	Number of Waste Streams	Inventory		Number of Waste Streams	Five-Year Projection	
		(m^3)	(kg)		(m^3)	(kg)
WASTE TYPE -- MLLW						
CH, Organic Liquids	14	43.40	41,301.00	0	0.00	0.00
CH, Aqueous Liquid	9	15.70	13,148.00	0	0.00	0.00
CH, Organic Sludges/particulates	9	4.00	3,688.00	0	0.00	0.00
CH, Inorganic Sludges/particulates	5	10.80	7,576.00	0	0.00	0.00
CH, Organic Debris	1	0.20	16.00	0	0.00	0.00
CH, Heterogeneous Debris	2	0.60	213.00	0	0.00	0.00
CH, Lab Packs With Metals	1	3.70	2,097.00	0	0.00	0.00
CH, Lab Packs Without Metals	1	<0.10	30.00	0	0.00	0.00
CH, Liquid Mercury	1	0.20	144.00	0	0.00	0.00
CH, Elemental Lead	1	1.20	1,546.00	0	0.00	0.00
CH, Batteries (lead Acid, Cadmium)	1	4.20	2,459.00	0	0.00	0.00
CH, Multiple	2	2.10	2,138.00	0	0.00	0.00
CH, Other	1	<0.10	2.00	0	0.00	0.00

Table 18.3-1 (Continued)
Mixed Wastes At Weldon Spring Site

Waste Type/Matrix	Number of Waste Streams	Inventory		Number of Waste Streams	Five-Year Projection	
		(m^3)	(kg)		(m^3)	(kg)
WASTE TYPE -- HLW						
Sub-Total MLLW:	48	86.16	74,358.00	0	0.00	0.00
TOTAL:	48	86.16	74,358.00	0	0.00	0.00

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combination of process knowledge and sampling and analysis, and many are subject to Land Disposal Restrictions. Additional waste will be generated over the next 5 years from operations of the 2 on-site water treatment plants and from other waste cleanup and consolidation activities. The estimated volume is 86 m^3 per year.

18.3.2 Treatment Facilities

No major treatment facilities have been constructed at the Weldon Spring site, except for the 2 water treatment plants, but these facilities have not yet been constructed. The conceptual designs for certain treatment facilities for site waste have been developed, but these facilities have not yet been constructed.

18.3.3. Technology Development

Treatment technologies exist for all stored and future MLLW at Weldon Spring.

18.3.4 Environmental Restoration Program

Four operable units have been identified for remedial actions at the Weldon Spring Site: solid waste in the quarry, residual material at the quarry after the solids have been removed (including ground water), material at the chemical plant area, and ground water at the chemical plant area. The interim Record of Decision for excavating bulk waste from the quarry was signed by EPA in September 1990 and by DOE in March 1991. A Remedial Investigation/Feasibility Study-Environmental Impact Statement that addresses solid waste at the chemical plant area and the project-wide waste disposal decision was issued to the public in November 1992. The proposed action is to excavate remaining waste, treat the highly contaminated material by a chemical stabilization/solidification process, and dispose of the radioactively and chemically contaminated site waste in a newly constructed disposal cell on-site. DOE and EPA expect to sign a joint Record of Decision for this action in September 1993. A Remedial Investigation/Feasibility Study work plan for the quarry residuals operable unit is expected to be available within the year, and a separate plan is being developed for the chemical plant area ground water operable unit. Site cleanup is expected to be complete by 2001.

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Weldon Spring Site

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ROADMAP TO WASTE PROFILE SHEETS (WPS)

Waste Profile Sheets (WPS) have been compiled in this report for each of the mixed waste streams identified at the different DOE sites. Each WPS is a concise summary of the information required by the FFCAct-1992, with waste stream specific data primarily derived from the Waste Management Information System (WMIS) database. Each WPS consists of the following items:

Header: The information in the header in each WPS includes the State, the official name of the site, an identification number, an identifying waste stream name, the waste type, and the waste matrix. The identification number is either a number assigned by the WMIS database or a number assigned by the site. The waste stream name is a unique identifier which corresponds to the name used in the WMIS database, or is assigned by the site. The waste type is either HLW, MTRU, or MLLW. The waste matrix corresponds to the categories (or their further subdivisions) defined earlier based on the physical and chemical form of the waste.

Waste Stream Description and Source: This section of the WPS presents a short description of the source of the waste and the waste stream characteristics.

Inventory Table: The inventory table in each WPS reports the volume (m^3) and/or mass (kg) of each waste stream currently in storage, and projected to be generated in the next five years. The table also indicates the date assumed in calculating the current and projected inventories. As required by the FFCAct-1992, the table also differentiates between waste not subject to LDR and that subject to LDR for the current inventory.

Treatability Group: This section lists the name of the treatability group to which the waste stream belongs.

Treatment Status, Technology Status: This section of the WPS lists the status of the technology that could be applied to the waste stream for compliance with the LDR. This section provides information on if the waste stream is currently being treated, and if technology options and facilities for the treatment exist.

Radiation Characteristics Section: This section of the WPS provides additional information on the radiological characteristics of the waste (in addition to characterizing the waste stream as HLW, MTRU, or MLLW). This section of the WPS specifies whether the waste stream is contact handled or remote handled, if the radionuclides are alpha or beta/gamma emitters, and if they contain activation products.

Radiation Effects Section: As required by the FFCAct-1992, this section of the WPS lists possible effects of the radiological characteristics of the waste stream on treatment technologies that could be applicable to that waste stream. For example, radiation levels may require remote handling of the waste and affect the design and operation of the treatment facility. The presence of volatile radionuclides may require the containment of all off-gases from the treatment system.

Waste Minimization Activities: As required by the FFCAct-1992, this section of the WPS provides information on the waste minimization practices being used for the waste stream. This section provides information on if the waste minimization practices include good operating practices, technology changes, raw material changes, product changes, etc.

EPA Code: This table of the WPS reports the EPA hazardous waste codes applicable to the waste stream, the basis for assigning the codes (process knowledge or sampling/analysis), the LDR basis (which is either technology based or concentration based), and the BDAT for each of the EPA hazardous waste codes.

In summary, the WPS for each waste stream, along with the site sections in the report for each State (Section B), summarize the site-specific information required by the FFCAct-1992.

State: Missouri	**ID #: 467**
Site: WELDON SPRING SITE	
Waste Stream Name: ACIDS (DOO2)	
Matrix: Aqueous Liquid	**Waste Type: MLLW**

Waste Stream Description and Source:

7 drums (6 55-gallon and 1 85-gallon) containing bulk free liquid with a pH<2. This is a California List waste. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	1.6	494.0	1.6	494.0	0.000	0.000

Treatability Group:

MLLW CH, Aqueous Liquid, Ignitable, Corrosive, or Reactive Only

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

General Comments:

The waste characteristics basis is a combination of sampling/analysis and process knowledge.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002A	Tech.	Deactivation

State: Missouri	**ID #: 468**
Site: WELDON SPRING SITE	
Waste Stream Name: SODIUM CHROMATE SALTS (D007)	
Matrix: Inorganic Sludges/Particulates	**Waste Type: MLLW**

Waste Stream Description and Source:

12 55-gallon drums containing sodium chromate salts. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant. Measured concentrations of uranium and thorium are 2.1 pCi/g and 2.1-3.7 pCi/g, respectively.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	2.5	2,413.0	2.5	2,413.0	0.000	0.000

Treatability Group:

MLLW CH, Inorganic Sludges/Particulates, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

None

Waste Minimization Activities:

Waste is no longer being generated.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D007	Conc.	Chemical Reduction followed by Stabilization

State: Missouri | ID #: 469

Site: WELDON SPRING SITE

Waste Stream Name: BAR FLUOR,PAINT SOL,GREAS SLUD(D005-S-2)

Matrix: Multiple | Waste Type: MLLW

Waste Stream Description and Source:

8 55-gallon drums of barium fluoride powder (1898 kg), 1 55-gallon drum of grease sludge (15kg), and 1 5-gallon drum of paint solids (9 kg). Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant. This waste stream includes other, organic liquids, and inorganic sludges/particulates.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	1.9	2,066.0	1.9	2,066.0	0.000	0.000

Treatability Group:

MLLW CH, Multiple, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

General Comments:

Waste characterization basis is a combination of sampling/analysis and process knowledge.

State: Missouri ID #: 469

Site: WELDON SPRING SITE

Waste Stream Name: BAR FLUOR,PAINT SOL,GREAS SLUD(D005-S-2)

Matrix: Multiple Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D005	Conc.	Chemical Precipitation; or Stabilization
D008B	Conc.	Stabilization

State: Missouri	ID #: 471
Site: WELDON SPRING SITE	
Waste Stream Name: ORGANIC LIQUIDS WITH LEAD (D008-LIQUIDS)	
Matrix: Organic Liquids	Waste Type: MLLW

Waste Stream Description and Source:

5 drums (4 55-gallon and 1 85-gallon) containing a variety of lead-contaminated bulk free liquids, including oils. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant. Thorium 228, thorium 230, and thorium 232 at <1-3 pCi/g. Uranium at <1-20,400 pCi/L.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	1.2	765.0	1.2	765.0	0.000	0.000

Treatability Group:

MLLW CH, Organic Liquids, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008B	Conc.	Stabilization

State: Missouri	**ID #: 472**
Site: WELDON SPRING SITE	
Waste Stream Name: 2,4-D POWDER/CONTAMINATED SOLIDS	
Matrix: Organic Sludges/Particulates	**Waste Type: MLLW**

Waste Stream Description and Source:

3 drums (1 55-gallon and 2 5-gallon) containing solid 2, 4-D (herbicide) powder and glass contaminated with 2, 4-D. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.200	32.0	0.200	32.0	0.000	0.000

Treatability Group:

MLLW CH, Organic Sludges/Particulates, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

General Comments:

Waste characterization basis is a combination of sampling/analysis and process knowledge.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D016	Conc.	Incineration

State: Missouri	**ID #: 473**
Site: WELDON SPRING SITE	
Waste Stream Name: TRIBUTYL PHOSPHATE (D009-TBP)	
Matrix: Organic Liquids	**Waste Type: MLLW**

Waste Stream Description and Source:

2 5,000-gallon tanks containing 7,400 gallons of tributyl phosphate contaminated with mercury and PCBs. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant. Measured concentration of uranium is 0.5 g/L.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	28.0	28,000.0	28.0	28,000.0	0.000	0.000

Treatability Group:

MLLW CH, Organic Liquids, Toxic Metals w/ Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D009C	Conc.	Thermal Recovery of Metals; Acid Leaching; Stabilization; or Incineration

State: Missouri ID #: 474
Site: WELDON SPRING SITE
Waste Stream Name: OIL, PAINT, AND SOLVENTS (D001-LIQUIDS)
Matrix: Organic Liquids Waste Type: MLLW

Waste Stream Description and Source:
18 55-gallon drums of oil, paint, and solvents (2 drums are overpacked). Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	3.7	2,417.0	3.7	2,417.0	0.000	0.000

Treatability Group:
MLLW CH, Organic Liquids, Ignitable, Corrosive, or Reactive Only

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
Waste is no longer being generated.

General Comments:
Waste characterization basis is a combination of sampling/analysis and process knowledge.

EPA CODES
Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration

State: Missouri | ID #: 475

Site: WELDON SPRING SITE

Waste Stream Name: PAINT SLUDGE/SOLIDS AND DEBRIS

Matrix: Organic Sludges/Particulates | Waste Type: MLLW

Waste Stream Description and Source:

8 drums (4 55-gallon drums, 3 5-gallon drums, and 1 10-gallon drum) containing paint sludge and solids (298 kg) and sampling debris and glass (179 kg). Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant. Measured concentrations of uranium and thorium are 0.2 mg/kg and 0.6-6.1 pCi/g, respectively.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.900	476.0	0.900	476.0	0.000	0.000

Treatability Group:

MLLW CH, Organic Sludges/Particulates, Toxic Metals w/ Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

General Comments:

The waste characterization basis is a combination of sampling/analysis and process knowledge.

State: Missouri	**ID #: 475**
Site: WELDON SPRING SITE	
Waste Stream Name: PAINT SLUDGE/SOLIDS AND DEBRIS	
Matrix: Organic Sludges/Particulates	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D007	Conc.	Chemical Reduction followed by Stabilization
D009C	Conc.	Thermal Recovery of Metals; Acid Leaching; Stabilization; or Incineration

State: Missouri | ID #: 477
Site: WELDON SPRING SITE
Waste Stream Name: SILVER-CONTAMINATED LAB DEBRIS
Matrix: Heterogeneous Debris | Waste Type: MLLW

Waste Stream Description and Source:
2 55-gallon drums of solid lab debris (filters, glass, plastic, rubber, and rags) contaminated with silver. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.400	36.0	0.400	36.0	0.000	0.000

Treatability Group:
MLLW CH, Heterogeneous Debris, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
Waste is no longer being generated.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D011	Conc.	Stabilization

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

4692

State: Missouri | ID #: 479

Site: WELDON SPRING SITE

Waste Stream Name: TRICHLOROETHYLENE (U228)

Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:

2 55-gallon drums containing trichloroethylene as bulk free liquid. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant. Measured concentrations of uranium and thorium are 3-52 pCi/g and <0.2 pCi/g, respectively.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.400	558.0	0.400	558.0	0.000	0.000

Treatability Group:

MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D040		Not currently prohibited under the LDR Program.
U228	Conc.	Incineration

State: Missouri	ID #: 781
Site: WELDON SPRING SITE	
Waste Stream Name: PLASTIC DEBRIS (D040)	
Matrix: Organic Debris	Waste Type: MLLW

Waste Stream Description and Source:

1 55-gallon drum containing sampling debris, sheeting, and plastic contaminated with PCBs and TCE. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.200	16.0	0.000	0.000	0.200	16.0	0.000	0.000

Treatability Group:

MLLW CH, Organic Debris, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

General Comments:

The waste characterization basis is a combination of sampling/analysis and process knowledge.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D040		Not currently prohibited under the LDR Program.

State: Missouri	ID #: 781
Site: WELDON SPRING SITE	
Waste Stream Name: PLASTIC DEBRIS (D040)	
Matrix: Organic Debris	Waste Type: MLLW

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: Missouri | ID #: 1057

Site: WELDON SPRING SITE

Waste Stream Name: CADMIUM AND MAGNESIUM METAL (D006)

Matrix: Multiple | Waste Type: MLLW

Waste Stream Description and Source:

55-gallon drum containing strips and pieces of elemental cadmium and magnesium metal. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant. This waste stream includes reactive metals, and other.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.200	72.0	0.200	72.0	0.000	0.000

Treatability Group:

MLLW CH, Multiple, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003E	Tech.	Deactivation
D006B	Conc.	Stabilization

State: Missouri	**ID #: 2058**
Site: WELDON SPRING SITE	
Waste Stream Name: REACTIVE METALS (D003)	
Matrix: Lab Packs with Metals	**Waste Type: MLLW**

Waste Stream Description and Source:

22 drums (17 55-gallon, 1 15-gallon, and 4 5-gallon) containing lab packs of water-reactive metals, primarily magnesium but also including lithium, calcium, hydrides of zirconium and magnesium, and sodium sulfide. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	3.7	2,097.0	3.7	2,097.0	0.000	0.000

Treatability Group:

MLLW CH, Lab Packs with Metals, Ignitable, Corrosive, or Reactive Only

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003D	Tech.	Deactivation

State: Missouri	ID #: 2058
Site: WELDON SPRING SITE	
Waste Stream Name: REACTIVE METALS (D003)	
Matrix: Lab Packs with Metals	Waste Type: MLLW

State: Missouri ID #: 2059

Site: WELDON SPRING SITE

Waste Stream Name: BENZENE-CONTAMINATED WATER (DO18)

Matrix: Aqueous Liquid Waste Type: MLLW

Waste Stream Description and Source:

42 55-gallon drums containing water contaminated with low levels of benzene (TOC <1%). Generated from pumping out USTs and containerization in DOT drums. Measured concentrations of uranium and thorium are 0.6 pCi/L and 0.6-5.7 pCi/L, respectively.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
8.7	7,992.0	0.000	0.000	8.7	7,992.0	0.000	0.000

Treatability Group:

MLLW CH, Aqueous Liquid, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D018		Not currently prohibited under the LDR Program.

State: Missouri ID #: 2060

Site: WELDON SPRING SITE

Waste Stream Name: TRICHLOROETHYLENE-CONTAMINATED WATER

Matrix: Aqueous Liquid Waste Type: MLLW

Waste Stream Description and Source:

2 55-gallon drums containing water contaminated with low levels of trichloroethylene (TOC <1%). Generated through containerization in DOT drums of liquid from a kiln at the former uranium processing plant. One measured uranium concentration was 26.9 mg/L.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
2.5	2,149.0	0.000	0.000	2.5	2,149.0	0.000	0.000

Treatability Group:

MLLW CH, Aqueous Liquid, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D040		Not currently prohibited under the LDR Program.

State: Missouri **ID #: 2062**

Site: WELDON SPRING SITE

Waste Stream Name: VANADIUM PENTOXIDE POWDER (P120)

Matrix: Inorganic Sludges/Particulates **Waste Type: MLLW**

Waste Stream Description and Source:

1 30-gallon drum containing solid vanadium pentoxide powder. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.100	91.0	0.100	91.0	0.000	0.000

Treatability Group:

MLLW CH, Inorganic Sludges/Particulates, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
P120	Tech.	Stabilization

State: Missouri	ID #: 2229
Site: WELDON SPRING SITE	
Waste Stream Name: LIQUID CHLORINATED HYDROCARBONS	
Matrix: Organic Liquids	Waste Type: MLLW

Waste Stream Description and Source:

1 55-gallon drum of liquid chlorinated hydrocarbons as bulk free liquid. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant. Measured concentrations of uranium and thorium are 3-34 pCi/L and <1-16 pCi/L, respectively.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.200	165.0	0.200	165.0	0.000	0.000

Treatability Group:

MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

State: Missouri **ID #: 2229**

Site: WELDON SPRING SITE

Waste Stream Name: LIQUID CHLORINATED HYDROCARBONS

Matrix: Organic Liquids **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
D018		Not currently prohibited under the LDR Program.
D022		Not currently prohibited under the LDR Program.
D028		Not currently prohibited under the LDR Program.
D035		Not currently prohibited under the LDR Program.
D040		Not currently prohibited under the LDR Program.

State: Missouri | ID #: 2230
Site: WELDON SPRING SITE
Waste Stream Name: SOLVENTS AND OIL
Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:

2 55-gallon drums containing contaminated solvents and oil as bulk free liquid. Generated through consolidation and containerization in DOT drums of chemcials abandoned at the former uranium processing plant. Measured concentrations of uranium and thorium are 0.03-6.8 mg/kg and 0.03-0.1 pCi/g, respectively.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.400	334.0	0.400	334.0	0.000	0.000

Treatability Group:

MLLW CH, Organic Liquids, Toxic Organics and Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

State: Missouri ID #: 2230
Site: WELDON SPRING SITE
Waste Stream Name: SOLVENTS AND OIL
Matrix: Organic Liquids Waste Type: MLLW

EPA CODES
Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
D008B	Conc.	Stabilization
D018		Not currently prohibited under the LDR Program.
D029		Not currently prohibited under the LDR Program.

State: Missouri | ID #: 2232

Site: WELDON SPRING SITE

Waste Stream Name: SOLID OXIDIZERS (D001)

Matrix: Inorganic Sludges/Particulates | Waste Type: MLLW

Waste Stream Description and Source:

7 drums containing a variety of solid oxidizers, including 575 kg (3 55-gallon drums) of potassium permangate, 158 kg (1 55-gallon drums) of magnesium nitrate, 126 kg (1 55 gallon drum)of sodium nitrate, 23 kg (1 10-gallon drum) of copper nitrate, and 20 kg (1 5-gallon drum) of uranium and thorium nitrate. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	1.1	902.0	1.1	902.0	0.000	0.000

Treatability Group:

MLLW CH, Inorganic Sludges/Particulates

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

State: Missouri	**ID #: 2232**
Site: WELDON SPRING SITE	
Waste Stream Name: SOLID OXIDIZERS (D001)	
Matrix: Inorganic Sludges/Particulates	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
D001F	Tech.	Deactivation

State: Missouri	ID #: 2234
Site: WELDON SPRING SITE	
Waste Stream Name: PAINT SLUDGE WITH PCBs	
Matrix: Organic Sludges/Particulates	Waste Type: MLLW

Waste Stream Description and Source:

2 55-gallon drums containing paint sludge with PCB contamination. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant. Measured concentrations of uranium and thorium are 0.6-2.3 mg/kg and 0.4-4.3 pCi/g, respectively.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.400	539.0	0.400	539.0	0.000	0.000

Treatability Group:

MLLW CH, Organic Sludges/Particulates, Ignitable, Corrosive, or Reactive Only

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration

State: Missouri	**ID #: 2236**
Site: WELDON SPRING SITE	
Waste Stream Name: BARIUM CHLORIDE	
Matrix: Inorganic Sludges/Particulates	**Waste Type: MLLW**

Waste Stream Description and Source:
31 55-gallon drums containing barium chloride in bulk solid form. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	6.5	3,904.0	6.5	3,904.0	0.000	0.000

Treatability Group:
MLLW CH, Inorganic Sludges/Particulates, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
Waste is no longer being generated.

General Comments:
The waste characterization basis is a combination of sampling/analysis and process knowledge.

EPA CODES
Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D005	Conc.	Chemical Precipitation; or Stabilization

State: Missouri	ID #: 2237
Site: WELDON SPRING SITE	
Waste Stream Name: LEAD-CONTAIMINATED ORGANIC LIQUIDS	
Matrix: Organic Liquids	Waste Type: MLLW

Waste Stream Description and Source:

4 55-gallon drums containing a variety of lead-contaminated bulk free liquids including oil, solvents, water, and paint. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant. Measured concentrations of uranium and thorium are 0.2-204 pCi/g and <0.1-1.7 pCi/g, respectively.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.400	456.0	0.400	456.0	0.000	0.000

Treatability Group:

MLLW CH, Organic Liquids, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
D008B	Conc.	Stabilization

State: Missouri	ID #: 2238
Site: WELDON SPRING SITE	
Waste Stream Name: LEAD BATTERIES (D008)	
Matrix: Batteries (lead acid, cadmium)	Waste Type: MLLW

Waste Stream Description and Source:
3 drums (2 55-gallon and 1 85-gallon) and 3-1.3 cubic meter steel boxes containing used batteries from which the acid has been drained. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	4.2	2,459.0	4.2	2,459.0	0.000	0.000

Treatability Group:
MLLW CH, Batteries (lead acid, cadmium), Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
Waste is no longer being generated.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008A	Tech.	Secondary Lead Smelting

State: Missouri	**ID #: 2239**
Site: WELDON SPRING SITE	
Waste Stream Name: PAINT, SODIUM FLUORIDE WITH LEAD	
Matrix: Inorganic Sludges/Particulates	**Waste Type: MLLW**

Waste Stream Description and Source:

3 55-gallon drums containing lead-contaminated solids including paint and sodium fluoride. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant. Measured concentrations of uranium and thorium are <0.1-648 pCi/g and <0.1-0 pCi/g, respectively.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.600	266.0	0.600	266.0	0.000	0.000

Treatability Group:

MLLW CH, Inorganic Sludges/Particulates, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008B	Conc.	Stabilization

State: Missouri | ID #: 2240

Site: WELDON SPRING SITE

Waste Stream Name: LIQUID MERCURY

Matrix: Liquid Mercury | Waste Type: MLLW

Waste Stream Description and Source:

1 55-gallon drum containing liquid mercury. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.200	144.0	0.200	144.0	0.000	0.000

Treatability Group:

MLLW CH, Liquid Mercury, Toxic Metals w/ Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D009D	Tech.	Amalgamation

State: Missouri | ID #: 2241
Site: WELDON SPRING SITE
Waste Stream Name: PAINT SLUDGE
Matrix: Organic Sludges/Particulates | Waste Type: MLLW

Waste Stream Description and Source:

2 55-gallon drums containing waste paint sludge contaminated with lead and several organic compounds, including PCBs>50 ppm, and classified as California List waste. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant. Measured concentrations of uranium and thorium are 0.8-1 mg/kg and 0.1-8.1 pCi/g, respectively.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.400	472.0	0.400	472.0	0.000	0.000

Treatability Group:

MLLW CH, Organic Sludges/Particulates, Toxic Organics and Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

State: Missouri	**ID #: 2241**
Site: WELDON SPRING SITE	
Waste Stream Name: PAINT SLUDGE	
Matrix: Organic Sludges/Particulates	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
D007	Conc.	Chemical Reduction followed by Stabilization
D008B	Conc.	Stabilization
D018		Not currently prohibited under the LDR Program.

State: Missouri | ID #: 2242
Site: WELDON SPRING SITE
Waste Stream Name: LIQUID WITH SILVER, LEAD (D008-11)
Matrix: Aqueous Liquid | Waste Type: MLLW

Waste Stream Description and Source:
2 drums (1 85-gallon and 1 55-gallon) containing liquid contaminated with lead and silver. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant. Measured concentrations of uranium are <0.1-26.8 mg/L.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.500	526.0	0.500	526.0	0.000	0.000

Treatability Group:
MLLW CH, Aqueous Liquid, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
Waste is no longer being generated.

EPA CODES
Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008B	Conc.	Stabilization
D011	Conc.	Stabilization

State: Missouri **ID #: 2243**

Site: WELDON SPRING SITE

Waste Stream Name: OIL, SOLVENT, AND PAINT SLUDGE

Matrix: Organic Liquids **Waste Type: MLLW**

Waste Stream Description and Source:

4 55-gallon drums of benzene and PCB contaminated wastes, which include 2 drums of oily liquid, 1 drum of paint sludge, and 1 drum of solvent. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant. Measured concentration of uranium and thorium are 0.22 pCi/g (and 17 mg/L) and 1.0-4.6 pCi/g, respectively.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.800	672.0	0.800	672.0	0.000	0.000

Treatability Group:

MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
D018		Not currently prohibited under the LDR Program.

State: Missouri	ID #: 2244
Site: WELDON SPRING SITE	
Waste Stream Name: SOLVENT/OIL (D035)	
Matrix: Organic Liquids	Waste Type: MLLW

Waste Stream Description and Source:

1 55-gallon drum of solvent/oil in a free liquid form. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant. Measured uranium concentration is 8 ug/kg.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.200	103.0	0.000	0.000	0.200	103.0	0.000	0.000

Treatability Group:

MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D035		Not currently prohibited under the LDR Program.

State: Missouri | ID #: 2245

Site: WELDON SPRING SITE

Waste Stream Name: PAINT SLUDGE (D001,D035-PCBs)

Matrix: Organic Sludges/Particulates | Waste Type: MLLW

Waste Stream Description and Source:

1 55 gallon drum of paint sludge contaminated with PCBs.Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.200	219.0	0.200	219.0	0.000	0.000

Treatability Group:

MLLW CH, Organic Sludges/Particulates, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
D035		Not currently prohibited under the LDR Program.

State: Missouri ID #: 2246

Site: WELDON SPRING SITE

Waste Stream Name: ETHYLENE GLYCOL WITH TETRACHLOROETHYLENE

Matrix: Organic Liquids Waste Type: MLLW

Waste Stream Description and Source:

30 55-gallon drums of ethylene glycol contaminated with tetrachloroethylene. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant. Measured concentrations of uranium and thorium are 3-9 pCi/L and <0.1-1.5 pCi/L, respectively.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
6.2	6,489.0	0.000	0.000	6.2	6,489.0	0.000	0.000

Treatability Group:

MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D039		Not currently prohibited under the LDR Program.

State: Missouri | ID #: 2247

Site: WELDON SPRING SITE

Waste Stream Name: LIQUID SOLVENT WITH LEAD

Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:

1 55-gallon drum of liquid solvent containing lead. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant. Measured concentrations of uranium and thorium are 0.23 ug/g and 0.023-0.065 ug/g, respectively.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.200	150.0	0.200	150.0	0.000	0.000

Treatability Group:

MLLW CH, Organic Liquids, Toxic Organics and Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

State: Missouri ID #: 2247
Site: WELDON SPRING SITE
Waste Stream Name: LIQUID SOLVENT WITH LEAD
Matrix: Organic Liquids Waste Type: MLLW

EPA CODES
Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001B	Tech.	Deactivation
D008B	Conc.	Stabilization
D028		Not currently prohibited under the LDR Program.
D035		Not currently prohibited under the LDR Program.
D039		Not currently prohibited under the LDR Program.
D040		Not currently prohibited under the LDR Program.

State: Missouri **ID #: 2248**

Site: WELDON SPRING SITE

Waste Stream Name: METALS-CONTAMINATED LIQUID

Matrix: Aqueous Liquid **Waste Type: MLLW**

Waste Stream Description and Source:

4 55-gallon drums of liquid containing arsenic, cadmium, mercury, and silver. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant. Measured concentrations of uranium and thorium are 766,000 pCi/L and <0.3-0.8 pCi/L, respectively.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.800	584.0	0.800	584.0	0.000	0.000

Treatability Group:

MLLW CH, Aqueous Liquid, Toxic Metals w/ Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

State: Missouri **ID #: 2248**

Site: WELDON SPRING SITE

Waste Stream Name: METALS-CONTAMINATED LIQUID

Matrix: Aqueous Liquid **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D004	Conc.	Vitrification
D006B	Conc.	Stabilization
D009C	Conc.	Thermal Recovery of Metals; Acid Leaching; Stabilization; or Incineration
D011	Conc.	Stabilization

State: Missouri **ID #: 2249**

Site: WELDON SPRING SITE

Waste Stream Name: MIXED ACIDS (D002,D004,D008,D011)

Matrix: Aqueous Liquid **Waste Type: MLLW**

Waste Stream Description and Source:

1 55-gallon drum of mixed acids containing lead, silver, and arsenic. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.200	241.0	0.200	241.0	0.000	0.000

Treatability Group:

MLLW CH, Aqueous Liquid, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

State: Missouri ID #: 2249

Site: WELDON SPRING SITE

Waste Stream Name: MIXED ACIDS (D002,D004,D008,D011)

Matrix: Aqueous Liquid Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002A	Tech.	Deactivation
D004	Conc.	Vitrification
D008B	Conc.	Stabilization
D011	Conc.	Stabilization

State: Missouri **ID #: 2250**

Site: WELDON SPRING SITE

Waste Stream Name: OILS/SOLVENTS WITH LEAD

Matrix: Organic Liquids **Waste Type: MLLW**

Waste Stream Description and Source:

6 55-gallon drums containing a variety of lead-contaminated liquids including oils and solvents. Generated through consolidated and containerization in DOT drums of chemicals abandoned at the former uranium processing plant. Measured concentrations of uranium and thorium are 1.9-114 pCi/g and <0.3-2.1 pCi/g, respectively.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	1.3	856.0	1.3	856.0	0.000	0.000

Treatability Group:

MLLW CH, Organic Liquids, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
D008B	Conc.	Stabilization

State: Missouri	ID #: 2251
Site: WELDON SPRING SITE	
Waste Stream Name: SLUDGE WITH LEAD	
Matrix: Organic Sludges/Particulates	Waste Type: MLLW

Waste Stream Description and Source:
5 55-gallon drums of sludge contaminated with lead and PCBs. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	1.000	1,061.0	1.000	1,061.0	0.000	0.000

Treatability Group:
MLLW CH, Organic Sludges/Particulates, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
Waste is no longer being generated.

EPA CODES
Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
D008B	Conc.	Stabilization

State: Missouri	**ID #: 2252**
Site: WELDON SPRING SITE	
Waste Stream Name: LIQUID 2,4-D (D016-16-LIQUID)	
Matrix: Organic Liquids	**Waste Type: MLLW**

Waste Stream Description and Source:

1 55-gallon drum of liquid, 2, 4-D (herbicide). Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.200	171.0	0.200	171.0	0.000	0.000

Treatability Group:

MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D016	Conc.	Incineration

State: Missouri | ID #: 2253

Site: WELDON SPRING SITE

Waste Stream Name: BENZENE-CONTAMINATED WASTE

Matrix: Organic Sludges/Particulates | Waste Type: MLLW

Waste Stream Description and Source:

2 55-gallon drums of benzene-contaminated waste consisting of 1 drum of oily liquid and 1 drum of soil slurry. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.400	422.0	0.000	0.000	0.400	422.0	0.000	0.000

Treatability Group:

MLLW CH, Organic Sludges/Particulates, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

General Comments:

The waste characterization basis is a combination of sampling/analysis and process knowledge.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D018		Not currently prohibited under the LDR Program.

State: Missouri	**ID #: 2254**
Site: WELDON SPRING SITE	
Waste Stream Name: SLUDGE WITH CHROMIUM (D007-TAR)	
Matrix: Organic Sludges/Particulates	**Waste Type: MLLW**

Waste Stream Description and Source:

1 55-gallon drum of a tar-like substance contaminated with chromium. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant. Measured concentrations of uranium and thorium are 0.6 pCi/g and <1-1.9 pCi/g, respectively.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.200	214.0	0.200	214.0	0.000	0.000

Treatability Group:

MLLW CH, Organic Sludges/Particulates, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D007	Conc.	Chemical Reduction followed by Stabilization

State: Missouri	**ID #: 2255**
Site: WELDON SPRING SITE	
Waste Stream Name: CHROMIUM METAL WIRE (D007)	
Matrix: Other	**Waste Type: MLLW**

Waste Stream Description and Source:

1 5-gallon drum containing chromium wire. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.020	2.0	0.020	2.0	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D007	Conc.	Chemical Reduction followed by Stabilization

State: Missouri **ID #: 2256**

Site: WELDON SPRING SITE

Waste Stream Name: SCRAP LEAD METAL (D008)

Matrix: Elemental Lead **Waste Type: MLLW**

Waste Stream Description and Source:

6 drums (5 55-gallon and 1 30-gallon) containing scrap lead metal. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	1.2	1,546.0	1.2	1,546.0	0.000	0.000

Treatability Group:

MLLW CH, Elemental Lead, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

State: Missouri	**ID #: 2257**
Site: WELDON SPRING SITE	
Waste Stream Name: CYANIDE (D003)	
Matrix: Lab Packs without Metals	**Waste Type: MLLW**

Waste Stream Description and Source:

2 5-gallon drums containing lab packs of cyanide in liquid forms. 1 drum contains potassium cyanide and the other contains sodium cyanide. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.040	30.0	0.040	30.0	0.000	0.000

Treatability Group:

MLLW CH, Lab Packs without Metals, Ignitable, Corrosive, or Reactive Only

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003A	Conc.	Chemical Oxidation followed by Alkaline Chlorination

State: Missouri	**ID #: 2257**
Site: WELDON SPRING SITE	
Waste Stream Name: CYANIDE (D003)	
Matrix: Lab Packs without Metals	**Waste Type: MLLW**

(i.e., D004-D008, and D010-D011).

State: Missouri	**ID #: 2258**
Site: WELDON SPRING SITE	
Waste Stream Name: OIL WITH BARIUM (D005-LIQUID)	
Matrix: Organic Liquids	**Waste Type: MLLW**

Waste Stream Description and Source:

1 55-gallon drum of oil containing barium. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant. Measured concentrations of uranium and thorium are 20 ug/kg and 0.015 pCi/g, respectively.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.200	165.0	0.200	165.0	0.000	0.000

Treatability Group:

MLLW CH, Organic Liquids, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D005	Conc.	Chemical Precipitation; or Stabilization

State: Missouri ID #: 2259

Site: WELDON SPRING SITE

Waste Stream Name: PAINT WASTE WITH MERCURY

Matrix: Organic Sludges/Particulates Waste Type: MLLW

Waste Stream Description and Source:

1 85-gallon drum of paint waste containing PCBs and low levels of mercury. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.300	253.0	0.300	253.0	0.000	0.000

Treatability Group:

MLLW CH, Organic Sludges/Particulates, Toxic Organics and Metals w/ Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

State: Missouri	**ID #: 2259**
Site: WELDON SPRING SITE	
Waste Stream Name: PAINT WASTE WITH MERCURY	
Matrix: Organic Sludges/Particulates	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001B	Tech.	Deactivation
D008B	Conc.	Stabilization
D009C	Conc.	Thermal Recovery of Metals; Acid Leaching; Stabilization; or Incineration
D018		Not currently prohibited under the LDR Program.

State: Missouri	**ID #: 2260**
Site: WELDON SPRING SITE	
Waste Stream Name: MIXED ACIDS WITH CHROMIUM	
Matrix: Aqueous Liquid	**Waste Type: MLLW**

Waste Stream Description and Source:
1 55-gallon drum of mixed acids containing chromium. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.200	151.0	0.200	151.0	0.000	0.000

Treatability Group:
MLLW CH, Aqueous Liquid, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
Waste is no longer being generated.

EPA CODES
Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002A	Tech.	Deactivation
D007	Conc.	Chemical Reduction followed by Stabilization

State: Missouri	**ID #: 2261**
Site: WELDON SPRING SITE	
Waste Stream Name: MIXED ACIDS WITH METALS	
Matrix: Aqueous Liquid	**Waste Type: MLLW**

Waste Stream Description and Source:

1 55-gallon drum of mixed acids containing arsenic, cadmium, chromium, lead, and selenium. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.200	236.0	0.200	236.0	0.000	0.000

Treatability Group:

MLLW CH, Aqueous Liquid, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

State: Missouri | ID #: 2261

Site: WELDON SPRING SITE

Waste Stream Name: MIXED ACIDS WITH METALS

Matrix: Aqueous Liquid | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002A	Tech.	Deactivation
D004	Conc.	Vitrification
D006B	Conc.	Stabilization
D007	Conc.	Chemical Reduction followed by Stabilization
D008B	Conc.	Stabilization
D010	Conc.	Stabilization

State: Missouri	**ID #: 2265**
Site: WELDON SPRING SITE	
Waste Stream Name: LIQUID CAUSTICS (D002)	
Matrix: Aqueous Liquid	**Waste Type: MLLW**

Waste Stream Description and Source:

5 55-gallon drums containing a variety of acustic liquids. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	1.000	775.0	1.000	775.0	0.000	0.000

Treatability Group:

MLLW CH, Aqueous Liquid, Ignitable, Corrosive, or Reactive Only

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002B	Tech.	Deactivation

State: Missouri **ID #: 2266**

Site: WELDON SPRING SITE

Waste Stream Name: INERT SOLIDS WITH CHROMIUM (D007)

Matrix: Heterogeneous Debris **Waste Type: MLLW**

Waste Stream Description and Source:

1 55-gallon drum containing a variety of contaminated solids (including soap, trash, glass beads, epoxy, copier materials, and abrasive powders) in the form of a yellow powder. Generated through consolidation and containerization in DOT drums of chemicals abandoned at the former uranium processing plant.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.200	177.0	0.200	177.0	0.000	0.000

Treatability Group:

MLLW CH, Heterogeneous Debris, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste is no longer being generated.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D007	Conc.	Chemical Reduction followed by Stabilization

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical,

State: Missouri	ID #: 2266
Site: WELDON SPRING SITE	
Waste Stream Name: INERT SOLIDS WITH CHROMIUM (D007)	
Matrix: Heterogeneous Debris	Waste Type: MLLW

or thermal), macro/microencapsulation or sealing.

19.0 NEVADA

There is one Nevada facility that generates, expects to generate, and/or stores DOE-managed mixed waste, Nevada Test Site.

Figure 19-1 shows the location of this facility.

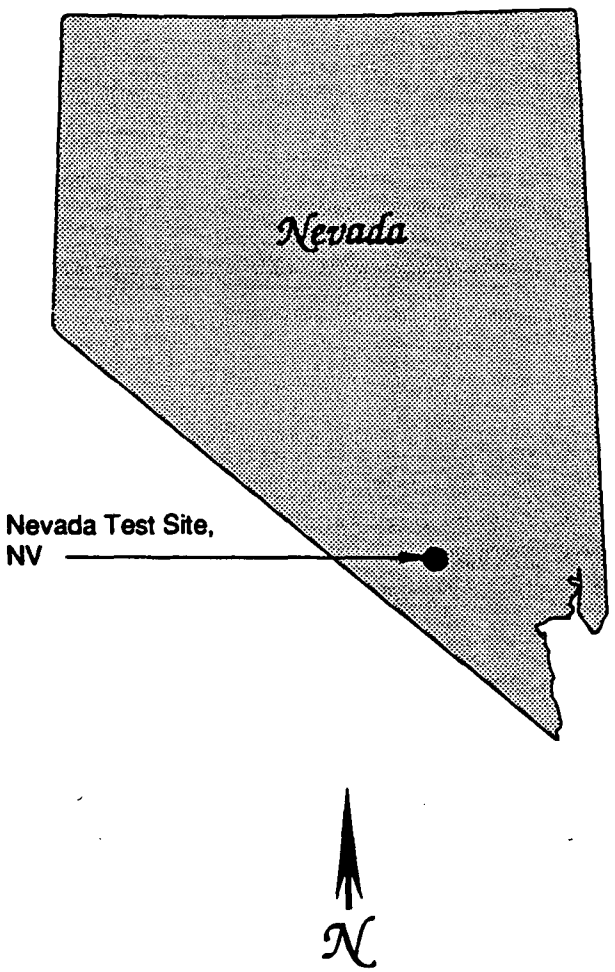

Figure 19-1. Nevada Facility that Generates, Expects to Generate, and/or Stores DOE-managed Mixed Waste.

19.1 Nevada Test Site

The Nevada Test Site (NTS) is a DOE nuclear weapons testing facility occupying 3496 km^2 of federally owned land in Nye County, Nevada. Most of the land is undeveloped. The NTS is located about 105 km northwest of Las Vegas, Nevada (Figure 19-1). The Nellis Air Force Range and Tonopah Test Range provide a restricted-access buffer on 3 sides. Operations at the NTS are under the direct supervision of the DOE Nevada Field Office (NV), although 4 maintenance and operating contractors run the day-to-day activities. The mission of the NTS is nuclear weapons testing; in addition, the management and disposal of low-level radioactive waste, storage of mixed transuranic (MTRU) waste, and the development of mixed waste disposal capacity are important functions. NTS employs 3,500 people.

The State of Nevada received mixed waste authority effective June 29, 1992, (Federal Register, April 29, 1992, 57 FR 18083). The NTS is the only DOE site within the State of Nevada that reports the storage and potential generation of mixed waste. There is no Federal Facility Compliance Agreement or Interagency Agreement in place for the NTS; however a Settlement Agreement between DOE/NV and the State was ratified in July 1992 to resolve regulatory issues related to storage of MTRU waste. The State of Nevada and the NTS have an Agreement-in-Principle that allows State access to DOE facilities; supports State planning for response to on-site emergencies. Negotiations for the Agreement-in-Principle were completed October 4, 1990, and are updated annually.

Operations waste includes 612 m^3 (Table 19.1-1) of TRU waste originally generated at Lawrence Livermore National Laboratory (LLNL), Livermore, California, and shipped to the NTS for storage. The LLNL TRU waste is now suspected to contain hazardous components. MTRU waste is no longer being accepted at the NTS. A large volume of potentially mixed waste from past nuclear testing is present on-site, but exact quantities will not be known until characterization is complete. That waste will be generated by environmental restoration activities. Good operating practices will be used to further limit future generation of mixed waste at NTS.

Final disposition or treatment of mixed waste stored (or present) at the NTS cannot be planned at this time, because characterization has not been completed. A formal characterization program has only recently been developed at the NTS. The program is currently being used only for characterizing and documenting low-level radioactive waste. The program will eventually be expanded to characterize all wastes at the NTS. This program, once implemented, may identify additional mixed waste. Further characterization of MTRU waste will also be necessary to meet the waste acceptance criteria of the Waste Isolation Pilot Plant (WIPP) in New Mexico. Treatment technologies cannot be identified until an accurate characterization of the waste present at the NTS is completed. NTS does not have any mixed waste treatment facility in use at this time. A liquid effluent treatment facility is being planned to treat mixed waste that is expected to be generated by environmental restoration investigation activities.

19.1.1 Mixed Waste

The NTS reports only 1 mixed waste stream: a TRU waste that potentially contains hazardous components. This stream is not expected to be active in the future, and the reporting relates only to current inventories. There are also 3 potential mixed low-level waste (MLLW) streams that have not yet been characterized. The 3 waste streams are wastes from past nuclear events, and technically they will not be generated until excavation of contaminated materials begins.

19.1.1.1 High Level Waste

The NTS has not generated mixed high-level waste in the past and does not expect to generate any.

Table 19.1-1
Mixed Wastes at Nevada Test Site

Waste Type/Matrix	Number of Waste Streams	Inventory		Number of Waste Streams	Five-Year Projection	
		(m^3)	(kg)		(m^3)	(kg)
WASTE TYPE -- MTRU						
CH -alpha, Heterogeneous Debris	1	612.00	204,663.00	0	0.00	0.00
Sub-Total MTRU:	1	612.00	204,663.00	0	0.00	0.00
TOTAL:	1	612.00	204,663.00	0	0.00	0.00

19.1.1.2 Mixed Transuranic

MTRU waste stored at the NTS is currently managed and reported as a single waste stream. This single waste stream is not expected to be active in the future, and reporting relates only to the current inventory. Most of the waste in the stream is contact-handled, but 1 box and 16 drums are remotely handled. The MTRU waste stream consists of 612 m^3 (about 205,000 kg) of heterogeneous debris. This storage volume represents 100 percent of the total quantity of MTRU waste on site and is within 3 percent of the total volume reported in other inventory reference documents. Because only a minor fraction of the waste (1 percent) is remote handled, it is not managed or accounted for as a separate waste stream.

The material was generated at LLNL, and shipped to the NTS between 1974 and 1990. The waste was declared to be potentially MTRU waste by the generator in April 1991. This waste was packaged before RCRA characterization requirements were imposed on LLNL, and the generator is not confident about waste content. The waste stream includes items such as glovebox parts, laboratory trash, and solidified sludges. The Environmental Protection Agency codes were estimated on the basis of limited information provided by the generator. None of the waste is currently WIPP certified.

19.1.1.3 Mixed Low-Level Waste

The 3 potential MLLW waste streams identified are present in former nuclear weapons effects test tunnels. Technically, these wastes will not be generated unless excavation of contaminated materials begins. All tunnel complex wastes will be addressed as future waste management activities.

The 3 streams consist of soil generated during post-event reentry mining, soil from post-event mine backs and drill backs, and tritiated water from post-event mine backs and drill backs. All the materials are suspected to be contaminated with radioactive products from nuclear weapons testing events. The soil is also suspected to contain RCRA regulated metals or spent solvents, and the tritiated water may also contain spent solvents. Therefore, since no mass or volume data are currently known, and the presence of hazardous contaminants cannot be currently known, and the presence of hazardous contaminants cannot be verified until characterization is completed, Waste Profile Sheets have not been provided for these wastes.

19.1.2 Treatment Facilities and Technologies

Nevada Test Site does not have any mixed waste treatment facilities in use at this time. A liquid effluent treatment facility is being planned to treat contaminated groundwater expected to be generated by environmental restoration groundwater investigations (i.e., drilling). A 5-year projection of environmental restoration waste is included in Chapter 2. The liquid effluent treatment facility will consist of evaporation ponds at 3 locations to treat wastes from the groundwater characterization project. The facility is expected to come on-line in FY 95 and will have a capacity of 6.5 million gallons per year (about 25,000 m^3/year). Because DOE is still in the design stage for this facility, schedules are subject to change based on funding, permit issuance, etc.

19.1.3 Technology Development

There is no site-specific technology development for NTS.

19.1.4 Environmental Restoration Waste

The primary use of NTS is for underground nuclear weapons tests and, historically, above-ground nuclear tests. Approximately 1100 surface and subsurface contaminated sites from nuclear tests and ancillary operations have been identified. Of the sites to be addressed in the Environmental Restoration Program, more than 600 are related to underground testing at the NTS, more than 100 are related to above-ground testing, and approximately 70 are classified as industrial sites. The latter include underground storage tanks, leachfields, landfills, contaminated-waste sites, and injection wells. Contaminants on the NTS include surface and subsurface radionuclides, organic compounds, RCRA-regulated metals, and petroleum products. Most of these materials were released as a result of testing, and the majority of the wastes were generated through re-entry operations associated with testing.

Under the Environmental Restoration Program, DOE/NV will characterize contaminant sources and contamination at NTS, determine the risk associated with that contamination, and implement remedial actions to protect or restore natural resources damaged by past releases of hazardous substances at NTS. All site characterization and remediation is being conducted in strict accordance with Federal and State environmental laws, regulations, and DOE requirements.

Environmental restoration accomplishments for the NTS, Tonopah Test Site, and Nellis Air Force Range include performing CERCLA Preliminary Assessments for inactive sites, drafting RCRA Closure Plans for inactive sites, preparing NEPA documentation for the Ground Water Characterization Project, conducting public participation meetings and presentations, working on the completion of an inventory of abandoned waste disposal sites and release sites at NTS, and completing the installation of the first 4 NTS ground water characterization wells, and 12 well recompletions. The site also took part in negotiations leading to a signed Agreement-in-Principle with Nevada. The NTS is currently being evaluated by EPA as a candidate for the National Priorities List. Chapter 2 provides information on the contaminated media associated with environmental restoration activities.

WASTE

PROFILE

SHEETS

Nevada Test Site

Waste Profile Sheets (WPS) have been compiled in this report for each of the mixed waste streams identified at the different DOE sites. Each WPS is a concise summary of the information required by the FFCAct-1992, with waste stream specific data primarily derived from the Waste Management Information System (WMIS) database. Each WPS consists of the following items:

Header: The information in the header in each WPS includes the State, the official name of the site, an identification number, an identifying waste stream name, the waste type, and the waste matrix. The identification number is either a number assigned by the WMIS database or a number assigned by the site. The waste stream name is a unique identifier which corresponds to the name used in the WMIS database, or is assigned by the site. The waste type is either HLW, MTRU, or MLLW. The waste matrix corresponds to the categories (or their further subdivisions) defined earlier based on the physical and chemical form of the waste.

Waste Stream Description and Source: This section of the WPS presents a short description of the source of the waste and the waste stream characteristics.

Inventory Table: The inventory table in each WPS reports the volume (m^3) and/or mass (kg) of each waste stream currently in storage, and projected to be generated in the next five years. The table also indicates the date assumed in calculating the current and projected inventories. As required by the FFCAct-1992, the table also differentiates between waste not subject to LDR and that subject to LDR for the current inventory.

Treatability Group: This section lists the name of the treatability group to which the waste stream belongs.

Treatment Status, Technology Status: This section of the WPS lists the status of the technology that could be applied to the waste stream for compliance with the LDR. This section provides information on if the waste stream is currently being treated, and if technology options and facilities for the treatment exist.

Radiation Characteristics Section: This section of the WPS provides additional information on the radiological characteristics of the waste (in addition to characterizing the waste stream as HLW, MTRU, or MLLW). This section of the WPS specifies whether the waste stream is contact handled or remote handled, if the radionuclides are alpha or beta/gamma emitters, and if they contain activation products.

Radiation Effects Section: As required by the FFCAct-1992, this section of the WPS lists possible effects of the radiological characteristics of the waste stream on treatment technologies that could be applicable to that waste stream. For example, radiation levels may require remote handling of the waste and affect the design and operation of the treatment facility. The presence of volatile radionuclides may require the containment of all off-gases from the treatment system.

Waste Minimization Activities: As required by the FFCAct-1992, this section of the WPS provides information on the waste minimization practices being used for the waste stream. This section provides information on if the waste minimization practices include good operating practices, technology changes, raw material changes, product changes, etc.

EPA Code: This table of the WPS reports the EPA hazardous waste codes applicable to the waste stream, the basis for assigning the codes (process knowledge or sampling/analysis), the LDR basis (which is either technology based or concentration based), and the BDAT for each of the EPA hazardous waste codes.

In summary, the WPS for each waste stream, along with the site sections in the report for each State (Section B), summarize the site-specific information required by the FFCAct-1992.

State: Nevada	ID #: 0000000002
Site: NEVADA TEST SITE	
Waste Stream Name: NTS STORED, TRU WASTE FROM LLNL	
Matrix: Heterogeneous Debris	Waste Type: MTRU

Waste Stream Description and Source:

This waste stream consists of glovebox parts, laboratory trash, and solidified sludges. Real time radiography has been performed on the waste to verify that there are no free liquids present, with the exception of liquid in aerosol cans. Most of the waste is contact-handled TRU waste; one box and 16 drums are remote-handled. The waste stream was generated at the Lawrence Livermore National Laboratory, Livermore, CA (LLNL) and shipped to the NTS from 1974 until 1990. The waste was declared as potentially mixed TRU waste by the generator in April, 1991.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	612.0	204,663.0	612.0	204,663.0	0.000	0.000

Treatability Group:

MTRU CH/AL, Heterogeneous Debris, Toxic Organics and Metals w/o Mercury

Treatment Status:

Treatment of most mixed transuranic waste to meet LDR treatment standards is not applicable because DOE plans to ship these wastes to the Waste Isolation Pilot Plant (WIPP), pending issuance of a No-Migration Determination of the operational phase. Pretreatment to meet the WIPP Waste Acceptance Criteria may be required.

Technology Status:

Not Applicable.

Radiation Characteristics:

1) Contact-handled
2) Transuranic contaminants

Waste-Specific Radiation Effects on Treatment:

1) None.

The primary transuranic nuclide present in the waste is plutonium. Radiation effects on treatment are unknown at this time.

Waste Minimization Activities:

1) Not Applicable.

This waste is not an NTS-generated waste. NTS does not expect to receive additional TRU mixed waste. Waste minimization techniques do not apply to this stored waste stream.

State: Nevada | ID #: 0000000002

Site: NEVADA TEST SITE

Waste Stream Name: NTS STORED, TRU WASTE FROM LLNL

Matrix: Heterogeneous Debris | Waste Type: MTRU

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001D	Tech.	Deactivation
D003E	Tech.	Deactivation
D006B	Conc.	Stabilization
D007	Conc.	Chemical Reduction followed by Stabilization
D008B	Conc.	Stabilization
D011	Conc.	Stabilization
F001	Conc.	Incineration
F002	Conc.	Incineration
F003	Conc.	Incineration
P015	Tech.	Metals Recovery; or Thermal Recovery of Metals

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

20.0 NEW JERSEY

There are two New Jersey facilities that generate, expect to generate, and/or store DOE-managed mixed waste.

- 20.1 Middlesex Sampling Plant
- 20.2 Princeton Plasma Physics Laboratory

Figure 20-1 shows the location of these facilities.

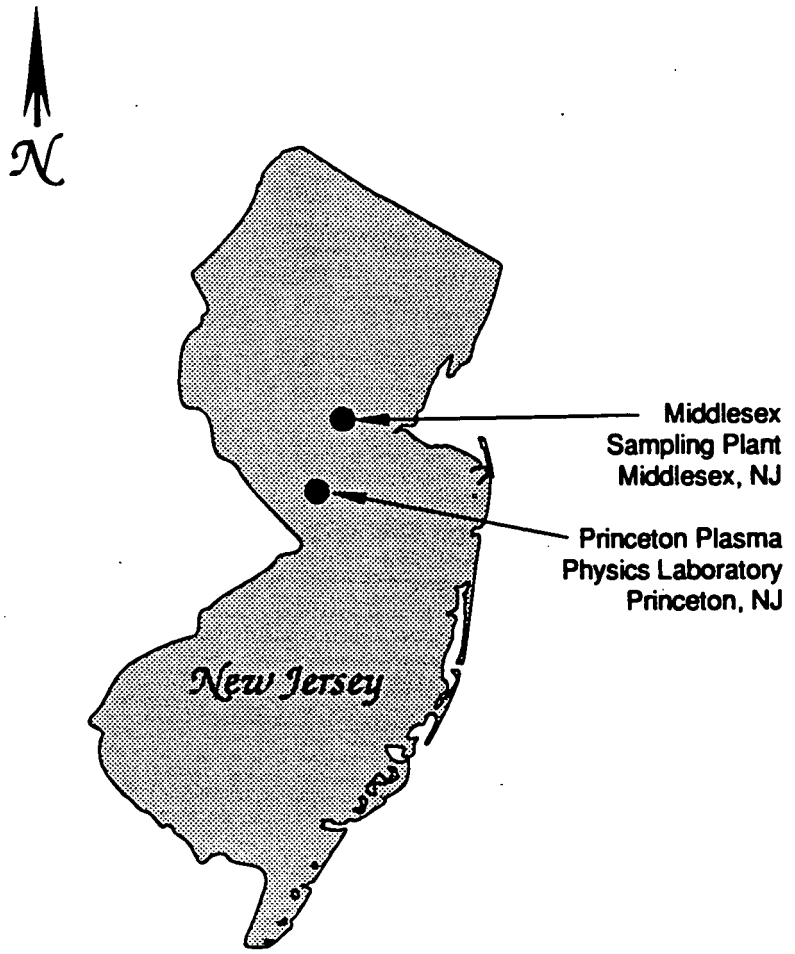

Figure 20-1. New Jersey Facilities that Generate, Expect to Generate, and/or Store DOE-managed Mixed Waste.

20.1 Middlesex Sampling Plant

Site Summary

The Middlesex Sampling Plant located in Middlesex, New Jersey, (Figure 20-1) is part of the Formerly Utilized Sites Remedial Action Program (FUSRAP). About 24,000 m^3 of mixed low-level waste (MLLW) from the Middlesex Municipal Landfill pile are stored at the plant. The Middlesex facility was established in 1943 by the Manhattan Engineer District (MED) to sample, store, and/or ship uranium, thorium, and beryllium ores. In 1955, the AEC, the successor to MED, terminated the operation and later used the site for the storage and limited sampling of thorium residues. In 1967, AEC activities ceased, on-site structures were decontaminated, and the site was certified for unrestricted use under criteria applicable at that time. Between 1968 and 1980, the site was used by the General Services Administration and by the Department of Navy. In 1980, custody was returned to DOE, which then initiated remedial action to clean up vicinity properties and portions of a landfill into which radioactive materials previously had been disposed. Wastes resulting from the cleanup activities were transported to the Middlesex Sampling Plant for interim storage. In 1987, the remedial action activities on these areas were completed. Portions of the waste in interim storage are contaminated with lead. Chapter 2 provides more information on the contaminated media associated with environmental restoration activities.

General

Current activity at the Middlesex Sampling Plant focuses on environmental monitoring at the plant and the surrounding area. The environmental monitoring program at the site includes sampling networks for radon and thorium concentrations in air; external gamma radiation exposure; and radium-226, thorium-232, radium 228, thorium 230, and total uranium concentrations in surface water, sediment, and ground-water. Additionally, several nonradiological parameters are measured in ground-water, surface water, and sediment.

20.1.1 Mixed Waste

The Middlesex Sampling Plant does not currently generate mixed waste and is not expected to do so in the future. The mixed waste inventory of about 24,000 m^3 (Table 20.2-1) is the result of a 1-time generation event when landfill materials were excavated and returned to the plant for interim storage. These wastes have been characterized through sampling and analyses, and portions are hazardous because of lead concentrations.

20.1.2 Treatment Facilities

Technology for treating the wastes in storage at the Middlesex Sampling Plant exists but no facility is available.

20.1.3. Technology Development

There is no site-specific technology development for Middlesex Sampling Plant.

Table 20.1-1

Mixed Wastes At Middlesex Sampling Plant

Waste Type/Matrix	Number of Waste Streams	Inventory		Number of Waste Streams	Five-Year Projection	
		(m^3)	(kg)		(m^3)	(kg)
WASTE TYPE -- MLLW						
CH, Inorganic Debris	1	24,468.00	44,043,936.00	0	0.00	0.00
Sub-Total MLLW:	1	24,468.00	44,043,936.00	0	0.00	0.00
TOTAL:	1	24,468.00	44,043,936.00	0	0.00	0.00

WASTE

PROFILE

SHEETS

Middlesex Sampling Plant

MSP-WPS-1

April 1993

ROADMAP TO WASTE PROFILE SHEETS (WPS)

Waste Profile Sheets (WPS) have been compiled in this report for each of the mixed waste streams identified at the different DOE sites. Each WPS is a concise summary of the information required by the FFCAct-1992, with waste stream specific data primarily derived from the Waste Management Information System (WMIS) database. Each WPS consists of the following items:

Header: The information in the header in each WPS includes the State, the official name of the site, an identification number, an identifying waste stream name, the waste type, and the waste matrix. The identification number is either a number assigned by the WMIS database or a number assigned by the site. The waste stream name is a unique identifier which corresponds to the name used in the WMIS database, or is assigned by the site. The waste type is either HLW, MTRU, or MLLW. The waste matrix corresponds to the categories (or their further subdivisions) defined earlier based on the physical and chemical form of the waste.

Waste Stream Description and Source: This section of the WPS presents a short description of the source of the waste and the waste stream characteristics.

Inventory Table: The inventory table in each WPS reports the volume (m^3) and/or mass (kg) of each waste stream currently in storage, and projected to be generated in the next five years. The table also indicates the date assumed in calculating the current and projected inventories. As required by the FFCAct-1992, the table also differentiates between waste not subject to LDR and that subject to LDR for the current inventory.

Treatability Group: This section lists the name of the treatability group to which the waste stream belongs.

Treatment Status, Technology Status: This section of the WPS lists the status of the technology that could be applied to the waste stream for compliance with the LDR. This section provides information on if the waste stream is currently being treated, and if technology options and facilities for the treatment exist.

Radiation Characteristics Section: This section of the WPS provides additional information on the radiological characteristics of the waste (in addition to characterizing the waste stream as HLW, MTRU, or MLLW). This section of the WPS specifies whether the waste stream is contact handled or remote handled, if the radionuclides are alpha or beta/gamma emitters, and if they contain activation products.

Radiation Effects Section: As required by the FFCAct-1992, this section of the WPS lists possible effects of the radiological characteristics of the waste stream on treatment technologies that could be applicable to that waste stream. For example, radiation levels may require remote handling of the waste and affect the design and operation of the treatment facility. The presence of volatile radionuclides may require the containment of all off-gases from the treatment system.

Waste Minimization Activities: As required by the FFCAct-1992, this section of the WPS provides information on the waste minimization practices being used for the waste stream. This section provides information on if the waste minimization practices include good operating practices, technology changes, raw material changes, product changes, etc.

EPA Code: This table of the WPS reports the EPA hazardous waste codes applicable to the waste stream, the basis for assigning the codes (process knowledge or sampling/analysis), the LDR basis (which is either technology based or concentration based), and the BDAT for each of the EPA hazardous waste codes.

In summary, the WPS for each waste stream, along with the site sections in the report for each State (Section B), summarize the site-specific information required by the FFCAct-1992.

State: New Jersey **ID #: 0000000001**

Site: MIDDLESEX SAMPLING PLANT

Waste Stream Name: Middlesex Municipal Landfill Material

Matrix: Inorganic Debris **Waste Type: MLLW**

Waste Stream Description and Source:

The Middlesex Municipal Landfill pile is located at the Middlesex Sampling Plant in Middlesex, NJ. Samples collected from the pile failed the TCLP for lead.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	24,468.0	44,043,936.0	24,468.0	44,043,936.0	0.000	0.000

Treatability Group:

MLLW CH, Inorganic Debris, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

1) Not Applicable.

Waste was from a one-time cleanup activity.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008B	Conc.	Stabilization

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

20.2 Princeton Plasma Physics Laboratory

Site-Summary

The Princeton Plasma Physics Laboratory (PPPL), located at Princeton University, conducts plasma physics research. PPPL currently does not generate or store mixed waste as defined in the Federal Facility Compliance Act (FFCA). However, about $0.5m^3$ of mixed low-level waste (MLLW) is projected to be generated in the next 5 years.

General

PPPL has been leased to the DOE for 40 years by Princeton University. It is located on 0.29 km^2 (72 acres) of the C- and D-sites of Princeton's James Forrestal Campus in Princeton, New Jersey (Figure 20-1). The laboratory has about 900 employees. PPPL's primary mission is research on magnetic-confinement plasma physics fusion energy. The goal of the Magnetic Fusion Energy Research Program is to demonstrate the feasibility of using fusion power as an alternative energy source. This program currently has 2 large fusion research devices: the Princeton Beta Experiment--Modification (PBX-M) and the Tokamak Fusion Test Reactor (TFTR).

20.2.1 Mixed Waste

PPPL currently does not generate or handle MLLW, high-level, or transuranic waste as defined in the FFCA. Operations have resulted in waste streams containing both radioactive and hazardous constituents, but the radioactive component was an accelerator-produced radioactive material that is not defined as mixed waste by the FFCA.

Future research efforts may result in waste streams that meet the FFCA definition of mixed waste (Table 20.2-1). This is currently projected to consist of an ethanol MLLW, generated from cleaning graphite tiles that machined for the TFTR.

20.2.2 Treatment Facilities

PPPL has no on-site treatment capability, and no plans to develop this capability in the future. Although not approved, PPPL plans to ship any generated MLLW to off-site facilities for treatment and disposal.

20.2.3 Technology Development

There is no site-specific technology development for PPPL.

Table 20.2-1
Mixed Wastes at Princeton Plasma Physics Laboratory

Waste Type/Matrix	Number of Waste Streams	Inventory		Number of Waste Streams	Five-Year Projection	
		(m^3)	(kg)		(m^3)	(kg)
WASTE TYPE -- MLLW						
CH, Organic Liquids	0	0.00	0.00	1	0.50	395.00
Sub-Total MLLW:	0	0.00	0.00	1	0.50	395.00
TOTAL:	0	0.00	0.00	1	0.50	395.00

WASTE

PROFILE

SHEETS

Princeton Plasma Physics Laboratory

PPPL-WPS-1

April 1993

ROADMAP TO WASTE PROFILE SHEETS (WPS)

Waste Profile Sheets (WPS) have been compiled in this report for each of the mixed waste streams identified at the different DOE sites. Each WPS is a concise summary of the information required by the FFCAct-1992, with waste stream specific data primarily derived from the Waste Management Information System (WMIS) database. Each WPS consists of the following items:

Header: The information in the header in each WPS includes the State, the official name of the site, an identification number, an identifying waste stream name, the waste type, and the waste matrix. The identification number is either a number assigned by the WMIS database or a number assigned by the site. The waste stream name is a unique identifier which corresponds to the name used in the WMIS database, or is assigned by the site. The waste type is either HLW, MTRU, or MLLW. The waste matrix corresponds to the categories (or their further subdivisions) defined earlier based on the physical and chemical form of the waste.

Waste Stream Description and Source: This section of the WPS presents a short description of the source of the waste and the waste stream characteristics.

Inventory Table: The inventory table in each WPS reports the volume (m^3) and/or mass (kg) of each waste stream currently in storage, and projected to be generated in the next five years. The table also indicates the date assumed in calculating the current and projected inventories. As required by the FFCAct-1992, the table also differentiates between waste not subject to LDR and that subject to LDR for the current inventory.

Treatability Group: This section lists the name of the treatability group to which the waste stream belongs.

Treatment Status, Technology Status: This section of the WPS lists the status of the technology that could be applied to the waste stream for compliance with the LDR. This section provides information on if the waste stream is currently being treated, and if technology options and facilities for the treatment exist.

Radiation Characteristics Section: This section of the WPS provides additional information on the radiological characteristics of the waste (in addition to characterizing the waste stream as HLW, MTRU, or MLLW). This section of the WPS specifies whether the waste stream is contact handled or remote handled, if the radionuclides are alpha or beta/gamma emitters, and if they contain activation products.

Radiation Effects Section: As required by the FFCAct-1992, this section of the WPS lists possible effects of the radiological characteristics of the waste stream on treatment technologies that could be applicable to that waste stream. For example, radiation levels may require remote handling of the waste and affect the design and operation of the treatment facility. The presence of volatile radionuclides may require the containment of all off-gases from the treatment system.

Waste Minimization Activities: As required by the FFCAct-1992, this section of the WPS provides information on the waste minimization practices being used for the waste stream. This section provides information on if the waste minimization practices include good operating practices, technology changes, raw material changes, product changes, etc.

EPA Code: This table of the WPS reports the EPA hazardous waste codes applicable to the waste stream, the basis for assigning the codes (process knowledge or sampling/analysis), the LDR basis (which is either technology based or concentration based), and the BDAT for each of the EPA hazardous waste codes.

In summary, the WPS for each waste stream, along with the site sections in the report for each State (Section B), summarize the site-specific information required by the FFCAct-1992.

State: New Jersey	**ID #: 0000000001**
Site: PRINCETON PLASMA PHYSICS LABORATORY	
Waste Stream Name: ETHANOL	
Matrix: Organic Liquids	**Waste Type: MLLW**

Waste Stream Description and Source:

Waste ethanol from cleaning of graphite tiles after machining operations. Stored in the D-site waste storage facility.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	0.500	395.0

Treatability Group:

MLLW CH, Organic Liquids, Ignitable, Corrosive, or Reactive Only

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. No modifications are necessary.

Radiation Characteristics:

1) Contact-handled

Waste-Specific Radiation Effects on Treatment:

1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Tritium present, < 5x10E-8 Ci/g.

Waste Minimization Activities:

1) Not Applicable.

This waste will only be generated if TFTR tile machining occurs. None is currently planned.

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State: New Jersey **ID #: 0000000001**

Site: PRINCETON PLASMA PHYSICS LABORATORY

Waste Stream Name: ETHANOL

Matrix: Organic Liquids **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration

21.0 NEW MEXICO

There are four New Mexico facilities that generate, expect to generate, and/or store DOE-managed mixed waste.

- 21.1 Inhalation Toxicology Research Institute
- 21.2 Los Alamos National Laboratory
- 21.3 Sandia National Laboratories - New Mexico
- 21.4 Waste Isolation Pilot Plant

Figure 21-1 shows the location of these facilities.

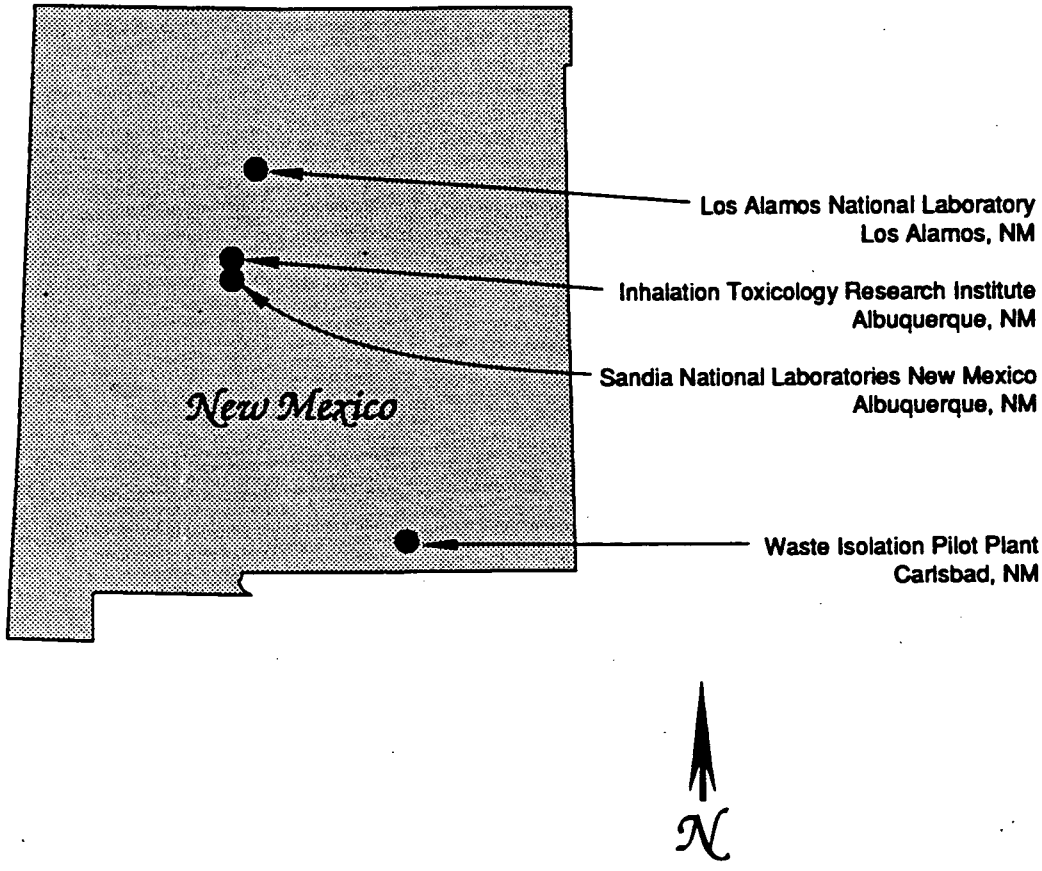

Figure 21-1. New Mexico Facilities that Generate, Expect to Generate, and/or Store DOE-managed Mixed Waste.

21.1 Inhalation Toxicology Research Institute

Summary

The Inhalation Toxicology Research Institute (ITRI), located on Kirtland Air Force Base, 16 km south of Albuquerque in central New Mexico (Figure 21-1). ITRI is operated for the DOE by the Lovelace Biomedical and Environmental Research Institute, Inc., a private nonprofit subsidiary of the Lovelace Medical Foundation. It is staffed by approximately 200 personnel. The mission of ITRI is to improve the scientific basis for understanding the impact on human health of inhaled materials that are toxic by virtue of their radiological, chemical, or physical nature. Mixed waste is generated under closely supervised laboratory research.

General

ITRI currently stores 1.3 m^3 (about 960 Kg) of MLLW from 2 organic liquid waste streams. All waste is characterized by process knowledge, subject to the LDR, and contact handled. There is no high-level waste (HLW) at this site. An estimated 4.3 m^3 (about 16,300 Kg) of MLLW will be produced in the next 5 years. Waste minimization activities consist of a process change and product substitution to less toxic material in the liquid scintillation cocktails.

21.1.1 Mixed Waste

ITRI currently has 1.3 m^3 (about 960 Kg) of MLLW from 2 waste streams stored on site (Table 21.1-1). All of this waste is subject to the LDR storage prohibitions. The waste streams are organic liquids from liquid scintillation cocktails. Detailed information on each waste stream is found in Waste Profile Sheets. The data presented are verified through December 31, 1992.

ITRI projects its 5-year generation of MLLW to be 3.1 m^3 (about 2,300 Kg), consisting primarily of current operations waste and the potential for 1.2 m^3 (about 14,000 Kg) of lead used in radiological shielding during research.

The radioactive elements of the waste streams are C-14, Ni-63, and tritium, with trace amounts of Pu-238, Pu-239, Am-241, Cm-243, Cm-244, Am-243, Th-228, U-238, Cs-137, Sr-90, and natural uranium. All the waste can be contact handled, and radiation levels are sufficiently low as to pose no significant restrictions on treatment requirements.

Waste minimization will be achieved by a process change and product substitution to less toxic materials in the liquid scintillation cocktails.

ITRI does not store or generate high level wastes.

21.1.2 Treatment Facilities

ITRI has no on-site treatment facilities and no plans to construct such facilities. MLLW is stored on-site in approved storage locations until shipped off-site for treatment and disposal.

21.1.3 Technology Development

There is no site specific technology development for ITRI.

Table 21.1-1
Mixed Wastes at the Inhalation Toxicology Research Institute

Waste Type/Matrix	Number of Waste Streams	Inventory		Number of Waste Streams	Five-Year Projection	
		(m^3)	(kg)		(m^3)	(kg)
WASTE TYPE -- MLLW						
CH, Organic Liquids	2	1.25	960.00	3	3.10	2,290.00
CH, Elemental Lead	0	0.00	0.00	1	1.20	14,000.00
Sub-Total MLLW:	2	1.25	960.00	4	4.30	16,290.00
TOTAL:	2	1.25	960.00	4	4.30	16,290.00

WASTE

PROFILE

SHEETS

Inhalation Toxicology Research Institute

ROADMAP TO WASTE PROFILE SHEETS (WPS)

Waste Profile Sheets (WPS) have been compiled in this report for each of the mixed waste streams identified at the different DOE sites. Each WPS is a concise summary of the information required by the FFCAct-1992, with waste stream specific data primarily derived from the Waste Management Information System (WMIS) database. Each WPS consists of the following items:

Header: The information in the header in each WPS includes the State, the official name of the site, an identification number, an identifying waste stream name, the waste type, and the waste matrix. The identification number is either a number assigned by the WMIS database or a number assigned by the site. The waste stream name is a unique identifier which corresponds to the name used in the WMIS database, or is assigned by the site. The waste type is either HLW, MTRU, or MLLW. The waste matrix corresponds to the categories (or their further subdivisions) defined earlier based on the physical and chemical form of the waste.

Waste Stream Description and Source: This section of the WPS presents a short description of the source of the waste and the waste stream characteristics.

Inventory Table: The inventory table in each WPS reports the volume (m^3) and/or mass (kg) of each waste stream currently in storage, and projected to be generated in the next five years. The table also indicates the date assumed in calculating the current and projected inventories. As required by the FFCAct-1992, the table also differentiates between waste not subject to LDR and that subject to LDR for the current inventory.

Treatability Group: This section lists the name of the treatability group to which the waste stream belongs.

Treatment Status, Technology Status: This section of the WPS lists the status of the technology that could be applied to the waste stream for compliance with the LDR. This section provides information on if the waste stream is currently being treated, and if technology options and facilities for the treatment exist.

Radiation Characteristics Section: This section of the WPS provides additional information on the radiological characteristics of the waste (in addition to characterizing the waste stream as HLW, MTRU, or MLLW). This section of the WPS specifies whether the waste stream is contact handled or remote handled, if the radionuclides are alpha or beta/gamma emitters, and if they contain activation products.

Radiation Effects Section: As required by the FFCAct-1992, this section of the WPS lists possible effects of the radiological characteristics of the waste stream on treatment technologies that could be applicable to that waste stream. For example, radiation levels may require remote handling of the waste and affect the design and operation of the treatment facility. The presence of volatile radionuclides may require the containment of all off-gases from the treatment system.

Waste Minimization Activities: As required by the FFCAct-1992, this section of the WPS provides information on the waste minimization practices being used for the waste stream. This section provides information on if the waste minimization practices include good operating practices, technology changes, raw material changes, product changes, etc.

EPA Code: This table of the WPS reports the EPA hazardous waste codes applicable to the waste stream, the basis for assigning the codes (process knowledge or sampling/analysis), the LDR basis (which is either technology based or concentration based), and the BDAT for each of the EPA hazardous waste codes.

In summary, the WPS for each waste stream, along with the site sections in the report for each State (Section B), summarize the site-specific information required by the FFCAct-1992.

State: New Mexico	ID #: 2
Site: INHALATION TOXICOLOGY RESEARCH INSTITUTE	
Waste Stream Name: ACTINIDE LSC VIAL WASTE	
Matrix: Organic Liquids	Waste Type: MLLW

Waste Stream Description and Source:
Liquid Scintillation Cocktail Waste from laboratory work.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.750	600.0	0.750	600.0	0.000	0.000

Treatability Group:
MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:
Plan to treat at a commercial facility after 3/93.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Contact-handled

Waste-Specific Radiation Effects on Treatment:
1) None.

Contains small amounts of Pu-238, Pu-239, Am-241, Th-228, U-238, and Cm-244.

Waste Minimization Activities:
1) Product change: product substitution and conservation; and change in product composition.

General Comments:
Contains small amounts of Pu-238, Pu-239, Am-241, Th-228, U-238, and Cm-244.

State: New Mexico	**ID #: 2**
Site: INHALATION TOXICOLOGY RESEARCH INSTITUTE	
Waste Stream Name: ACTINIDE LSC VIAL WASTE	
Matrix: Organic Liquids	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
D002A	Tech.	Deactivation
F003	Conc.	Incineration
F005A	Conc.	Incineration

State: New Mexico	**ID #: 3**
Site: INHALATION TOXICOLOGY RESEARCH INSTITUTE	
Waste Stream Name: LEAD DEBRIS	
Matrix: Elemental Lead	**Waste Type: MLLW**

Waste Stream Description and Source:
Lead shielding debris from laboratory work.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	1.2	14,000.0

Treatability Group:
MLLW CH, Elemental Lead, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time. Technology exists but no facility is available.

Technology Status:
Technology exists. No modifications are necessary. Technology exists but no facility is available.

Radiation Characteristics:
1) Beta/gamma emitter
2) Alpha emitter, < 10 nCi/g
3) Contact-handled

Waste-Specific Radiation Effects on Treatment:
1) None.

Contains Cm-243, Cm-244, Am-241, Am-243, Pu-238, Pu-238, Cs-137, and Sr-90.

Waste Minimization Activities:
1) Technology changes: process changes; equipment, piping, or layout changes; automation; changes in operational settings; and energy, water conservation.

General Comments:
Contains Cm-243, Cm-244, Am-241, Am-243, Pu-238, Pu-239, Cs-137, Sr-90

State: New Mexico	**ID #: 3**
Site: INHALATION TOXICOLOGY RESEARCH INSTITUTE	
Waste Stream Name: LEAD DEBRIS	
Matrix: Elemental Lead	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

State: New Mexico	**ID #: 4**
Site: INHALATION TOXICOLOGY RESEARCH INSTITUTE	
Waste Stream Name: NI-63 BULK LSC COCKTAIL WASTE	
Matrix: Organic Liquids	**Waste Type: MLLW**

Waste Stream Description and Source:
Liquid scintillation cocktail work from laboratory work.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	0.100	90.0

Treatability Group:
MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:
Plan to treat at a commercial facility after 3/93.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Beta/gamma emitter
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
1) Product change: product substitution and conservation; and change in product composition.

General Comments:
Ni-63

State: New Mexico	**ID #: 4**
Site: INHALATION TOXICOLOGY RESEARCH INSTITUTE	
Waste Stream Name: NI-63 BULK LSC COCKTAIL WASTE	
Matrix: Organic Liquids	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
F003	Conc.	Incineration
F005A	Conc.	Incineration

State: New Mexico | ID #: 5

Site: INHALATION TOXICOLOGY RESEARCH INSTITUTE

Waste Stream Name: C-14,TRITIUM LSC VIAL WASTE

Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:
Liquid scintillation cocktail work from laboratory work.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	2.5	1,800.0

Treatability Group:
MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:
Currently being treated off-site at a commercial facility

Technology Status:
Technology exists. No modifications are necessary. Being treated now at Quadrex.

Radiation Characteristics:
Not reported.

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
1) Product change: product substitution and conservation; and change in product composition.

General Comments:
Radionuclides include C-14 and H-3.

State: New Mexico	**ID #: 5**
Site: INHALATION TOXICOLOGY RESEARCH INSTITUTE	
Waste Stream Name: C-14,TRITIUM LSC VIAL WASTE	
Matrix: Organic Liquids	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
F003	Conc.	Incineration
F005A	Conc.	Incineration

State: New Mexico	**ID #: 6**
Site: INHALATION TOXICOLOGY RESEARCH INSTITUTE	
Waste Stream Name: C-14, TRITIUM LSC BULK WASTE	
Matrix: Organic Liquids	**Waste Type: MLLW**

Waste Stream Description and Source:
Liquid scintillation cocktail waste from laboratory work.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	0.500	400.0

Treatability Group:
MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:
Currently being treated off-site at a **commercial facility**

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
Not reported.

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
1) Product change: product substitution and conservation; and change in product composition.

General Comments:
Radionuclides include C-14 and H-3.

State: New Mexico	**ID #: 6**
Site: INHALATION TOXICOLOGY RESEARCH INSTITUTE	
Waste Stream Name: C-14, TRITIUM LSC BULK WASTE	
Matrix: Organic Liquids	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
F003	Conc.	Incineration
F005A	Conc.	Incineration

State: New Mexico | ID #: 7

Site: INHALATION TOXICOLOGY RESEARCH INSTITUTE

Waste Stream Name: NI-63 VIAL LSC COCKTAIL WASTE

Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:
Liquid scintillation cocktail waste from laboratory work.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.500	360.0	0.500	360.0	0.000	0.000

Treatability Group:
MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:
Plan to treat at a commercial facility after 3/93.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
Not reported.

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
Not reported.

General Comments:
Ni-63

State: New Mexico	**ID #: 7**
Site: INHALATION TOXICOLOGY RESEARCH INSTITUTE	
Waste Stream Name: NI-63 VIAL LSC COCKTAIL WASTE	
Matrix: Organic Liquids	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
F003	Conc.	Incineration
F005A	Conc.	Incineration

21.2 Los Alamos National Laboratory

Site Summary

Los Alamos National Laboratory (LANL) is located in Los Alamos County, about 40 km northwest of Santa Fe, New Mexico. LANL occupies a 111-km^2 site on the Pajarito Plateau. LANL is operated for the DOE by the University of California. The prime mission of the laboratory is the design and development of nuclear weapons; however, considerable research and development (R&D) is directed toward controlled thermonuclear reactions, fission, nuclear safeguards, laser fusion, and medium energy physics. Basic research is also conducted in physics, chemistry, biology, metallurgy, mathematics and computer science, earth and energy sciences, and electronics. LANL has approximately 7300 permanent and an additional 2300 transient (i.e., visiting Ph.D. and graduate student) employees.

Mixed Waste Sources. LANL has identified a total of 45 mixed waste streams, 35 currently being generated and 10 no longer being generated.

LANL has included hazardous waste contaminated with mixed activation or fission products (i.e., not source, by-product, or special nuclear material) in their mixed low-level waste (MLLW) storage inventory. Detailed quantitative and descriptive information for each waste stream may be found in the Waste Profile Sheets (WPS).

Mixed Waste Inventory. LANL classifies 34 waste streams as MLLW, 76 percent of the total number listed for the site. MLLW makes up about 8 percent of the total volume. About 29 percent of the MLLW is subject to the LDR storage prohibitions. The majority of low-level waste has been characterized through process knowledge. However, a small fraction of MLLW has been characterized by physical or chemical analysis. All the MLLW can be contact-handled for movement and storage. Further characterization would be required for about half the waste to determine radiation treatment effects of radiological components. The total volume of MTRU currently in storage is about 8200 m^3.

LANL identified 6 active mixed transuranic (MTRU) waste streams stored on site, with a total volume of about 2750 m^3. Of these, less than 2 percent or 66 m^3, is subject to LDR requirements. MTRU waste represents the majority of the mixed waste stored at LANL, accounting for 92 percent of the total volume of operational waste. Five additional MTRU waste streams, with a total volume of about 5450 m^3 are included in the mixed waste total as waste stored in prior to RCRA.

All MTRU waste has been characterized by process knowledge. Some of the waste requires remote-handling during waste management. The MTRU waste stored at LANL is either in above-grade facilities subject to RCRA 3004(a) or below-grade facilities subject to RCRA 3004(u). It is estimated that approximately 3 percent of the MTRU waste will be reclassified as MLLW after characterization.

Five-year projections estimate that 525 m^3 of MLLW will be generated at LANL. Almost all of this waste will result from small-scale R&D projects. Each project will be reviewed before initiation for waste minimization and waste treatment, storage, and disposal requirements. An estimated 625 m^3 of mixed transuranic waste, consisting of inorganic debris and organic solids, will be generated in the next 5 years. This waste will be generated as a result of special nuclear material inventory control.

Waste Minimization. In 1991, LANL embarked on a comprehensive waste-minimization program. This program included an assessment of waste-generating processes to identify opportunities for source

reduction and process modification. Because of the difficulties inherent in managing mixed waste, LANL's first priority has been the assessment of the processes that generate these wastes.

Treatment Facilities. LANL has 2 existing facilities designed to treat mixed waste, the Controlled Air Incinerator (CAI) and the Lead Decontamination Trailer (LDT). The CAI is effective in reducing the volume of combustible mixed waste. The resultant ash from the incinerator will meet the LDR treatment standards for many characteristic and listed waste constituents. The LDT will generate residue from the decontamination of lead; however, the resultant waste will be of significantly smaller volume than the lead feedstock.

A Hazardous Waste Treatment Facility (HWTF) planned for LANL is designed to treat on-site hazardous and mixed waste streams that are not amenable to off-site treatment or CAI incineration. Not all of the technologies to be included in the HWTF have been chosen, but it will be able to treat reactive metals, plating wastes, acids, bases, ignitable liquids, spent solvents, and decontamination debris.

Waste Management. LANL is currently negotiating a Compliance Agreement for LDR on mixed waste with EPA Region VI in Dallas, Texas. This agreement will require LANL to follow a schedule for characterization and treatment of mixed waste subject to LDR. For their part, EPA will not take enforcement action for LDR mixed waste as long as LANL abides by the terms and conditions of the final agreement.

21.2.1 Mixed Waste

LANL has 45 mixed waste streams in its inventory. Of these streams, 34 are MLLW and 11 are mixed transuranic waste. The total mixed waste volume is estimated to be 8900 m^3. The data presented are verified through December 31, 1992. Of the total volume of mixed waste, approximately 3 percent (260 m^3) is subject to LDR storage prohibitions. An estimated 1200 m^3 of mixed waste will be generated in the next 5 years. Waste streams are classified according to physical and chemical matrix properties. Table 21.2-1 summarizes these categories for MTRU and MLLW waste.

Most mixed waste from operations at LANL is characterized by process knowledge. At LANL there is currently a shortage of analytical capacity to characterize stored waste by sampling and analysis. Characterization by process knowledge is adequate for handling, segregating, storing, and assigning EPA waste codes, but additional characterization is required for most of the waste before it can be treated or disposed.

21.2.1.1 High Level Waste

There is no HLW stored or projected to be generated at LANL.

21.2.1.2 Mixed Transuranic Waste

LANL has identified a total of 11 MTRU waste streams stored on site, with a volume of about 8200 m^3. Of this less than 1 percent, (66 m^3), is subject to LDR. The volume includes 4350 m^3 of MTRU waste stored in pre-RCRA, below-grade containment. Because of an Atomic Energy Commission immediate action directive in March 1970, LANL has placed all TRU waste in retrievable storage configuration since 1971. As a result, LANL reports that over 90 percent of its mixed waste inventory consists of

Table 21.2-1
Mixed Wastes At Los Alamos National Laboratory

Waste Type/Matrix	Number of Waste Streams	Inventory		Number of Waste Streams	Five-Year Projection	
		(m^3)	(kg)		(m^3)	(kg)
WASTE TYPE -- MLLW						
CH, Organic Liquids	5	127.97	-	5	156.31	-
CH, Aqueous Liquid	9	23.36	-	9	22.33	-
CH, Organic Debris	1	16.90	-	1	27.90	-
CH, Inorganic Debris	5	187.98	-	4	258.47	-
CH, Heterogeneous Debris	4	26.20	-	4	34.14	-
CH, Lab Packs With Metals	2	3.56	-	1	3.26	-
CH, Lab Packs Without Metals	1	<0.10	-	0	0.00	0.00
CH, Reactive Metals	1	11.30	-	1	5.90	-
CH, Compressed Gases	1	0.83	-	1	2.09	-
CH, Liquid Mercury	1	10.49	-	1	11.13	-
CH, Other	4	271.91	-	2	3.17	-
Sub-Total MLLW:	34	680.50	-	29	524.70	-
WASTE TYPE -- MTRU						

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Table 21.2-1 (Continued)
Mixed Wastes at Los Alamos National Laboratory

Waste Type/Matrix	Number of Waste Streams	Inventory		Number of Waste Streams	Five-Year Projection	
		(m^3)	(kg)		(m^3)	(kg)
WASTE TYPE -- MTRU						
CH -alpha, Inorganic Sludges/particulates	2	3,052.23	-	1	38.28	-
CH -alpha, Cemented Solids	1	115.86	-	1	0.35	-
CH -alpha, Heterogeneous Debris	7	4,920.38	-	3	584.02	-
CH -alpha, Reactive Metals	1	110.05	-	1	3.05	-
Sub-Total MTRU:	11	8,198.52	-	6	625.70	-
TOTAL:	45	8,879.02	-	35	1,150.40	-

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TRU waste, but less than 55 percent of the mixed waste generated at LANL today is TRU waste.

All MTRU waste has been characterized by process knowledge. Some of the waste requires remote handling during waste management. The regulatory status of stored MTRU waste can be broken down into 3 categories: (1) facilities that meet RCRA storage requirements; (2) facilities designed prior to and subject to RCRA but not in compliance with current storage requirements; and (3) facilities designed and operated prior to RCRA and subject to RCRA 3004(u).

During 1992, LANL rigorously studied its data on TRU waste to determine the amount of MTRU waste accumulated on site since 1971. As a result of this study, LANL has increased its estimates of the amount of MTRU waste in storage. The data provided in this report reflect new information gathered as a result of the 1992 study.

21.2.1.3 Mixed Low-Level Waste

LANL identified 34 MLLW streams. Prior to 1986, LANL disposed of MLLW waste on site. Hence, there is a significant discrepancy between the volume of MLLW and MTRU waste in storage and the current generation as reported by LANL. Approximately 29 percent of the MLLW is subject to the LDR storage prohibitions. The operational waste matrices include organic and aqueous liquids, organic and inorganic debris, heterogenous debris, reactive metals, liquid mercury, lab packs, and compressed gas. Some which do not fit 1 of these categories are called "other" on the WPS and described in more detail on these. The largest categories, by volume, are organic liquids, inorganic debris, waste streams ID# 2144 sludges, heterogeneous debris, and aqueous liquid, making up 93 percent (635 m^3) of the categorized waste matrices. About half of the waste has been characterized for handling, storage, and EPA waste code assignment, but not for treatability.

An estimated 525 m^3 of MLLW will be generated at LANL in the next 5 years. Almost all of this waste will result from small-scale R&D projects. Each project will be reviewed before initiation for waste minimization and waste treatment, storage, and disposal requirements.

Process knowledge was used to assign EPA hazardous waste codes to the MLLW streams. All the MLLW can be contact-handled for movement and storage. Further characterization would be required to determine radiation treatment effects of radiological constituents for about half of the waste.

21.2.2 Treatment Facilities

21.2.2.1 Existing Treatment Facilities

21.2.2.1.1 Facilities In Use

The LDT accepts solid MLLW, specifically surface-contaminated lead shapes. The facility uses an abrasive slurry of water, blasting media, and air to decontaminate the surface of lead bricks. The contaminated slurry is solidified in 55-gallon drums with portland cement.

In the case of leaded shapes, surface decontamination and recycling of the lead is the preferred treatment. Ten days of decontamination in the LDT produces 1 drum of stabilized lead slurry and 10 tons of usable lead. The normal operating capacity for the LDT is considered to be 50 tons/yr based on a 172 day campaign of 1-shift/day and a 5 day week. MLLW made up of lead bricks and shields contaminated with fission products (Cs-137, Sr-90, and Co-60) but having no PCBs is acceptable feedstock for the LDT at

this time. The maximum alpha content that the facility can receive in any one day is 500 nCi. (See Table 21.2-2)

The Scintillation Vial Crusher is a standard crusher with a vibrating screen to separate the broken vial glass from the liquid waste. The glass is disposed of as low-level waste and the liquid is collected for further treatment. (See Table 21.2-3)

21.2.2.1.2 Existing Facilities Planned For Use

LANL has one existing facility designed to treat mixed waste, the Controlled Air Incinerator (CAI). In conjunction with a solidification facility, the CAI is capable of treating mixed waste to meet LDR treatment standards. The CAI produces incinerator ash that can be disposed of as low-level waste after it is solidified if it is delisted, otherwise, it will go to a planned on-site waste management disposal facility. Table 21.2-4 summarizes these treatment capabilities.

The CAI is a dual-chambered controlled-air incinerator that can treat both solid and liquid combustible wastes. Solid wastes are surveyed before incineration to detect noncombustible materials and are fed to the incinerator in 1 x 1 x 2 ft cardboard boxes. Liquid wastes are fed to the incinerator using a vortex injection burner. There is currently no system available to treat ash from the CAI. Incinerator ash is stored on-site in 55-gallon drums. Stabilization processes, including cementation and encapsulation, are being investigated for treating sludges and residues collected during treatment.

The CAI is not operating, awaiting approval of National Environmental Policy Act of 1969 (NEPA) documentation supporting a change in operation from R&D to the routine treatment of wastes. The incinerator is scheduled to reopen in 1995. This schedule is subject to change based on availability of funds and permit issuance. It is expected that the CAI will be able to treat 200 m^3 of solid waste or 300 m^3 of liquid waste per year. The CAI was originally built to demonstrate incinerator technology for the treatment of transuranic wastes. As a result, it can accept wastes containing alpha-emitting radioactive constituents including hazardous and non-hazardous TRU wastes. The incinerator has successfully completed trial burns for Polychlorinated Biphenals (PCBs) and will be able to accept PCB contaminated waste. The CAI will accept low-level liquid and solid mixed wastes but no high-level waste. The facility can treat organic chemicals and heavy-metal contaminated waste.

21.2.2.2 Planned Treatment Facilities

The planned Hazardous Waste Treatment Facility (HWTF) is designed to treat hazardous and MLLW streams that are not amenable to off-site treatment or CAI incineration. Not all of the technologies to be included in the HWTF have been chosen, but it will be able to treat reactive metals, plating wastes, acids, bases, ignitable liquids, spent solvents, and decontamination debris. The facility will have 4 treatment rooms with utilities and containment. Two rooms will be used to treat hazardous waste, and 2 rooms will be used to treat MLLW. In each case, separate rooms will be used to treat characteristic

Table 21.2-2
Los Alamos National Laboratory
Mixed Waste Treatment Facilities
Currently in use for Mixed Wastes

Facility/System	Treatment Type(s)	Allowable Waste		Ident. Of MW Streams To Be Treated	Normal Operating Capacity (m3/yr)
		Radioactive Type(s) *	Physical/Chemical Matrix		
Lead Decontamination Trailer	Lead Decon/Recycle	MLLW, ALPHA, RH	Elemental Lead	2094	40.0

* ALPHA refers to transuranic alpha greater than 10 nCi/g

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Table 21.2-3
Los Alamos National Laboratory
Compaction, Evaporation, Shredding, Sorting, Size Reduction, and Packaging Facilities Currently in Use for Mixed Waste

Facility/System	Treatment Type(s)	Allowable Waste		Ident. Of MW Streams To Be Treated	Normal Operating Capacity (m3/yr)
		Radioactive Type(s) *	Physical/Chemical Matrix		
Scintillation Vial Crusher	Packaging	MLLW, CH	Solids	2055	400.0

* ALPHA refers to transuranic alpha greater than 10 nCi/g

Table 21.2-4
Los Alamos National Laboratory
Mixed Waste Treatment Facilities
Existing, Plan to Use for Mixed Wastes

Facility/System	Treatment Type(s)	Allowable Waste		Ident. Of MW Streams To Be Treated	Capacity (m3/yr) **	Date Avail. For Use **
		Radioactive Type(s) *	Physical/Chemical Matrix			
Controlled Air Incinerator / Liquid Feed System	Incineration	MTRU, MLLW, ALPHA, CH	Liquids	To Be Determined	300.0	1995
Controlled Air Incinerator / Solid Feed System	Incineration	MTRU, MLLW, ALPHA, CH	Solids	To Be Determined	200.0	Year To Be Determined

* ALPHA refers to transuranic alpha greater than 10 nCi/g

** Because DOE is still in the planning/conceptual stage, in the design stages, or in the construction stage for these facilities, schedules and capacities are subject to changes based on the availability of funds, results of treatability studies, permit issuance, etc.

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and listed wastes. Treatment equipment will be skid mounted and moved into the containment rooms for processing a particular waste stream. Each skid may be used to process more than 1 waste stream. Currently, the skids planned for the HWTF include a reactive-metals skid, a plating waste/acid/base skid, and a DETOX skid. Additional treatment skids may be required when all waste streams at LANL are fully characterized. Conceivably these treatment skids could be relocated to other sites to assist in the treatment of their waste. Table 21.2-5 summarizes these treatment capabilities.

Reactive wastes, including lithium hydride, sodium metal, and calcium metal, will be treated using the reactive-metals skid. Metals will be reacted with water in an inert atmosphere, and the resulting hydroxide will be neutralized. Depending on the concentration of the neutralized solution, the residual will be either solidified for disposal as low-level waste or discharged to the radioactive-waste water treatment plant. A pilot plant for the reactive-metals skid is to be designed in 1993 and can be available for start-up in 1996.

The plating wastes/acids/bases skid will be used to neutralize acids, oxidize cyanide and ammonia, reduce and precipitate chromium, and precipitate other metals. These techniques require the addition of substantial quantities of treatment reagents, which increases the volume of waste. An electrodeposition technique currently undergoing bench-testing may be used to remove metals from the waste stream before treatment. If testing is successful, the electrolytic approach will be combined with the established approach to reduce the final waste volume. Stabilization processes, including cementation and encapsulation, will be investigated for treatment of sludges and residues collected during treatment. Treated waste water will be discharged to the radioactive waste water treatment plant.

The DETOX process skid will be used to treat metal-contaminated oils, decontamination debris, ignitable liquids, and spent solvents (chlorinated and fluorinated). The DETOX process is a liquid-phase Fe catalyzed oxidation method being developed as an alternative to incineration. In the DETOX process, iron is added in an acid solution as a primary oxidant and Fe (II) formed in the oxidation process is converted back to Fe (III) by a second catalyzed reaction with oxygen. Some wastes that cannot be treated in the LANL CAI may be treatable using the DETOX process. These wastes include vermiculite contaminated with organic chemicals and solvents containing elevated levels of H-3 and C-14. The process will not be able to oxidize rubber or plastics.

The HWTF will not accept high-level radioactive constituents, or PCBs. The HWTF can take alpha emitting constituents at low-level. Exact treatment capacities for the various treatment skids is currently unknown. The HWTF will be operational in 1998. Because the HWTF is still in the design stage, schedules and capacities are subject to change based on the availability of funds and issuance of a RCRA permit.

21.2.2.3 Treatment Facility Summary

Tables 21.2-2 through 21.2-7 summarize the capabilities of current and planned treatment facilities at LANL. The tables list the physical form of both feed and treatment products, the current operating status of the plant, and whether the facility is intended for HLW, TRU, or low-level waste or a combination of these. The tables also summarize other relevant waste acceptance parameters for the facility, with an "X" marking acceptable parameters. The assumption has been made that the legal limitations and the technological limitations of a facility will be identical. These tables indicate whether a facility is permitted to accept off-site waste and whether it is capable of treating remote-handled waste, as opposed to contact-handled waste only. Tables 21.2-6 and 21.2-7 summarize 10 relevant waste-acceptance parameters related to the chemical composition of the waste, such as presence of transuranic isotopes,

Table 21.2-5
Los Alamos National Laboratory
Mixed Waste Treatment Facilities
Planned or Under Construction for Mixed Wastes

Facility/System	Treatment Type(s)	Allowable Waste		Ident. Of MW Streams To Be Treated	Design Capacity (m3/yr) **	Date Avail. For Treating MW **
		Radioactive Type(s) *	Physical/Chemical Matrix			
Hazardous Waste Treatment Facility (HWTF) / Detox Skid (1)	Chemical Oxidation	MLLW, CH	Organic Liquids, Solvents With Elevated H3 And Cl4, Vermiculite Contaminated With Organics	To Be Determined	To Be Determined	1998
Hazardous Waste Treatment Facility (HWTF) / Plating Wastes Acids/Bases Skid (2)	Neutralization, Oxidation/Reduction, Chemical Precipitation	MLLW, CH	Aqueous Liquids	To Be Determined	To Be Determined	1998
Hazardous Waste Treatment Facility (HWTF) / Reactive Metals Skid (3)	Water Reaction	MLLW, CH	Reactive Metals	To Be Determined	To Be Determined	1996

* ALPHA refers to transuranic alpha greater than 10 nCi/g

** Because DOE is still in the planning/conceptual stage, in the design stages, or in the construction stage for these facilities, schedules and capacities are subject to changes based on the availability of funds, results of treatability studies, permit issuance, etc.

Note (1): Design capacity has not yet been determined.

Note (2): Design capacity has not yet been determined.

Note (3): Design capacity has not yet been determined.

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Table 21.2-6
Los Alamos National Laboratory
Current and Planned Facilities - Treatment Category
Mixed Waste Treatment Facilities

Facility/System	Operating Status *	Feed Types	Final Waste Form	HLW MTRU MLLW	Alpha **	RH CH	Hg	Other Toxic Metals	Toxic Organics
Controlled Air Incinerator / Liquid Feed System	Exists, Plan To Use, 1995	Liquids	Ash	MTRU MLLW	√	CH			√
Controlled Air Incinerator / Solid Feed System	Exists, Plan To Use, Year To Be Determined	Solids	Ash	MTRU MLLW	√	CH			√
Hazardous Waste Treatment Facility (HWTF) / Detox Skid	Planned, 1998	Organic Liquids, Solvents With Elevated H3 And Cl4, Vermiculite Contaminated With Organics	To Be Determined	MLLW		CH	√	√	√
Hazardous Waste Treatment Facility (HWTF) / Plating Wastes Acids/Bases Skid	Planned, 1998	Aqueous Liquids	To Be Determined	MLLW		CH		√	
Hazardous Waste Treatment Facility	Planned, 1996	Reactive Metals	To Be	MLLW		CH			

* Because DOE is still in the planning/conceptual stage, in the design stages, or in the construction stage for these facilities, schedules and capacities are subject to changes based on the availability of funds, results of treatability studies, permit issuance, etc.

** Transuranic alpha greater than 10 nCi/g.

Table 21.2-6 (Continued)
Los Alamos National Laboratory
Current and Planned Facilities - Treatment Category
Mixed Waste Treatment Facilities

Facility/System	Operating Status *	Feed Types	Final Waste Form	HLW MTRU MLLW	Alpha **	RH CH	Hg	Other Toxic Metals	Toxic Organics
(HWTF) / Reactive Metals Skid			Determined						
Lead Decontamination Trailer	Operating	Elemental Lead	Lead	MLLW	√	RH		√	

* Because DOE is still in the planning/conceptual stage, in the design stages, or in the construction stage for these facilities, schedules and capacities are subject to changes based on the availability of funds, results of treatability studies, permit issuance, etc.

** Transuranic alpha greater than 10 nCi/g.

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Table 21.2-7
Los Alamos National Laboratory
Current and Planned Facilities - Treatment Category
Compaction, Evaporation, Shredding, Sorting, Size Reduction, and Packaging Facilities

Facility/System	Operating Status *	Feed Types	Final Waste Form	HLW MTRU MLLW	Alpha **	RH CH	Hg	Other Toxic Metals	Toxic Organics
Scintillation Vial Crusher	Operating	Solids	Not Reported	MLLW		CH			

* Because DOE is still in the planning/conceptual stage, in the design stages, or in the construction stage for these facilities, schedules and capacities are subject to changes based on the availability of funds, results of treatability studies, permit issuance, etc.

** Transuranic alpha greater than 10 nCi/g.

uranium, PCBs, heavy metals, halogenated and non-halogenated organics, trace amounts of mercury or cyanide, and corrosives. Parameters marked as acceptable are still subject to concentration limitations. For example, a facility may accept waste with uranium but only if the uranium is present below a certain concentration. Tables 21.2-4 through 21.2-7 summarize the primary and ancillary mixed waste treatment facility capabilities and applications.

If the CAI was permitted for mixed waste treatment and the capacities given for these facilities were used to estimate the time needed to treat inventory waste and 5-year projected wastes, the inventory of mixed waste in organic matrices could be treated within 2 years, but the treatment of all other waste types requires the HWTF. The MTRU waste is designated for final disposal at the Waste Isolation Pilot Plant.

21.2.3 Technology Development

The availability of waste management technologies has been examined for all LANL mixed wastes. The different degrees of availability of the waste specific technology treatment are included in the waste profile sheets.

For some wastes, technologies exist or are considered readily available based on previous commercial sector or DOE experience. No significant process modifications are required for the treatment of waste streams with this determination. For a number of waste steams technologies have not yet been evaluated owing to a lack of sufficient detailed waste characterization data. A number of mixed waste streams at LANL have been determined to have no treatment technology available.

The following site-specific technology development activities support enhancements to the existing facilities to treat mixed waste, the Controlled Air Incinerator (CAI) and the Lead Decontamination Trailer (LDT); the planned Hazardous Waste Treatment Facility (HWTF), which is being designed to treat hazardous and mixed waste streams not amenable to off-site treatment or incineration; as well as LANL plutonium facility and other operations.

Site-specific technology development (TD) activities with numerically indexed narrative descriptions and tables of titles are presented in the following sections of this chapter as well as in Appendix B. Site-specific technology development activities, which are potentially applicable to the treatability groups and BDATs identified in Chapter 6.0 are listed below. Additionally, crosscutting technology development activities not assigned to treatability groups are included. Where BDAT is indicated as NA, or is blank, the technology development activity does not link to specific BDAT RCRA treatment functions, but is intended to provide other supporting functions.

Site-Specific Technology Development Activities

(by BDAT, by summary technology area - ID number references to indexed narrative descriptions presented later in this chapter and Appendix B)

BDAT:BIODG
Summary Tech Area ID: chemical physical treatment
419 Biodegradation of nitrated rags

BDAT: CHOXD

Summary Tech Area ID: chemical physical treatment
22 Oxidation process for depleted uranium
23 Treatment of Electroplating Wastes
414 Delphi DETOX

BDAT: DEACT
Summary Tech Area ID: chemical physical treatment
105 Oxygen sparge of spent pyrochemical salts.

BDAT: HLVIT
Summary Tech Area ID: final form
416 CAI Vitrification

BDAT: IMERC
Summary Tech Area ID: waste destruction & stabilization
414 Delphi DETOX

BDAT: INCIN
Summary Tech Area ID: waste destruction & stabilization
87 Two-stage PBR/SDP for LLMW; E-beam test bed
204 Electron-Beam Waste Treatment Test Bed
414 Delphi DETOX

BDAT: NEUTR
Summary Tech Area ID: chemical physical treatment
24 Controlled neutralization of reactivity of water-reactive wastes

BDAT: NLDBR
Summary Tech Area ID: waste minimization
108 Automated Retirement and Integrated Extraction System (ARIES)
124 Hydrochloric Acid Recycle

BDAT: RCORR
Summary Tech Area ID: chemical physical treatment
86 Nitric Acid Recycle

BDAT: RLEAD
Summary Tech Area ID: chemical physical treatment
85 Decontamination and Recycling of Lead Bricks

BDAT: RMETL
Summary Tech Area ID: chemical physical treatment
23 Treatment of Electroplating Wastes
105 Oxygen sparge of spent pyrochemical salts.
111 Extraction System for Removal of Radioactive and Hazardous Metal Ions From Aqueous Waste Streams.
113 Advanced Testing Line for Actinide Separations (ATLAS)
116 Water-soluble, Chelating Polymers for Toxic Metal-Ion Separation

BDAT: STABL
Summary Tech Area ID: chemical physical treatment
22 Oxidation process for depleted uranium
85 Decontamination and Recycling of Lead Bricks
24 Controlled neutralization of reactivity of water-reactive wastes
416 CAI Vitrification

BDAT: WETOX
Summary Tech Area ID: waste destruction & stabilization
414 Delphi DETOX

Technology development activities that do not link to specific BDAT RCRA treatment functions

BDAT: NA
Summary Tech Area ID: characterization
127 Robotic NDA & Analytical Sample Characterization

Summary Tech Area ID: other
89 1. Replacement of Glovebox Gloves with Non-Hazardous Alternative
2. CLS-1 Waste Minimization/Mitigation Plan
3. Nuclear Reactor Fuel Reprocessing
4. Waste Characterization
420 Tritum Gas Recovery/Recycle from Tritum Confinement Systems

Summary Tech Area ID: system analysis
415 Process Modeling-Mixed Waste Treatment

Summary Tech Area ID: waste minimization
94 Reuse, Recycling, and Decomposition of Calcium Chloride
108 Automated Retirement and Integrated Extraction System (ARIES)
123 EXCEL
124 Hydrochloric Acid Recycle
126 Supercritical Fluid Carbon Dioxide to Replace Chlorocarbon Solvents for Cleaning Plutonium
418 Chip Collection System for Precision Machining

21.2.4 Environmental Restoration Program

Carrying out the mission of the Laboratory has resulted in the generation of radioactive and hazardous wastes. These can be organized into 4 waste types: wastes from processing operations; wastes from R&D; high explosives waste; and waste from decontamination and decommissioning (D&D). Each of these waste types has unique characteristics. The wastes from processing typically consist of significant volumes of materials that contain a limited number of contaminants, including radionuclides, solvents, organics, and metals. Wastes from R&D activities were usually smaller volumes of different laboratory reagents, chemicals, solvents, metals, radionuclides, and other general laboratory wastes. High explosive wastes generally consisted of a relatively small number of formulations, some of which contained small amounts of hazardous constituents such as barium and other metals. D&D wastes typically consisted of large quantities of potentially contaminated building debris.

The principal statutory drivers for the LANL environmental restoration program are RCRA Section 3004(u) and 3004(v). As a result, the EPA performed a RCRA Facility Assessment at LANL in 1988 and subsequently included provisions for investigations at solid waste management units (SWMUs) pursuant to HSWA in the hazardous waste operating permit in May 1990. A total of 605 SWMUs were identified by EPA in the permit provisions (i.e., Module VIII) in 1990. Further investigations by LANL have led to the discovery of additional SWMUs. LANL currently estimates the total number of SWMUs subject to investigation pursuant to RCRA Section 3004(u) and 3004(v) to be 840 +/-25. Environmental restoration accomplishments at LANL include updating the Installation Work Plan for conducting environmental restoration activities, removal of 10 underground storage tanks, completion of 8 RCRA Facility Investigation work plans, and completion of D&D on 1 reactor and assessment of 2 buildings. More information on the contaminated media associated with environmental restoration activities is in Chapter 2.

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WASTE

PROFILE

SHEETS

Los Alamos National Laboratory

LANL-WPS-1

April 1993

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ROADMAP TO WASTE PROFILE SHEETS (WPS)

Waste Profile Sheets (WPS) have been compiled in this report for each of the mixed waste streams identified at the different DOE sites. Each WPS is a concise summary of the information required by the FFCAct-1992, with waste stream specific data primarily derived from the Waste Management Information System (WMIS) database. Each WPS consists of the following items:

Header: The information in the header in each WPS includes the State, the official name of the site, an identification number, an identifying waste stream name, the waste type, and the waste matrix. The identification number is either a number assigned by the WMIS database or a number assigned by the site. The waste stream name is a unique identifier which corresponds to the name used in the WMIS database, or is assigned by the site. The waste type is either HLW, MTRU, or MLLW. The waste matrix corresponds to the categories (or their further subdivisions) defined earlier based on the physical and chemical form of the waste.

Waste Stream Description and Source: This section of the WPS presents a short description of the source of the waste and the waste stream characteristics.

Inventory Table: The inventory table in each WPS reports the volume (m^3) and/or mass (kg) of each waste stream currently in storage, and projected to be generated in the next five years. The table also indicates the date assumed in calculating the current and projected inventories. As required by the FFCAct-1992, the table also differentiates between waste not subject to LDR and that subject to LDR for the current inventory.

Treatability Group: This section lists the name of the treatability group to which the waste stream belongs.

Treatment Status, Technology Status: This section of the WPS lists the status of the technology that could be applied to the waste stream for compliance with the LDR. This section provides information on if the waste stream is currently being treated, and if technology options and facilities for the treatment exist.

Radiation Characteristics Section: This section of the WPS provides additional information on the radiological characteristics of the waste (in addition to characterizing the waste stream as HLW, MTRU, or MLLW). This section of the WPS specifies whether the waste stream is contact handled or remote handled, if the radionuclides are alpha or beta/gamma emitters, and if they contain activation products.

Radiation Effects Section: As required by the FFCAct-1992, this section of the WPS lists possible effects of the radiological characteristics of the waste stream on treatment technologies that could be applicable to that waste stream. For example, radiation levels may require remote handling of the waste and affect the design and operation of the treatment facility. The presence of volatile radionuclides may require the containment of all off-gases from the treatment system.

Waste Minimization Activities: As required by the FFCAct-1992, this section of the WPS provides information on the waste minimization practices being used for the waste stream. This section provides information on if the waste minimization practices include good operating practices, technology changes, raw material changes, product changes, etc.

EPA Code: This table of the WPS reports the EPA hazardous waste codes applicable to the waste stream, the basis for assigning the codes (process knowledge or sampling/analysis), the LDR basis (which is either technology based or concentration based), and the BDAT for each of the EPA hazardous waste codes.

In summary, the WPS for each waste stream, along with the site sections in the report for each State (Section B), summarize the site-specific information required by the FFCAct-1992.

State: New Mexico | ID #: 0000002055
Site: LOS ALAMOS NATIONAL LABORATORY
Waste Stream Name: IGNITABLE LIQUIDS
Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:
Principally comprised of used scintillation cocktails containing trimethylbenzene (pseudodocumene). Used in scintillation counting in detection or monitoring.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
79.4	-	0.000	0.000	79.4	-	87.7	-

Treatability Group:
MLLW CH, Organic Liquids, Ignitable, Corrosive, or Reactive Only

Treatment Status:
Plan to treat on-site at the existing Scintillation Vial Crusher facility. Onsite incineration at controlled air incinerator pending DOE NEPA; DETOX at hazardous waste treatment facility; offsite capabilities.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
1) Raw material changes: raw material purification; and substitution.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration

State: New Mexico	**ID #: 0000002066**
Site: LOS ALAMOS NATIONAL LABORATORY	
Waste Stream Name: ACIDS	
Matrix: Aqueous Liquid	**Waste Type: MLLW**

Waste Stream Description and Source:
Nitric, hydrochloric, sulfuric, hydrofluoric, phosphoric and acetic acids. May include other acids.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
2.1	-	3.0	-	5.1	-	1.3	-

Treatability Group:
MLLW CH, Aqueous Liquid, Ignitable, Corrosive, or Reactive Only

Treatment Status:
Plan to treat on-site at the existing Hazardous Waste Treatment Facility (HWTF). Treatment at the Hazardous Waste Treatment Facility is pending issuance of a RCRA operating permit.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002A	Tech.	Deactivation

State: New Mexico	ID #: 0000002067
Site: LOS ALAMOS NATIONAL LABORATORY	
Waste Stream Name: CAUSTICS	
Matrix: Aqueous Liquid	Waste Type: MLLW

Waste Stream Description and Source:
Spent caustic solutions including sodium and lithium hydroxides. Processes generating this waste included spent etching solutions.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
1.2	-	0.000	0.000	1.2	-	2.3	-

Treatability Group:
MLLW CH, Aqueous Liquid, Ignitable, Corrosive, or Reactive Only

Treatment Status:
Plan to treat on-site at the existing Hazardous Waste Treatment Facility (HWTF). Treatment at the Hazardous Waste Treatment Facility is pending issuance of a RCRA operating permit.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002B	Tech.	Deactivation

State: New Mexico	ID #: 0000002068
Site: LOS ALAMOS NATIONAL LABORATORY	
Waste Stream Name: REACTIVE SALTS	
Matrix: Reactive Metals	Waste Type: MLLW

Waste Stream Description and Source:
Waste includes partially spent lithium hydride, and may contain lithium hydroxide. May include sodium and potassium.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
11.3	-	0.000	0.000	11.3	-	5.9	-

Treatability Group:
MLLW CH, Reactive Metals, Ignitable, Corrosive, or Reactive Only

Treatment Status:
Plan to treat on-site at the existing Hazardous Waste Treatment Facility (HWTF). Treatment at the Hazardous Waste Treatment Facility is pending issuance of a RCRA operating permit.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003D	Tech.	Deactivation

State: New Mexico
ID #: 0000002069
Site: LOS ALAMOS NATIONAL LABORATORY
Waste Stream Name: REACTIVE SOLUTIONS
Matrix: Other
Waste Type: MLLW

Waste Stream Description and Source:
Encompasses various types of reactive solutions such as cyanide waste, sulfides, and reactive organic solutions. May be derived from non-listed electroplating operations.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
2.0	-	0.000	0.000	2.0	-	3.1	-

Treatability Group:
MLLW CH, Other

Treatment Status:
Plan to treat on-site at the existing Hazardous Waste Treatment Facility (HWTF). Treatment at the Hazardous Waste Treatment Facility is pending issuance of a RCRA operating permit.

Technology Status:
Technology exists. No modifications are necessary. Reactive salts.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

General Comments:

State: New Mexico	**ID #: 0000002069**
Site: LOS ALAMOS NATIONAL LABORATORY	
Waste Stream Name: REACTIVE SOLUTIONS	
Matrix: Other	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003A	Conc.	Chemical Oxidation followed by Alkaline Chlorination
D003B	Tech.	Deactivation

State: New Mexico	ID #: 0000002075
Site: LOS ALAMOS NATIONAL LABORATORY	
Waste Stream Name: DEBRIS-ARSENIC	
Matrix: Heterogeneous Debris	Waste Type: MLLW

Waste Stream Description and Source:
Characterization information currently not available.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.210	-	0.000	0.000	0.210	-	0.350	-

Treatability Group:
MLLW CH, Heterogeneous Debris, Toxic Metals w/o Mercury

Treatment Status:
Plan to treat on-site at the existing Hazardous Waste Treatment Facility (HWTF). Treatment at the Hazardous Waste Treatment Facility is pending issuance of a RCRA operating permit.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
1) Technology changes: process changes; equipment, piping, or layout changes; automation; changes in operational settings; and energy, water conservation.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D004	Conc.	Vitrification

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: New Mexico | ID #: 0000002076

Site: LOS ALAMOS NATIONAL LABORATORY

Waste Stream Name: ANALYTICAL LABORATORY WASTE - ARSENIC

Matrix: Aqueous Liquid | Waste Type: MLLW

Waste Stream Description and Source:
Analytical laboratory waste, contains aqueous and organic liquids. May include discarded standards.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.230	-	0.430	-	0.660	-	0.640	-

Treatability Group:
MLLW CH, Aqueous Liquid, Toxic Metals w/o Mercury

Treatment Status:
Plan to treat on-site at the existing Hazardous Waste Treatment Facility (HWTF). Treatment at the Hazardous Waste Treatment Facility is pending issuance of a RCRA operating permit.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
1) Product change: product substitution and conservation; and change in product composition.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D004	Conc.	Vitrification

State: New Mexico | ID #: 0000002079
Site: LOS ALAMOS NATIONAL LABORATORY
Waste Stream Name: DEBRIS-BARIUM
Matrix: Inorganic Debris | Waste Type: MLLW

Waste Stream Description and Source:
Shot debris containing barium, U-238, and dU. Debris generated from standard, post-shot clean-up operations.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
5.9	-	0.000	0.000	5.9	-	9.8	-

Treatability Group:
MLLW CH, Inorganic Debris, Toxic Metals w/o Mercury

Treatment Status:
Plan to treat on-site at the existing Hazardous Waste Treatment Facility (HWTF). Treatment at the Hazardous Waste Treatment Facility is pending issuance of a RCRA operating permit.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
1) Product change: product substitution and conservation; and change in product composition.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D005	Conc.	Chemical Precipitation; or Stabilization

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: New Mexico | ID #: 0000002080

Site: LOS ALAMOS NATIONAL LABORATORY

Waste Stream Name: ANALYTICAL LABORATORY WASTE - BARIUM

Matrix: Aqueous Liquid | Waste Type: MLLW

Waste Stream Description and Source:

Analytical laboratory waste; contains aqueous and organic liquids. May include expired or discarded standards.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
2.5	-	0.000	0.000	2.5	-	4.0	-

Treatability Group:

MLLW CH, Aqueous Liquid, Toxic Metals w/o Mercury

Treatment Status:

Plan to treat on-site at the existing Hazardous Waste Treatment Facility (HWTF). Treatment at the Hazardous Waste Treatment Facility is pending issuance of a RCRA operating permit.

Technology Status:

Technology exists. No modifications are necessary.

Radiation Characteristics:

1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:

Not reported.

Waste Minimization Activities:

1) Product change: product substitution and conservation; and change in product composition.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D005	Conc.	Chemical Precipitation; or Stabilization

State: New Mexico	ID #: 0000002084
Site: LOS ALAMOS NATIONAL LABORATORY	
Waste Stream Name: SCRAP METAL - CADMIUM	
Matrix: Inorganic Debris	Waste Type: MLLW

Waste Stream Description and Source:
Scrap cadmium. Cadmium debris generated prior to state mixed waste auth.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
3.3	-	0.000	0.000	3.3	-	4.9	-

Treatability Group:
MLLW CH, Inorganic Debris, Toxic Metals w/o Mercury

Treatment Status:
Plan to treat on-site at the existing Hazardous Waste Treatment Facility (HWTF). Treatment at the Hazardous Waste Treatment Facility is pending issuance of a RCRA operating permit.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D006B	Conc.	Stabilization

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: New Mexico | ID #: 0000002085

Site: LOS ALAMOS NATIONAL LABORATORY

Waste Stream Name: ANALYTICAL LABORATORY WASTE - CADMIUM

Matrix: Aqueous Liquid | Waste Type: MLLW

Waste Stream Description and Source:

Analytical laboratory waste; contains aqueous and organic liquids. May include expired or discarded standards.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.230	-	0.090	-	0.320	-	0.180	-

Treatability Group:

MLLW CH, Aqueous Liquid, Toxic Metals w/o Mercury

Treatment Status:

Plan to treat on-site at the existing Hazardous Waste Treatment Facility (HWTF). Treatment at the Hazardous Waste Treatment Facility is pending issuance of a RCRA operating permit.

Technology Status:

Technology exists. No modifications are necessary.

Radiation Characteristics:

1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:

Not reported.

Waste Minimization Activities:

1) Product change: product substitution and conservation; and change in product composition.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D006B	Conc.	Stabilization

State: New Mexico	ID #: 0000002086
Site: LOS ALAMOS NATIONAL LABORATORY	
Waste Stream Name: DEBRIS-BARIUM	
Matrix: Inorganic Debris	Waste Type: MLLW

Waste Stream Description and Source:
Debris contaminated with barium. May include shot debris. Waste minimization activity not applicable since stream is no longer generated.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
15.1	-	0.000	0.000	15.1	-	0.000	0.000

Treatability Group:
MLLW CH, Inorganic Debris, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology assessment has not started. Technology options have not been analyzed.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
1) Not Applicable.

Waste minimization activity not applicable since stream is no longer generated.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D005	Conc.	Chemical Precipitation; or Stabilization

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical,

State: New Mexico	ID #: 0000002086
Site: LOS ALAMOS NATIONAL LABORATORY	
Waste Stream Name: DEBRIS-BARIUM	
Matrix: Inorganic Debris	Waste Type: MLLW

or thermal), macro/microencapsulation or sealing.

State: New Mexico	ID #: 0000002087
Site: LOS ALAMOS NATIONAL LABORATORY	
Waste Stream Name: PROCESS RESIDUES - CHROMIUM	
Matrix: Inorganic Debris	Waste Type: MLLW

Waste Stream Description and Source:
Contaminated debris.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.420	-	0.000	0.000	0.420	-	0.690	-

Treatability Group:
MLLW CH, Inorganic Debris, Toxic Metals w/o Mercury

Treatment Status:
Plan to treat on-site at the existing Hazardous Waste Treatment Facility (HWTF). Treatment at the Hazardous Waste Treatment Facility is pending issuance of a RCRA operating permit.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D007	Conc.	Chemical Reduction followed by Stabilization

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: New Mexico | ID #: 0000002088
Site: LOS ALAMOS NATIONAL LABORATORY
Waste Stream Name: ANALYTICAL LABORATORY WASTE - CHROMIUM
Matrix: Aqueous Liquid | Waste Type: MLLW

Waste Stream Description and Source:
Analytical laboratory waste. May include expired or discarded standards.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
4.6	-	0.000	0.000	4.6	-	0.770	-

Treatability Group:
MLLW CH, Aqueous Liquid, Toxic Metals w/o Mercury

Treatment Status:
Plan to treat on-site at the existing Hazardous Waste Treatment Facility (HWTF). Treatment at the Hazardous Waste Treatment Facility is pending issuance of a RCRA operating permit.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
1) Product change: product substitution and conservation; and change in product composition.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D007	Conc.	Chemical Reduction followed by Stabilization

State: New Mexico | ID #: 0000002089

Site: LOS ALAMOS NATIONAL LABORATORY

Waste Stream Name: SCRAP METAL - SODIUM

Matrix: Reactive Metals | Waste Type: MTRU

Waste Stream Description and Source:

May include sodium metal probably encased in sealed containers generated mostly from D&D of sodium-cooled reactor research facilities that are no longer operational.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
110.1	-	0.000	0.000	110.1	-	3.1	-

Treatability Group:

MTRU CH/AL, Reactive Metals, Ignitable, Corrosive, or Reactive Only

Treatment Status:

Treatment of most mixed transuranic waste to meet LDR treatment standards is not applicable because DOE plans to ship these wastes to the Waste Isolation Pilot Plant (WIPP), pending issuance of a No-Migration Determination of the operational phase. Pretreatment to meet the WIPP Waste Acceptance Criteria may be required.

Technology Status:

Not Applicable.

Radiation Characteristics:

1) Contact-handled
2) Transuranic contaminants

Waste-Specific Radiation Effects on Treatment:

Not reported.

Waste Minimization Activities:

1) Not Applicable.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003D	Tech.	Deactivation

State: New Mexico	**ID #: 0000002091**
Site: LOS ALAMOS NATIONAL LABORATORY	
Waste Stream Name: PROCESS RESIDUE - CHROMIUM	
Matrix: Cemented Solids	**Waste Type: MTRU**

Waste Stream Description and Source:

Evaporator bottoms/salts from processing operations that have chromium contamination. The residues consist of a sludge that are solidified with cement.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
115.9	-	0.000	0.000	115.9	-	0.350	-

Treatability Group:

MTRU CH/AL, Cemented Solids, Toxic Metals w/o Mercury

Treatment Status:

Treatment of most mixed transuranic waste to meet LDR treatment standards is not applicable because DOE plans to ship these wastes to the Waste Isolation Pilot Plant (WIPP), pending issuance of a No-Migration Determination of the operational phase. Pretreatment to meet the WIPP Waste Acceptance Criteria may be required.

Technology Status:

Not Applicable.

Radiation Characteristics:

1) Contact-handled
2) Transuranic contaminants

Waste-Specific Radiation Effects on Treatment:

Not reported.

Waste Minimization Activities:

1) Not Applicable.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D007	Conc.	Chemical Reduction followed by Stabilization

State: New Mexico	ID #: 0000002094
Site: LOS ALAMOS NATIONAL LABORATORY	
Waste Stream Name: LEAD	
Matrix: Inorganic Debris	Waste Type: MLLW

Waste Stream Description and Source:
Scrap metal and decontamination waste. Generation processes vary. May include lead contaminated debris or scrap lead once used as shielding.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
163.3	-	0.000	0.000	163.3	-	243.1	-

Treatability Group:
MLLW CH, Inorganic Debris, Toxic Metals w/o Mercury

Treatment Status:
Plan to treat on-site at the existing Hazardous Waste Treatment Facility (HWTF). Treatment at the Hazardous Waste Treatment Facility is pending issuance of a RCRA operating permit.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008B	Conc.	Stabilization

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical,

State: New Mexico	**ID #: 0000002094**
Site: LOS ALAMOS NATIONAL LABORATORY	
Waste Stream Name: LEAD	
Matrix: Inorganic Debris	**Waste Type: MLLW**

or thermal), macro/microencapsulation or sealing.

State: New Mexico | ID #: 0000002095

Site: LOS ALAMOS NATIONAL LABORATORY

Waste Stream Name: ANALYTICAL LABORATORY WASTE - LEAD

Matrix: Aqueous Liquid | Waste Type: MLLW

Waste Stream Description and Source:
Analytical laboratory waste. May include some acid drained from lead acid batteries so batteries can be stored dry on-site.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
1.8	-	6.2	-	8.0	-	11.5	-

Treatability Group:
MLLW CH, Aqueous Liquid, Toxic Metals w/o Mercury

Treatment Status:
Plan to treat on-site at the existing Hazardous Waste Treatment Facility (HWTF). Treatment at the Hazardous Waste Treatment Facility is pending issuance of a RCRA operating permit.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
1) Waste avoidance due to recycling/reuse: solvent, oil, and metals recycling; chemical exchange and reuse; and packaging material reuse.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008B	Conc.	Stabilization

State: New Mexico	**ID #: 0000002100**
Site: LOS ALAMOS NATIONAL LABORATORY	
Waste Stream Name: LEAD SHIELDING AND DEBRIS	
Matrix: Heterogeneous Debris	**Waste Type: MTRU**

Waste Stream Description and Source:

Waste stream may include lead solids used for shielding, gloveboxes, glovebox sections, debris, and decontamination waste.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
2,050.5	-	0.000	0.000	2,050.5	-	303.9	-

Treatability Group:

MTRU CH/AL, Heterogeneous Debris, Toxic Metals w/o Mercury

Treatment Status:

Treatment of most mixed transuranic waste to meet LDR treatment standards is not applicable because DOE plans to ship these wastes to the Waste Isolation Pilot Plant (WIPP), pending issuance of a No-Migration Determination of the operational phase. Pretreatment to meet the WIPP Waste Acceptance Criteria may be required.

Technology Status:

Not Applicable.

Radiation Characteristics:

1) Transuranic contaminants
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:

Not reported.

Waste Minimization Activities:

1) Waste avoidance due to recycling/reuse: solvent, oil, and metals recycling; chemical exchange and reuse; and packaging material reuse.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

State: New Mexico	ID #: 0000002100
Site: LOS ALAMOS NATIONAL LABORATORY	
Waste Stream Name: LEAD SHIELDING AND DEBRIS	
Matrix: Heterogeneous Debris	Waste Type: MTRU

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: New Mexico | ID #: 0000002103

Site: LOS ALAMOS NATIONAL LABORATORY

Waste Stream Name: CEMENTED PROCESS SLUDGE, DEBRIS - LEAD

Matrix: Heterogeneous Debris | Waste Type: MTRU

Waste Stream Description and Source:

Waste stream may include packages containing solidified leached process residues, and packages containing non-combustible debris (tools, cans, glass, etc.).

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
15.2	-	0.000	0.000	15.2	-	21.2	-

Treatability Group:

MTRU CH/AL, Heterogeneous Debris, Toxic Metals w/o Mercury

Treatment Status:

Treatment of most mixed transuranic waste to meet LDR treatment standards is not applicable because DOE plans to ship these wastes to the Waste Isolation Pilot Plant (WIPP), pending issuance of a No-Migration Determination of the operational phase. Pretreatment to meet the WIPP Waste Acceptance Criteria may be required.

Technology Status:

Not Applicable.

Radiation Characteristics:

1) Contact-handled
2) Transuranic contaminants

Waste-Specific Radiation Effects on Treatment:

Not reported.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008B	Conc.	Stabilization

State: New Mexico	**ID #: 0000002103**
Site: LOS ALAMOS NATIONAL LABORATORY	
Waste Stream Name: CEMENTED PROCESS SLUDGE, DEBRIS - LEAD	
Matrix: Heterogeneous Debris	**Waste Type: MTRU**

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: New Mexico	**ID #: 0000002135**
Site: LOS ALAMOS NATIONAL LABORATORY	
Waste Stream Name: DECONTAMINATION WASTE - MERCURY	
Matrix: Heterogeneous Debris	**Waste Type: MLLW**

Waste Stream Description and Source:
Decontamination debris. May include cloth/paper used to clean up mercury spills from rad areas.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
2.1	-	0.000	0.000	2.1	-	2.5	-

Treatability Group:
MLLW CH, Heterogeneous Debris, Toxic Metals w/ Mercury

Treatment Status:
Plan to treat on-site at the existing Hazardous Waste Treatment Facility (HWTF). Treatment at the Hazardous Waste Treatment Facility is pending issuance of a RCRA operating permit.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D009C	Conc.	Thermal Recovery of Metals; Acid Leaching; Stabilization; or Incineration

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical,

State: New Mexico | ID #: 0000002135
Site: LOS ALAMOS NATIONAL LABORATORY
Waste Stream Name: DECONTAMINATION WASTE - MERCURY
Matrix: Heterogeneous Debris | Waste Type: MLLW

or thermal), macro/microencapsulation or sealing.

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State: New Mexico **ID #: 0000002136**

Site: LOS ALAMOS NATIONAL LABORATORY

Waste Stream Name: MERCURY

Matrix: Liquid Mercury **Waste Type: MLLW**

Waste Stream Description and Source:

Elemental mercury and some waste with mercury contamination. May include aqueous mercury solutions as well.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
5.4	-	5.1	-	10.5	-	11.1	-

Treatability Group:

MLLW CH, Liquid Mercury, Toxic Metals w/ Mercury

Treatment Status:

Plan to treat on-site at the existing Hazardous Waste Treatment Facility (HWTF). Treatment at the Hazardous Waste Treatment Facility is pending issuance of a RCRA operating permit.

Technology Status:

Technology exists. No modifications are necessary.

Radiation Characteristics:

1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:

Not reported.

Waste Minimization Activities:

1) Product change: product substitution and conservation; and change in product composition.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D009C	Conc.	Thermal Recovery of Metals; Acid Leaching; Stabilization; or Incineration
D009D	Tech.	Amalgamation

State: New Mexico | ID #: 0000002140

Site: LOS ALAMOS NATIONAL LABORATORY

Waste Stream Name: ANALYTICAL LABORATORY WASTE - SELENIUM

Matrix: Aqueous Liquid | Waste Type: MLLW

Waste Stream Description and Source:
Analytical laboratory waste. May include discared or expired standards.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	-	0.450	-	0.450	-	0.750	-

Treatability Group:
MLLW CH, Aqueous Liquid, Toxic Metals w/o Mercury

Treatment Status:
Plan to treat on-site at the existing Hazardous Waste Treatment Facility (HWTF). Treatment at the Hazardous Waste Treatment Facility is pending issuance of a RCRA operating permit.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
1) Product change: product substitution and conservation; and change in product composition.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D010	Conc.	Stabilization

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State: New Mexico | ID #: 0000002142

Site: LOS ALAMOS NATIONAL LABORATORY

Waste Stream Name: PHOTOGRAPHIC FIXER - SILVER

Matrix: Aqueous Liquid | Waste Type: MLLW

Waste Stream Description and Source:
May include spent or unused standards.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.530	-	0.000	0.000	0.530	-	0.790	-

Treatability Group:
MLLW CH, Aqueous Liquid, Toxic Metals w/o Mercury

Treatment Status:
Plan to treat on-site at the existing Hazardous Waste Treatment Facility (HWTF). Treatment at the Hazardous Waste Treatment Facility is pending issuance of a RCRA operating permit.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
1) Product change: product substitution and conservation; and change in product composition.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D011	Conc.	Stabilization

State: New Mexico | ID #: 0000002144

Site: LOS ALAMOS NATIONAL LABORATORY

Waste Stream Name: DEWATERED TREATMENT SLUDGES

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Sludge containing toluene, 1,1,1-trichloroethane, methylene chloride, trichloroethylene, chlorinated hydrocarbons. May include mixtures of organic and inorganic sludges. Source elimination activities have effectively eliminated the RCRA regulated constituents in this waste stream, so the stream is no longer generated as a mixed waste.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
130.8	-	139.0	-	269.9	-	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time. Onsite stabilization and chemical oxidation are the proposed methods of treatment technology.

Technology Status:

Technology assessment has not started. Technology options have not been analyzed.

Radiation Characteristics:

1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:

Not reported.

Waste Minimization Activities:

1) Technology changes: process changes; equipment, piping, or layout changes; automation; changes in operational settings; and energy, water conservation.

Source elimination activities have effectively eliminated the RCRA regulated constituents in this waste stream, so the stream is no longer generated as a mixed waste.

State: New Mexico
ID #: 0000002144
Site: LOS ALAMOS NATIONAL LABORATORY
Waste Stream Name: DEWATERED TREATMENT SLUDGES
Matrix: Other
Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F001	Conc.	Incineration
F002	Conc.	Incineration
F005A	Conc.	Incineration

State: New Mexico | ID #: 0000002145

Site: LOS ALAMOS NATIONAL LABORATORY

Waste Stream Name: SPENT SOLVENTS - F001

Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:

Waste stream includes 1,1,1-trichloroethane, trichloroethylene, methylene chloride, chlorinated fluorocarbons.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
2.7	-	6.2	-	8.9	-	13.3	-

Treatability Group:

MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:

Plan to treat on-site at the existing Controlled Air Incinerator facility. Treatment at the Controlled Air Incinerator pending DOE NEPA; DETOX at the Hazardous Waste Treatment Facility is pending issuance of a RCRA operating permit.

Technology Status:

Technology exists. No modifications are necessary.

Radiation Characteristics:

1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:

Not reported.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.
2) Technology changes: process changes; equipment, piping, or layout changes; automation; changes in operational settings; and energy, water conservation.

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State: New Mexico	**ID #: 0000002145**
Site: LOS ALAMOS NATIONAL LABORATORY	
Waste Stream Name: SPENT SOLVENTS - F001	
Matrix: Organic Liquids	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F001	Conc.	Incineration

State: New Mexico | ID #: 0000002159

Site: LOS ALAMOS NATIONAL LABORATORY

Waste Stream Name: DECONTAMINATION WASTE - F001, F002

Matrix: Heterogeneous Debris | Waste Type: MTRU

Waste Stream Description and Source:

Waste stream may include packages containing combustible solids (paper, rags, plastic, rubber, etc.) which may also contain a small fraction of non-combustible solids. May also include packages containing chemical treatment sludge.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
214.6	-	61.8	-	276.3	-	258.9	-

Treatability Group:

MTRU CH/AL, Heterogeneous Debris, Toxic Organics

Treatment Status:

Treatment of most mixed transuranic waste to meet LDR treatment standards is not applicable because DOE plans to ship these wastes to the Waste Isolation Pilot Plant (WIPP), pending issuance of a No-Migration Determination of the operational phase. Pretreatment to meet the WIPP Waste Acceptance Criteria may be required.

Technology Status:

Not Applicable.

Radiation Characteristics:

1) Contact-handled
2) Transuranic contaminants

Waste-Specific Radiation Effects on Treatment:

Not reported.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.
2) Product change: product substitution and conservation; and change in product composition.

State: New Mexico **ID #: 0000002159**

Site: LOS ALAMOS NATIONAL LABORATORY

Waste Stream Name: DECONTAMINATION WASTE - F001, F002

Matrix: Heterogeneous Debris **Waste Type: MTRU**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F001	Conc.	Incineration
F002	Conc.	Incineration

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: New Mexico | ID #: 0000002160

Site: LOS ALAMOS NATIONAL LABORATORY

Waste Stream Name: DEWATERED TREATMENT SLUDGES - F001,2,5

Matrix: Heterogeneous Debris | Waste Type: MTRU

Waste Stream Description and Source:

May include packages containing sludges with 1,1,1 trichloroethane, methylene chloride, trichloroethylene, and chlorinated hydrocarbons. May include packages containing sludge solidified with portland or gypsum cement.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
1,088.2	-	0.000	0.000	1,088.2	-	0.000	0.000

Treatability Group:

MTRU CH/AL, Heterogeneous Debris, Toxic Organics

Treatment Status:

Treatment of most mixed transuranic waste to meet LDR treatment standards is not applicable because DOE plans to ship these wastes to the Waste Isolation Pilot Plant (WIPP), pending issuance of a No-Migration Determination of the operational phase. Pretreatment to meet the WIPP Waste Acceptance Criteria may be required.

Technology Status:

Not Applicable.

Radiation Characteristics:

1) Transuranic contaminants
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:

Not reported.

Waste Minimization Activities:

1) Not Applicable.

Stream is no longer generated.

State: New Mexico **ID #: 0000002160**

Site: LOS ALAMOS NATIONAL LABORATORY

Waste Stream Name: DEWATERED TREATMENT SLUDGES - F001,2,5

Matrix: Heterogeneous Debris **Waste Type: MTRU**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F001	Conc.	Incineration
F002	Conc.	Incineration
F005A	Conc.	Incineration

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: New Mexico	ID #: 0000002166
Site: LOS ALAMOS NATIONAL LABORATORY	
Waste Stream Name: CEMENTED PROCESS SLUDGE - CR, SOLVENTS	
Matrix: Inorganic Sludges/Particulates	Waste Type: MTRU

Waste Stream Description and Source:

Waste stream may include packages containing caustic sludge solidified with portland cement to form a non-corrosive monolith in a 55 gallon drum. May include packages containing cement paste. May include drums that were solidified with gypsum cement.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
179.3	-	4.6	-	183.9	-	38.3	-

Treatability Group:

MTRU CH/AL, Inorganic Sludges/Particulates, Toxic Organics and Metals w/o Mercury

Treatment Status:

Treatment of most mixed transuranic waste to meet LDR treatment standards is not applicable because DOE plans to ship these wastes to the Waste Isolation Pilot Plant (WIPP), pending issuance of a No-Migration Determination of the operational phase. Pretreatment to meet the WIPP Waste Acceptance Criteria may be required.

Technology Status:

Not Applicable.

Radiation Characteristics:

1) Transuranic contaminants
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:

Not reported.

Waste Minimization Activities:

1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

State: New Mexico **ID #: 0000002166**

Site: LOS ALAMOS NATIONAL LABORATORY

Waste Stream Name: CEMENTED PROCESS SLUDGE - CR, SOLVENTS

Matrix: Inorganic Sludges/Particulates **Waste Type: MTRU**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D007	Conc.	Chemical Reduction followed by Stabilization
F001	Conc.	Incineration
F002	Conc.	Incineration
F005A	Conc.	Incineration

State: New Mexico	ID #: 0000002175
Site: LOS ALAMOS NATIONAL LABORATORY	
Waste Stream Name: SOLVENT CONTAMINATED DEBRIS - F002	
Matrix: Heterogeneous Debris	Waste Type: MLLW

Waste Stream Description and Source:
Decontamination debris contaminated with 1,1,1-trichloroethane and trichloroethylene.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
6.0	-	15.8	-	21.8	-	28.3	-

Treatability Group:
MLLW CH, Heterogeneous Debris, Toxic Organics

Treatment Status:
Plan to treat on-site at the existing Controlled Air Incinerator facility. Treatment at the Controlled Air Incinerator pending DOE NEPA; DETOX at the Hazardous Waste Treatment Facility is pending issuance of a RCRA operating permit.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F002	Conc.	Incineration

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical,

State: New Mexico	ID #: 0000002175
Site: LOS ALAMOS NATIONAL LABORATORY	
Waste Stream Name: SOLVENT CONTAMINATED DEBRIS - F002	
Matrix: Heterogeneous Debris	Waste Type: MLLW

or thermal), macro/microencapsulation or sealing.

State: New Mexico | ID #: 0000002176

Site: LOS ALAMOS NATIONAL LABORATORY

Waste Stream Name: SPENT SOLVENTS - F002

Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:
Waste stream includes 1,1,1-trichloroethane and trichlorethylene.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
8.2	-	4.5	-	12.7	-	18.5	-

Treatability Group:
MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:
Plan to treat on-site at the existing Controlled Air Incinerator facility. Treatment at the Controlled Air Incinerator pending DOE NEPA; DETOX at the Hazardous Waste Treatment Facility is pending issuance of a RCRA operating permit.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.
2) Technology changes: process changes; equipment, piping, or layout changes; automation; changes in operational settings; and energy, water conservation.
3) Product change: product substitution and conservation; and change in product composition.

State: New Mexico | ID #: 0000002176

Site: LOS ALAMOS NATIONAL LABORATORY

Waste Stream Name: SPENT SOLVENTS - F002

Matrix: Organic Liquids | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F002	Conc.	Incineration

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State: New Mexico | ID #: 0000002179

Site: LOS ALAMOS NATIONAL LABORATORY

Waste Stream Name: SOLVENT CONTAMINATED DEBRIS - F003

Matrix: Heterogeneous Debris | Waste Type: MLLW

Waste Stream Description and Source:
Decontamination debris contaminated with acetone, methanol, and xylene.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
1.1	-	0.900	-	2.0	-	3.0	-

Treatability Group:
MLLW CH, Heterogeneous Debris, Toxic Organics

Treatment Status:
Plan to treat on-site at the existing Controlled Air Incinerator facility. Treatment at the Controlled Air Incinerator pending DOE NEPA; DETOX at the Hazardous Waste Treatment Facility is pending issuance of a RCRA operating permit.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F003	Conc.	Incineration

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical,

State: New Mexico	ID #: 0000002179
Site: LOS ALAMOS NATIONAL LABORATORY	
Waste Stream Name: SOLVENT CONTAMINATED DEBRIS - F003	
Matrix: Heterogeneous Debris	Waste Type: MLLW

or thermal), macro/microencapsulation or sealing.

State: New Mexico | ID #: 0000002180
Site: LOS ALAMOS NATIONAL LABORATORY
Waste Stream Name: SPENT SOLVENTS - F003
Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:
Waste stream includes acetone, methanol, xylene.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
8.4	-	7.7	-	16.2	-	21.1	-

Treatability Group:
MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:
Plan to treat on-site at the existing Controlled Air Incinerator facility. Treatment at the Controlled Air Incinerator pending DOE NEPA; DETOX at the Hazardous Waste Treatment Facility is pending issuance of a RCRA operating permit.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
1) Technology changes: process changes; equipment, piping, or layout changes; automation; changes in operational settings; and energy, water conservation.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F003	Conc.	Incineration

State: New Mexico	**ID #: 0000002184**
Site: LOS ALAMOS NATIONAL LABORATORY	
Waste Stream Name: SPENT SOLVENTS - F005	
Matrix: Organic Liquids	**Waste Type: MLLW**

Waste Stream Description and Source:
Waste stream includes benzene, pyridine, toluene.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
1.4	-	9.4	-	10.8	-	15.7	-

Treatability Group:
MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:
Plan to treat on-site at the existing Controlled Air Incinerator facility. Treatment at the Controlled Air Incinerator pending DOE NEPA; DETOX at the Hazardous Waste Treatment Facility is pending issuance of a RCRA operating permit.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
1) Product change: product substitution and conservation; and change in product composition.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F005A	Conc.	Incineration

State: New Mexico | ID #: 0000002186

Site: LOS ALAMOS NATIONAL LABORATORY

Waste Stream Name: ARSENIC OXIDE

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Chemical reagents may include salts or liquids.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.001	-	0.000	0.000	0.001	-	0.090	-

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Plan to treat on-site at the existing Hazardous Waste Treatment Facility (HWTF). Treatment at the Hazardous Waste Treatment Facility is pending issuance of a RCRA operating permit.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
P012	Conc.	Vitrification

State: New Mexico	**ID #: 0000002187**
Site: LOS ALAMOS NATIONAL LABORATORY	
Waste Stream Name: COPPER CYANIDE	
Matrix: Other	**Waste Type: MLLW**

Waste Stream Description and Source:
Chemical reagents could be salts or liquids.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.020	-	0.000	0.000	0.020	-	0.000	0.000

Treatability Group:
MLLW CH, Other

Treatment Status:
Plan to treat on-site at the existing Hazardous Waste Treatment Facility (HWTF). Treatment at the Hazardous Waste Treatment Facility is pending issuance of a RCRA operating permit.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
P029	Conc.	Chemical Oxidation followed by Alkaline Chlorination followed by Chemical Precipitation

State: New Mexico	ID #: 0000002188
Site: LOS ALAMOS NATIONAL LABORATORY	
Waste Stream Name: PHOSGENE	
Matrix: Compressed Gases	Waste Type: MLLW

Waste Stream Description and Source:
Compressed gas.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	-	0.830	-	0.830	-	2.1	-

Treatability Group:
MLLW CH, Compressed Gases, Toxic Organics

Treatment Status:
Have not identified a planned facility for this waste stream at this time. Incineration is the proposed treatment technology.

Technology Status:
Technology assessment has not started. Technology options have not been analyzed.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
1) Product change: product substitution and conservation; and change in product composition.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
P095	Tech.	Incineration

State: New Mexico | ID #: 0000002189
Site: LOS ALAMOS NATIONAL LABORATORY
Waste Stream Name: P-WASTE LAB PACKS WITHOUT METALS
Matrix: Lab Packs without Metals | Waste Type: MLLW

Waste Stream Description and Source:
Potassium cyanide and sodium cyanide.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	-	0.002	-	0.002	-	0.000	0.000

Treatability Group:
MLLW CH, Lab Packs without Metals

Treatment Status:
Plan to treat on-site at the existing Hazardous Waste Treatment Facility (HWTF). Treatment at the Hazardous Waste Treatment Facility is pending issuance of a RCRA operating permit.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
P098	Conc.	Chemical Oxidation followed by Alkaline Chlorination followed by Chemical Precipitation
P106	Conc.	Chemical Oxidation followed by Alkaline Chlorination followed by Chemical Precipitation

State: New Mexico	ID #: 0000002189
Site: LOS ALAMOS NATIONAL LABORATORY	
Waste Stream Name: P-WASTE LAB PACKS WITHOUT METALS	
Matrix: Lab Packs without Metals	Waste Type: MLLW

The alternate LDR treatment standards for labpacks is incineration as a method of treatment and a requirement for the incinerator residues to meet the treatment standards for the TC toxic metals (i.e., D004-D008, and D010-D011).

State: New Mexico	**ID #: 0000002192**
Site: LOS ALAMOS NATIONAL LABORATORY	
Waste Stream Name: P-WASTE LAB PACKS WITH METALS	
Matrix: Lab Packs with Metals	**Waste Type: MLLW**

Waste Stream Description and Source:
Vanadium oxide.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	-	0.001	-	0.001	-	0.000	0.000

Treatability Group:
MLLW CH, Lab Packs with Metals, Toxic Metals w/o Mercury

Treatment Status:
Plan to treat on-site at the existing Hazardous Waste Treatment Facility (HWTF). Treatment at the Hazardous Waste Treatment Facility is pending issuance of a RCRA operating permit.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
P120	Tech.	Stabilization

The alternate LDR treatment standards for labpacks is incineration as a method of treatment and a requirement for the incinerator residues to meet the treatment standards for the TC toxic metals (i.e., D004-D008, and D010-D011).

State: New Mexico | ID #: 0000002193

Site: LOS ALAMOS NATIONAL LABORATORY

Waste Stream Name: OXIDIZERS-NITRATES AND NITRATED COMPOUND

Matrix: Organic Debris | Waste Type: MLLW

Waste Stream Description and Source:
Includes cloth and paper rags contaminated with nitrate compounds.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
16.9	-	0.000	0.000	16.9	-	27.9	-

Treatability Group:
MLLW CH, Organic Debris, Ignitable, Corrosive, or Reactive Only

Treatment Status:
Plan to treat on-site at the existing Hazardous Waste Treatment Facility (HWTF). Treatment at the Hazardous Waste Treatment Facility is pending issuance of a RCRA operating permit.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001F	Tech.	Deactivation

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: New Mexico | ID #: 0000002194

Site: LOS ALAMOS NATIONAL LABORATORY

Waste Stream Name: U-WASTE LAB PACKS

Matrix: Lab Packs with Metals | Waste Type: MLLW

Waste Stream Description and Source:
Lab-packed waste that includes mercury, aqueous liquids, organic liquids, and metals in solution.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
3.6	-	0.000	0.000	3.6	-	3.3	-

Treatability Group:
MLLW CH, Lab Packs with Metals, Toxic Organics and Metals w/ Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time. Treatment technology available for most; not for U-133, U-075, U-121, U-225, U-151, U-204, U-144, U-246.

Technology Status:
Technology assessment has not started. Technology options have not been analyzed.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Contact-handled

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
U002	Conc.	Incineration
U012	Conc.	Incineration
U044	Conc.	Incineration
U045	Conc.	Incineration

State: New Mexico ID #: 0000002194

Site: LOS ALAMOS NATIONAL LABORATORY

Waste Stream Name: U-WASTE LAB PACKS

Matrix: Lab Packs with Metals Waste Type: MLLW

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
U052	Conc.	Incineration
U057	Tech.	Fuel Substitution; or Incineration
U075	Conc.	Incineration
U077	Conc.	Incineration
U080	Conc.	Incineration
U112	Conc.	Incineration
U117	Conc.	Incineration
U121	Conc.	Incineration
U122	Tech.	Fuel Substitution; or Incineration
U123	Tech.	Fuel Substitution; or Incineration
U131	Conc.	Incineration
U133	Tech.	Fuel Substitution; Chemical Oxidation; Chemical Reduction; or Incineration
U144	Conc.	Incineration followed by Stabilization
U151	Tech.	Amalgamation
U154	Tech.	Fuel Substitution; or Incineration
U160	Tech.	Fuel Substitution; Chemical Oxidation; Chemical Reduction; or Incineration
U165	Conc.	Incineration
U188	Conc.	Incineration
U190	Conc.	Incineration; or Fuel Substitution
U204	Conc.	Stabilization
U210	Conc.	Incineration

State: New Mexico | ID #: 0000002194

Site: LOS ALAMOS NATIONAL LABORATORY

Waste Stream Name: U-WASTE LAB PACKS

Matrix: Lab Packs with Metals | Waste Type: MLLW

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
U211	Conc.	Incineration
U213	Tech.	Fuel Substitution; or Incineration
U216	Tech.	Thermal Recovery of Metals; or Stabilization
U218	Tech.	Incineration
U220	Conc.	Incineration
U225	Conc.	Incineration
U226	Conc.	Incineration
U227	Conc.	Incineration
U228	Conc.	Incineration
U239	Conc.	Incineration
U246	Tech.	Chemical Oxidation; Wet Air Oxidation; or Incineration

The alternate LDR treatment standards for labpacks is incineration as a method of treatment and a requirement for the incinerator residues to meet the treatment standards for the TC toxic metals (i.e., D004-D008, and D010-D011).

State: New Mexico | ID #: 0000002195

Site: LOS ALAMOS NATIONAL LABORATORY

Waste Stream Name: LEAD WASTE

Matrix: Heterogeneous Debris | Waste Type: MTRU

Waste Stream Description and Source:

Waste stream may include packages containing lead solids, gloveboxes, glovebox sections, debris, solidified leached process residues, and decontamination waste. Stored below grade on asphalt pads. Not included in draft LANL FFCA since waste is considered regulated under HSWA. Waste stream is no longer generated.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
158.5	-	0.000	0.000	158.5	-	0.000	0.000

Treatability Group:

MTRU CH/AL, Heterogeneous Debris, Toxic Metals w/o Mercury

Treatment Status:

Treatment of most mixed transuranic waste to meet LDR treatment standards is not applicable because DOE plans to ship these wastes to the Waste Isolation Pilot Plant (WIPP), pending issuance of a No-Migration Determination of the operational phase. Pretreatment to meet the WIPP Waste Acceptance Criteria may be required.

Technology Status:

Not Applicable.

Radiation Characteristics:

1) Contact-handled
2) Transuranic contaminants

Waste-Specific Radiation Effects on Treatment:

Not reported.

Waste Minimization Activities:

1) Not Applicable.

Stream is no longer generated.

State: New Mexico	**ID #: 0000002195**
Site: LOS ALAMOS NATIONAL LABORATORY	
Waste Stream Name: LEAD WASTE	
Matrix: Heterogeneous Debris	**Waste Type: MTRU**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: New Mexico | ID #: 0000002196

Site: LOS ALAMOS NATIONAL LABORATORY

Waste Stream Name: DECONTAMINATION WASTE

Matrix: Heterogeneous Debris | Waste Type: MTRU

Waste Stream Description and Source:

Waste stream may include packages containing combustible solids (paper, rags, plastic, rubber, etc.) which may also contain a small fraction of non-combustible solids. May also include packages containing chemical treatment sludge. Stored below grade on asphalt pads. Not included in draft LANL FFCA since waste is considered regulated under HSWA. Waste stream is no longer generated.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
1,183.6	-	0.000	0.000	1,183.6	-	0.000	0.000

Treatability Group:

MTRU CH/AL, Heterogeneous Debris, Toxic Organics

Treatment Status:

Treatment of most mixed transuranic waste to meet LDR treatment standards is not applicable because DOE plans to ship these wastes to the Waste Isolation Pilot Plant (WIPP), pending issuance of a No-Migration Determination of the operational phase. Pretreatment to meet the WIPP Waste Acceptance Criteria may be required.

Technology Status:

Not Applicable.

Radiation Characteristics:

1) Contact-handled
2) Transuranic contaminants

Waste-Specific Radiation Effects on Treatment:

Not reported.

Waste Minimization Activities:

1) Not Applicable.

Stream is no longer generated.

State: New Mexico **ID #: 0000002196**

Site: LOS ALAMOS NATIONAL LABORATORY

Waste Stream Name: DECONTAMINATION WASTE

Matrix: Heterogeneous Debris **Waste Type: MTRU**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F001	Conc.	Incineration
F002	Conc.	Incineration

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: New Mexico | ID #: 0000002197

Site: LOS ALAMOS NATIONAL LABORATORY

Waste Stream Name: CEMENTED PROCESS SLUDGE

Matrix: Inorganic Sludges/Particulates | Waste Type: MTRU

Waste Stream Description and Source:

May include packages containing sludge solidified with portland or gypsum cement. May include packages containing cement paste. Stored below grade on asphalt pads. Not included in draft LANL FFCA since waste is considered regulated under HSWA. Waste stream is no longer generated. This is TRU waste stream #11, and is a non-FFCA stream.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
2,868.3	-	0.000	0.000	2,868.3	-	0.000	0.000

Treatability Group:

MTRU CH/AL, Inorganic Sludges/Particulates, Toxic Organics and Metals w/o Mercury

Treatment Status:

Treatment of most mixed transuranic waste to meet LDR treatment standards is not applicable because DOE plans to ship these wastes to the Waste Isolation Pilot Plant (WIPP), pending issuance of a No-Migration Determination of the operational phase. Pretreatment to meet the WIPP Waste Acceptance Criteria may be required.

Technology Status:

Not Applicable.

Radiation Characteristics:

1) Contact-handled
2) Transuranic contaminants

Waste-Specific Radiation Effects on Treatment:

Not reported.

Waste Minimization Activities:

1) Not Applicable.

Stream is no longer generated.

State: New Mexico	**ID #: 0000002197**
Site: LOS ALAMOS NATIONAL LABORATORY	
Waste Stream Name: CEMENTED PROCESS SLUDGE	
Matrix: Inorganic Sludges/Particulates	**Waste Type: MTRU**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D007	Conc.	Chemical Reduction followed by Stabilization
F001	Conc.	Incineration
F002	Conc.	Incineration
F005A	Conc.	Incineration

State: New Mexico | ID #: 0000002198

Site: LOS ALAMOS NATIONAL LABORATORY

Waste Stream Name: DEWATERED TREATMENT SLUDGES

Matrix: Heterogeneous Debris | Waste Type: MTRU

Waste Stream Description and Source:

May include packages containing sludges with 1,1,1 trichloroethane, methylene chloride, trichloroethylene, and chlorinated hydrocarbons. May include packages containing sludge solidified with portland or gypsum cement. May include packages containing cement paste. Stored below grade on asphalt pads. Not included in draft LANL FFCA since waste is considered regulated under HSWA. Waste stream is no longer generated.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
148.1	-	0.000	0.000	148.1	-	0.000	0.000

Treatability Group:

MTRU CH/AL, Heterogeneous Debris, Toxic Organics

Treatment Status:

Treatment of most mixed transuranic waste to meet LDR treatment standards is not applicable because DOE plans to ship these wastes to the Waste Isolation Pilot Plant (WIPP), pending issuance of a No-Migration Determination of the operational phase. Pretreatment to meet the WIPP Waste Acceptance Criteria may be required.

Technology Status:

Not Applicable.

Radiation Characteristics:

1) Contact-handled
2) Transuranic contaminants

Waste-Specific Radiation Effects on Treatment:

Not reported.

Waste Minimization Activities:

1) Not Applicable.

Stream is no longer generated.

State: New Mexico | ID #: 0000002198

Site: LOS ALAMOS NATIONAL LABORATORY

Waste Stream Name: DEWATERED TREATMENT SLUDGES

Matrix: Heterogeneous Debris | Waste Type: MTRU

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F001	Conc.	Incineration
F002	Conc.	Incineration
F005A	Conc.	Incineration

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

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TECHNOLOGY

DEVELOPMENT

SUMMARIES

Los Alamos National Laboratory

LANL-TDS-1

April 1993

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Target Site: Los Alamos National Laboratory

Location site: Los Alamos National Laboratory

Programs/Facilities Supported:
CE Industrial Waste Reduction Program/Em Waste Management Program

ID: 23

Program Title: Treatment of Electroplating Wastes.

Summary Description:

Treatment of electroplating wastes that will be housed in the new hazardous waste treatment facility to be completed in 1998 is being developed. The RCRA components are F007 and F009 (cyanides) corrosive D002, various characteristic metals and depleted uranium up to 1 GPL. These wastes must be treated according to RCRA and no bench scale work is contemplated except possibly to determine the fate of uranium. A treatment unit, skid-mounted, has to be designed for operation in the future hazardous waste treatment facility and title 1 of this skid design has been started. Some electrodeposition of metals and electro-oxidation of cyanide has been tested at bench scale and tests will continue. RCRA part B permit modification, NESHAP and air are required. Routine treatment is expected from 1997 onwards. The development activity is taking place at LANL TA-50, Bldg. 37.

Summary Purpose/Need:

The program is to tailor a technology that is RCRA BDAT and will meet the regulations over the range of compositions in storage to treat electroplating wastes. Electro-deposition/oxidation prior to treatment would be used to reduce the volume of treated waste. Some solutions may contain organics requiring further treatment. This design is expected to permit treatment of most, if not all, low level mixed electroplating/acidic/basic solutions in storage. However, hard-to-oxidize organics if present, may limit applicability. Application of this technology will bring the waste streams into compliance, but a landfill will be needed. Waste characterization is needed. As DV is present only up to 1 GPL, safety and engineering problems are not anticipated.

Summary Result/Endpoint/Deliverable:

A treatment unit, skid mounted, will be designed in 1993. It is anticipated the N.M. EPA may take as long as 2 years to process the part B permit modification that will be needed. The construction will take place in 1995, followed by testing in 1996 - 1997 period. Routine treatment is expected from the year 1997 onwards.

BDAT: CHOXD RMETL
Functional Areas: chemical physical treatment
radionuclide removal
primary organic destruction - high concentration

Target Site: Los Alamos National Laboratory

Location site: Los Alamos National Laboratory

Programs/Facilities Supported:
EM Waste Management Program

ID: 24

Program Title: Controlled reaction of water-reactive wastes

Summary Description:

Treatment of Water-reactive Wastes
Reactivity of lithium hydride and other water-reactive compounds/metals must be neutralized prior to disposal to a landfill to meet EPA regulations. Reactivity and ignitablity (D003 and D001) are the RCRA components involved. Solid DV ranging from chunky to very fine powder constitute radioactive components. Bench scale work has shown that 100 percent of the lithium hydride could be converted to the non-reactive hydroxide and reactions rates at different temperatures have been identified. However, other variables must be investigated. NESHAP and air, as well as RCRA Part B modifications are required. the development activity is taking place at LANL TA-50, Bldg. 37.

Summary Purpose/Need:

The procedure is to make a process that hydrates water-reactive wastes with a humid nitrogen stream and the objective is to define operating conditions and generate engineering data for the design and operation of a pilot treatment skid. The readioactive components will either: 1) be solidified in cement, or 2) treated in the DV chips treatment skid, or 3) sent to the radliquid waste treatment plant. This technology will result in the waste streams being in compliance and is expected to be applicable to most or all water-reactive wastes, low level, although this needs to be demonstrated.

Summary Result/Endpoint/Deliverable:

Bench work on lithium hyride will be completed and bench testing of processes of other water-reactive wastes will be undertaken. The design, construction and operation of a pilot plant will be finished by '96 and from 1997 onwards routine treatment is expected. The new hazardous waste treatment facility will house the treatment when completed in 1999.

BDAT: NEUTR STABL
Functional Areas: chemical physical treatment
other

Target Site: Los Alamos National Laboratory

Location site: Los Alamos National Laboratory

Programs/Facilities Supported:
EM Waste Management Program

ID: 85

Program Title: Decontamination and Recycling of Lead Bricks

Summary Description:

The technology used for treatment of surface-contaminated lead bricks and shields is macroencapsulation. However, the waste is still a . Surface contamination can be removed using an abrasive slurry. The lead can then be recycled. The abrasive slurry with the radioactive lead can be solidified and is expected to pass TCLP. Even if it does not pass, there is a substantial waste volume reduction.

Summary Purpose/Need:

This technology permits recycling, removes less lead than high-pressure decontamination systems, and is fast and safe. It is also applicable to other solid surfaces, whether mixed or not.

Summary Result/Endpoint/Deliverable:

This project is already in the commercial state of development. The goal is the recycling of lead in storage.

BDAT: RLEAD STABL Functional Areas: chemical physical treatment
decontamination
lead treatment/recycle

Target Site: Los Alamos National Laboratory

Location site: Los Alamos National Laboratory

Programs/Facilities Supported:
This activity is part of the 'Atlas' integrated Nitrate processing system within the LANL Plutonium Facility

ID: 86

Program Title: Nitric Acid Recycle

Summary Description:

Previously, waste nitric acid has been neutralized with caustic, then cemented for disposal. We seek to recycle nitric acid by evaporation and distillation. The bulk of the acid will be reused, and process waste will be greatly reduced. The radioactive and hazardous parts of the waste will be left behind in a smaller volume for disposal.

Summary Purpose/Need:

This process greatly reduces the volume of waste. There will be less waste for long-term storage, and a reduction in reagent usage, resulting in cost savings. The process is applicable to a wide variety of waste-acid streams and radioactive material processing within DOE.

Summary Result/Endpoint/Deliverable:

We will demonstrate an integrated prototype nitric acid recycling system.

BDAT: RCORR
Functional Areas: chemical physical treatment
evaporation
material recycle

Target Site: Los Alamos National Laboratory

Location site: Los Alamos National Laboratory

Programs/Facilities Supported:
MWIP
LANL sites

ID: 87

Program Title: Two-stage PBR/SDP for LLMW; E-beam test bed

Summary Description:

[NONE PROVIDED]

Summary Purpose/Need:

The benefits of the PBR/SDP are completeness of destruction, efficiency, simplicity, and reduced greenhouse gases. Both systems are broad-ranged and closed-looped.

Summary Result/Endpoint/Deliverable:

[NONE LISTED]

BDAT: INCIN
Functional Areas: waste destruction & stabilization
alternative organic destruction - high concentration
RCRA 2nd stage destruction
destroy gas phase organics

Target Site: Los Alamos National Laboratory

Location site: Los Alamos National Laboratory

Programs/Facilities Supported:
1. All programs using Pb loaded glovebox gloves
2. All DOE analytical labs.
3. If successful, a new concept for separations
4. WIPP and Hanford TWRS.

ID: 89

Program Title:

1. Replacement of Glovebox Gloves with Non-Hazardous Alternative
2. CLS-1 Waste Minimization/Mitigation Plan
3. Nuclear Reactor Fuel Reprocessing
4. Waste Characterization

Summary Description:

Leaded glovebox gloves have historically been used to provide glovebox workers with protection from exposure to x-rays. The purpose of the first project is to replace lead with suitable alternatives.
The goal of the second project is to develop a waste minimization/mitigation plan that will result in essentially zero .

The third project will provide an on-line/at-line method for fuel reprocessing with inorganic precipitants.
The fourth project is the characterization of waste destined for WIPP, including Hanford waste tanks.

Summary Purpose/Need:

The first project replaces with low-level radioactive waste. The second reduces analytical laboratory wastes, the third replaces the Purex process, and the fourth involves state-of-the-art chemistry.

Summary Result/Endpoint/Deliverable:

The goal of the first project is commercial application; the endpoint for the others is completed bench-scale study.

BDAT: NA
Functional Areas: other waste minimization

Target Site: Los Alamos National Laboratory
Location site: Los Alamos National Laboratory

Programs/Facilities Supported:
This project supports waste minimization efforts in P & S projects.

ID: 94

Program Title: Reuse, Recycling, and Decomposition of Calcium Chloride

Summary Description:

Plutonium pyrochemical processes at Los Alamos have traditionally been performed in specific salts for each process. This project concerns the use of calcium chloride in all of the processes and also involves the decomposition of the calcium chloride into chlorine and calcium for reuse.

Summary Purpose/Need:

This technology will minimize waste generated in pyrochemical operations and will limit the amount of downstream aqueous processing that is required. The current technology involves discarding low-concentration salts and the dissolution and recovery of high-plutonium-concentration salts.

Summary Result/Endpoint/Deliverable:

We will demonstrate the reuse of excess salt. After actinide removal, the salt will be decomposed, and the net result will be a total recycling and reuse of reagents. Finally, the process will be transferred to the pyrochemical production site.

BDAT: NA
Functional Areas: waste minimization
other

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Target Site: Los Alamos National Laboratory

Location site: Los Alamos National Laboratory

Programs/Facilities Supported:
This supports the vault holdings reduction and plutonium recovery efforts at LANL.

ID: 105

Program Title: Oxygen sparge of spent pyrochemical salts.

Summary Description:

Oxygen sparging is currently used to recover small amounts of plutonium and americium left in salt stripping waste, a generated from an old plutonium recovery process. This process also eliminates highly reactive sodium and potassium metals.

Summary Purpose/Need:

Although this process is only applicable to spent salts stored at Los Alamos and Rocky Flats, oxygen sparging has met WIPP criteria for the elimination of pyrophoric contaminants, and the final product is a non .

Summary Result/Endpoint/Deliverable:

The process is being considered for inclusion in the REP project at Rocky Flats.

BDAT: RMETL DEACT
Functional Areas: chemical physical treatment
radionuclide removal
other

Target Site: Los Alamos National Laboratory
Location site: Los Alamos National Laboratory
Programs/Facilities Supported:
Nuclear Materials Program at LANL
-Complex - 21/reconfiguration
-Site Return Disassembly

ID: 108

Program Title: Automated Retirement and Integrated Extraction System (ARIES)

Summary Description:

The goal of this project is to devise an automated, mechanical and chemical system for the disassembly and recovery of retired nuclear weapon components. Uranium and plutonium solids will be separated from other weapon components without using standard solution processes.

Summary Purpose/Need:

This project will satisfy the following needs: 1) an 87 percent reduction in operator exposure, 2) a 99 percent reduction in aqueous secondary waste, and 3) a significant improvement in safety margins.

Summary Result/Endpoint/Deliverable:

Designs for the system should be complete September 1993, with prototype installation complete in 1994, and operation testing done by February 1995. We expect a "hot" start-up in April 1995.

BDAT: NLDBR
Functional Areas: waste minimization
other
robotics

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Target Site: Los Alamos National Laboratory

Location site: Los Alamos National Laboratory

Programs/Facilities Supported:
These activities support the Los Alamos Plutonium Facility and the Los Alamos Waste Treatment Facility and more generally the Rocky Flats Residue Elimination Program, Complex 21 activities, and EM waste treatment and environmental remediation programs.

ID: 111

Program Title: Extraction System for Removal of Radioactive and Hazardous Metal Ions From Aqueous Waste Streams.

Summary Description:

The general goal of these technologies is to selectively separate and concentrate radioactive and RCRA metal ions from aqueous waste streams. Alternative technologies are urgently needed to reduce the concentration of contaminating metal ions to extremely low levels, both to meet increasingly stringent regulatory limits and to decrease waste treatment and disposal costs. The approach involves the design, synthesis, and evaluation of extractant molecules with the required selectivity and binding constants to remove the target metal ions from the waste stream. The extractants can be used in a variety of liquid-liquid extraction systems or incorporated into polymers for use as solid sorbents or as water-soluble complexing agents.

Summary Purpose/Need:

These improved extraction technologies can provide a cost-effective replacement for sludge-intensive precipitation treatments and yield effluents that meet more stringent discharge requirements than precipitation methods. These technologies can also be much more selective and less energy-consuming than distillation. Of course, even among the various extraction systems under development there must be a competition to select the system with the best cost-benefit for the specific waste stream.

Summary Result/Endpoint/Deliverable:

The general endpoint of these activities will be an integrated prototype system that can be used in processing or waste treatment operations.

BDAT: RMETL
Functional Areas: chemical physical treatment
removal of problem constituents

Target Site: Los Alamos National Laboratory

Location site: Los Alamos National Laboratory

Programs/Facilities Supported:
Defense materials programs, EM remediation programs

ID: 113

Program Title: Advanced Testing Line for Actinide Separations (ATLAS)

Summary Description:

ATLAS is a full scale demonstration facility which integrated the aqueous nitrate flow sheet with advanced analytical chemistry and process control techniques. The goal is to optimize the process which to a large extent means waste minimization and dealing with streams.

Summary Purpose/Need:

There is no existing treatment/recovery technology for high-acid radioactive streams. The goal is to develop a suitable technology to selectively recover the radioactive constituent from the waste stream. RCRA components of concern are all heavy metals which cannot be destroyed.

Summary Result/Endpoint/Deliverable:

An integrated pilot plant facility to demonstrate waste polishing techniques primarily on high-acid, low activity waste streams.

BDAT: RMETL
Functional Areas: chemical physical treatment
removal of problem constituents

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Target Site: Los Alamos National Laboratory

Location site: Los Alamos National Laboratory

Programs/Facilities Supported:
EM Waste Management Program

ID: 116

Program Title: Water-soluble, Chelating Polymers for Toxic Metal-Ion Separation

Summary Description:

We are developing chelating polymers that bind in homogeneous aqueous solution and use ultrafiltration as a means of removing toxic metal ions from variety of waste streams and materials (sludge or soils). This allows for ready recovery of both the metal-ions and the leaching or chelating agent without the use of organic solvents or resins.

Summary Purpose/Need:

There are a variety of advantages. First the separations are homogeneous and do not require the addition of organic solvent for toxic metal-ion separations. The kinetics are faster than with currently available ion exchange material and the chelating polymers are more specific than ion exchangers. Colloids which are a problem to ion-exchange techniques are eliminated with this approach.

Summary Result/Endpoint/Deliverable:

This work will have a many end points because of the large variety of applications that are anticipated. Currently, patent applications are in process. Simultaneously, there is R & D that is ongoing and bench scale operations are starting on some aspects of the work.

BDAT: RMETL
Functional Areas: chemical physical treatment
removal of problem constituents
radionuclide removal

Target Site: Los Alamos National Laboratory

Location site: Los Alamos National Laboratory

Programs/Facilities Supported:
DP Programs

ID: 123

Program Title: EXCEL

Summary Description:

Previous solvent extraction operations of LANL for hydrochloric acid streams utilized tributyl phosphate in a tetrachloroethylene diluent. Tetrachloroethylene is RCRA listed waste. The purpose of the work is to find a suitable alternate diluent to replace tetrachloroethylene. The diluent will ultimately be used for production scale activities. The objective is to eliminate the possible generation of a .

Summary Purpose/Need:

The use of an alternate diluent such as dodecane to replace tetrachloroethylene will eliminate the possible generation of a .

Summary Result/Endpoint/Deliverable:

The result will be a pilot scale operation utilizing solvent extraction for the recovery of plutonium from hydrochloric acid solutions.

BDAT: NA
Functional Areas: waste minimization
other

Target Site: Los Alamos National Laboratory

Location site: Los Alamos National Laboratory

Programs/Facilities Supported:
This activity will be part of the 'EXCEL' integrated chloride processing system within the LANL plutonium facility.

ID: 124

Program Title: Hydrochloric Acid Recycle

Summary Description:

Previously, waste hydrochloric acid has been neutralized with caustic, then cemented for disposal. We seek to recycle hydrochloric acid by evaporation and distillation. The bulk of the acid will be reused, and process waste will be greatly reduced. The radioactive and hazardous parts of the waste will be left behind in a smaller volume for disposal.

Summary Purpose/Need:

This process greatly reduces the volume of waste. There will be less waste for long-term storage, and a reduction in reagent usage, resulting in cost savings. The process is applicable to a wide variety of waste-acid streams and radioactive material processing within DOE.

Summary Result/Endpoint/Deliverable:

We will demonstrate an integrated prototype hydrochloric acid recycling system.

BDAT: NLDBR
Functional Areas: waste minimization
material recycle

Target Site: Los Alamos National Laboratory

Location site: Los Alamos National Laboratory

Programs/Facilities Supported:
DP activities and Complex 21 Reconfiguration

ID: 126

Program Title: Supercritical Fluid Carbon Dioxide to Replace Chlorocarbon Solvents for Cleaning Plutonium

Summary Description:

This project focuses on developing a recycle SCF CO2 method to replace the current trichloroethane-based process for removing hydrocarbons that cause corrosion of plutonium components in stockpile. Development of this technology requires that the compatibility of SCF CO2 with Pu be verified, that analytical procedures for measuring hydrocarbon residues be developed, that parameters for optimal cleaning be identified, that specifications for a pilot (full-scale) SCF system be defined, that a pilot system be procured and installed, that parameters for production applications be defined, that CO2 recycle be demonstrated, and that equipment and procedures for safe glovebox operation in a Pu facility be established. The potential use of CO2 for degreasing Pu lathe turnings will also be investigated.

Summary Purpose/Need:

The current process for cleaning plutonium hemishells uses trichloroethane and a vapor degreaser. This process generates large volumes of . Using SCF Co2 as the cleaning solvent instead of trichloroethane eliminates the addition of the solvent to the volume. This same technology may be used to extract RCRA hazardous components from solid surfaces.

Summary Result/Endpoint/Deliverable:

The endpoint of this activity to demonstrate the process on a pilot system; optimize operating parameters for full-scale use; and prepare specifications or operating procedures for a full-scale system for cleaning plutonium components in production.

BDAT: NA
Functional Areas: waste minimization
removal of problem constituents

Target Site: Los Alamos National Laboratory

Location site: Los Alamos National Laboratory

Programs/Facilities Supported:
EM-50 Robotics Integrated Program

ID: 127

Program Title: Robotic NDA & Analytical Sample Characterization

Summary Description:

Characterization of input and output to a plutonium processing facility using automation and robotics.

Summary Purpose/Need:

Increased sample throughout, less exposure to radiation, more precise and accurate sample analysis.

Summary Result/Endpoint/Deliverable:

Currently a fully integrated prototype system.

BDAT: NA
Functional Areas: characterization
other
robotics

Target Site: Los Alamos National Laboratory

Location site: Los Alamos National Laboratory

Programs/Facilities Supported:
EM Mixed Waste Management Program

ID: 204

Program Title: Electron-Beam Waste Treatment Test Bed

Summary Description:

The existing LANL electron-beam waste treatment test bed is used to 1) evaluate electron-beam treatment technology for wastes of concern to the LANL FFCA and the DOE Complex (hazardous organics, nitrates), 2) determine the technology scaling parameters, design, procure, and 3) test a small-scale, high-average power pilot plant, and 4) continue to work with industry in transferring the technology to the private sector. This program evaluates the suitability of removing organics (hydrocarbons and hazardous organics such as chlorocarbons) and nitrates from simulated wastes.

Summary Purpose/Need:

The non-thermal technology may be more acceptable to the public and, therefore, more easily permitted. Industry participation in transferring this technology to the private sector as part of an initiative in Advanced Oxidation Systems for Waste Treatment will continue.

Summary Result/Endpoint/Deliverable:

The e-beam treatment of various organics will continue to be optimized, and high-average dose prototype equipment will be developed at the LANL. The resulting technology will be transferred to private sectors. The technical review letter report and technology status report will be prepared for HQ-DOE review in FY93.

BDAT: INCIN
Functional Areas: waste destruction & stabilization
primary organic destruction - high concentration

Target Site: Los Alamos National Laboratory

Location site: Los Alamos National Laboratory

Programs/Facilities Supported:
LANL MWTP

ID: 414

Program Title: Delphi DETOX

Summary Description:

Delphi DETOX is a wet air oxidation process using an aqueous solution of concentrated hydrochloric acid and the iron 2 - iron 3 couple to catalyze the oxidation of organics. The process operates at approximately 200 C and 50 to 150 psi.

Summary Purpose/Need:

Proposed alternative process to incineration.

Summary Result/Endpoint/Deliverable:

A proto scale process to demonstrate the overall effectiveness of the process.

BDAT: WETOX INCIN CHOXD IMERC
Functional Areas: waste destruction & stabilization
alternative organic destruction - high concentration
alternative organic destruction - low concentration
innovative technologies

Target Site: Los Alamos National Laboratory

Location site: Los Alamos National Laboratory

Programs/Facilities Supported:
LANL MWTP, and cross-complex

ID: 415

Program Title: Process Modeling-Mixed Waste Treatment

Summary Description:

Many methods of treating have been proposed. Process modeling of these technologies provides a convenient tool for evaluating the various methods for merit without having to build hardware for experimentation. Modeling is also a useful tool for investigating and optimizing promising technologies during the design stage. The scope of this development is to model all proposed treatment methods and promote the promising candidates. The goal is to deliver analyses of the proposed technologies.

Summary Purpose/Need:

Process modeling is a well-developed technology. Commercial codes are available for the chemical engineers as tools. The development work involved in this program is to use 1 of these commercial codes, ASPEN plus, to model the technologies. It is a matter of building the various components of the model into a process flowsheet and using this information to compare technologies.

Summary Result/Endpoint/Deliverable:

The result will be a series of reports, 1 for each proposed treatment technology, that provides the merits and drawbacks to each technology based on the results of the process model.

BDAT: NA
Functional Areas: system analysis
decision support

Target Site: Los Alamos National Laboratory

Location site: Los Alamos National Laboratory

Programs/Facilities Supported:
Controlled Air Incinerator

ID: 416

Program Title: CAI Vitrification

Summary Description:

Develop, demonstrate, and implement vitrification system to immobilize ashes generated by the Control Air Incinerator.

Summary Purpose/Need:

LANL specific system = bench scale
Design based on standard equipment used in glass industry for +100 years. Additional experiments in DOE with high level vitrification.

Summary Result/Endpoint/Deliverable:

Bench-scale testing - equipment specification and product testing
Pilot-scale testing - design parameters and glove box design

BDAT: STABL HLVIT

Target Site: Los Alamos National Laboratory

Location Site: Los Alamos National Laboratory

Programs/Facilities Supported:
Weapons manufacturing - complex 21

ID: 418

Program Title: Chip Collection System for Precision Machining

Summary Description:

This program reduces the machinist workers exposure to toxic and radioactive materials by automatically collecting the chips from the machining process. This also reduces the use of solvents to clean areas and thus reduces mixed waste production.

Summary Purpose/Need:

In machining operations, the chips have to be collected after the part is complete. If these chips are toxic or radioactive, the worker is exposed to this hazard. By collecting automatically, the exposure is reduced.

Summary Result/Endpoint/Deliverable:

The deliverable is a system for automatically collecting toxic and radioactive chips during the machining process.

BDAT NA

Functional Areas: waste minimization

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Target Site: Los Alamos National Laboratory

Location Site: Los Alamos National Laboratory

Programs/Facilities Supported:
TA-55 Pu processing at LANL and other similar activities in DOE complex

ID: 419

Program Title: Biodegradation of nitrated rags

Summary Description:

Develop, demonstrate, and implement a process for reducing the volume of nitrated rags with radioactive contamination. The approach involves biodegradation of the organic matrix and nitrates, resulting in an output stream which is suitable for subsequent recovery or removal of the radioactive constituents.

Summary Purpose/Need:

Rags contaminated with nitrates and radioactive material are currently stored. This approach involves biodegradation of the organic matrix and nitrates with a substantial volume reduction, resulting in an aqueous output stream which is suitable for subsequent recovery or removal of the radioactive constituents, and waste processing.

Summary Result/Endpoint/Deliverable:

Based on the small scale demonstration results, adaptation of standard operating methods will be considered to eliminate the stored material, and for potential inclusion in future Pu processing at LANL. If successful, the approach could be applicable to other similar activities in DOE complex.

BDAT: BIODG

Functional Areas: chemical physical treatment
waste destruction & stabilization

Target Site: Los Alamos National Laboratory

Location Site: Los Alamos National Laboratory

Programs/Facilities Supported:

Supports all tritium programs/facilities.
Supports WETF operations.

ID: 420

Program Title: Tritium Gas Recovery/Recycle from Tritium Confinement Systems

Summary Description:

Develop, demonstrate, and implement a system for recovering elemental tritium from weapons without generating tritiated water.

Summary Purpose/Need:

We need to be able to recover tritium from weapons dismantlement without converting elemental tritium into a compound (tritiated water) which is 25,000 times more toxic than the elemental tritium. This will aid the recovery at WETF.

Summary Result/Endpoint/Deliverable:

The scope of the activity will be to investigate commercially available gas separation module technology with the goal of designing a tritium gas recovery system for use at WETF. This technology can then be licensed commercially.

BDAT: NA

Functional Areas: other

21.3 Sandia National Laboratories - New Mexico

Summary

Sandia National Laboratories, New Mexico (SNL/NM) is located immediately southeast of Albuquerque, New Mexico, on Kirtland Air Force Base. SNL/NM is operated by Sandia Corporation for the DOE under a no-profit, no-fee contract. SNL/NM's primary mission is conducting R&D in the interest of national security, with principal emphasis on development and engineering of the non-nuclear components of nuclear weapons. Other programs include basic and applied research in the energy and materials sciences, nuclear waste management, and safeguards and security. SNL/NM has about 7300 employees. Five technical areas and several remote test areas encompassing 11.4 km^2 are surrounded by federally owned land, which acts as a buffer zone.

Mixed Waste Sources. SNL/NM has 136 mixed waste streams in its inventory of operations waste as of December 1992. Of these, 1 is MTRU waste and the remainder are MLLW.

The waste streams reported by SNL/NM are characterized by process knowledge. SNL/NM will be characterizing newly generated mixed waste by sampling and analysis whenever possible.

Mixed Waste Inventory. The total mixed waste inventory is approximately 66 m^3. On the basis of available information, SNL/NM classified 135 waste streams as MLLW. Disposal requests and current inventories indicate that MLLW comprises almost 99 percent of mixed waste stored at SNL/NM (approximately 65 m^3). An estimated 0.8 m^3 of MLLW is expected to be generated in the next 5 years. Additional waste may be produced from environmental restoration investigations in the next 5 years. These wastes are not included in the inventory table (Table 21.3-1). The MLLW as listed in this report is subject to Land Disposal Restrictions storage prohibitions.

SNL/NM is in the process of regrouping waste streams and therefore, have not assigned specific matrix categories for most of their mixed waste. Further categorization will be available in the final report.

Waste Minimization. A formal waste-minimization program was initiated in 1989 to comply with EPA regulations and DOE orders. A completed Waste Minimization Plan addresses activities and methods that will be used to reduce the quantity and toxicity of waste and materials at SNL/NM sites.

Treatment Technologies. SNL/NM has no existing treatment facilities, but the planned Radioactive and Mixed Waste Management Facility (RMWMF) will provide the means to open, treat, and repackage low-level and MLLW beginning in 1996.

21.3.1 Mixed Waste

Table 21.3-1 shows volume inventory and 5-year generation estimates for mixed waste at SNL/NM.

The planning phase for waste characterization is expected to be concluded in late 1993. Characterization of waste now in storage will require more detailed inventory, sampling, and analysis. The 5-year generation rates for both MLLW and MTRU waste are estimated from mixed waste generation rates between May 8, and December 1992, prorated for 5 years. May 8, 1992, was the beginning of a moratorium on mixed waste generation at SNL/NM. The low values reflect the fact that SNL/NM generates small amounts of various mixed wastes at highly irregular intervals and, as a research facility, the exact nature of each waste stream likely to be generated in the next 5 years is impossible to predict.

Table 21.3-1
Mixed Wastes at Sandia National Laboratory - New Mexico

Waste Type/Matrix	Number of Waste Streams	Inventory		Number of Waste Streams	Five-Year Projection	
		(m^3)	(kg)		(m^3)	(kg)
WASTE TYPE -- MLLW						
CH, Organic Liquids	1	<0.10	1.40	0	0.00	0.00
CH, Aqueous Liquid	2	<0.10	1.80	0	0.00	0.00
CH, Elemental Lead	1	<0.10	31.30	0	0.00	0.00
CH, Batteries (lead Acid, Cadmium)	2	<0.10	88.34	2	0.36	998.70
CH, Other	128	65.42	-	7	0.41	565.66
CH -alpha, Other	1	<0.10	31.80	0	0.00	0.00
Sub-Total MLLW:	135	65.48	-	9	0.78	1,564.36
WASTE TYPE -- MTRU						
RH -alpha, Other	1	0.95	-	0	0.00	0.00
Sub-Total MTRU:	1	0.95	-	0	0.00	0.00
TOTAL:	136	66.43	-	9	0.78	1,564.36

21.3.1.1 High Level Waste

There is no mixed HLW stored or to be generated at SNL/NM.

21.3.1.2 Mixed Transuranic Waste

SNL/NM has 1 MTRU waste stream containing approximately 1 m^3 of waste currently in storage. It has not been characterized to confirm all hazardous components. Process knowledge for some of the contents indicates that cadmium, lead, and silver may be present. Some containers of this waste are contact-handled and others are remotely-handled. Some of the waste contains high alpha emitters, and all will require special handling for containment during treatment. Little or none of this waste will be generated in the next 5 years. The actual amount depends on the nature of future projects. In addition to the above MTRU, the mixed wastes stored at the Manzano site may contain TRU and low-level waste. These quantities and waste matrices are undetermined though the TRU is included in the description for waste stream ID#2258. SNL/NM does not know how much TRU waste in storage or expected in the next 5 years is or will be mixed waste.

21.3.1.3 Mixed Low-Level Waste

On the basis of available information, SNL/NM classifies 135 waste streams as MLLW. Disposal requests and current inventories indicate that MLLW comprises about 65 m^3 or 99 percent of the waste stored at SNL/NM. All of the MLLW is subject to LDR storage prohibitions. SNL/NM has elected not to categorize its waste into matrix groups until further characterization is complete. Some MLLW may also be stored in the Manzano Bunkers (ID#2259). However, no quantities or waste matrices are currently available. The current basis for assigning EPA hazardous waste codes to the MLLW is process knowledge. Process knowledge of this waste may be augmented by sampling and analysis in the future.

21.3.2 Treatment Facilities and Technology

There are no existing treatment facilities at SNL/NM, however treatment activities do occur throughout the site as stated in the Part A mixed waste permit application. One treatment facility, the Radioactive and Mixed Waste Management Facility (RMWMF), is planned (See Tables 21.3-2 and 21.3-3). The RMWMF will provide the means to open, treat, and repackage low-level waste and MLLW. Resins, oils, chemical residues, and uranium/beryllium fines are examples of the liquid and sludge forms that are acceptable to the RMWMF process. Processes that may be included are screening, neutralization, encapsulation, chemical stripping, destruction (crushing), chemical precipitation, ion exchange, reverse osmosis, demineralization, hazard separation, shredding and baling, and stabilization. The solidification process will likely use 2 stabilization agents, "Aqua set" for oils and resins and Portland cement for all other mixed waste. Treatment capacity at the RMWMF will vary depending on the treatment process involved.

Waste will be received at the RMWMF in 55-gallon drums and boxes. PCB contaminants will be allowed in the wastes treated at the RMWMF. The facility will be able to handle alpha-contaminated wastes less than 100 nCi/g and less than 200 mR/hr at the surface of the waste package. Scheduled start-up of the RMWMF is in 1996. This schedule is subject to change based on the availability of funds and completion and approval of required NEPA documentation.

Table 21.3-2
Sandia National Laboratory - New Mexico
Mixed Waste Treatment Facilities
Planned or Under Construction for Mixed Wastes

Facility/System	Treatment Type(s)	Allowable Waste		Ident. Of MW Streams To Be Treated	Design Capacity (m3/yr) **	Date Avail. For Treating MW **
		Radioactive Type(s) *	Physical/Chemical Matrix			
Radioactive And Mixed Waste Management Facility	Stabilization, Crushing, Ion Exchange, Shredding, Macroencapsulation, Chemical Stripping, Reverse Osmosis, Baling, Neutralization, Chemical Precipitation, Demineralization	MLLW, ALPHA, CH	To Be Determined	To Be Determined	55.0	1996

* ALPHA refers to transuranic alpha greater than 10 nCi/g

** Because DOE is still in the planning/conceptual stage, in the design stages, or in the construction stage for these facilities, schedules and capacities are subject to changes based on the availability of funds, results of treatability studies, permit issuance, etc.

Table 21.3-3
Sandia National Laboratory - New Mexico
Current and Planned Facilities - Treatment Category
Mixed Waste Treatment Facilities

Facility/System	Operating Status *	Feed Types	Final Waste Form	HLW MTRU MLLW	Alpha **	RH CH	Hg	Other Toxic Metals	Toxic Organics
Radioactive And Mixed Waste Management Facility	Planned, 1996	To Be Determined	Not Determined	MLLW	√	CH		√	

* Because DOE is still in the planning/conceptual stage, in the design stages, or in the construction stage for these facilities, schedules and capacities are subject to changes based on the availability of funds, results of treatability studies, permit issuance, etc.

** Transuranic alpha greater than 10 nCi/g.

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21.3.3 Technology Development

The availability of waste management technologies has been examined for all SNLA mixed wastes. The different degrees of availability of the waste specific technology treatment are included in the waste profile sheets.

For some wastes, technologies exist or are considered readily available based on previous commercial sector or DOE experience. No significant process modifications are required for the treatment of waste streams with this determination.

In many cases, the determination has been made that the technology exists but has to be modified for application to SNLA mixed wastes. Most technology development efforts fall in this group. Modifications may include adaptations of design and operation to assure containment of radionuclides. Other modifications may be aimed at treatment of the mixed waste matrix. Typically, the SNLA site specific treatment technologies are being adapted from processes developed for radioactive material processing (with no RCRA LDR constituents) or other applications.

For some wastes the decision has not been made on the availability of treatment technology. If the wastes are not yet well enough characterized from sampling or process knowledge, the necessary evaluations of potential treatment processes cannot be carried out. For other wastes the analysis and review this is still going on. For this latter set of wastes it would seem likely that technology with or without modification is available.

Treatment technology is known for all SNL/NM mixed waste streams.

Site-specific technology development (TD) activity indexed narrative descriptions are presented later in this chapter and in Appendix B.

Site-specific technology development activities lists which are potentially applicable to the treatability groups and BDATs identified in Chapter 6.0 are listed below. Additionally, crosscutting technology development activities not assigned to treatability groups are included. Where BDAT is indicated as NA, or is blank, the technology development activity does not link to specific BDAT RCRA treatment functions, but is intended to provide other supporting functions.

Site-Specific Technology Development Activities

(by BDAT, by summary technology area - ID number references to indexed narrative descriptions presented later in this chapter and Appendix B)

BDAT: BIODG
Summary Tech Area ID: containment
198 Los Alamos Program for Barriers and Post Closure Monitoring

BDAT: STABL
Summary Tech Area ID: containment
198 Los Alamos Program for Barriers and Post Closure Monitoring
207 Geochemical Controls on Chromium Mobility
213 Dry Barriers Applications for Landfills

Technology development activities that do not link to specific BDAT RCRA treatment functions

BDAT: NA

Summary Tech Area ID: characterization

215 Magnetometer Towed Array
218 Neutron Activation Logging System for the MWLID
272 Detection and Quantification of High-Z metals with X-Ray Fluorescence
273 On-site Analysis of Metals Using ASV

Summary Tech Area ID: containment

199 Migration Barrier Covers for Mixed Waste
203 A Prototype Decision Support System to Select MWL Barrier Cover Systems
210 Remedial Options Evaluation

21.3.4 Environmental Restoration Waste

Sandia National Laboratories - New Mexico (SNL/NM) is a R&D laboratory with the primary mission of developing, engineering and testing non-nuclear components of nuclear weapons. SNL/NM occupies several parcels of land covering 11.4 km^2 within Kirtland Air Force Base directly south of Albuquerque, New Mexico.

The environmental restoration program was initiated in 1987 and is in the early stages of assessment activities. Through August 1992 4 on-site studies have been conducted to identify potential release sites. As a result of these studies 172 release sites were identified. Environmental restoration accomplishments include the preparation of work plans for assessing the nature and extent of contamination at a significant number of potential or known release and disposal sites. The development of new technologies continues with the trial application of prototype sonic drilling surface geophysics and horizontal drilling methods. More information on contaminated media associated with environmental restoration activities is given in Chapter 2.

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WASTE

PROFILE

SHEETS

Sandia National Laboratories - New Mexico

SNL/NM-WPS-1

April 1993

ROADMAP TO WASTE PROFILE SHEETS (WPS)

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Waste Profile Sheets (WPS) have been compiled in this report for each of the mixed waste streams identified at the different DOE sites. Each WPS is a concise summary of the information required by the FFCAct-1992, with waste stream specific data primarily derived from the Waste Management Information System (WMIS) database. Each WPS consists of the following items:

Header: The information in the header in each WPS includes the State, the official name of the site, an identification number, an identifying waste stream name, the waste type, and the waste matrix. The identification number is either a number assigned by the WMIS database or a number assigned by the site. The waste stream name is a unique identifier which corresponds to the name used in the WMIS database, or is assigned by the site. The waste type is either HLW, MTRU, or MLLW. The waste matrix corresponds to the categories (or their further subdivisions) defined earlier based on the physical and chemical form of the waste.

Waste Stream Description and Source: This section of the WPS presents a short description of the source of the waste and the waste stream characteristics.

Inventory Table: The inventory table in each WPS reports the volume (m^3) and/or mass (kg) of each waste stream currently in storage, and projected to be generated in the next five years. The table also indicates the date assumed in calculating the current and projected inventories. As required by the FFCAct-1992, the table also differentiates between waste not subject to LDR and that subject to LDR for the current inventory.

Treatability Group: This section lists the name of the treatability group to which the waste stream belongs.

Treatment Status, Technology Status: This section of the WPS lists the status of the technology that could be applied to the waste stream for compliance with the LDR. This section provides information on if the waste stream is currently being treated, and if technology options and facilities for the treatment exist.

Radiation Characteristics Section: This section of the WPS provides additional information on the radiological characteristics of the waste (in addition to characterizing the waste stream as HLW, MTRU, or MLLW). This section of the WPS specifies whether the waste stream is contact handled or remote handled, if the radionuclides are alpha or beta/gamma emitters, and if they contain activation products.

Radiation Effects Section: As required by the FFCAct-1992, this section of the WPS lists possible effects of the radiological characteristics of the waste stream on treatment technologies that could be applicable to that waste stream. For example, radiation levels may require remote handling of the waste and affect the design and operation of the treatment facility. The presence of volatile radionuclides may require the containment of all off-gases from the treatment system.

Waste Minimization Activities: As required by the FFCAct-1992, this section of the WPS provides information on the waste minimization practices being used for the waste stream. This section provides information on if the waste minimization practices include good operating practices, technology changes, raw material changes, product changes, etc.

EPA Code: This table of the WPS reports the EPA hazardous waste codes applicable to the waste stream, the basis for assigning the codes (process knowledge or sampling/analysis), the LDR basis (which is either technology based or concentration based), and the BDAT for each of the EPA hazardous waste codes.

In summary, the WPS for each waste stream, along with the site sections in the report for each State (Section B), summarize the site-specific information required by the FFCAct-1992.

State: New Mexico | ID #: 0000002123
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: ER PROGRAM INVESTIGATION WASTE
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Waste is from Environmental Restoration (ER) Program investigation activities mandated by RCRA and include monitor well installations, soil boring, decon water, development and production water, personal protective equipment. Annual production is variable but the mixed waste fraction is estimated at 12.5 percent of the ER Program waste.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	-	0.230	-	0.230	-	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Organics and Metals w/ Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time. Treatment options have not been analyzed.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Radionuclides or radiation level unknown

Waste-Specific Radiation Effects on Treatment:

Radioactive contaminants could include: cadmium, cobalt, cesium, iridium, radium, thorium, uranium, activation products, depleted uranium, fission products, natural uranium. There may also be transuranic material.

Waste Minimization Activities:

1) Not Applicable.

ER Program subject to SNL/NM mixed waste generation moratorium. Wastes will be analyzed, segregated according to hazards. Advanced technologies will be applied to minimize generation of cuttings, etc.

State: New Mexico ID #: 0000002123
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: ER PROGRAM INVESTIGATION WASTE
Matrix: Other Waste Type: MLLW

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
D001B	Tech.	Deactivation
D001C	Tech.	Deactivation
D002A	Tech.	Deactivation
D002C	Tech.	Deactivation
D003A	Conc.	Chemical Oxidation followed by Alkaline Chlorination
D003B	Tech.	Deactivation
D003C	Tech.	Deactivation
D005	Conc.	Chemical Precipitation; or Stabilization
D006B	Conc.	Stabilization
D007	Conc.	Chemical Reduction followed by Stabilization
D008B	Conc.	Stabilization
D009D	Tech.	Amalgamation
D010	Conc.	Stabilization
D011	Conc.	Stabilization
D012	Conc.	Incineration
D013	Conc.	Incineration
D014	Conc.	Incineration
D015	Conc.	Incineration

State: New Mexico
ID #: 0000002123
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: ER PROGRAM INVESTIGATION WASTE
Matrix: Other
Waste Type: MLLW

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D018		Not currently prohibited under the LDR Program.
D019		Not currently prohibited under the LDR Program.
D022		Not currently prohibited under the LDR Program.
D035		Not currently prohibited under the LDR Program.
D039		Not currently prohibited under the LDR Program.
D040		Not currently prohibited under the LDR Program.
F001	Conc.	Incineration
F002	Conc.	Incineration
F003	Conc.	Incineration
F005A	Conc.	Incineration
F039	Conc.	Incineration; or Fuel Substitution (Organics) followed by Stabilization (Metals)

State: New Mexico | ID #: 0000002125

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: DECON DEBRIS AND SOAP

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Paper and soapy water (detergent), alcohol (assume methanol) contaminated with fission products. From Bldg. 6580, Room 112 [DR 890002-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.030	0.900	0.030	0.900	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Beta/gamma emitter
2) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Waste minimization activities unknown.

General Comments:

Cs-137.

State: New Mexico

ID #: 00000021~~45~~692

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: DECON DEBRIS AND SOAP

Matrix: Other

Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F003	Conc.	Incineration

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State: New Mexico **ID #: 0000002126**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: DECON DEBRIS

Matrix: Other **Waste Type: MLLW**

Waste Stream Description and Source:

Alcohol (assume methanol), acetone used in cleanup; decon debris; paper towels, gloves, etc., from cleanup of experiments; residue from experiments; used for cleaning aerosol experiment chamber; depleted uranium, tungsten, zirconium, copper aluminum; one HEPA filter. From Dynamic Heating Facility; Bldg. 865E, Room 13A. [DR 890006-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.200	9.0	0.200	9.0	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Waste minimization activities unknown.

General Comments:

Depleted U-238; activity unknown.

State: New Mexico
ID #: 0000002126
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: DECON DEBRIS
Matrix: Other
Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001B	Tech.	Deactivation
F003	Conc.	Incineration

State: New Mexico | ID #: 0000002127
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: CONTAMINATED EQUIPMENT
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
AlGaAs light emitting diodes in T046 electonic cans; neutron irradiated; cans consist of Fe, Ni, Co; gold wire and small amount of solder (assume lead). From Bldg. 891, Room 3435 [DR 890007-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.003	0.450	0.003	0.450	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Activation Products
2) Beta/gamma emitter
3) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:
1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.

Waste Minimization Activities:
Waste minimization activities unknown.

General Comments:
Neutron irratiated; fission products; Co-60.

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State: New Mexico

ID #: 0000002127

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other

Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D004	Conc.	Vitrification
D008C	Tech.	Macroencapsulation

State: New Mexico **ID #: 0000002128**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: DECON DEBRIS

Matrix: Other **Waste Type: MLLW**

Waste Stream Description and Source:

Solid waste from Sandia Pulsed Reactor facility (Bldg. 6591); plastic gloves, booties, bags, copper wire, steel conduit; trace lead from lead brick decon; may contain acetone, alcohol (assume methanol); electronic components. [DR 890008-1, DR 890009-1, DR 890010-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	15.6	235.9	15.6	235.9	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Organics and Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Beta/gamma emitter
2) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Waste minimization activities unknown.

General Comments:

Cs-137; fission products.

State: New Mexico
ID #: 0000002128
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: DECON DEBRIS
Matrix: Other
Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008B	Conc.	Stabilization
F003	Conc.	Incineration

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State: New Mexico **ID #: 0000002129**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: FILTERS AND PPE

Matrix: Other **Waste Type: MLLW**

Waste Stream Description and Source:

Sandia Pulsed Reactor (Bldg. 6591) exhaust system prefilters, associated booties, coveralls, may include acetone and methanol. [DR 890011-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.450	4.5	0.450	4.5	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Beta/gamma emitter
2) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Waste minimization activities unknown.

General Comments:

Cs-137; fission products.

State: New Mexico	**ID #: 0000002129**
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO	
Waste Stream Name: FILTERS AND PPE	
Matrix: Other	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F003	Conc.	Incineration

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State: New Mexico **ID #: 0000002130**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: SCINTILLATION COCKTAIL

Matrix: Organic Liquids **Waste Type: MLLW**

Waste Stream Description and Source:

Scintillation cocktail in glass vials; has tritium; 1,2,4 Trimethylbenzene. From Bldg. 823, Room 2096 [DR 890014-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.008	1.4	0.008	1.4	0.000	0.000

Treatability Group:

MLLW CH, Organic Liquids, Ignitable, Corrosive, or Reactive Only

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Volatile radionuclide

Waste-Specific Radiation Effects on Treatment:

1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Waste Minimization Activities:

Waste minimization activities unknown.

General Comments:

Tritium 10 mCi.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration

430

State: New Mexico | ID #: 0000002131
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: EXPERIMENTAL DEBRIS
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
46 bags of waste generated by routine Annular Core Research Reactor and Hot Cell Facility operations (Bldg. 6580 and 6588) [DR 890015-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	3.6	150.0	3.6	150.0	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Organics

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Beta/gamma emitter
2) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:
1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:
Waste minimization activities unknown.

General Comments:
Cs-137; fission products.

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State: New Mexico ID #: 0000002131

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: EXPERIMENTAL DEBRIS

Matrix: Other Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F003	Conc.	Incineration

State: New Mexico | ID #: 0000002132
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: CONTAMINATED EQUIPMENT
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
29 pieces of various Ga-As laser diodes; exposed to gamma, X-rays and neutrons. From Bldg. 891, Room 3061 [DR 890016-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.023	0.910	0.023	0.910	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Activation Products

Waste-Specific Radiation Effects on Treatment:
1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.

Waste Minimization Activities:
Waste minimization activities unknown.

General Comments:
Exposed to gamma, X-rays, and neutrons; induced activity.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D004	Conc.	Vitrification

State: New Mexico | ID #: 0000002133
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: DECON DEBRIS
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
From Sandia Pulsed Reactor (assume Bldg. 6591) [DR 890018-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.280	45.4	0.280	45.4	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Beta/gamma emitter
2) Activation Products

Waste-Specific Radiation Effects on Treatment:
1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.

Waste Minimization Activities:
Waste minimization activities unknown.

General Comments:
Cs-137; induced activity.

State: New Mexico ID #: 0000002133

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: DECON DEBRIS

Matrix: Other Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

State: New Mexico | ID #: 0000002134

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: FILTERS

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
14 filters from Sandia Pulsed Reactor (assume Bldg. 6591) [DR 890019-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.140	22.7	0.140	22.7	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Beta/gamma emitter
2) Activation Products

Waste-Specific Radiation Effects on Treatment:
1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.

Waste Minimization Activities:
Waste minimization activities unknown.

General Comments:
Cs-137; induced activity.

State: New Mexico	**ID #: 0000002134**
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO	
Waste Stream Name: FILTERS	
Matrix: Other	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D006B	Conc.	Stabilization

State: New Mexico	ID #: 0000002135
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO	
Waste Stream Name: DECON DEBRIS AND CONTAMINATED EQUIPMENT	
Matrix: Other	Waste Type: MLLW

Waste Stream Description and Source:
Target flakes, tritium contaminated debris; possible solvent used in decon (assumed to be methanol); copper gaskets and regular trash. From Bldg. 891, Room 1023 [DR 890020-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.060	9.1	0.060	9.1	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Organics

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Volatile radionuclide

Waste-Specific Radiation Effects on Treatment:
1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Waste Minimization Activities:
Waste minimization activities unknown.

General Comments:
Tritium.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F003	Conc.	Incineration

State: New Mexico ID #: 0000002136
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: DECON DEBRIS AND PPE
Matrix: Other Waste Type: MLLW

Waste Stream Description and Source:
Decon debris from cleaning instruments; alcohol (assume methanol); microwipes and gloves. From Bldg. 884, Room 11. [DR 890035-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	< 0.001	0.450	< 0.001	0.450	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Organics

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Volatile radionuclide

Waste-Specific Radiation Effects on Treatment:
1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Waste Minimization Activities:
Waste minimization activities unknown.

General Comments:
Tritium.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F003	Conc.	Incineration

State: New Mexico | ID #: 0000002137

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: DECON DEBRIS AND EXPERIMENTAL DEBRIS

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Cleanup debris from Annular Core Research Reactor; oils, alcohol (assume methanol), trace residue. Bldg. 6588, Room 10 [DR 890036-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	1.7	56.7	1.7	56.7	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Beta/gamma emitter
2) Activation Products

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.

Waste Minimization Activities:

Waste minimization activities unknown.

General Comments:

Cs-137; induced activity from ACRR operations.

State: New Mexico
ID #: 0000002137
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: DECON DEBRIS AND EXPERIMENTAL DEBRIS
Matrix: Other
Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001B	Tech.	Deactivation
F003	Conc.	Incineration

State: New Mexico | ID #: 0000002138

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: EXPERIMENTAL DEBRIS

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Waste from routine Hot Cell Facility operations (from PBCA and laser experiments). Trace alcohol residue (assume methanol). Bldg. 6580, Room 106, 112, 203. [DR 890037-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	1.7	54.4	1.7	54.4	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Beta/gamma emitter
2) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Waste minimization activities unknown.

General Comments:

Cs-137; fission products.

State: New Mexico | ID #: 0000002138

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: EXPERIMENTAL DEBRIS

Matrix: Other | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F003	Conc.	Incineration

4692

State: New Mexico | ID #: 0000002139

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: DECON DEBRIS

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Rags and paper absorbents used in decon with Freon-TF and alcohol (assume methanol). From Bldg. 983, High Bay, Pulsed Beam Fusion Accelerator [DR 890039-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	8.2	454.0	8.2	454.0	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Activation Products
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.

Waste Minimization Activities:

Waste minimization activities unknown.

General Comments:

Co-56, Co-57, Mn-54; induced activity.

State: New Mexico
ID #: 0000002139
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: DECON DEBRIS
Matrix: Other
Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F001	Conc.	Incineration
F003	Conc.	Incineration

State: New Mexico **ID #: 0000002140**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: HEPA FILTERS

Matrix: Other **Waste Type: MLLW**

Waste Stream Description and Source:

HEPA filters absorbed mixed fission products, uranium, beryllium, and proton-activated products. Solvents, principally Freon-TF. Assume Bldg. 983, High Bay, Pulsed Beam Fusion Accelerator. [DR 890040-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	1.4	45.4	1.4	45.4	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Activation Products
2) Other (explain in Comments section)
3) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:

1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.
2) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:

Mixed fission products, U-238, Zn-65, Mn-54, Co-56, Co-57.

State: New Mexico
ID #: 0000002140
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: HEPA FILTERS
Matrix: Other
Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F001	Conc.	Incineration
F003	Conc.	Incineration

4692

State: New Mexico	**ID #: 0000002141**
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO	
Waste Stream Name: NEUTRON GENERATOR TEST WASTE	
Matrix: Other	**Waste Type: MLLW**

Waste Stream Description and Source:

Paper, plastic, gloves used during neutron generator tests; ferroelectric power supplies; test hardware. From Bldg. 935, Room 1, Neutron Devices Lab. [DR 890052-1, DR 890053-1, and DR 890054-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.740	61.0	0.740	61.0	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Volatile radionuclide

Waste-Specific Radiation Effects on Treatment:

1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Waste Minimization Activities:

Unknown.

General Comments:

Tritium.

State: New Mexico | ID #: 0000002141

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: NEUTRON GENERATOR TEST WASTE

Matrix: Other | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003C	Tech.	Deactivation
D008C	Tech.	Macroencapsulation
D011	Conc.	Stabilization

State: New Mexico | ID #: 0000002142

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: VACUUM SYSTEM/CRUSHED ION SOURCE PARTS

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Ion source parts removed from a tritium contaminated vacuum system. A chrome film was deposited on an alumina substrate. From Bldg. 891, Room 1245 [DR 890067-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	< 0.001	0.020	< 0.001	0.020	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Volatile radionuclide

Waste-Specific Radiation Effects on Treatment:

1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Waste Minimization Activities:

Tritium Standard Operating Procedure 88220 8906, 6/16/89, emphasizing limiting creation of tritiated materials.

General Comments:

Tritium.

State: New Mexico | ID #: 0000002142

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: VACUUM SYSTEM/CRUSHED ION SOURCE PARTS

Matrix: Other | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D007	Conc.	Chemical Reduction followed by Stabilization

State: New Mexico | ID #: 0000002143

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: EXPERIMENTAL DEBRIS

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Polyacetylene sealed between glass slides with epoxy and contacting wires, neutron irradiated in Annular Core Research Reactor. From Bldg. 807, Room 3081, Optical Sensors Lab. [DR 890074-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.003	0.230	0.003	0.230	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Activation Products

Waste-Specific Radiation Effects on Treatment:
1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.

Waste Minimization Activities:
Unknown.

General Comments:
Induced activity.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

State: New Mexico **ID #: 0000002144**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: EXPERIMENTAL DEBRIS

Matrix: Other **Waste Type: MLLW**

Waste Stream Description and Source:

Possibly exposed to Hermes II, Annular Core Research Reactor, Sandia Pulsed Reactor, and TRIUMF (Canada). Materials include copper, gold, teflon, epoxy, fiberglass, polysulphone, conductive foam, kovar, steel, brass, silver plate, solder, beryllium, paper, glass, silicon, gallium arsenide. From Bldg. 858, Room 1144, Radiochemistry Lab. [DR 890083-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	< 0.001	2.3	< 0.001	2.3	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Other (explain in Comments section)
2) Activation Products

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.

Waste Minimization Activities:

Unknown.

General Comments:

Possibly exposed to reactors. Induced activity and fission products.

State: New Mexico
ID #: 0000002144
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: EXPERIMENTAL DEBRIS
Matrix: Other
Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D004	Conc.	Vitrification
D008C	Tech.	Macroencapsulation
D011	Conc.	Stabilization

State: New Mexico | ID #: 0000002145
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: CONTAMINATED EQUIPMENT
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
47 switch tubes (sealed glass) with lead solder and copper leads. From Bldg. 891, Room 3297. [DR 890085-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	< 0.001	0.230	< 0.001	0.230	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:
Unknown.

General Comments:
Ni-63.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

State: New Mexico **ID #: 0000002146**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other **Waste Type: MLLW**

Waste Stream Description and Source:
8 controllatron (bad), copper windings, lead solder. From Bldg. 891, Room 3297. [DR 890086-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.014	4.5	0.014	4.5	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

- **Radiation Characteristics:**
  1) Volatile radionuclide

Waste-Specific Radiation Effects on Treatment:
1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Waste Minimization Activities:
Unknown.

General Comments:
Tritium.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

State: New Mexico | ID #: 0000002147
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: EXPERIMENTAL EQUIPMENT
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Equipment exposed at Annular Core Research Reactor. Copper lands tinned with solder (assume lead), powdered iron, mica filled epoxy, oxides of manganese, cobolt and nickel with 50/50 lead/indium solder, copper wire, brass with nickel plating, copper clad epoxy glass boards, barium, titanate ceramic, brass, tin, bead filters in 3 packages. From Bldg. 891, Room 3025. [DR 890093-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	-	< 0.001	-	< 0.001	-	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Activation Products

Waste-Specific Radiation Effects on Treatment:
1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.

Waste Minimization Activities:
Unknown.

General Comments:
Induced activity.

State: New Mexico **ID #: 0000002147**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: EXPERIMENTAL EQUIPMENT

Matrix: Other **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

State: New Mexico | ID #: 0000002148

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: MACHINE PARTS

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Waste produced from refurbishing Pulsed Beam Fusion Accelerator machine parts. Contains Freon-TF. From Bldg. 983, High Bay, PBFA II. [DR 890101-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.570	36.3	0.570	36.3	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Beta/gamma emitter
2) Activation Products

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.

Waste Minimization Activities:

Unknown.

General Comments:

Induced activity. Mn-54, Co-57.

State: New Mexico **ID #: 0000002148**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: MACHINE PARTS

Matrix: Other **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F001	Conc.	Incineration

State: New Mexico | ID #: 0000002149

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: DECON RAGS

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Rags from Pulsed Beam Fusion Accelerator II (PBFA) material and euqipment decon. Freon used in the decon. From Bldg. 983, High Bay. [DR 890103-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	2.4	47.6	2.4	47.6	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Activation Products
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.

Waste Minimization Activities:

Unknown.

General Comments:

Co-58, Mn-54; induced activity.

State: New Mexico ID #: 0000002149

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: DECON RAGS

Matrix: Other Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F001	Conc.	Incineration

State: New Mexico | ID #: 0000002150

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: DECON RAGS

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Mostly rags from cleanup of Pulsed Beam Fusion Accelerator II (FBFA) using alcohol (assume methanol). From Bldg. 983, High Bay. [DR 890104-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	1.1	36.3	1.1	36.3	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Activation Products
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:

1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.
2) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:

Co-58, Mn-54. Induced activity.

State: New Mexico ID #: 0000002150

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: DECON RAGS

Matrix: Other Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F003	Conc.	Incineration

State: New Mexico | ID #: 0000002151
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: DECON PAPER AND RAGS
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Paper absorbents used in the cleanup of the Pulsed Beam Fusion Accelerator (PBFA) II. May contain some small metal debris. Freon used as solvent. From Bldg. 983, High Bay [DR 890106-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.850	23.6	0.850	23.6	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Organics

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Activation Products
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.
2) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:
Unknown.

General Comments:
Co-58, Mn-54. Induced activity.

4692

State: New Mexico	**ID #: 0000002151**
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO	
Waste Stream Name: DECON PAPER AND RAGS	
Matrix: Other	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F001	Conc.	Incineration

State: New Mexico | ID #: 0000002152
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: DECON PAPER
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Mostly wipes and decon waste using alcohol (assume methanol) from cleanup and decon of the Pulsed Beam Fusion Accelerator (PBFA) II parts. From Bldg. 983, High Bay [DR 890107-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.510	9.1	0.510	9.1	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Organics

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Activation Products
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.
2) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:
Unknown.

General Comments:
Co-57, Co-58, Mn-54. Induced activity.

State: New Mexico	**ID #: 0000002152**
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO	
Waste Stream Name: DECON PAPER	
Matrix: Other	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F003	Conc.	Incineration

State: New Mexico | ID #: 0000002153
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: DECON PAPER
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Mostly wipes and decon waste. Freon used as a solvent. From cleanup of Pulsed Beam Fusion Accelerator (PBFA) II parts. From Bldg. 983, High Bay [DR 890108-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	1.000	18.1	1.000	18.1	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Organics

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Activation Products
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.
2) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:
Unknown.

General Comments:
Co-57, Co-58, Mn-54. Induced activity.

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State: New Mexico **ID #: 0000002153**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: DECON PAPER

Matrix: Other **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F001	Conc.	Incineration

State: New Mexico | ID #: 0000002154
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: CONTAMINATED ION SOURCES (EXPER. EQUIP)
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Crushed ion sources. Materials include chrome, nickel, silver, and other metals, all in small quantities. From Bldg. 891, Room 1245. [DR 900011-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	< 0.001	0.230	< 0.001	0.230	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Volatile radionuclide

Waste-Specific Radiation Effects on Treatment:
1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Waste Minimization Activities:
SOP in place stresses need to reduce tritium use.

General Comments:
Tritium.

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State: New Mexico ID #: 0000002154

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED ION SOURCES (EXPER. EQUIP)

Matrix: Other Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D007	Conc.	Chemical Reduction followed by Stabilization
D011	Conc.	Stabilization

State: New Mexico | ID #: 0000002155

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Bearings, flourescent bulbs, and electrical cables, connectors and plugs containing mercury and lead solder. From Bldg. 6593 (Sandia Pulsed Reactor). [DR 900036-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.280	31.8	0.280	31.8	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/ Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:

Mixed fission products.

State: New Mexico **ID #: 0000002155**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation
D009C	Conc.	Thermal Recovery of Metals; Acid Leaching; Stabilization; or Incineration

State: New Mexico | ID #: 0000002156

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: EXPERIMENTAL DEBRIS

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Paper, plastic, possibly solder contaminated with alcohol (assume methanol). Generated during routine Sandia Pulsed Reactor (SPR) operations. From Bldg. 6593, SPR. [DR 900036-2]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	3.7	90.7	3.7	90.7	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Organics and Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:

Mixed fission products.

State: New Mexico **ID #: 0000002156**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: EXPERIMENTAL DEBRIS

Matrix: Other **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation
F003	Conc.	Incineration

State: New Mexico | ID #: 0000002157

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: MISC. SOLIDS

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Unknown solids containing beryllium, cadmium, lead, iridium, asbestos and uranium. From Bldg. 869, Toxic Shop. [DR 900041-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.200	2.7	0.200	2.7	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
Unknown.

General Comments:
Uranium. Unknown activity.

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State: New Mexico **ID #: 0000002157**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: MISC. SOLIDS

Matrix: Other **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D006B	Conc.	Stabilization
D008C	Tech.	Macroencapsulation

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State: New Mexico

ID #: 000002458 1092

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other

Waste Type: MLLW

Waste Stream Description and Source:

UTI brand sensor probe, displex cryopump and metal deuteride samples containing stainless steel, tungsten, nickel, copper beryllium alloy, copper, ThO2/Ir, phenolic linen, copper windings, lead, beryllium oxide and other metals and materials contaminated with tritium. From Bldg. 891, Room 2422. [DR 900047-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.060	29.5	0.060	29.5	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Volatile radionuclide
2) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Waste Minimization Activities:

Unknown.

General Comments:

Tritium, thorium.

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State: New Mexico	**ID #: 0000002158**
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO	
Waste Stream Name: CONTAMINATED EQUIPMENT	
Matrix: Other	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

State: New Mexico	ID #: 000000[illegible] 4692
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO	
Waste Stream Name: CONTAMINATED EQUIPMENT	
Matrix: Other	Waste Type: MLLW

Waste Stream Description and Source:

Electronic components, lead solder, light bulbs, various other metals, and cables. Contaminated with fission products. From Bldg. 6591, Sandia Pulsed Reactor (SPR). [DR 900060-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.110	36.3	0.110	36.3	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:

Mixed fission products.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

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State: New Mexico | ID #: 0000002160

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: DECON RAGS

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Rags soaked with alcohol (assume methanol), paint thinner and paint. From Bldg. 6591, Sandia Pulsed Reactor (SPR). [DR 900060-2]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.080	2.3	0.080	2.3	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:

Mixed fission products.

State: New Mexico **ID #: 0000002160**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: DECON RAGS

Matrix: Other **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001B	Tech.	Deactivation
F003	Conc.	Incineration

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State: New Mexico **ID #: 0000002161**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: EXPERIMENTAL DEBRIS AND COMPONENTS

Matrix: Other **Waste Type: MLLW**

Waste Stream Description and Source:

Orphan out-of-pile experiment package may contain thorium, metallic sodium, silver foil, copper, copper powder, gold/nickel braze, electric heater, type-K thermocouples. From Bldg. 6580. [DR 900061-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.030	45.6	0.030	45.6	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) Daughter products of alpha emitters may cause problems, i.e., production of radon gas, emissions from short-lived daughter products, and potential chemical incompatibility of daughter products.

Waste Minimization Activities:

Unknown.

General Comments:

Thorium and thorium daughters. Activity > than micro Ci.

State: New Mexico
ID #: 0000002161
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: EXPERIMENTAL DEBRIS AND COMPONENTS
Matrix: Other
Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003D	Tech.	Deactivation
D011	Conc.	Stabilization

State: New Mexico | ID #: 0000002162

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: HOT CELL FACILITY DEBRIS

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Paper towels, plastic bags, plastic gloves, booties, disposal lab coats, oil cloth that have or may have come in contact with organic solvents (ethanol, methanol, etc.). Normal waste generated in hot cell facility. Used to handle enriched U-235, mixed fission products, mixed activation products. From Bldg. 6580, Hot Cell Facility. [DR 900062-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.790	15.9	0.790	15.9	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Other (explain in Comments section)
2) Activation Products

Waste-Specific Radiation Effects on Treatment:

1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.
2) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:

Uranium, mixed fission products, mixed activation products.

State: New Mexico ID #: 0000002162

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: HOT CELL FACILITY DEBRIS

Matrix: Other Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F003	Conc.	Incineration

4692

State: New Mexico **ID #: 0000002163**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: EXPERIMENTAL WASTE

Matrix: Other **Waste Type: MLLW**

Waste Stream Description and Source:

A box of cadmium (cadmium sheet) from the Annular Core Research Reactor (ACRR). From Bldg. 6588, Room 10, ACRR. [DR 900063-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.030	34.0	0.030	34.0	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Activation Products

Waste-Specific Radiation Effects on Treatment:

1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.

Waste Minimization Activities:

1) Waste avoidance due to recycling/reuse: solvent, oil, and metals recycling; chemical exchange and reuse; and packaging material reuse.

General Comments:

Induced activity.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D006B	Conc.	Stabilization

State: New Mexico | ID #: 0000002164

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EXPERIMENTAL COMPONENT

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Electronic circuit activated in a neutron exposure at Sandia Pulsed Reactor III. From Bldg. 807, Room 2123. [DR 900097-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	-	< 0.001	-	< 0.001	-	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Unknown.

General Comments:

Alpha contamination, activity unknown.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

State: New Mexico | ID #: 0000002165

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: THERMAL BATTERIES

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Thermal Li-Si pen battery. Trace H2, CO, CH4 and H2S. Activated at Nevada Test Site underground test. From Bldg. 894, Room 138, Battery Development Dry Room [DR 900104-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.030	11.3	0.030	11.3	0.000	0.000

Treatability Group:

MLLW CH, Other, Ignitable, Corrosive, or Reactive Only

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Activation Products

Waste-Specific Radiation Effects on Treatment:

1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.

Waste Minimization Activities:

Unknown.

General Comments:

Activated in Nevada Test Site underground test.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003D	Tech.	Deactivation

State: New Mexico	ID #: 0000002166
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO	
Waste Stream Name: METAL SAMPLES	
Matrix: Other	Waste Type: MLLW

Waste Stream Description and Source:
Uranium iron alloys, UO2, PbTiO3 and uranium. From Bldg. 808, Room 7. [DR 900118-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.003	0.570	0.003	0.570	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
Unknown.

General Comments:
Uranium metal, radionuclides and activity unknown.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

State: New Mexico | ID #: 0000002167

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Switch tubes from TC 1004 fireset. Tubes are mounted on a portion of circuit board which includes electronic components, solder (assume lead), and epoxy. From Bldg. 962, Room 4460. [DR 900119-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	< 0.001	0.110	< 0.001	0.110	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Activation Products
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:

1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.
2) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:

Ni-63. Induced activity.

State: New Mexico **ID #: 0000002167**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

State: New Mexico | ID #: 0000002168

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Sprytron tube assemblies containing spark gap tubes which incorporate Ni-63. These assemblies also contain epoxy, electronic wiring, and solder (assume lead). From Bldg. 962, Room 3063, Neutron Generator Lab. [DR 900128-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	< 0.001	0.110	< 0.001	0.110	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Activation Products
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:

1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.
2) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:

Ni-63; induced activity.

State: New Mexico ID #: 0000002168
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: CONTAMINATED EQUIPMENT
Matrix: Other Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

State: New Mexico | ID #: 0000002169

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Firesets. Each containing one spark gap tube which is potted in glass microballoon epoxy. Also contains electronic circuits, PC boards, and solder (assume lead). From Bldg. 962, Room 3063, Neutron Generator Lab. [DR 900128-2]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.006	6.8	0.006	6.8	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Activation Products
2) Beta/gamma emitter
3) Volatile radionuclide

Waste-Specific Radiation Effects on Treatment:

1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.
2) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
3) Treatment must consider radioactive off-gases to protect the public and treatment facility personnel from releases.

Waste Minimization Activities:

Unknown.

State: New Mexico | ID #: 0000002169

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other | Waste Type: MLLW

General Comments:
Kr-85. Induced activity.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008B	Conc.	Stabilization

State: New Mexico | ID #: 0000002170

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Firesets. Each fireset contains one spark gap tube that is potted in glass microballoon epoxy. Firesets contain electronic circuits, PC boards, and solder (assume lead). From Bldg. 962, Room 3063, Neutron Generator Lab. [DR 900128-3]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.026	34.0	0.026	34.0	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Activation Products
2) Beta/gamma emitter
3) Volatile radionuclide

Waste-Specific Radiation Effects on Treatment:

1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.
2) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
3) Treatment must consider radioactive off-gases to protect the public and treatment facility personnel from releases.

Waste Minimization Activities:

Unknown.

State: New Mexico **ID #: 0000002170**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other **Waste Type: MLLW**

General Comments:
Kr-85. Induced activity.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

State: New Mexico | ID #: 0000002171

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: DECON DEBRIS AND EXPERIMENTAL DEBRIS

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Ferroelectric power supply, tube parts, decon materials, test parapheralia, test debris. From Bldg. 935, Room 1, Neutron Devices Lab. [DR 900131-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.570	36.3	0.570	36.3	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Volatile radionuclide

Waste-Specific Radiation Effects on Treatment:

1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Waste Minimization Activities:

Unknown.

General Comments:

Tritium.

State: New Mexico ID #: 0000002171
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: DECON DEBRIS AND EXPERIMENTAL DEBRIS
Matrix: Other Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003C	Tech.	Deactivation
D008C	Tech.	Macroencapsulation
D011	Conc.	Stabilization

State: New Mexico | ID #: 0000002172
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: COMBUSTIBLES
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Alcohol (assumed methanol). No other information available. From Bldg. 891, Room 1023, TOF. [DR 900144-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.030	2.3	0.030	2.3	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Organics

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Volatile radionuclide

Waste-Specific Radiation Effects on Treatment:
1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Waste Minimization Activities:
Unknown.

General Comments:
Tritium.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F003	Conc.	Incineration

State: New Mexico | ID #: 0000002173

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: DECON RAGS

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Alcohol (assume methanol), solvent, and oil-soaked rags. Mixed fission products. From Bldg. 6590, Shed #2, Sandia Pulsed Reactor (SPR). [DR 900154-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.230	2.3	0.230	2.3	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:

Mixed fission products.

State: New Mexico **ID #: 0000002173**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: DECON RAGS

Matrix: Other **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001B	Tech.	Deactivation
F003	Conc.	Incineration

State: New Mexico | ID #: 0000002174
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: NEUTRON GENERATOR
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Neutron generator. From Bldg. 935, Room 1, Neutron Devices Lab. [DR 900174-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.060	9.1	0.060	9.1	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Volatile radionuclide

Waste-Specific Radiation Effects on Treatment:
1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Waste Minimization Activities:
Unknown.

General Comments:
Tritium.

State: New Mexico **ID #: 0000002174**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: NEUTRON GENERATOR

Matrix: Other **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003C	Tech.	Deactivation
D008C	Tech.	Macroencapsulation
D011	Conc.	Stabilization

State: New Mexico | ID #: 0000002175
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: CONTAMINATED EQUIPMENT
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Radiation monitors from Three Mile Island. From Bldg. 891, Room 4424. [DR 900179-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.030	0.680	0.030	0.680	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Activation Products

Waste-Specific Radiation Effects on Treatment:
1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.

Waste Minimization Activities:
Unknown.

General Comments:
Unknown activation products.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

State: New Mexico **ID #: 0000002176**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other **Waste Type: MLLW**

Waste Stream Description and Source:

Activated electric stage from proton source Sandia Pulsed Reactor (SPR) III. From Bldg. 858, Room 1144. [DR 900186-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.006	2.3	0.006	2.3	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Activation Products
2) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.
2) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:

Unknown activation products; mixed fission products.

State: New Mexico | ID #: 0000002176

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

State: New Mexico | ID #: 0000002177

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: PERSONAL PROTECTIVE EQUIPMENT

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Latex gloves and plastic bags used in handling Cf-252 source. From Bldg. 858, Room 1144. [DR 900186-2]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.060	4.5	0.060	4.5	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Radionuclides or radiation level unknown
2) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
Unknown.

General Comments:
Cf-252 activity unknown; mixed fission products.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008B	Conc.	Stabilization

State: New Mexico | ID #: 0000002178

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Diodes and transistors and other radioactive electronic parts irradiated at the Sandia Pulsed Reactor II or Annular Core Research Reactor. From Bldg. 858, Room 1144. [DR 900186-3]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	-	0.014	-	0.014	-	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Activation Products
2) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.
2) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:

Unknown activation products; mixed fission products.

State: New Mexico **ID #: 0000002178**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

State: New Mexico | ID #: 0000002179
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: DECON DEBRIS
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Mostly wipes and rags from cleaning and deconning the Pulsed Beam Fusion Accelerator II parts. Freon used as solvent. From Bldg. 983, High Bay. [DR 900301-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	1.4	29.5	1.4	29.5	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Organics

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Activation Products
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.
2) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:
Unknown.

General Comments:
Co-57, Co-58, Mn-54 are the principal long-lived isotopes; induced activity.

State: New Mexico ID #: 0000002179
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: DECON DEBRIS
Matrix: Other Waste Type: MLLW

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F001	Conc.	Incineration

State: New Mexico | ID #: 0000002180
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: DECON DEBRIS
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Mostly wipes and anti-C's from cleanup and handling of Pulsed Beam Fusion Accelerator (PBFA) II parts. Freon used as solvents. From Bldg. 893, PBFA-II. [DR 900302-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	3.2	68.0	3.2	68.0	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Organics

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Activation Products
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.
2) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:
Unknown.

General Comments:
Be-7, Co-56, Co-57, Mn-54; induced activity.

State: New Mexico ID #: 0000002180

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: DECON DEBRIS

Matrix: Other Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F001	Conc.	Incineration

State: New Mexico | ID #: 0000002181
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: DECON DEBRIS
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Decon debris from cleanup and decon of Pulsed Beam Fusion Accelerator II parts. From Bldg. 983, High Bay. [DR 900309-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	1.8	79.4	1.8	79.4	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Organics

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Beta/gamma emitter
2) Activation Products

Waste-Specific Radiation Effects on Treatment:
1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.
2) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:
Unknown.

General Comments:
Co-56, Co-57, Co-58, Mn-54; induced activity.

State: New Mexico ID #: 0000002181

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: DECON DEBRIS

Matrix: Other Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F001	Conc.	Incineration

State: New Mexico | ID #: 0000002182
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: DECON DEBRIS
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Decon debris (wipes, absorbents, anti-C gear); Freon used as solvent to clean Pulsed Beam Fusion Accelerator (PBFA) II parts. From Bldg. 983, PBFA. [DR 900312-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.540	11.3	0.540	11.3	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Organics

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:
Unknown.

General Comments:
Co-56, Co-57, Co-58, Mn-54.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F001	Conc.	Incineration

State: New Mexico | ID #: 0000002183
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: DECON DEBRIS
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Gloves, rags, smocks contaminated with alcohol (assume methanol). Tritium contaminated at low levels. Used for working with metal tritides. From Bldg. 891, Room 1023. [DR 910015-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.060	2.3	0.060	2.3	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Organics

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Volatile radionuclide

Waste-Specific Radiation Effects on Treatment:
1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Waste Minimization Activities:
Unknown.

General Comments:
Tritium.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F003	Conc.	Incineration

State: New Mexico | ID #: 0000002184
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: DECON DEBRIS
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Decon debris including barbeque cloth, towels, lab coats, cloves, petri dishes, plastic containers, tape, wiring and filter debris. Contaminated with methanol, ethanol, acetone. From Bldg. 6580, Rooms 105 (Scanning Electron Microscope), 106 (Hood), and 112 (Hood and Glove Box Line). [DR 910017-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.420	9.1	0.420	9.1	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Organics

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Other (explain in Comments section)
2) Activation Products
3) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.

Waste Minimization Activities:
Unknown.

General Comments:
Contaminated by mixed fission and activation products, U and enriched U and irradiated reactor fuel. Mainly Cs-137.

State: New Mexico **ID #: 0000002184**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: DECON DEBRIS

Matrix: Other **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F003	Conc.	Incineration

State: New Mexico | ID #: 0000002185
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: LEAD PARTS
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Lead metal blocks and sheets contaminated with small amounts of U-235. From Bldg. 6580, Room 203. [DR 910021-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.003	31.8	0.003	31.8	0.000	0.000

Treatability Group:
MLLW CH/AL, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Alpha emitter, 10-100 nCi/g

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
Unknown.

General Comments:
U-235.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

State: New Mexico
ID #: 0000002186
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: LEAD PARTS
Matrix: Other
Waste Type: MLLW

Waste Stream Description and Source:
U-238 chips used with hydrogen lamps contained in lead-lined box. Bldg. 893, Room 23 [DR 910035-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	-	< 0.001	-	< 0.001	-	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
Unknown.

General Comments:
U-238; activity > 1 uCi.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

State: New Mexico
ID #: 0000002187
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: CONTAMINATED EQUIPMENT
Matrix: Other
Waste Type: MLLW

Waste Stream Description and Source:
Irradiated electronic components and cables. From Bldg. 860. [DR 910041-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.008	0.230	0.008	0.230	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Other (explain in Comments section)
2) Activation Products

Waste-Specific Radiation Effects on Treatment:
1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.

Waste Minimization Activities:
Unknown.

General Comments:
Mixed fission products. Irradiated.

State: New Mexico | ID #: 0000002187

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

State: New Mexico | ID #: 0000002188
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: DECON DEBRIS
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Very small pieces of Cm-244 on methanol- contaminated paper and Q-tips. From Bldg. 805, Room 213, Neutron and Alpha Radiation Lab. [DR 910048-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.003	0.230	0.003	0.230	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Organics

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
Unknown.

General Comments:
Cm-244; activity less than 0.1 nCi; alpha activity.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001B	Tech.	Deactivation
F003	Conc.	Incineration

State: New Mexico	**ID #: 0000002189**
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO	
Waste Stream Name: DECON DEBRIS	
Matrix: Other	**Waste Type: MLLW**

Waste Stream Description and Source:

Ferroelectric power supply and decon debris. Contaminated with tritium. From Bldg. 935, Room 6, Neutron Devices Lab. [DR 910065-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.080	22.3	0.080	22.3	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Volatile radionuclide

Waste-Specific Radiation Effects on Treatment:

1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Waste Minimization Activities:

Unknown.

General Comments:

Tritium.

State: New Mexico **ID #: 0000002189**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: DECON DEBRIS

Matrix: Other **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003C	Tech.	Deactivation
D008C	Tech.	Macroencapsulation
D011	Conc.	Stabilization

State: New Mexico | ID #: 0000002190

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: BATTERIES

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Equipment containing lithium battery, lead solder, exposed to neutrons. From Bldg. 809, Low Bay. [DR 910067-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.020	11.1	0.020	11.1	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Other (explain in Comments section)
2) Activation Products

Waste-Specific Radiation Effects on Treatment:

1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.
2) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:

Mixed fission product and induced activity.

State: New Mexico ID #: 0000002190
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: BATTERIES
Matrix: Other Waste Type: MLLW

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003D	Tech.	Deactivation
D008C	Tech.	Macroencapsulation

4692

State: New Mexico | ID #: 0000002191

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: DECON DEBRIS AND RAGS

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Rags with radwash and trichlorethane, plastic tube and rags with hydraulic oil used to clean and decon experiments. From Bldg. 6590. [DR 910093-1, DR 910093-2]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.140	2.7	0.140	2.7	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:

Mixed fission products.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F001	Conc.	Incineration

State: New Mexico | ID #: 0000002192

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT AND BATTERIES

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Alkaline batteries; mercury batteries; TV cameras, electrical connectors, power supply, flood light, solenoid, and VOM containing solder (assume lead); vacuum tubes; cadmium sheet; copper tubing; baling wire. Irradiated inside Kiva. From Bldg. 6590. [DR 910095-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.140	22.7	0.140	22.7	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/ Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Other (explain in Comments section)
2) Activation Products

Waste-Specific Radiation Effects on Treatment:

1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.
2) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:

Mixed fission products; induced activity.

4692

State: New Mexico **ID #: 0000002192**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT AND BATTERIES

Matrix: Other **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002C	Tech.	Deactivation
D006B	Conc.	Stabilization
D008C	Tech.	Macroencapsulation
D009C	Conc.	Thermal Recovery of Metals; Acid Leaching; Stabilization; or Incineration

State: New Mexico | ID #: 0000002193
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: DECON DEBRIS
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Ethanol and acetone contaminated paper towels, gloves, rags used to handle irradiated sulfur pellets and to decon equipment. From Bldg. 6591, Room 2A. [DR 910097-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	2.1	0.030	0.230	0.030	2.3	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Organics

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Activation Products
2) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:
1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.
2) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:
Unknown.

General Comments:
S-36, mixed fission products, induced activity.

State: New Mexico **ID #: 0000002193**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: DECON DEBRIS

Matrix: Other **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001B	Tech.	Deactivation
F003	Conc.	Incineration

State: New Mexico | ID #: 0000002194

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED OIL, EQUIPMENT, AND LIQUIDS

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Tennymite temperature and altitude chamber. Has Freon-13, Freon-22, vacuum pump oil, mercury, absolute pressure gauge. Tritium contaminated. From Bldg. 935, Room 2, Neutron Generator Test Lab. [DR 910103-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.930	226.8	0.930	226.8	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Organics and Metals w/ Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Volatile radionuclide

Waste-Specific Radiation Effects on Treatment:

1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Waste Minimization Activities:

Unknown.

General Comments:

Tritium.

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State: New Mexico ID #: 0000002194

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED OIL, EQUIPMENT, AND LIQUIDS

Matrix: Other Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D009D	Tech.	Amalgamation
F001	Conc.	Incineration

State: New Mexico | ID #: 0000002195
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: WASTE SOLUTION
Matrix: Aqueous Liquid | Waste Type: MLLW

Waste Stream Description and Source:
Depleted U dissolved in electro polishing solution of perchloric acid, methanol, butyl cellosolve, water. From Bldg. 805, Room 117, Transmitting Electron Microscope Lab. [DR 910106-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	-	0.008	-	0.008	-	0.000	0.000

Treatability Group:
MLLW CH, Aqueous Liquid, Toxic Organics

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
Unknown.

General Comments:
U-238, unknown activity.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002A	Tech.	Deactivation
F003	Conc.	Incineration

4692

State: New Mexico **ID #: 0000002196**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: MACHINING WASTE

Matrix: Other **Waste Type: MLLW**

Waste Stream Description and Source:
U turnings, may have beryllium in it. From Bldg. 869, Toxic Machine Shop. [DR 910109-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.710	317.0	0.710	317.0	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
Unknown.

General Comments:
U-238, activity uncertain.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

State: New Mexico | ID #: 0000002197
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: URANIUM DEUTERIDE POWDER
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Uranium deuteride powder prepared at Lawrence Livermore National Laboratory. From Bldg. 865E, Room 11, Reaction Kinetics Lab [DR 910110-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	< 0.001	0.009	< 0.001	0.009	0.000	0.000

Treatability Group:
MLLW CH, Other, Ignitable, Corrosive, or Reactive Only

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
Unknown.

General Comments:
Depleted U, activity >1 uCi.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003E	Tech.	Deactivation

State: New Mexico | ID #: 0000002198

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: EXPERIMENT REMNANT/LITHIUM HYDRIDE

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Lithium hydride contaminated with trace depleted U-238. From Bldg. 892, Room 133 and Bldg. 819, High Bay. [DR 910113-1 and DR 910113-2]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.510	80.1	0.510	80.1	0.000	0.000

Treatability Group:
MLLW CH, Other

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
Unknown.

General Comments:
U-238.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001E	Tech.	Deactivation
D003D	Tech.	Deactivation

State: New Mexico | ID #: 0000002199

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Neutron activated coaxial cable and thermocouple wire. Coaxial cable and connectors may contain some silver. Thermocouple wire probably does not contain chrome-containing alloy. Exposed to radiation and neutrons in core access tube of Annular Core Research Reactor (ACRR). From Bldg. 807, Room 1019. [DR 910115-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.008	4.5	0.008	4.5	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Other (explain in Comments section)
2) Activation Products

Waste-Specific Radiation Effects on Treatment:

1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.

Waste Minimization Activities:

Unknown.

General Comments:

Radiation characteristics unknown; induced activity.

State: New Mexico ID #: 0000002199

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D011	Conc.	Stabilization

State: New Mexico | ID #: 0000002200
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: EXPERIMENT REMNANT
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Small ingots and particles of uranium hydride prepared at Lawrence Livermore National Laboratory. From Bldg. 865E, Room 11, Reaction Kinetics Lab. [DR 910124-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	< 0.001	0.027	< 0.001	0.027	0.000	0.000

Treatability Group:
MLLW CH, Other

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
Unknown.

General Comments:
Depleted U.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001E	Tech.	Deactivation
D003E	Tech.	Deactivation

State: New Mexico | ID #: 0000002201
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: CONTAMINATED EQUIPMENT
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Spark gap (electrodes) consisting of a glass envelope with metal end caps that could contain lead or silver. From Bldg. 891, Room 1003, Special Applications Lab. [DR 910141-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	< 0.001	0.028	< 0.001	0.028	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:
Unknown.

General Comments:
Cs-137.

State: New Mexico
ID #: 0000002201
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: CONTAMINATED EQUIPMENT
Matrix: Other
Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation
D011	Conc.	Stabilization

State: New Mexico	ID #: 0000002202
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO	
Waste Stream Name: EXPERIMENT REMNANT	
Matrix: Other	Waste Type: MLLW

Waste Stream Description and Source:
Mixture of depleted uranium and thermite on magnesium oxide substrate. From Area Y, Bldg. 9926 [DR 910151-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	< 0.001	0.940	< 0.001	0.940	0.000	0.000

Treatability Group:
MLLW CH, Other, Ignitable, Corrosive, or Reactive Only

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
Unknown.

General Comments:
Depleted uranium.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003E	Tech.	Deactivation

State: New Mexico
ID #: 0000002204
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: CONTAMINATED OIL AND VACUUM PUMP
Matrix: Other
Waste Type: MLLW

Waste Stream Description and Source:
Oil and vacuum pump slightly contaminated by tritium; no PCBs. From Bldg. 935, Room 1, Neutron Generator Test Facility. [DR 910154-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.710	113.4	0.710	113.4	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Volatile radionuclide

Waste-Specific Radiation Effects on Treatment:
1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Waste Minimization Activities:

Unknown.

General Comments:
Tritium.

4692

State: New Mexico	**ID #: 0000002204**
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO	
Waste Stream Name: CONTAMINATED OIL AND VACUUM PUMP	
Matrix: Other	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D006B	Conc.	Stabilization
D008C	Tech.	Macroencapsulation

State: New Mexico | ID #: 0000002205
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: NEUTRON GENERATOR
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Controllatron - electronic neutron generator. Device was loaded with approx. 10 Ci in it. Tritium contamination. From MO 116, Room 1, Neutron Generator Test Facility [DR 910156-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.060	3.6	0.060	3.6	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Volatile radionuclide

Waste-Specific Radiation Effects on Treatment:
1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Waste Minimization Activities:

Unknown.

General Comments:
Tritium.

State: New Mexico	**ID #: 0000002205**
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO	
Waste Stream Name: NEUTRON GENERATOR	
Matrix: Other	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003C	Tech.	Deactivation
D008C	Tech.	Macroencapsulation
D011	Conc.	Stabilization

State: New Mexico
ID #: 0000002206
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: BATTERIES
Matrix: Other
Waste Type: MLLW

Waste Stream Description and Source:
Silver-zinc batteries; Na-22. From Bldg. 906. [DR 910171-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.030	15.9	0.030	15.9	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:
Na-22.

State: New Mexico
ID #: 0000002206
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: BATTERIES
Matrix: Other
Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002C	Tech.	Deactivation
D011	Conc.	Stabilization

State: New Mexico | ID #: 0000002207

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: BATTERIES

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Irradiated silver-zinc batteries. From Bldg. 906. [DR 910172-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.110	6.8	0.110	6.8	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Activation Products

Waste-Specific Radiation Effects on Treatment:
1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.

Waste Minimization Activities:

Unknown.

General Comments:
Na-22; induced activity.

State: New Mexico
ID #: 0000002207
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: BATTERIES
Matrix: Other
Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002C	Tech.	Deactivation
D011	Conc.	Stabilization

State: New Mexico | ID #: 0000002208

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Activation foils - cadmium covers. U-235 contamination, induced activity. From Bldg. 6588, Room 10, Annular Core Research Reactor (ACRR). [DR 910193-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.006	1.8	0.006	1.8	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Activation Products
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.

Waste Minimization Activities:

Unknown.

General Comments:

U-235 and induced activity.

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State: New Mexico	**ID #: 0000002208**
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO	
Waste Stream Name: CONTAMINATED EQUIPMENT	
Matrix: Other	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D006B	Conc.	Stabilization

State: New Mexico
ID #: 0000002209
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: NEUTRON GENERATORS
Matrix: Other
Waste Type: MLLW

Waste Stream Description and Source:
33 neutron generators. Tritium contamination. From Bldg. 809, Low Bay, Electronic Test Lab. [DR 910198-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.110	34.7	0.110	34.7	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Volatile radionuclide

Waste-Specific Radiation Effects on Treatment:
1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Waste Minimization Activities:

Unknown.

General Comments:
Tritium; 3200 mCi.

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State: New Mexico

ID #: 0000002209

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: NEUTRON GENERATORS

Matrix: Other

Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003C	Tech.	Deactivation
D008C	Tech.	Macroencapsulation
D011	Conc.	Stabilization

State: New Mexico
ID #: 0000002210
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: BATTERIES
Matrix: Other
Waste Type: MLLW

Waste Stream Description and Source:
Lithium silicon/iron disulfide thermal batteries. In sealed stainless steel containers. From Bldg. 835, Room 8, W88 Lab. [DR 910223-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	< 0.001	1.1	< 0.001	1.1	0.000	0.000

Treatability Group:
MLLW CH, Other, Ignitable, Corrosive, or Reactive Only

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Activation Products
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.
2) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:
Primarily Co-60; induced activity.

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State: New Mexico | ID #: 0000002210

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: BATTERIES

Matrix: Other | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003D	Tech.	Deactivation

State: New Mexico | ID #: 0000002211
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: CONTAMINATED EQUIPMENT
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Aluminum chassis, electronic component boards, miscellaneous electronic components (e.g., transisitors) having lead solder. From Bldg. 807, Room 3125. [DR 910240-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.014	1.5	0.014	1.5	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Activation Products

Waste-Specific Radiation Effects on Treatment:
1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.

Waste Minimization Activities:

Unknown.

General Comments:
Induced activity.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

4692

State: New Mexico ID #: 0000002212

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other Waste Type: MLLW

Waste Stream Description and Source:

Circuit board, electronic semiconductor, and passive components, ceramic and metal circuit packages, oscillator clock in potting with lead solder exposed at Sandia Pulsed Reactor GIF and HERMES III. From Bldg. 891, Room B54, Oscillator Development Lab. [DR 910244-1 and DR 910245-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.030	1.9	0.030	1.9	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Activation Products

Waste-Specific Radiation Effects on Treatment:

1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.

Waste Minimization Activities:

Unknown.

General Comments:

Induced activity.

State: New Mexico | ID #: 0000002212
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: CONTAMINATED EQUIPMENT
Matrix: Other | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

State: New Mexico | ID #: 0000002213
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: DECON DEBRIS
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Decon debris possibly from cleanup involving neutron generators; tritium contamination. From Bldg. 935, Room 6, Neutron Generator Lab. [DR 910254-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.060	1.4	0.060	1.4	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Volatile radionuclide

Waste-Specific Radiation Effects on Treatment:
1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Waste Minimization Activities:

Unknown.

General Comments:
Tritium.

State: New Mexico ID #: 0000002213

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: DECON DEBRIS

Matrix: Other Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003C	Tech.	Deactivation
D008B	Conc.	Stabilization
D011	Conc.	Stabilization

State: New Mexico	**ID #: 0000002214**
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO	
Waste Stream Name: NEUTRON GENERATOR SHAPES	
Matrix: Other	**Waste Type: MLLW**

Waste Stream Description and Source:

Two neutron generator shapes with tritium contamination. From Bldg. 935, Room 6, Neutron Generator Lab. [DR 910255-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.030	2.3	0.030	2.3	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Volatile radionuclide

Waste-Specific Radiation Effects on Treatment:

1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Waste Minimization Activities:

Unknown.

General Comments:

Tritium.

State: New Mexico ID #: 0000002214
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: NEUTRON GENERATOR SHAPES
Matrix: Other Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003C	Tech.	Deactivation
D008C	Tech.	Macroencapsulation
D011	Conc.	Stabilization

State: New Mexico | ID #: 0000002215

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: BATTERIES

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Thermal batteries. From Bldg. 880, Room B4. [DR 910260-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.014	2.3	0.014	2.3	0.000	0.000

Treatability Group:

MLLW CH, Other, Ignitable, Corrosive, or Reactive Only

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Activation Products
2) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.
2) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:

Induced activity, mixed fission products.

State: New Mexico	**ID #: 0000002215**
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO	
Waste Stream Name: BATTERIES	
Matrix: Other	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003D	Tech.	Deactivation

4692

State: New Mexico | ID #: 0000002216

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Neutron generator electron tube with Ni-63. Do not know if unit contains explosive components. From Bldg. 957. [DR 910261-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	-	0.030	-	0.030	-	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Other (explain in Comments section)
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:

Ni-63. Unclear if activated.

State: New Mexico | ID #: 0000002216
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: CONTAMINATED EQUIPMENT
Matrix: Other | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D006B	Conc.	Stabilization
D008C	Tech.	Macroencapsulation

State: New Mexico | ID #: 0000002217

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Neutron generator electron tube with Co-60. Not known if explosive components are present. From Bldg. 957 [DR 910261-2]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	-	0.030	-	0.030	-	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Other (explain in Comments section)
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown, legacy waste.

General Comments:

Co-60. Activation unclear.

State: New Mexico | ID #: 0000002217

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D006B	Conc.	Stabilization
D008C	Tech.	Macroencapsulation

4692

State: New Mexico | ID #: 0000002218

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: NEUTRON GENERATORS AND CONTAM'D EQUIP

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Neutron generators (electronic type) and contaminated equipment. Tritium contamination. Bldg. 957. [DR 910262-1, DR 910262-2, DR 910262-11, DR 910264-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	-	0.030	-	0.030	-	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Volatile radionuclide

Waste-Specific Radiation Effects on Treatment:

1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Waste Minimization Activities:

Unknown, legacy waste.

General Comments:

Tritium.

State: New Mexico | ID #: 0000002218
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: NEUTRON GENERATORS AND CONTAM'D EQUIP
Matrix: Other | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D006B	Conc.	Stabilization
D008C	Tech.	Macroencapsulation

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State: New Mexico | ID #: 0000002219

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: NEUTRON GENERATORS AND CONTAM'D EQUIP.

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Neutron generator subassembly (ferroelectric type). Tritium contamination. Unknown if material has live explosive detonator. From Bldg. 957. [DR 910262-3]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	-	0.002	-	0.002	-	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Volatile radionuclide

Waste-Specific Radiation Effects on Treatment:

1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Waste Minimization Activities:

Unknown; legacy waste.

General Comments:

Tritium.

State: New Mexico ID #: 0000002219

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: NEUTRON GENERATORS AND CONTAM'D EQUIP.

Matrix: Other Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D006B	Conc.	Stabilization
D008C	Tech.	Macroencapsulation

State: New Mexico | ID #: 0000002220
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: CONTAMINATED EQUIPMENT
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Voltage chopper - converter with four electron tubes with Ni-63. From Bldg. 957. [DR 910262-4]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	-	0.003	-	0.003	-	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown; legacy waste.

General Comments:
Ni-63. Activation unclear.

State: New Mexico **ID #: 0000002220**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D006B	Conc.	Stabilization
D008C	Tech.	Macroencapsulation

State: New Mexico | ID #: 0000002221

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Converter and trigger circuit or fireset with embedded electron tubes. Do not know if units have explosive components. From Bldg. 957. [DR 910262-5, DR 910262-6, DR 910262-7, DR 910262-8, DR 910262-10, DR 910262-12]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	-	0.100	-	0.100	-	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown; legacy waste.

General Comments:

Ni-63. Activation unclear.

State: New Mexico
ID #: 0000002221
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: CONTAMINATED EQUIPMENT
Matrix: Other
Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D006B	Conc.	Stabilization
D008C	Tech.	Macroencapsulation

State: New Mexico | ID #: 0000002222

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Fireset (electronic assembly encapsulated in rigid potting material) with embedded spark gap tube. Do not know if fireset has explosive subcomponents. From Bldg. 957. [DR 910262-9]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	-	0.002	-	0.002	-	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown; legacy waste.

General Comments:

Kr-85. Activation unclear.

State: New Mexico
ID #: 0000002222
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: CONTAMINATED EQUIPMENT
Matrix: Other
Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D006B	Conc.	Stabilization
D008C	Tech.	Macroencapsulation

State: New Mexico
ID #: 0000002223
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: METAL POWDERS
Matrix: Other
Waste Type: MLLW

Waste Stream Description and Source:
Alumina/chromium powders; finely divided. From Bldg. 883, Lab A [DR 910265-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.014	4.5	0.014	4.5	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:

Unknown.

General Comments:
No information on the radioactive characteristics.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001E	Tech.	Deactivation
D007	Conc.	Chemical Reduction followed by Stabilization

State: New Mexico | ID #: 0000002224

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: NEUTRON GENERATORS

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Four neutron generators in metal can, contaminated with tritium. From Bldg. 892, Room 190B. [DR 910270-1 and DR 910270-2]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.002	2.0	0.002	2.0	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Volatile radionuclide

Waste-Specific Radiation Effects on Treatment:

1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Waste Minimization Activities:

Unknown; test articles will not be produced again.

General Comments:

Tritium.

State: New Mexico **ID #: 0000002224**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: NEUTRON GENERATORS

Matrix: Other **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003C	Tech.	Deactivation
D008C	Tech.	Macroencapsulation
D011	Conc.	Stabilization

State: New Mexico
ID #: 0000002225
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: CONTAMINATED EQUIP. AND EXPERIMENTAL WST
Matrix: Other
Waste Type: MLLW

Waste Stream Description and Source:

55-gallon drum containing various items including electronic parts with lead solder, lead waste, metal oxides (barium), antimony oxide, beryllium plate, cerrobond alloy, iron pipe, tin plate, cadmium sheet, zinc/lead varistors, chrome parts, various other items. From Bldg. 959. [DR 910272-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.200	121.4	0.200	121.4	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Radionuclides or radiation level unknown

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Unknown.

General Comments:

No information available on the radioactive characteristics.

State: New Mexico ID #: 0000002225

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIP. AND EXPERIMENTAL WST

Matrix: Other Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D005	Conc.	Chemical Precipitation; or Stabilization
D006B	Conc.	Stabilization
D007	Conc.	Chemical Reduction followed by Stabilization
D008C	Tech.	Macroencapsulation

State: New Mexico | ID #: 0000002226

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: DEBRIS

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Gloves, paper wipes, paper carton, plastic bag with tritium contamination. From Bldg. 935, Room 6, Neutron Generator Test Facility. [DR 910274-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.060	1.4	0.060	1.4	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Volatile radionuclide

Waste-Specific Radiation Effects on Treatment:

1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Waste Minimization Activities:

Unknown.

General Comments:

Tritium.

State: New Mexico
ID #: 0000002226
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: DEBRIS
Matrix: Other
Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008B	Conc.	Stabilization

State: New Mexico
ID #: 0000002227
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: ABSORBENTS
Matrix: Other
Waste Type: MLLW

Waste Stream Description and Source:
Wipes and anti-C's used for decon of radioactive parts of Pulsed Beam Fusion Accelerator (PBFA) II. Freon used as solvent. From PBFA II. [DR 910303-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.510	27.2	0.510	27.2	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Organics

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Activation Products
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.
2) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:
Previous isotopic swipe analysis yielded Co-56 through Co-60, and Mn-54. Induced activity.

State: New Mexico ID #: 0000002227
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: ABSORBENTS
Matrix: Other Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F001	Conc.	Incineration

State: New Mexico | ID #: 0000002228
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: ACID (LIQUID)
Matrix: Aqueous Liquid | Waste Type: MLLW

Waste Stream Description and Source:
69-71% Nitric acid used as solvent to clean Pulsed Beam Fusion Accelerator (PBFA) II parts; diluted at least 50%. From PBFA. [DR 910304-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.002	1.8	0.002	1.8	0.000	0.000

Treatability Group:
MLLW CH, Aqueous Liquid, Ignitable, Corrosive, or Reactive Only

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Activation Products
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.
2) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:
Activation products: Co-56 through Co-60, Mn-54.

State: New Mexico
ID #: 0000002228
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: ACID (LIQUID)
Matrix: Aqueous Liquid
Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002A	Tech.	Deactivation

State: New Mexico ID #: 0000002229

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: EXPLOSIVE COMPONENT

Matrix: Other Waste Type: MLLW

Waste Stream Description and Source:

Remains of dissected explosive components irradiated at Brookhaven National Laboratory. Component parts contain PETN and XTX8003 explosive material and solder from electronic components connections. Materials are not separatable. Residue from explosive components activated by proton beam exposure. From Bldg. 940, Room 13. [DR 910402-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.140	9.1	0.140	9.1	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Activation Products

Waste-Specific Radiation Effects on Treatment:

1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.

Waste Minimization Activities:

Unknown.

General Comments:

Na-24, induced activity.

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State: New Mexico | ID #: 0000002229

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: EXPLOSIVE COMPONENT

Matrix: Other | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003C	Tech.	Deactivation
D008C	Tech.	Macroencapsulation

State: New Mexico
ID #: 0000002230
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: CONTAMINATED EQUIPMENT
Matrix: Other
Waste Type: MLLW

Waste Stream Description and Source:
Material from Development Flight Test that were dissassembled and cleaned where possible. Tritium primarily in solid matrix. Neutron detectors (containing lead) and det monitors (plastic) are included. From Bldg. 835, NE High Bay, W80 Lab. [DR 910406-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.023	10.0	0.023	10.0	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Volatile radionuclide

Waste-Specific Radiation Effects on Treatment:
1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Waste Minimization Activities:

Unknown.

General Comments:
Tritium.

4692

State: New Mexico | ID #: 0000002230

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation
D011	Conc.	Stabilization

State: New Mexico | ID #: 0000002231

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Neutron irradiated electronic devices. Transistors have gold bases and leads with steel covers. Diode has silver leads. From Bldg. 891, Room 4095, Digital Subsystems III. [DR 920001-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	< 0.001	0.180	< 0.001	0.180	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Activation Products

Waste-Specific Radiation Effects on Treatment:

1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.

Waste Minimization Activities:

Unknown.

General Comments:

Co-60, induced activity.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D011	Conc.	Stabilization

State: New Mexico | ID #: 0000002232

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Fourteen closed circuit tv cameras and two Simson 260 multimeters containing soldered circuit boards. Exposed to neutron flux at the Sandia Pulsed Reactor facility. From Bldg. 6593, Room B. [DR 920009-1, DR 920012-1, DR 920013-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.150	10.0	0.150	10.0	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Activation Products
2) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.
2) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:

Mixed fission products and induced activity.

State: New Mexico	**ID #: 0000002232**
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO	
Waste Stream Name: CONTAMINATED EQUIPMENT	
Matrix: Other	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

4692

State: New Mexico	ID #: 0000002233
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO	
Waste Stream Name: PERSONAL PROTECTIVE EQUIPMENT	
Matrix: Other	Waste Type: MLLW

Waste Stream Description and Source:

Leather gloves used to handle lead contaminated with mixed fission products. From Bldg. 6593, Room B. [DR 920010-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.014	0.450	0.014	0.450	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:

Mixed fission products.

State: New Mexico ID #: 0000002233
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: PERSONAL PROTECTIVE EQUIPMENT
Matrix: Other Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008B	Conc.	Stabilization

State: New Mexico | ID #: 0000002234

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: FLOURESCENT BULB

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Flourescent lighting tubes from Sandia Pulsed Reactor (SPR) Kiva. Exposed to neutron flux and fission products from SPR. [DR 920015-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.060	9.1	0.060	9.1	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/ Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Activation Products
2) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.
2) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:

Mixed fission products and mixed activation products.

State: New Mexico ID #: 0000002234

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: FLOURESCENT BULB

Matrix: Other Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D009C	Conc.	Thermal Recovery of Metals; Acid Leaching; Stabilization; or Incineration

4692

State: New Mexico | ID #: 0000002235

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Glove boxes, transportainer filled with equipment possibly contaminated with fission products U-235, depleted uranium, ThO2, and/or activation products. Material contains lead (solder) or has been in contact with lead. Equipment includes glove boxes, numerous tools, lab equipment, metal samples, cadmium sheets, and more. From Bldg. 6580, Hot Cell Facility [DR 920021-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	3.2	453.0	3.2	453.0	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Activation Products
2) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.
2) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:

U-235, depleted uranium, mixed fission products, ThO2, and/or activation products.

State: New Mexico ID #: 0000002235
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: CONTAMINATED EQUIPMENT
Matrix: Other Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D006B	Conc.	Stabilization
D008C	Tech.	Macroencapsulation

State: New Mexico | ID #: 0000002236

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: PERSONAL PROTECTIVE EQUIP/DECON DEBRIS

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Paper and plastic generated during handling of fresh and irradiated U-235-containing reactor fuels. Organic solvents (alcohols), Freon have been in contact with these materials. From Bldg. 6580, Hot Cell Facility [DR 920023-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.850	45.4	0.850	45.4	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:

Uranium, U-235, mixed fission products.

State: New Mexico
ID #: 0000002236
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: PERSONAL PROTECTIVE EQUIP/DECON DEBRIS
Matrix: Other
Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F001	Conc.	Incineration

State: New Mexico | ID #: 0000002237

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Equipment used to handle fresh and irradiated U-235-containing reactor fuel. Some electrical equipment probably contains lead solder. From Bldg. 6580, Hot Cell Facility. [DR 920024-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.420	18.1	0.420	18.1	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:

Uranium, U-235 and mixed fission products.

State: New Mexico
ID #: 0000002237
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: CONTAMINATED EQUIPMENT
Matrix: Other
Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

State: New Mexico ID #: 0000002238

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: PERSONAL PROTECTIVE EQUIP/DECON DEBRIS

Matrix: Other Waste Type: MLLW

Waste Stream Description and Source:

Clothing used to handle organic solvents (e.g., alcohols) and/or lead shielding materials or to handle fresh or irradiated U-235-containing reactor fuels. From Bldg. 6580, Hot Cell Facility. [DR 920024-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.850	36.3	0.850	36.3	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:

Uranium, U-235 and mixed fission products.

State: New Mexico ID #: 0000002238

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: PERSONAL PROTECTIVE EQUIP/DECON DEBRIS

Matrix: Other Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008B	Conc.	Stabilization

State: New Mexico **ID #: 0000002239**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: DECON DEBRIS

Matrix: Other **Waste Type: MLLW**

Waste Stream Description and Source:

Swipes/rags containing PASA gel 105, which contains 5 percent chromic acid and 30 percent sulphuric acid by weight (40-90 g/L of chromium). From Bldg. 6635, LINAC Facility. [DR 920051-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	< 0.001	0.057	< 0.001	0.057	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

Not reported.

Waste Minimization Activities:

Unknown.

General Comments:

Depleted uranium.

State: New Mexico	**ID #: 0000002239**
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO	
Waste Stream Name: DECON DEBRIS	
Matrix: Other	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002A	Tech.	Deactivation
D007	Conc.	Chemical Reduction followed by Stabilization

4692

State: New Mexico	ID #: 0000002240
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO	
Waste Stream Name: BATTERY AND CONTAMINATED EQUIPMENT	
Matrix: Other	Waste Type: MLLW

Waste Stream Description and Source:
Lithium battery and integrated circuit chips from computer located in Radioactive Materials Management Area (RMMA). From Bldg. 6580, Room 112, Hot Cell Facility. [DR 920060-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.003	0.200	0.003	0.200	0.000	0.000

Treatability Group:
MLLW CH, Other, Ignitable, Corrosive, or Reactive Only

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:

Unknown.

General Comments:
No information on radioactive characteristics.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003D	Tech.	Deactivation

State: New Mexico | ID #: 0000002241
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: CONTAMINATED EQUIPMENT
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Electronic fire sets irradiated at Sandia Pulsed Reactor. Contains lead solder. From Bldg. 807, Room 3067. [DR 920065-1, DR 920065-2, and DR 920065-3]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.006	13.6	0.006	13.6	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Activation Products

Waste-Specific Radiation Effects on Treatment:
1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.

Waste Minimization Activities:

Unknown.

General Comments:
Induced activity.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

4692

State: New Mexico	ID #: 0000002242
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO	
Waste Stream Name: CONTAMINATED EQUIPMENT	
Matrix: Other	Waste Type: MLLW

Waste Stream Description and Source:
One electronic circuit board irradiated at Sandia Pulsed Reactor. Contains lead. From Bldg. 807, Room 3067. [DR 920066-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	< 0.001	0.450	< 0.001	0.450	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Activation Products

Waste-Specific Radiation Effects on Treatment:
1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.

Waste Minimization Activities:

Unknown.

General Comments:
Induced activity.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

State: New Mexico | ID #: 0000002243

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: EMPTY CHEMICAL CANS

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Epoxy patch, WD-40, metadi cutting fluid, cyanacrillic glue, hyprez lubricant, Freon cans. All cans empty and depressurized. Used in Hot Cell Facility glove box line. From Bldg. 6580, Room 112, Hot Cell Facility. [DR 920084-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.014	2.3	0.014	2.3	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:

Mixed fission products.

State: New Mexico	**ID #: 0000002243**
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO	
Waste Stream Name: EMPTY CHEMICAL CANS	
Matrix: Other	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F001	Conc.	Incineration

State: New Mexico | ID #: 0000002244
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: CONTAMINATED EQUIPMENT
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Five gallium arsenide chips in hybrid circuit packages irradiated at Sandia Pulsed Reactor. From Bldg. 639, Room 13. [DR 920085-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	-	0.003	-	0.003	-	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Activation Products

Waste-Specific Radiation Effects on Treatment:
1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.

Waste Minimization Activities:

Unknown.

General Comments:
Induced activity.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D004	Conc.	Vitrification

State: New Mexico | ID #: 0000002245

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: BATTERIES

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Alkaline batteries from radiation monitoring instruments. From Bldg. 869, Room 31, Calibration Lab. [DR 920106-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.022	44.9	0.022	44.9	0.250	507.6

Treatability Group:
MLLW CH, Other, Ignitable, Corrosive, or Reactive Only

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:

Unknown.

General Comments:
Radiation characteristics unknown.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002C	Tech.	Deactivation

State: New Mexico | ID #: 0000002246

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: BATTERIES

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Carbon zinc batteries from radiation monitoring instruments. From Bldg. 869, Room 31, Calibration Lab [DR 920106-2]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	< 0.001	0.680	< 0.001	0.680	0.001	7.7

Treatability Group:

MLLW CH, Other, Ignitable, Corrosive, or Reactive Only

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Unknown.

General Comments:

Radiation characteristics unknown.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002C	Tech.	Deactivation

4692

State: New Mexico | ID #: 0000002247

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: BATTERIES

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Mercury batteries from radiation monitoring instruments. Level of mercury unknown. From Bldg. 869, Room 31, Calibration Lab. [DR 920106-3]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	< 0.001	0.910	< 0.001	0.910	0.003	10.3

Treatability Group:

MLLW CH, Other, Toxic Metals w/ Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Unknown.

General Comments:

Radiation characteristics unknown.

State: New Mexico
ID #: 0000002247
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: BATTERIES
Matrix: Other
Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002C	Tech.	Deactivation
D009B	Tech.	Mercury Roast/Retort

State: New Mexico **ID #: 0000002248**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: BATTERIES

Matrix: Batteries (lead acid, cadmium) **Waste Type: MLLW**

Waste Stream Description and Source:

Ni-Cd rechargeable batteries from radiation monitoring instruments. From Bldg. 869, Room 31, Calibration Lab. [DR 920106-4]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.002	2.0	0.002	2.0	0.023	23.1

Treatability Group:

MLLW CH, Batteries (lead acid, cadmium), Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Unknown.

General Comments:

Radiation characteristics unknown.

State: New Mexico **ID #: 0000002248**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: BATTERIES

Matrix: Batteries (lead acid, cadmium) **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002C	Tech.	Deactivation
D006A	Tech.	Thermal Recovery of Metals

State: New Mexico | ID #: 0000002249

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: BATTERIES

Matrix: Batteries (lead acid, cadmium) | Waste Type: MLLW

Waste Stream Description and Source:

Lead acid batteries from radiation monitoring instruments. From Bldg. 869, Room 31, Calibration Lab. [DR 920106-5]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.030	86.3	0.030	86.3	0.340	975.6

Treatability Group:

MLLW CH, Batteries (lead acid, cadmium), Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Unknown.

General Comments:

Radiation characteristics unknown.

State: New Mexico **ID #: 0000002249**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: BATTERIES

Matrix: Batteries (lead acid, cadmium) **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002C	Tech.	Deactivation
D008A	Tech.	Secondary Lead Smelting

State: New Mexico | ID #: 0000002250

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: PERSONAL PROTECTIVE EQUIPMENT

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Rubber gloves and adhesive tape contaminated with activated cadmium which was irradiated at the Annular Core Research Reactor. From Bldg. 6580, Room 112, Hot Cell Facility. [DR 920112-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.003	0.910	0.003	0.910	0.034	10.3

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Activation Products

Waste-Specific Radiation Effects on Treatment:

1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.

Waste Minimization Activities:

Unknown.

General Comments:

Activation products of cadmium.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D006B	Conc.	Stabilization

State: New Mexico | ID #: 0000002251

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Glass tubes with enclosed Ni-63 and with lead solder traces on leads; removed from fire sets. From Bldg. 807, Room 3067. [DR 920124-1, DR 920125-1, DR 920126-1, DR 920127-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	< 0.001	0.500	< 0.001	0.500	0.007	5.7

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Other (explain in Comments section)
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:

Ni-63. Activation unknown. Alpha.

State: New Mexico | ID #: 0000002251

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

State: New Mexico | ID #: 0000002252
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: CONTAMINATED EQUIPMENT
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Damped test load (brass box enclosing soldered resistor assembly with coaxial cable) and cable assembly with lead solderirradiated at HERMES. From Bldg. 807, Room 3067. [DR 920128-1 and DR 920129-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.003	1.7	0.003	1.7	0.028	19.0

Treatability Group:
MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Activation Products

Waste-Specific Radiation Effects on Treatment:
1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.

Waste Minimization Activities:

Unknown.

General Comments:
Induced activity.

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State: New Mexico ID #: 0000002252

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: CONTAMINATED EQUIPMENT

Matrix: Other Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

State: New Mexico | ID #: 0000002253

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: BATTERY

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

LiSO2 battery. Probable external contamination by depleted uranium. From Bldg. 919, Room 8, Battery Test Lab. [DR 920130-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.008	0.450	0.008	0.450	0.090	5.1

Treatability Group:

MLLW CH, Other, Ignitable, Corrosive, or Reactive Only

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Unknown.

General Comments:

Probable depleted uranium.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003D	Tech.	Deactivation

State: New Mexico | ID #: 0000002254

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: LABORATORY CHEMICAL

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Reagent grade uranyl perchlorate, hydrated, G. Fredrick Chemical Co. Original glass jar manufacturer's label attached. From Bldg. 805, Room B17. [DR 920150-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	< 0.001	0.500	< 0.001	0.500	0.000	0.000

Treatability Group:

MLLW CH, Other, Ignitable, Corrosive, or Reactive Only

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Unknown.

General Comments:

Natural radioactivity from uranium.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003E	Tech.	Deactivation

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State: New Mexico ID #: 0000002255
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: CONTAMINATED EQUIPMENT
Matrix: Elemental Lead Waste Type: MLLW

Waste Stream Description and Source:
Lead pig. From Bldg. 807, Room 3013. [DR 920151-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.003	31.3	0.003	31.3	0.000	0.000

Treatability Group:
MLLW CH, Elemental Lead, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:

Unknown.

General Comments:
Radiation characteristics unknown.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

State: New Mexico | ID #: 0000002256
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: ABSORBENTS
Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:
Absorbents with solvents for cleanup of Pulsed Beam Fusion Accelerator (PBFA) II components. From PBFA II. [DR 920305-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.340	6.4	0.340	6.4	0.000	0.000

Treatability Group:
MLLW CH, Other, Toxic Organics

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Activation Products
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.
2) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:
Induced activity; Co-56 through Co-60, Mn-54.

State: New Mexico **ID #: 0000002256**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: ABSORBENTS

Matrix: Other **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F003	Conc.	Incineration

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State: New Mexico | ID #: 0000002257

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: ABSORBENTS

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Absorbents with Freon used in decontamination of Pulsed Beam Fusion Accelerator (PBFA) II parts. From PBFA II. [DR 920308-1]

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.030	2.3	0.030	2.3	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Activation Products
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:

1) Many activation products are short-lived and treatment could be delayed to allow radiation levels to subside.
2) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.

Waste Minimization Activities:

Unknown.

General Comments:

Induced activity; Co-56 through Co-60, Mn-54.

State: New Mexico **ID #: 0000002257**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: ABSORBENTS

Matrix: Other **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F001	Conc.	Incineration

State: New Mexico ID #: 0000002258
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: TRANSURANIC WASTE
Matrix: Other Waste Type: MTRU

Waste Stream Description and Source:

Information about TRU waste is incomplete for the purposes of this data base (form, volume and mass, hazardous and rad constituents, activity levels, waste minimization efforts, etc.). No characterization of the hazardous constituents has been completed. Waste will probably include both contact-handled and remoted-handled material. Some TRU waste is currently stored in Technical Area V, Bldg. 6580 and most is in lead-shielded containers. May have some solidified liquids and labware and related items removed from glove boxes. It is not certain that all of containers are mixed waste. TRU waste is also possibly stored in the Manzano Bunkers but no information is available on this waste. Currently planned for disposal at the Waste Isolation Pilot Plant (WIPP), Carlsbad, New Mexico.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	-	0.950	-	0.950	-	0.000	0.000

Treatability Group:

MTRU RH/AL, Other, Toxic Metals w/o Mercury

Treatment Status:

Treatment of most mixed transuranic waste to meet LDR treatment standards is not applicable because DOE plans to ship these wastes to the Waste Isolation Pilot Plant (WIPP), pending issuance of a No-Migration Determination of the operational phase. Pretreatment to meet the WIPP Waste Acceptance Criteria may be required.

Technology Status:

Not Applicable.

Radiation Characteristics:

1) Transuranic contaminants
2) Contact-handled
3) Remote handled

Waste-Specific Radiation Effects on Treatment:

1) Radiation levels requiring remote handling will affect the design and operation of a treatment facility, i.e., need for robotics, additional shielding, etc.
2) Radioactive decay may produce significant amounts of heat that needs to be considered during treatment and disposal.
3) High alpha activity in contact with organics or water can result in radiolysis, with production of hydrogen gas, methane and other degradation products. The buildup of hydrogen gas and

State: New Mexico | ID #: 0000002258
Site: SANDIA NATIONAL LABORATORY - NEW MEXICO
Waste Stream Name: TRANSURANIC WASTE
Matrix: Other | Waste Type: MTRU

radiation interaction with the waste form can affect storage, design and operation of treatment facilities, and stability of the final waste form.

Waste Minimization Activities:

Unknown.

General Comments:
Radiation characteristics unknown.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D006B	Conc.	Stabilization
D008B	Conc.	Stabilization
D008C	Tech.	Macroencapsulation
D011	Conc.	Stabilization

State: New Mexico **ID #: 0000002259**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: LOW-LEVEL MIXED WASTE AT MANZANO BUNKERS

Matrix: Other **Waste Type: MLLW**

Waste Stream Description and Source:

An unknown volume of low-level mixed waste is stored in the Manzano Bunkers. None of this waste has been characterized for hazardous or radioactive constituents. The expected hazardous materials may include lead, metalic sodium, silver, and cadmium. Information about these wastes is incomplete for the purposes of this data base (volume, mass, waste minimization, hazardous and rad constituents, activity, etc.). Most of these wastes were placed in storage prior to the LDR effective dates.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.001	-	0.000	0.000	0.001	-	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started. Unknown.

Radiation Characteristics:

1) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Unknown.

General Comments:

Radiation characteristics unknown.

State: New Mexico **ID #: 0000002259**

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: LOW-LEVEL MIXED WASTE AT MANZANO BUNKERS

Matrix: Other **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003D	Tech.	Deactivation
D006B	Conc.	Stabilization
D008C	Tech.	Macroencapsulation
D011	Conc.	Stabilization

State: New Mexico | ID #: 0000002260

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: NEUTRON GENERATORS AT 6000 AREA IGLOOS

Matrix: Other | Waste Type: MLLW

Waste Stream Description and Source:

Classified neutron generators stored in two igloos (Bldgs. 6007 and 6011). Information about these wastes is incomplete for the purposes of this data base (volume, mass, activity, hazardous and rad constituents, waste minimization, etc.). Expected constituents include tritium, depleted uranium, explosives, lead, and silver.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.001	-	0.000	0.000	0.001	-	0.000	0.000

Treatability Group:

MLLW CH, Other, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Volatile radionuclide
2) Other (explain in Comments section)

Waste-Specific Radiation Effects on Treatment:

1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Waste Minimization Activities:

Unknown.

General Comments:

Tritium and/or depleted uranium.

State: New Mexico ID #: 0000002260

Site: SANDIA NATIONAL LABORATORY - NEW MEXICO

Waste Stream Name: NEUTRON GENERATORS AT 6000 AREA IGLOOS

Matrix: Other Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003C	Tech.	Deactivation
D008C	Tech.	Macroencapsulation
D011	Conc.	Stabilization

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TECHNOLOGY

DEVELOPMENT

SUMMARIES

Sandia National Laboratories
New Mexico

SNL/NM-TDS-1

April 1993

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Target Site: Sandia National Laboratories - New Mexico

Location site: Los Alamos National Laboratory

Programs/Facilities Supported:
MWL ID

ID: 198

Program Title: Los Alamos Program for Barriers and Post Closure Monitoring

Summary Description:

Demonstration, testing, and evaluation of water-permeable chemically reactive barriers, in-situ biodegradation, and post-closure monitoring technology in integrated environmental containment systems is the purpose of this program. Barrier and post-closure monitoring tests will be conducted at field-scale demonstration plots and actual contaminated sites.

Summary Purpose/Need:

Summary Result/Endpoint/Deliverable:
Deliverables include:

1. Supporting laboratory test report, industry resevoir management application report, 3 additional testbeds, and a preliminary and final report on application

2. PROTECH Technology Information Form

BDAT: BIODG STABL

Functional Areas: containment monitoring

Target Site: Sandia National Laboratories - New Mexico

Location site: Los Alamos National Laboratory

Programs/Facilities Supported:
MWL ID

ID: 199

Program Title: Migration Barrier Covers for Mixed Waste

Summary Description:

The scope of the project is to design a migration barrier cover system for a mixed wate landfill from the results of an existing migration barrier field demonstration. FY93 tasks will include forming a TSG and monitoring an ongoing demonstration at Hill Air Force Base in Utah to provide hydrologic performance data. This information will be used to develop optimmum cover barrier designs for the mixed waste landfill demonstration at Sandia in FY94.

Summary Purpose/Need:

Summary Result/Endpoint/Deliverable:

Deliverables include barrier design report, report on design and alternatives to TPO, and Pro-Tech profile information form.

BDAT: NA

Functional Areas: containment

Target Site: Sandia National Laboratories - New Mexico

Location site: Los Alamos National Laboratory

Programs/Facilities Supported:
MWL ID

ID: 203
Program Title: A Prototype Decision Support System to Select MWL Barrier Cover Systems

Summary Description:

Develop a multi-objective decision making software system using a Knowledge Based system, with embedded simulation models. This will be a tool to design engineered surface barriers for mixed-waste landfills. Utilize data collected from the Migration Barrier Covers for Mixed-Waste Landfills (TTP AL-1212-11) project to provide parameters for the models. Use the output of the decision support system to design an integrated barrier cover demonstration for the MWLID.

Summary Purpose/Need:

Summary Result/Endpoint/Deliverable:

Deliverables include report on model to TPO and on alternative selected to TPO.

BDAT: NA

Functional Areas: containment system analysis
decision support

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Target Site: Sandia National Laboratories - New Mexico

Location site: Sandia National Laboratories - New Mexico

Programs/Facilities Supported:
MWL ID

ID: 207

Program Title: Geochemical Controls on Chromium Mobility

Summary Description:

Investigate the behavior of chromium waste under chemical conditions typical of the unsaturated zone. Perform a series of laboratory column experiments using well-characterized, experimental and naturally occurring materials as the matrix and simulated Cr-acid solutions. Identify and evaluate the long-term stability of precipitated oxide or hydroxide Cr phases. Incorporate the solution chemistry into an appropriate model for fluid infiltration using site-specific, hydraulic properties.

Summary Purpose/Need:

Summary Result/Endpoint/Deliverable:

Deliverables include status report on lab batch experiments, soil sample analysis, and model simulation to TPO. Prepare Pro-tech infomration profile.

BDAT: STABL

Functional Areas: containment system analysis

Target Site: Sandia National Laboratories - New Mexico

Location site: Sandia National Laboratories - New Mexico

Programs/Facilities Supported:
MWL ID

ID: 210

Program Title: Remedial Options Evaluation

Summary Description:

This project will identify and evaluate innovative remedial technologies that should be pursued by the Mixed-Waste Landfill Integrated Demonstration and will present the results in an annual remedial options study. The Remedial Options Evaluation includes 3 sub-tasks that are necessary to identify and evaluate technologies that have the potential for near-term, high-return and cost-effective solutions for the in-situ remediation of mixed-waste landfills. These tasks include: (1) participation on the MWLID and BWID technology support groups, (2) completion and annual modification of a remedial options study, and (3) completion of technology status reports for potential remediation technologies that may be eligible for outyear funding.

Summary Purpose/Need:

The goal of the MWLID is to demonstrate remediation technologies that have the potential for near-term, high-return and cost effective solutions for mixed-waste landfills. There are a large number of proposals, ongoing demonstrations and technologies emerging from R&D efforts that the MWLID must evaluate. With limited resources, the MWLID must select technologies that have the greatest potential for technical success and likelihood of transfer to the Environmental Restoration Programs.

The careful evaluation and selection of remedial technologies that will provide near-term, cost-effective solutions will benefit each facility that has mixed-waste landfills. The benefits will primarily arise from reduced environmental risks and implementation of an alternative remedial technology for less cost than a baseline technology.

Summary Result/Endpoint/Deliverable:

Successful completion of this activity will provide a basis for Environmental Restoration to select innovative technologies as part of the RCRA Corrective Measures Studies and compare them with existing proven baseline remediation methods. The deliverables include Remedial Options Studies for FY93 through FY96.

BDAT: NA

Functional Areas: containment system analysis
innovative technologies

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Target Site: Sandia National Laboratories - New Mexico

Location site: Sandia National Laboratories - New Mexico

Programs/Facilities Supported:
MWL ID

ID: 213

Program Title: Dry Barriers Applications for Landfills

Summary Description:

To develop and demonstrate an air-enhanced dry barrier for application to landfills in arid environments. FY93 tasks will include the selection of the small-scale experiment design, development of apparatus and procedures for unsaturated transport properties, evaluation of dry barrier concept based on laboratory testing and if proved feasible, selection of a field demonstration site and configuration of the demonstration.

Evaluate the feasibility of the dry capillary barrier method for application at Mixed Waste Landfills in Arid Environments. Utilize small-scale testing of gas permeability and unsaturated hydraulic conductivity to evaluate lateral air-flow to remove downward flowing precipitation (recharge). Evaluate the potential applications of dry barriers for use in remediation of mixed-waste landfills.

Summary Purpose/Need:

Summary Result/Endpoint/Deliverable:

Deliverables include report findings on initial small-scale on testing of dry barrier concept, feasibility study, procedure on oscillator flow apparatus, and PROTEC information profile.

BDAT: STABL

Functional Areas: containment system analysis

Target Site: Sandia National Laboratories - New Mexico

Location site: Sandia National Laboratories - New Mexico

Programs/Facilities Supported:
MWL ID

ID: 215

Program Title: Magnetometer Towed Array

Summary Description:

Demonstrate the management towed array technology for detecting buried objects beneath hazardous and mixed waste landfills. Integrate a Global Positioning System to replace the current microwave navigation system. Modify data interpretation algorithms to meet waste site characterization needs. Improve hardware to provide real time (or near real time) data interpretation.

Summary Purpose/Need:

Summary Result/Endpoint/Deliverable:

Deliverables include demonstratoion of the GPS system, specifically the Towed Array system at the MWLIDA. The PROTECH information profile will be prepared.

BDAT: NA

Functional Areas: characterization
decision support

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Target Site: Sandia National Laboratories - New Mexico

Location site: Sandia National Laboratories - New Mexico

Programs/Facilities Supported:
MWL ID

ID: 218

Program Title: Neutron Activation Logging System for the MWLID

Summary Description:

Demonstrate, test and evaluate a neutron activation logging tool for in situ measurements of metals. Construct physical models to determine response factors. Perform field tests and assesses, evaluate and report results.

Summary Purpose/Need:

Summary Result/Endpoint/Deliverable:

Deliverables include a final data reduction and assessment and PROTECH Technology Information Form will be prepared.

BDAT: NA

Functional Areas: characterization

Target Site: Sandia National Laboratories - New Mexico

Location site: Pacific Northwest Laboratory

Programs/Facilities Supported:
MWL ID

ID: 272

Program Title: Detection and Quantification of High-Z metals with X-Ray Fluorescence

Summary Description:

Employ the method of X-Ray fluorescence (XRF) to the in-situ characterization of SNL landfill soil for heavy metals such as chromium, mercury, arsenic, lead, cadmium, and antimony. FY 93 activities include participation in the tests planned for December,1993, and improvement of the instruments capabilities by incorporation of a cryogenically cooled GeLi or SiLi detector in the instrument.

Summary Purpose/Need:

Summary Result/Endpoint/Deliverable:

Deliverables include status and final reports and preparation of the PROTECH technology Information Profile.

BDAT: NA

Functional Areas: characterization Hg,Pb,Cr,As,Sb,Cd
monitoring

Target Site: Sandia National Laboratories - New Mexico

Location site: Pacific Northwest Laboratory

Programs/Facilities Supported:
MWL ID

ID: 273

Program Title: On-site Analysis of Metals Using ASV

Summary Description:

In collaboration with New Mexico State University, develop and demonstrate the effectiveness of absorptive stripping voltammetry (ASV) to determine the leachable metals on soils to identify inorganic contaminant source terms and plumes underlying hazardous and mixed waste landfills at Sandia National Laboratories. Demonstrate the ASV techniques in a field screening laboratory system at Sandia.

Summary Purpose/Need:

Summary Result/Endpoint/Deliverable:

Deliverables include Phase II report and completion of Pro-Tech Profile Information Form

BDAT: NA

Functional Areas: characterization

21.4 Waste Isolation Pilot Plant

Site Summary

The Waste Isolation Pilot Plant (WIPP), located in Carlsbad, New Mexico, is a DOE facility intended to demonstrate the technical and operational principles involved in the permanent disposal of defense-generated transuranic (TRU) waste. WIPP operations entail receiving, unloading, and transferring mixed waste from the surface of the site to the underground storage rooms. Waste will be will be emplaced in an underground storage horizon located in a deep-bedded salt formation 2,150 feet beneath the surface. The WIPP mission is to reach a decision on the suitability of the site for disposal operations within the regulatory framework established by the Waste Isolation Pilot Plant Land Withdrawal Act, Public Law 102-579. Current plans for the WIPP facility include a Test Phase, during which limited quantities of waste will be managed at the WIPP facility for experimental purposes.

During the Test Phase, which is expected to be less than 10 years, the total amount of waste received from off-site generators will be limited to 4,250 drums (approximately 900 m^3). This limitation has been stipulated in the Waste Isolation Pilot Plant Land Withdrawal Act. The currently planned Test Phase waste volume is about 1,145 drums. All the waste managed during the Test Phase will be contact handled (CH), and is characterized by a combination of process knowledge and sampling and analysis. The mixed waste that will be shipped to WIPP for the Test Phase is generated at Rocky Flats, Colorado, and Idaho National Engineering Laboratory (INEL) in Idaho. Details on those wastes are included in the appropriate Site Sections. This section provides information on mixed waste that will be generated during testing activities at WIPP.

General

Waste generated at the WIPP facility during the Test Phase from the management and conduct of testing is called derived waste. All derived waste will be CH and characterized based on administrative controls and the characterization data provided by the generator.

21.4.1 Mixed Waste

All of the derived waste will be classified as mixed transuranic (MTRU) waste and will be characterized based on data provided by the generator and on information regarding waste management processes at the WIPP facility. Administrative procedures at the WIPP facility will prevent the generation of new mixed waste as the result of normal operations.

21.4.1.1 High-Level Waste

There will be no high-level waste (HLW) at WIPP. The Waste Isolation Pilot Plant Land Withdrawal Act precludes the storage of HLW at the WIPP facility.

21.4.1.2 Mixed Transuranic Waste

Anticipated sources of derived mixed waste during the Test Phase include the following:

- Swipes used for external radioactive contamination during receipt inspection and other radiological checks.
- Spent carbon from the bin gas discharge sorption system.

- Any failed test hardware pressure relief valves, or other associated devices to the extent that the bin may no longer be used to support the test program.
- Any MTRU waste generated through nonroutine events such as the cleanup of spills.
- Any MTRU waste generated during retrieval.

The maximum amount of derived waste anticipated to be generated at WIPP is 500-55 drum equivalents (105 m^3) for the Test Phase. Table 21.4-1 shows the volume and matrix of this lone projected waste stream.

21.4.1.3 Mixed Low-Level Waste

There will be no MLLW generated or stored at the WIPP facility.

21.4.2 Treatment Facilities

DOE has been granted a conditional no migration determination by EPA for Test Phase activities at the WIPP facility. No treatment is anticipated to be required for derived waste.

21.4.3 Technology Development

During the Test Phase, the WIPP facility will be demonstrating geologic disposal technology to support both 40 CFR 191 and 40 CFR 268.6.

Table 21.4-1
Mixed Wastes At The Waste Isolation Pilot Plant

Waste Type/Matrix	Number of Waste Streams	Inventory		Number of Waste Streams	Five-Year Projection	
		(m^3)	(kg)		(m^3)	(kg)
WASTE TYPE -- MTRU						
CH, Multiple	0	0.00	0.00	1	105.00	-
Sub-Total MTRU:	0	0.00	0.00	1	105.00	-
TOTAL:	0	0.00	0.00	1	105.00	-

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WASTE

PROFILE

SHEETS

ROADMAP TO WASTE PROFILE SHEETS (WPS)

Waste Profile Sheets (WPS) have been compiled in this report for each of the mixed waste streams identified at the different DOE sites. Each WPS is a concise summary of the information required by the FFCAct-1992, with waste stream specific data primarily derived from the Waste Management Information System (WMIS) database. Each WPS consists of the following items:

Header: The information in the header in each WPS includes the State, the official name of the site, an identification number, an identifying waste stream name, the waste type, and the waste matrix. The identification number is either a number assigned by the WMIS database or a number assigned by the site. The waste stream name is a unique identifier which corresponds to the name used in the WMIS database, or is assigned by the site. The waste type is either HLW, MTRU, or MLLW. The waste matrix corresponds to the categories (or their further subdivisions) defined earlier based on the physical and chemical form of the waste.

Waste Stream Description and Source: This section of the WPS presents a short description of the source of the waste and the waste stream characteristics.

Inventory Table: The inventory table in each WPS reports the volume (m^3) and/or mass (kg) of each waste stream currently in storage, and projected to be generated in the next five years. The table also indicates the date assumed in calculating the current and projected inventories. As required by the FFCAct-1992, the table also differentiates between waste not subject to LDR and that subject to LDR for the current inventory.

Treatability Group: This section lists the name of the treatability group to which the waste stream belongs.

Treatment Status, Technology Status: This section of the WPS lists the status of the technology that could be applied to the waste stream for compliance with the LDR. This section provides information on if the waste stream is currently being treated, and if technology options and facilities for the treatment exist.

Radiation Characteristics Section: This section of the WPS provides additional information on the radiological characteristics of the waste (in addition to characterizing the waste stream as HLW, MTRU, or MLLW). This section of the WPS specifies whether the waste stream is contact handled or remote handled, if the radionuclides are alpha or beta/gamma emitters, and if they contain activation products.

Radiation Effects Section: As required by the FFCAct-1992, this section of the WPS lists possible effects of the radiological characteristics of the waste stream on treatment technologies that could be applicable to that waste stream. For example, radiation levels may require remote handling of the waste and affect the design and operation of the treatment facility. The presence of volatile radionuclides may require the containment of all off-gases from the treatment system.

Waste Minimization Activities: As required by the FFCAct-1992, this section of the WPS provides information on the waste minimization practices being used for the waste stream. This section provides information on if the waste minimization practices include good operating practices, technology changes, raw material changes, product changes, etc.

EPA Code: This table of the WPS reports the EPA hazardous waste codes applicable to the waste stream, the basis for assigning the codes (process knowledge or sampling/analysis), the LDR basis (which is either technology based or concentration based), and the BDAT for each of the EPA hazardous waste codes.

In summary, the WPS for each waste stream, along with the site sections in the report for each State (Section B), summarize the site-specific information required by the FFCAct-1992.

State: New Mexico	ID #: WIPP-1
Site: WASTE ISOLATION PILOT PLANT	
Waste Stream Name: DERIVED WASTE	
Matrix: Multiple	Waste Type: MTRU

Waste Stream Description and Source:

Swipes used for external radioactive decontamination, spent carbon filters from the bin gas discharge system, failed test bins and equipment, spill residues, and retrieval debris. This waste stream includes organic debris, and inorganic debris.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	105.0	-

Treatability Group:

MTRU CH, Multiple, Toxic Organics and Metals w/ Mercury

Treatment Status:

No treatment is anticipated to be required for derived waste.

Technology Status:

Not Applicable.

Radiation Characteristics:

1) Contact-handled

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Good Management Practices will be employed. Attempts will be made to use nonhazardous solvents where possible.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D004	Conc.	Vitrification
D005	Conc.	Chemical Precipitation; or Stabilization

State: New Mexico **ID #: WIPP-1**

Site: WASTE ISOLATION PILOT PLANT

Waste Stream Name: DERIVED WASTE

Matrix: Multiple **Waste Type: MTRU**

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D006B	Conc.	Stabilization
D007	Conc.	Chemical Reduction followed by Stabilization
D008B	Conc.	Stabilization
D009D	Tech.	Amalgamation
D010	Conc.	Stabilization
D011	Conc.	Stabilization
D018		Not currently prohibited under the LDR Program.
D019		Not currently prohibited under the LDR Program.
D020		Not currently prohibited under the LDR Program.
D021		Not currently prohibited under the LDR Program.
D022		Not currently prohibited under the LDR Program.
D023		Not currently prohibited under the LDR Program.
D024		Not currently prohibited under the LDR Program.
D025		Not currently prohibited under the LDR Program.
D026		Not currently prohibited under the LDR Program.
D027		Not currently prohibited under the LDR Program.
D028		Not currently prohibited under the LDR Program.
D029		Not currently prohibited under the LDR Program.
D030		Not currently prohibited under the LDR Program.
D034		Not currently prohibited under the LDR Program.
D035		Not currently prohibited under the LDR Program.
D036		Not currently prohibited under the LDR Program.

State: New Mexico | ID #: WIPP-1
Site: WASTE ISOLATION PILOT PLANT
Waste Stream Name: DERIVED WASTE
Matrix: Multiple | Waste Type: MTRU

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D038		Not currently prohibited under the LDR Program.
D039		Not currently prohibited under the LDR Program.
D040		Not currently prohibited under the LDR Program.
D043		Not currently prohibited under the LDR Program.
F001	Conc.	Incineration
F002	Conc.	Incineration
F003	Conc.	Incineration
F004	Conc.	Incineration
F005A	Conc.	Incineration
P015	Tech.	Metals Recovery; or Thermal Recovery of Metals

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

22.0 NEW YORK

There are five New York facilities that generate, expect to generate, and/or store DOE-managed mixed waste.

- 22.1 Brookhaven National Laboratory
- 22.2 Colonie Interim Storage Site
- 22.3 Knolls Atomic Power Laboratory
- 22.4 Knolls Atomic Power Laboratory - Kesselring Site
- 22.5 West Valley Demonstration Project

22-1 shows the location of these facilities.

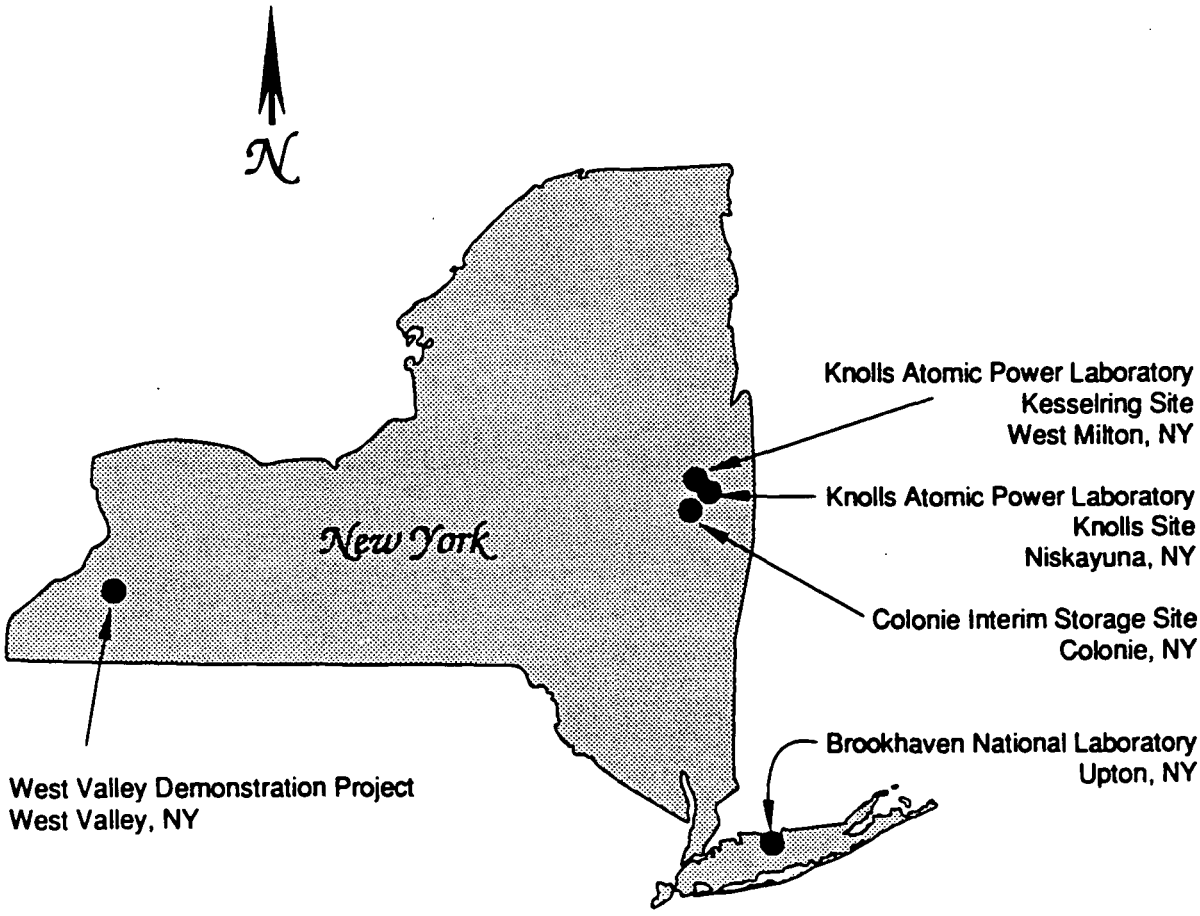

Figure 22-1. New York Facilities that Generate, Expect to generate, and/or Store DOE-managed Mixed Waste.

22.1 Brookhaven National Laboratory

Site Description

The Brookhaven National Laboratory (BNL) is operated for the DOE by Associated Universities, Inc.. BNL is located in on a 21-km^2 site in Brookhaven Township on Long Island, New York, about 97 km east of New York City (Figure 22-1). BNL's mission is to conceive, design, construct, and operate large, complex research facilities for fundamental scientific studies. The laboratory conducts basic and applied research in the physical, biomedical, and environmental sciences and selected energy technologies. Specific program areas include: high-energy physics, nuclear physics, life sciences research, nuclear medicine, materials science, and chemistry. BNL operates the Alternating Gradient Synchrotron, the National Synchrotron Light Source, and the High-Flux Beam Reactor. The research and development projects in nuclear physics, chemistry, and medicine are the sources of BNL's mixed waste, all of which is currently mixed low-level waste (MLLW). Waste-generating activities are laboratory experiments and the cleaning and maintenance of laboratory equipment.

General

BNL currently stores about 84 m^3 of MLLW. Roughly 27 m^3 of MLLW is projected to be generated through the end of 1997. Approximately 6 m^3 of the existing waste inventory is subject to LDR. BNL lacks on-site treatment facilities and has no plans to construct new facilities. For environmental restoration, 7 operable units have been identified for remedial investigation/feasibility studies and the need for suitable remedial action, and 4 for removal actions.

All waste streams are currently shipped to Hanford, Washington. For MLLW treatment technologies are being analyzed. No facilities have been identified for treatment of laboratory packs with metals, laboratory packs without metals, and inorganic debris with mercury. For organic liquids, treatment must consider radioactive off gases to protect facility personnel, and the public. For treatment of the fuels, oils, and lubricating fluids, BNL is investigating treatment off-site by incineration of its ignitable and evaporator bottoms waste streams, pending approval for waste shipment. Lead waste may also be shipped to a commercial facility for smelting.

22.1.1 Mixed Waste

BNL currently has about 84 m^3 (78,000 kg) of MLLW from 10 waste streams stored on site. Approximately 6 m^3 (6800 kg) are subject to the LDR regulatory requirements. Major waste matrices are summarized in Table 22.1-1. The streams consist of organic liquids, acid and alkaline solutions, uranium hydride, cleaning/degreasing solvents, chromic acid cleaning solutions, lead- and mercury-contaminated equipment, labpacks, machine oils, and evaporator bottoms. Machine oils, which are not regulated by RCRA, are included. All of BNL's MLLW waste is currently shipped to Hanford, and the State of Washington which regulates waste oil. BNL does not generate or store any mixed high-level or mixed transuranic wastes.

All waste streams are characterized by process knowledge from inventory control forms prepared by the generator. The corrosive waste, consisting of aqueous acid and alkaline solutions with a total organic content less than 10 percent, has also been characterized by sampling and analysis. Two additional streams, are being tested for Toxicity Characteristic Leaching Procedure (TCLP) constituents: contaminated oil (consisting of waste lubricating, machine, pump, cutting, and transformer oils) and the partially solidified waste from evaporation of radioactive liquid waste (evaporator bottoms). With the

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TABLE 22.1-1

MIXED WASTES AT BROOKHAVEN NATIONAL LABORATORY

Waste Type/Matrix	Number of Waste Streams	Inventory		Number of Waste Streams	Five-Year Projection	
		(m^3)	(kg)		(m^3)	(kg)
WASTE TYPE -- MLLW						
CH, Organic Liquids	3	17.22	15,615.60	3	0.78	893.00
CH, Inorganic Sludges/particulates	1	54.15	51,869.00	1	25.00	23,935.00
CH, Inorganic Debris	1	<0.10	513.60	1	0.10	1,350.00
CH, Lab Packs With Metals	2	5.62	6,746.06	2	0.20	122.00
CH, Lab Packs Without Metals	1	<0.10	<0.10	1	0.10	10.00
CH, Elemental Lead	1	1.48	1,637.60	1	0.73	553.00
CH, Multiple	1	5.96	1,923.00	1	0.45	380.00
Sub-Total MLLW:	10	84.47	78,304.86	10	27.36	27,243.00
TOTAL:	10	84.47	78,304.86	10	27.36	27,243.00

exception of the evaporator bottoms, which also contain alpha emitters (less than 10 nCi/g), all waste streams are contact-handled and contain beta/gamma-emitting radionuclides. This radioactivity poses no problems for treatment. During the next 5 years, BNL expects to generate about 27 m^3 (27,000 kg) of additional MLLW.

Waste-minimization activities at BNL include: purchasing and using smaller quantities of hazardous chemicals; using ultrasonic and pressure cleaning systems to reduce solvent use; substitution of non-hazardous cleaners for hazardous solvents and cleaning solutions; chemical exchange and reuse; solvent and metals recycling; and use of equipment and instruments with liquids other than mercury. Waste minimization is predicted to decrease mixed waste generation rates by 10 percent per year over the next 5 years for organic, solvent, and cleaning-solution waste streams.

22.1.2 Treatment Facilities

BNL has no on-site treatment facilities. The laboratory is, however, examining the feasibility of constructing a metals-decontamination facility. BNL plans to investigate commercial firms for incineration of its ignitable and evaporator-bottoms waste streams. The feasibility of shipping lead to a commercial facility for smelting is also being investigated. Treatment facilities have not been identified for the remaining waste streams.

22.1.3 Technology Development

There are no site-specific technology development activities are currently planned for BNL.

22.1.4 Environmental Restoration Program

The use of radioactive and hazardous materials is integral to many of BNL's programs, and many areas of the site have been contaminated as a result of past spills and operating and disposal procedures. The U.S. Army previously occupied the site between 1917 and 1947, and some contamination results from past U.S. Army practices (e.g., disposal). Some site contaminants have migrated to ground water in a designated sole-source aquifer for Long Island; this is a primary emphasis of the restoration activities at the site. More than 24 areas of concern that are contaminated as a result of past practices have been identified for environmental restoration activities. In addition, several facilities have been identified for potential decommissioning, and planning activities for those facilities are expected to begin in FY 94.

In 1989, the EPA listed BNL on the National Priorities List, and in 1992 an Interagency Agreement was signed among DOE, EPA Region II, and the New York State Department of Environmental Conservation. Seven operable units have been identified for remedial investigation/feasibility studies and the need for suitable remedial action, and 4 areas of concern have been identified for removal actions. The operable units consist of various groupings (generally by area) of buildings and sumps, underground pipes and tanks, the sewage treatment plant, landfills and dump areas, runoff and recharge areas, trichloroethylene and reactor spill areas, and ground water. The removal actions address 3 waste concentration facility tanks (D Tanks), 7 und rground storage tanks, more than 30 cesspools (which previously received discharges of building wastes), and a ground water remediation site associated with a hazardous waste management facility. In addition, the experimental Graphite Research Reactor, which was retired from service in 1967, shut down in 1969, and has undergone considerable decontamination and stabilization, still contains 6 subsystems that are targeted for decontamination and decommissioning. Information on contaminated media associated with environmental restoration activities is in Chapter 2.

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WASTE

PROFILE

SHEETS

Brookhaven National Laboratory

BNL-WPS-1

April 1993

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ROADMAP TO WASTE PROFILE SHEETS (WPS)

Waste Profile Sheets (WPS) have been compiled in this report for each of the mixed waste streams identified at the different DOE sites. Each WPS is a concise summary of the information required by the FFCAct-1992, with waste stream specific data primarily derived from the Waste Management Information System (WMIS) database. Each WPS consists of the following items:

Header: The information in the header in each WPS includes the State, the official name of the site, an identification number, an identifying waste stream name, the waste type, and the waste matrix. The identification number is either a number assigned by the WMIS database or a number assigned by the site. The waste stream name is a unique identifier which corresponds to the name used in the WMIS database, or is assigned by the site. The waste type is either HLW, MTRU, or MLLW. The waste matrix corresponds to the categories (or their further subdivisions) defined earlier based on the physical and chemical form of the waste.

Waste Stream Description and Source: This section of the WPS presents a short description of the source of the waste and the waste stream characteristics.

Inventory Table: The inventory table in each WPS reports the volume (m^3) and/or mass (kg) of each waste stream currently in storage, and projected to be generated in the next five years. The table also indicates the date assumed in calculating the current and projected inventories. As required by the FFCAct-1992, the table also differentiates between waste not subject to LDR and that subject to LDR for the current inventory.

Treatability Group: This section lists the name of the treatability group to which the waste stream belongs.

Treatment Status, Technology Status: This section of the WPS lists the status of the technology that could be applied to the waste stream for compliance with the LDR. This section provides information on if the waste stream is currently being treated, and if technology options and facilities for the treatment exist.

Radiation Characteristics Section: This section of the WPS provides additional information on the radiological characteristics of the waste (in addition to characterizing the waste stream as HLW, MTRU, or MLLW). This section of the WPS specifies whether the waste stream is contact handled or remote handled, if the radionuclides are alpha or beta/gamma emitters, and if they contain activation products.

Radiation Effects Section: As required by the FFCAct-1992, this section of the WPS lists possible effects of the radiological characteristics of the waste stream on treatment technologies that could be applicable to that waste stream. For example, radiation levels may require remote handling of the waste and affect the design and operation of the treatment facility. The presence of volatile radionuclides may require the containment of all off-gases from the treatment system.

Waste Minimization Activities: As required by the FFCAct-1992, this section of the WPS provides information on the waste minimization practices being used for the waste stream. This section provides information on if the waste minimization practices include good operating practices, technology changes, raw material changes, product changes, etc.

EPA Code: This table of the WPS reports the EPA hazardous waste codes applicable to the waste stream, the basis for assigning the codes (process knowledge or sampling/analysis), the LDR basis (which is either technology based or concentration based), and the BDAT for each of the EPA hazardous waste codes.

In summary, the WPS for each waste stream, along with the site sections in the report for each State (Section B), summarize the site-specific information required by the FFCAct-1992.

State: New York | ID #: 0000000001

Site: BROOKHAVEN NATIONAL LABORATORY

Waste Stream Name: IGNITABLE LIQUID

Matrix: Multiple | Waste Type: MLLW

Waste Stream Description and Source:

Alcohols, ketones, ethers and aromatics, singly and in groups from laboratory research experiments. This waste stream includes organic liquids, and lab packs without metals.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
5.7	1,728.9	0.230	194.1	6.0	1,923.0	0.450	380.0

Treatability Group:

MLLW CH, Multiple, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time. Investigating commercial treatment options.

Technology Status:

Technology exists. No modifications are necessary.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Volatile radionuclide

Waste-Specific Radiation Effects on Treatment:

1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Waste Minimization Activities:

Purchase and use smaller quantities of materials. Use ultrasonic and pressure cleaning systems to reduce solvent use. Substitute non-hazardous cleaners for hazardous solvents. Neutralization at point of generation.

State: New York | ID #: 0000000001
Site: BROOKHAVEN NATIONAL LABORATORY
Waste Stream Name: IGNITABLE LIQUID
Matrix: Multiple | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
D002A	Tech.	Deactivation
D002B	Tech.	Deactivation
D002C	Tech.	Deactivation
F001	Conc.	Incineration

The alternate LDR treatment standards for labpacks is incineration as a method of treatment and a requirement for the incinerator residues to meet the treatment standards for the TC toxic metals (i.e., D004-D008, and D010-D011).

State: New York | ID #: 0000000002
Site: BROOKHAVEN NATIONAL LABORATORY
Waste Stream Name: CORROSIVE WASTE
Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:
Acid and alkaline solutions of varying concentrations from laboratory experiments. Total organic content less than 10%.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.052	63.3	0.218	263.4	0.270	326.7	0.510	612.0

Treatability Group:
MLLW CH, Organic Liquids, Toxic Metals w/ Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Contact-handled
2) Beta/gamma emitter
3) Volatile radionuclide

Waste-Specific Radiation Effects on Treatment:
1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Waste Minimization Activities:

Purchase and use smaller quantities of material; chemical exchange and reuse. Neutralize at point of generation.

State: New York | ID #: 0000000002

Site: BROOKHAVEN NATIONAL LABORATORY

Waste Stream Name: CORROSIVE WASTE

Matrix: Organic Liquids | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001B	Tech.	Deactivation
D002A	Tech.	Deactivation
D002B	Tech.	Deactivation
D002C	Tech.	Deactivation
D007	Conc.	Chemical Reduction followed by Stabilization
D009C	Conc.	Thermal Recovery of Metals; Acid Leaching; Stabilization; or Incineration

State: New York	ID #: 0000000007
Site: BROOKHAVEN NATIONAL LABORATORY	
Waste Stream Name: REACTIVE WASTE	
Matrix: Lab Packs with Metals	Waste Type: MLLW

Waste Stream Description and Source:
Uranium hydroxide from laboratory experiments.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.003	0.060	0.000	0.000	0.003	0.060	0.100	2.0

Treatability Group:
MLLW CH, Lab Packs with Metals, Ignitable, Corrosive, or Reactive Only

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology assessment has not started.

Radiation Characteristics:
1) Contact-handled
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:

Purchase and use smaller quantities of material. Try processes that reduce waste.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003D	Tech.	Deactivation

The alternate LDR treatment standards for labpacks is incineration as a method of treatment and a requirement for the incinerator residues to meet the treatment standards for the TC toxic metals (i.e., D004-D008, and D010-D011).

State: New York | ID #: 0000000008

Site: BROOKHAVEN NATIONAL LABORATORY

Waste Stream Name: SPENT SOLVENTS

Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:

Cleaning/degreasing solvents consisting of 1,1,1-trichloroethane, methanol, acetone, and xylene. Used to clean/degrease mechanical components, tools and equipment.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.438	553.0	0.109	141.9	0.547	694.9	0.110	138.0

Treatability Group:

MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time. Evaluating commercial treatment options.

Technology Status:

Assessing technologies to determine if the technology exists, and if so, whether it needs modification.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Volatile radionuclide
4) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Waste Minimization Activities:

Purchasing and use of smaller quantities of materials when possible. Utilizing ultrasonic and pressure cleaning systems to reduce solvent use. Substitution of hazardous solvents with non-hazardous cleaners. Solvent recycling.

State: New York | ID #: 0000000008
Site: BROOKHAVEN NATIONAL LABORATORY
Waste Stream Name: SPENT SOLVENTS
Matrix: Organic Liquids | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
F001	Conc.	Incineration
F003	Conc.	Incineration

State: New York	**ID #: 0000000009**
Site: BROOKHAVEN NATIONAL LABORATORY	
Waste Stream Name: CHROMIUM WASTE	
Matrix: Lab Packs with Metals	**Waste Type: MLLW**

Waste Stream Description and Source:

Waste cleaning solutions containing chromium and solid material believed to contain chromium. Stream is currently being analyzed.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
5.6	6,735.0	0.018	11.0	5.6	6,746.0	0.100	120.0

Treatability Group:

MLLW CH, Lab Packs with Metals, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology assessment has not started.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Purchase and use smaller quantities of materials. Substitute non-hazardous cleaners for chromium-containing cleaners.

State: New York	**ID #: 0000000009**
Site: BROOKHAVEN NATIONAL LABORATORY	
Waste Stream Name: CHROMIUM WASTE	
Matrix: Lab Packs with Metals	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002B	Tech.	Deactivation
D007	Conc.	Chemical Reduction followed by Stabilization
D008B	Conc.	Stabilization

The alternate LDR treatment standards for labpacks is incineration as a method of treatment and a requirement for the incinerator residues to meet the treatment standards for the TC toxic metals (i.e., D004-D008, and D010-D011).

State: New York | ID #: 0000000010
Site: BROOKHAVEN NATIONAL LABORATORY
Waste Stream Name: LEAD WASTE
Matrix: Elemental Lead | Waste Type: MLLW

Waste Stream Description and Source:
Dismantled equipment with lead-soldered joints; paint stripper used to strip lead-based paints.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
1.1	797.2	0.390	840.4	1.5	1,637.6	0.730	553.0

Treatability Group:
MLLW CH, Elemental Lead, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time. Investigating commercial treatment options.

Technology Status:
Assessing technologies to determine if the technology exists, and if so, whether it needs modification.

Radiation Characteristics:
1) Contact-handled
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:

When possible, remove only lead-containing parts from equipment; recycle metal.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008B	Conc.	Stabilization

State: New York | ID #: 0000000011

Site: BROOKHAVEN NATIONAL LABORATORY

Waste Stream Name: MERCURY WASTE

Matrix: Inorganic Debris | Waste Type: MLLW

Waste Stream Description and Source:

Mercury-contaminated equipment; chiefly comprised of broken manometers and thermometers; chemicals containing mercury from servicing/replacing equipment.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.027	366.0	0.013	147.6	0.040	513.6	0.100	1,350.0

Treatability Group:

MLLW CH, Inorganic Debris, Toxic Metals w/ Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time. A facility capable of treating this waste has not been identified.

Technology Status:

Assessing technologies to determine if the technology exists, and if so, whether it needs modification.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Schedule regular equipment servicing. Use equipment and instruments with liquids other than mercury. Substitute less hazardous or non-hazardous materials.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D009B	Tech.	Mercury Roast/Retort

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the

State: New York	ID #: 0000000011
Site: BROOKHAVEN NATIONAL LABORATORY	
Waste Stream Name: MERCURY WASTE	
Matrix: Inorganic Debris	Waste Type: MLLW

following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: New York | ID #: 0000000012

Site: BROOKHAVEN NATIONAL LABORATORY

Waste Stream Name: ACUTELY HAZARDOUS WASTE

Matrix: Lab Packs without Metals | Waste Type: MLLW

Waste Stream Description and Source:
Listed P wastes from laboratory experiments.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
< 0.001	0.001	0.000	0.000	< 0.001	0.001	0.100	10.0

Treatability Group:
MLLW CH, Lab Packs without Metals

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Contact-handled
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:

Purchase and use smaller quantities.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
P106	Conc.	Chemical Oxidation followed by Alkaline Chlorination followed by Chemical Precipitation

The alternate LDR treatment standards for labpacks is incineration as a method of treatment and a requirement for the incinerator residues to meet the treatment standards for the TC toxic metals (i.e., D004-D008, and D010-D011).

State: New York **ID #: 0000000013**

Site: BROOKHAVEN NATIONAL LABORATORY

Waste Stream Name: CONTAMINATED OIL REGULATED BY WASH. ST.

Matrix: Organic Liquids **Waste Type: MLLW**

Waste Stream Description and Source:

Waste lubricating, machine, pump, cutting and transformer oils generated through research activities and servicing of mechanical equipment. Waste is being tested for TCLP's. This stream will be MLLW only if it is shipped to Hanford for storage.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
16.4	14,594.0	0.000	0.000	16.4	14,594.0	0.160	143.0

Treatability Group:

MLLW CH, Organic Liquids

Treatment Status:

Have not identified a planned facility for this waste stream at this time. Investigating commercial treatment options.

Technology Status:

Assessing technologies to determine if the technology exists, and if so, whether it needs modification.

Radiation Characteristics:

1) Contact-handled
2) Beta/gamma emitter
3) Volatile radionuclide

Waste-Specific Radiation Effects on Treatment:

1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Waste Minimization Activities:

Good housekeeping and maintenance of equipment, replacement of oils based on analysis, not time.

General Comments:

EPA waste code(s) to be determined.

EPA CODES

Waste Characterization Basis: Process Knowledge

State: New York	**ID #: 0000000013**
Site: BROOKHAVEN NATIONAL LABORATORY	
Waste Stream Name: CONTAMINATED OIL REGULATED BY WASH. ST.	
Matrix: Organic Liquids	**Waste Type: MLLW**

No applicable RCRA Codes have been identified.

State: New York | ID #: 0000000014

Site: BROOKHAVEN NATIONAL LABORATORY

Waste Stream Name: EVAPORATOR BOTTOMS

Matrix: Inorganic Sludges/Particulates | Waste Type: MLLW

Waste Stream Description and Source:
Partially solidified waste from evaporation of radioactive liquid waste. Waste is being analyzed for TCLP constitutents.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
49.6	47,464.2	4.6	4,404.8	54.2	51,869.0	25.0	23,935.0

Treatability Group:
MLLW CH, Inorganic Sludges/Particulates

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology assessment has not started. Technology options will be analyzed upon further characterization of this waste.

Radiation Characteristics:
1) Contact-handled
2) Volatile radionuclide
3) Beta/gamma emitter
4) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:
1) Treatment must consider containment of radioactive off-gases to protect treatment facility personnel and the public. Safeguard issues may be a concern. Treatment involves tritium release, which must be reported.

Waste Minimization Activities:
Waste segregation.

General Comments:
RCRA codes to be determined.

EPA CODES
Waste Characterization Basis: Process Knowledge

No applicable RCRA Codes have been identified.

22.2 Colonie Interim Storage Site

Site Description

The Colonie Interim Storage Site (CISS) is part of the Formerly Utilized Sites Remedial Action Program (FUSRAP). CISS occupies 11.2 acres in eastern New York State, approximately 4 miles northwest of downtown Albany (Figure 22-1). The property includes a large masonry manufacturing and office building, an office trailer, a storage building, approximately 4 acres of paved surface, and 4 acres of grassland. The site was formerly owned and operated by National Lead Industries, which produced uranium products under a license issued by the U.S. Atomic Energy Commission from 1958 through 1984.

About 11 m^3 of MLLW has been generated by remedial action activities. Waste streams are named, described, and their sources identified in the Colonie Interim Storage Site Waste Profile Sheets (WPS). All this waste is characterized by sampling and analysis. No MLLW is projected to be generated through the end of 1997. Nineteen waste codes and 10 DBAT apply as detailed in the Colonie Interim Storage Site WPS. The wastes are no longer generated. There are no waste-specific radiation effects on treatment.

General

CISS is 1 of 43 FUSRAP sites located in 14 States throughout the country. The Energy and Waste Appropriations Act of 1984 directed DOE to acquire the site and to give priority to cleaning up the facility and its contaminated vicinity properties. To date, 53 of the 56 designated vicinity properties have been remediated. Current FUSRAP activities include implementation of the approved RCRA Closure Plan, disposal of asbestos materials, and decontamination of equipment and interior surfaces within the building. Environmental studies include an Engineering Evaluation/Cost Analysis (EE/CA) for the final disposition of the building, and an EE/CA-Environmental Assessment to address the overall site-wide remedial alternatives.

CISS has been used for the interim storage of waste materials contaminated with low-level radioactivity. The waste material, generated during removal actions at 53 vicinity properties, was stored inside the main building. The building was also used to store drums of radioactive mixed waste and hazardous waste. Most of this waste has been shipped off-site to a licensed facility for disposal; a very small portion still remains on-site. Based on characterization activities and historical information, most of the site is contaminated above DOE guidelines for residual activity. More detailed information on the contaminated media associated with environmental restoration activities is in Chapter 2.

22.2.1 Mixed Waste

Approximately 11 m^3 (about 13,800 kg) of MLLW waste resulting from remedial actions is currently stored at the site. This waste consists of 26 waste streams of organic and aqueous liquids and sludges (Table 22.2-1). Approximately 48 percent of the stored waste is subject to the LDR regulatory requirements. Eleven of the 16 organic liquid waste streams (about 69 percent of total stored waste volume) are waste oils contaminated with heavy metals and/or D- and F-listed solvents. These streams have not been combined, because the contaminants in each stream differ with the waste source activity. Specific characteristics of each waste stream are discussed in the WPS's. Numbers in parentheses after each waste stream name are drum numbers that identify the waste source location.

TABLE 22.2-1
MIXED WASTES AT COLONIE INTERIM STORAGE SITE

Waste Type/Matrix	Number of Waste Streams	Inventory		Number of Waste Streams	Five-Year Projection	
		(m^3)	(kg)		(m^3)	(kg)
WASTE TYPE – MLLW						
CH, Organic Liquids	16	5.94	6,286.00	0	0.00	0.00
CH, Aqueous Liquid	3	0.46	627.00	0	0.00	0.00
CH, Organic Sludges/particulates	1	0.83	1,500.00	0	0.00	0.00
CH, Inorganic Sludges/particulates	2	1.21	2,173.50	0	0.00	0.00
CH, Multiple	4	2.98	3,261.20	0	0.00	0.00
Sub-Total MLLW:	26	11.42	13,847.80	0	0.00	0.00
TOTAL:	26	11.42	13,847.80	0	0.00	0.00

All stored waste is contact-handled and has been characterized by sampling and analysis. Uranium is the principal radioactive contaminant. CISS does not generate or store any high-level or MTRU.

22.2.2 Treatment Facilities and Technology

Colonie does not project that any mixed waste will be generated during the next 5 years. Treatment plans call for incineration of 13 of the 16 organic liquid waste streams (about 55 percent of total stored waste volume) and treating remaining waste off-site. The goal is to have all mixed waste removed from Colonie by August 1993.

22.2.3 Technology Development

There is no site-specific technology development for CISS.

22.2.4 Environmental Restoration Program

FUSRAP is part of DOE's environmental restoration program. All of the wastes stored and generated at CISS are generated from remediation activities.

WASTE

PROFILE

SHEETS

Colonie Interim Storage Site

ROADMAP TO WASTE PROFILE SHEETS (WPS)

Waste Profile Sheets (WPS) have been compiled in this report for each of the mixed waste streams identified at the different DOE sites. Each WPS is a concise summary of the information required by the FFCAct-1992, with waste stream specific data primarily derived from the Waste Management Information System (WMIS) database. Each WPS consists of the following items:

Header: The information in the header in each WPS includes the State, the official name of the site, an identification number, an identifying waste stream name, the waste type, and the waste matrix. The identification number is either a number assigned by the WMIS database or a number assigned by the site. The waste stream name is a unique identifier which corresponds to the name used in the WMIS database, or is assigned by the site. The waste type is either HLW, MTRU, or MLLW. The waste matrix corresponds to the categories (or their further subdivisions) defined earlier based on the physical and chemical form of the waste.

Waste Stream Description and Source: This section of the WPS presents a short description of the source of the waste and the waste stream characteristics.

Inventory Table: The inventory table in each WPS reports the volume (m^3) and/or mass (kg) of each waste stream currently in storage, and projected to be generated in the next five years. The table also indicates the date assumed in calculating the current and projected inventories. As required by the FFCAct-1992, the table also differentiates between waste not subject to LDR and that subject to LDR for the current inventory.

Treatability Group: This section lists the name of the treatability group to which the waste stream belongs.

Treatment Status, Technology Status: This section of the WPS lists the status of the technology that could be applied to the waste stream for compliance with the LDR. This section provides information on if the waste stream is currently being treated, and if technology options and facilities for the treatment exist.

Radiation Characteristics Section: This section of the WPS provides additional information on the radiological characteristics of the waste (in addition to characterizing the waste stream as HLW, MTRU, or MLLW). This section of the WPS specifies whether the waste stream is contact handled or remote handled, if the radionuclides are alpha or beta/gamma emitters, and if they contain activation products.

Radiation Effects Section: As required by the FFCAct-1992, this section of the WPS lists possible effects of the radiological characteristics of the waste stream on treatment technologies that could be applicable to that waste stream. For example, radiation levels may require remote handling of the waste and affect the design and operation of the treatment facility. The presence of volatile radionuclides may require the containment of all off-gases from the treatment system.

Waste Minimization Activities: As required by the FFCAct-1992, this section of the WPS provides information on the waste minimization practices being used for the waste stream. This section provides information on if the waste minimization practices include good operating practices, technology changes, raw material changes, product changes, etc.

EPA Code: This table of the WPS reports the EPA hazardous waste codes applicable to the waste stream, the basis for assigning the codes (process knowledge or sampling/analysis), the LDR basis (which is either technology based or concentration based), and the BDAT for each of the EPA hazardous waste codes.

In summary, the WPS for each waste stream, along with the site sections in the report for each State (Section B), summarize the site-specific information required by the FFCAct-1992.

State: New York | ID #: 444

Site: COLONIE INTERIM STORAGE SITE

Waste Stream Name: CORROSIVE ACID (D002, 6, 7, 9) (#424)

Matrix: Aqueous Liquid | Waste Type: MLLW

Waste Stream Description and Source:
This waste is an acidic liquid generated as part of remedial action at the site.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.210	251.2	0.210	251.2	0.000	0.000

Treatability Group:
MLLW CH, Aqueous Liquid, Toxic Metals w/ Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Contact-handled

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
1) Not Applicable.

Waste is no longer generated.

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State: New York **ID #: 444**

Site: COLONIE INTERIM STORAGE SITE

Waste Stream Name: CORROSIVE ACID (D002, 6, 7, 9) (#424)

Matrix: Aqueous Liquid **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002A	Tech.	Deactivation
D006B	Conc.	Stabilization
D007	Conc.	Chemical Reduction followed by Stabilization
D009C	Conc.	Thermal Recovery of Metals; Acid Leaching; Stabilization; or Incineration

State: New York | ID #: 454

Site: COLONIE INTERIM STORAGE SITE

Waste Stream Name: PRESS SUMP (F001, D001) (#385, 386, 388, 631)

Matrix: Organic Sludges/Particulates | Waste Type: MLLW

Waste Stream Description and Source:
This waste consists of a sump waste generated as part of remedial action at the site.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.830	1,500.0	0.830	1,500.0	0.000	0.000

Treatability Group:
MLLW CH, Organic Sludges/Particulates, Toxic Organics

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Contact-handled

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
1) Not Applicable.

Waste is no longer generated.

EPA CODES
Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001B	Tech.	Deactivation
F001	Conc.	Incineration

State: New York | ID #: 455

Site: COLONIE INTERIM STORAGE SITE

Waste Stream Name: SUMP WASTE-LIQ(D023-25,F001,7,8,9)(#323)

Matrix: Inorganic Sludges/Particulates | Waste Type: MLLW

Waste Stream Description and Source:
This waste consists of sump sludge generated as part of remedial action at the site.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.250	449.7	0.250	449.7	0.000	0.000

Treatability Group:
MLLW CH, Inorganic Sludges/Particulates, Toxic Organics and Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Contact-handled

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
1) Not Applicable.

Waste is no longer generated.

State: New York | ID #: 455

Site: COLONIE INTERIM STORAGE SITE

Waste Stream Name: SUMP WASTE-LIQ(D023-25,F001,7,8,9)(#323)

Matrix: Inorganic Sludges/Particulates | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D023		Not currently prohibited under the LDR Program.
D024		Not currently prohibited under the LDR Program.
D025		Not currently prohibited under the LDR Program.
F001	Conc.	Incineration
F007	Conc.	Alkaline Chlorination followed by Chemical Precipitation; and Stabilization
F008	Conc.	Alkaline Chlorination followed by Chemical Precipitation; and Stabilization
F009	Conc.	Alkaline Chlorination followed by Chemical Precipitation; and Stabilization

State: New York | ID #: 456

Site: COLONIE INTERIM STORAGE SITE

Waste Stream Name: SUMP WASTE-SOL(D023-25,F001,7,8,9)(#324,#621-624)

Matrix: Inorganic Sludges/Particulates | Waste Type: MLLW

Waste Stream Description and Source:
This waste consists of sump sludge generated as part of remedial action at the site.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.960	1,723.8	0.960	1,723.8	0.000	0.000

Treatability Group:
MLLW CH, Inorganic Sludges/Particulates, Toxic Organics and Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Contact-handled

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
1) Not Applicable.

Waste is no longer generated.

State: New York ID #: 456

Site: COLONIE INTERIM STORAGE SITE

Waste Stream Name: SUMP WASTE-SOL(D023-25,F001,7,8,9)(#324,#621-624)

Matrix: Inorganic Sludges/Particulates Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D023		Not currently prohibited under the LDR Program.
D024		Not currently prohibited under the LDR Program.
D025		Not currently prohibited under the LDR Program.
F001	Conc.	Incineration
F007	Conc.	Alkaline Chlorination followed by Chemical Precipitation; and Stabilization
F008	Conc.	Alkaline Chlorination followed by Chemical Precipitation; and Stabilization
F009	Conc.	Alkaline Chlorination followed by Chemical Precipitation; and Stabilization

State: New York	ID #: 458
Site: COLONIE INTERIM STORAGE SITE	
Waste Stream Name: SERPLEX LIQUID (D009) (#479, 476)	
Matrix: Aqueous Liquid	Waste Type: MLLW

Waste Stream Description and Source:
This is a non-combistible waste liquid generated as part of remedial action at the site.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.040	39.8	0.040	39.8	0.000	0.000

Treatability Group:
MLLW CH, Aqueous Liquid, Toxic Metals w/ Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Contact-handled

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
1) Not Applicable.

Waste is no longer generated.

EPA CODES
Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D009C	Conc.	Thermal Recovery of Metals; Acid Leaching; Stabilization; or Incineration

State: New York | ID #: 460

Site: COLONIE INTERIM STORAGE SITE

Waste Stream Name: WASTE OIL (D001) (#348, 380, 399, 578)

Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:
This is a waste oil generated as part of remedial action at the site.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.440	417.4	0.440	417.4	0.000	0.000

Treatability Group:
MLLW CH, Organic Liquids, Ignitable, Corrosive, or Reactive Only

Treatment Status:
Plan to treat off-site.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Contact-handled

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
1) Not Applicable.

Waste is no longer generated.

EPA CODES
Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001B	Tech.	Deactivation

State: New York | ID #: 461

Site: COLONIE INTERIM STORAGE SITE

Waste Stream Name: WASTE OIL (D001, 6, 8, 9, 28, 39) (#366)

Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:
This is a waste oil generated as part of remedial action at the site.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.210	199.2	0.210	199.2	0.000	0.000

Treatability Group:
MLLW CH, Organic Liquids, Toxic Organics and Metals w/ Mercury

Treatment Status:
Plan to treat off-site.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Contact-handled

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
1) Not Applicable.

Waste is no longer generated.

State: New York **ID #: 461**

Site: COLONIE INTERIM STORAGE SITE

Waste Stream Name: WASTE OIL (D001, 6, 8, 9, 28, 39) (#366)

Matrix: Organic Liquids **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001B	Tech.	Deactivation
D006B	Conc.	Stabilization
D008B	Conc.	Stabilization
D009C	Conc.	Thermal Recovery of Metals; Acid Leaching; Stabilization; or Incineration
D028		Not currently prohibited under the LDR Program.
D039		Not currently prohibited under the LDR Program.

State: New York **ID #: 463**

Site: COLONIE INTERIM STORAGE SITE

Waste Stream Name: WASTE OIL (D006) (#371, 372)

Matrix: Organic Liquids **Waste Type: MLLW**

Waste Stream Description and Source:
This is a waste oil generated as part of remedial action at the site.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.420	398.4	0.420	398.4	0.000	0.000

Treatability Group:
MLLW CH, Organic Liquids, Toxic Metals w/o Mercury

Treatment Status:
Plan to treat off-site.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Contact-handled

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
1) Not Applicable.

Waste is no longer generated.

EPA CODES
Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D006B	Conc.	Stabilization

State: New York | ID #: 465
Site: COLONIE INTERIM STORAGE SITE
Waste Stream Name: WASTE OIL (D011, 39) (#339)
Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:
This is a waste oil generated as part of remedial action at the site.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.210	209.3	0.210	209.3	0.000	0.000

Treatability Group:
MLLW CH, Organic Liquids, Toxic Organics and Metals w/o Mercury

Treatment Status:
Plan to treat off-site.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Contact-handled

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
1) Not Applicable.

Waste is no longer generated.

EPA CODES
Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D011	Conc.	Stabilization
D039		Not currently prohibited under the LDR Program.

State: New York | ID #: 466

Site: COLONIE INTERIM STORAGE SITE

Waste Stream Name: WASTE OIL (D039, PCB'S) (#336)

Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:

This is a waste oil generated as part of remedial action at the site. This oil contains PCBs at < 50 ppm.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.210	199.2	0.000	0.000	0.210	199.2	0.000	0.000

Treatability Group:

MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time. Technology exists but no facility is available.

Technology Status:

Technology exists. No modifications are necessary.

Radiation Characteristics:

1) Contact-handled

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

1) Not Applicable.

Waste is no longer generated.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D039		Not currently prohibited under the LDR Program.

State: New York | ID #: 1143

Site: COLONIE INTERIM STORAGE SITE

Waste Stream Name: PHENOLS/BENZENES(D001,18,23,24,25)(#426)

Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:

This waste is a mixature of various liquids of unknown origin generated as part of remedial action at the site.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.210	378.3	0.210	378.3	0.000	0.000

Treatability Group:

MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:

Plan to treat off-site.

Technology Status:

Technology exists. No modifications are necessary.

Radiation Characteristics:

1) Contact-handled

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

1) Not Applicable.

Waste is no longer generated.

State: New York	**ID #: 1143**
Site: COLONIE INTERIM STORAGE SITE	
Waste Stream Name: PHENOLS/BENZENES(D001,18,23,24,25)(#426)	
Matrix: Organic Liquids	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001B	Tech.	Deactivation
D018		Not currently prohibited under the LDR Program.
D023		Not currently prohibited under the LDR Program.
D024		Not currently prohibited under the LDR Program.
D025		Not currently prohibited under the LDR Program.

State: New York	**ID #: 1147**
Site: COLONIE INTERIM STORAGE SITE	
Waste Stream Name: D003-LIQUIDS (#471)	
Matrix: Aqueous Liquid	**Waste Type: MLLW**

Waste Stream Description and Source:
This waste is a cyanide-containing liquid generated as part of remedial action at the site.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.210	336.0	0.210	336.0	0.000	0.000

Treatability Group:
MLLW CH, Aqueous Liquid, Ignitable, Corrosive, or Reactive Only

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Contact-handled

Waste-Specific Radiation Effects on Treatment:
1) None.

Raidation levels are not of significance to affect treatment. Concentration radionuclides in treatment residues will be considered. Radionuclide present: Sr-90, Cs-137.

Waste Minimization Activities:
1) Not Applicable.

Waste is no longer generated.

EPA CODES
Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D003A	Conc.	Chemical Oxidation followed by Alkaline Chlorination

State: New York — 4692 ID #: 1148

Site: COLONIE INTERIM STORAGE SITE

Waste Stream Name: LIQUID WASTE-IGNITABLE (D001, 39) (#350)

Matrix: Organic Liquids Waste Type: MLLW

Waste Stream Description and Source:
This is a waste oil generated as part of a remedial action at the site.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.210	209.3	0.210	209.3	0.000	0.000

Treatability Group:
MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:
Plan to treat off-site.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Contact-handled

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
1) Not Applicable.

Waste is no longer generated.

EPA CODES
Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
D039		Not currently prohibited under the LDR Program.

State: New York	ID #: 1149
Site: COLONIE INTERIM STORAGE SITE	
Waste Stream Name: WASTE OIL (D006, 39) (#341)	
Matrix: Organic Liquids	Waste Type: MLLW

Waste Stream Description and Source:
This is a waste oil generated as part of remedial action at the site.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.210	199.2	0.210	199.2	0.000	0.000

Treatability Group:
MLLW CH, Organic Liquids, Toxic Organics and Metals w/o Mercury

Treatment Status:
Plan to treat off-site.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Contact-handled

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
1) Not Applicable.

Waste is no longer generated.

EPA CODES
Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D006B	Conc.	Stabilization
D039		Not currently prohibited under the LDR Program.

State: New York	ID #: 1150
Site: COLONIE INTERIM STORAGE SITE	
Waste Stream Name: SPENT SOLVENTS (F001) (#460)	
Matrix: Organic Liquids	Waste Type: MLLW

Waste Stream Description and Source:
This waste consists of spent solvents generated as part of remedial action at the site.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.020	26.7	0.020	26.7	0.000	0.000

Treatability Group:
MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Contact-handled

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
1) Not Applicable.

Waste is no longer generated.

EPA CODES
Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D019		Not currently prohibited under the LDR Program.
F001	Conc.	Incineration

State: New York	ID #: 1151
Site: COLONIE INTERIM STORAGE SITE	
Waste Stream Name: HYDROSEAL AND DYE (D039) (#455, 330)	
Matrix: Organic Liquids	Waste Type: MLLW

Waste Stream Description and Source:

This waste consists of liquid hydroseal and dye. These are oil like liquids. The dye is believed to have been used to determine cracks. Hydroseal use is unknown. Waste was generated as part of remedial action at the site.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.420	630.4	0.000	0.000	0.420	630.4	0.000	0.000

Treatability Group:

MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:

Plan to treat off-site.

Technology Status:

Technology exists. No modifications are necessary.

Radiation Characteristics:

1) Contact-handled

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

1) Not Applicable.

Waste is no longer generated.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D039		Not currently prohibited under the LDR Program.

4692

State: New York	ID #: 1152
Site: COLONIE INTERIM STORAGE SITE	
Waste Stream Name: UNKNOWN LIQUID (D008) (#477)	
Matrix: Organic Liquids	Waste Type: MLLW

Waste Stream Description and Source:
This is an unknown liquid waste generated as part of remedial action at the site.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.010	10.0	0.010	10.0	0.000	0.000

Treatability Group:
MLLW CH, Organic Liquids, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Contact-handled

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
1) Not Applicable.

Waste is no longer generated.

EPA CODES
Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008B	Conc.	Stabilization

State: New York	ID #: 1155
Site: COLONIE INTERIM STORAGE SITE	
Waste Stream Name: OILS (D039) (#340...405)	
Matrix: Organic Liquids	Waste Type: MLLW

Waste Stream Description and Source:
This is a waste oil generated as part of a remedial action at the site.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
2.51	2501.7	0.000	0.000	2.51	2501.7	0.000	0.000

Treatability Group:
MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:
Plan to treat off-site.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Contact-handled

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
1) Not Applicable.

Waste is no longer generated.

General Comments:
This waste stream includes drum numbers 340 through 405 except those individually included on other WPS.

EPA CODES
Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D039		Not currently prohibited under the LDR Program.

State: New York	ID #: 1156
Site: COLONIE INTERIM STORAGE SITE	
Waste Stream Name: D039, D040 (#349, 377)	
Matrix: Organic Liquids	Waste Type: MLLW

Waste Stream Description and Source:
This is a waste oil generated as part of remedial action at the site.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.420	418.6	0.000	0.000	0.420	418.6	0.000	0.000

Treatability Group:
MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:
Plan to treat off-site.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Contact-handled

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
1) Not Applicable.

Waste is no longer generated.

EPA CODES
Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D039		Not currently prohibited under the LDR Program.
D040		Not currently prohibited under the LDR Program.

State: New York	ID #: 1157
Site: COLONIE INTERIM STORAGE SITE	
Waste Stream Name: LIQUID WASTE-IGNITABLE (D001, 23) (#510)	
Matrix: Organic Liquids	Waste Type: MLLW

Waste Stream Description and Source:
This is a waste oil generated as part of a remedial action at the site.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.150	149.5	0.150	149.5	0.000	0.000

Treatability Group:
MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:
Plan to treat off-site.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Contact-handled

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
1) Not Applicable.

Waste is no longer generated.

EPA CODES
Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
D023		Not currently prohibited under the LDR Program.

State: New York | ID #: 1159

Site: COLONIE INTERIM STORAGE SITE

Waste Stream Name: MIGHTY STRIP (D018) (#461)

Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:
This waste is a combustible liquid generated as part of a remedial action at the site.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.130	129.6	0.000	0.000	0.130	129.6	0.000	0.000

Treatability Group:
MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:
Plan to treat off-site.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Contact-handled

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
1) Not Applicable.

Waste is no longer generated.

EPA CODES
Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D018		Not currently prohibited under the LDR Program.

State: New York | ID #: 2055

Site: COLONIE INTERIM STORAGE SITE

Waste Stream Name: WASTE OIL (D008, 39, 40) (#378)

Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:
This is a waste oil generated as part of remedial action at the site.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.210	209.3	0.210	209.3	0.000	0.000

Treatability Group:
MLLW CH, Organic Liquids, Toxic Organics and Metals w/o Mercury

Treatment Status:
Plan to treat off-site.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Contact-handled

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
1) Not Applicable.

Waste is no longer generated.

EPA CODES
Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008B	Conc.	Stabilization
D039		Not currently prohibited under the LDR Program.
D040		Not currently prohibited under the LDR Program.

State: New York | ID #: 2056

Site: COLONIE INTERIM STORAGE SITE

Waste Stream Name: SPILL RESIDUE (D039) (571, 572)

Matrix: Multiple | Waste Type: MLLW

Waste Stream Description and Source:
This is a waste residue generated from cleanup of a spill.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.420	754.2	0.000	0.000	0.420	754.2	0.000	0.000

Treatability Group:
MLLW CH, Multiple, Toxic Organics

Treatment Status:
Plan to treat at an off-site commercial facility

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
Not reported.

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
1) Not Applicable.

Waste is no longer generated.

EPA CODES
Waste Characterization Basis: Unknown

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D039		Not currently prohibited under the LDR Program.

State: New York | ID #: 2057

Site: COLONIE INTERIM STORAGE SITE

Waste Stream Name: SETTLING BASIN RESIDUE (F001) (582, 583, 584, 629, 630)

Matrix: Multiple | Waste Type: MLLW

Waste Stream Description and Source:
This waste stream consists of residue from the cleanup of a settling basin used during processing operations and contains some absorbent material.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	1.1	1,885.4	1.1	1,885.4	0.000	0.000

Treatability Group:
MLLW CH, Multiple, Toxic Organics

Treatment Status:
Plan to treat at an off-site commercial facility

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
Not reported.

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
Waste is no longer being generated.

EPA CODES
Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F001	Conc.	Incineration

State: New York **ID #: 2058**

Site: COLONIE INTERIM STORAGE SITE

Waste Stream Name: WASTE OIL (D010) (404)

Matrix: Multiple **Waste Type: MLLW**

Waste Stream Description and Source:
This is a waste oil generated as part of remedial action at the site.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.210	377.1	0.210	377.1	0.000	0.000

Treatability Group:
MLLW CH, Multiple, Toxic Metals w/o Mercury

Treatment Status:
Plan to treat at an existing facility.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
Not reported.

Waste-Specific Radiation Effects on Treatment:
Not reported.

Waste Minimization Activities:
Waste is no longer generated.

EPA CODES
Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D010	Conc.	Stabilization

State: New York | ID #: 2059

Site: COLONIE INTERIM STORAGE SITE

Waste Stream Name: SUMP WASTE (F001,F007-F009,D001) (#389,390,625-628)

Matrix: Organic Liquid | Waste Type: MLLW

Waste Stream Description and Source:
This waste consists of sump waste generated as part of remedial action at the site.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	< 0.001	1.3	2,244.5	1.3	244.5	0.000	0.000

Treatability Group:
MLLW CH, Multiple, Toxic Organics and Metals w/o Mercury

Treatment Status:
Plan to treat off-site

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
Not reported.

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
Waste is no longer generated.

State: New York | ID #: 2059

Site: COLONIE INTERIM STORAGE SITE

Waste Stream Name: SUMP WASTE (F001,F007-F009,D001) (#389,390,625-628)

Matrix: Multiple | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001B	Tech.	Deactivation
F001	Conc.	Incineration
F007	Conc.	Alkaline Chlorination followed by Chemical Precipitation; and Stabilization
F008	Conc.	Alkaline Chlorination followed by Chemical Precipitation; and Stabilization
F009	Conc.	Alkaline Chlorination followed by Chemical Precipitation; and Stabilization

22.3 Knolls Atomic Power Laboratory - Knolls Site

The Knolls Atomic Power Laboratory (KAPL) is operated by KAPL, Inc., a wholly owned subsidiary of the Martin Marietta Corporation under contract to DOE. KAPL consists of 3 sites: the Knolls and Kesselring Sites in New York and the Windsor Site in Connecticut. These sites are engaged solely in research and development for the design and operation of naval nuclear propulsion plants. Activities relating to naval nuclear propulsion systems are performed in accordance with the requirements and authority of the Naval Nuclear Propulsion Program, which is decribed in Section 1.3. The Kesselring and Windsor prototype sites are also used to provide full scale testing of propulsion plant hardware, as well as to train personnel to operate these plants. The prototype plants are operated and maintained in the same manner as actual ship propulsion plants, hence the type of maintenance and overhaul work performed is similar.

KAPL-Knolls Site is located in Niskayuna, New York, about 3.2 km east of Schenectady (Figure 22-1). The site occupies 0.09 km^2 of land on the south bank of the Mohawk River. Facilities at the site include machine shops, waste-handling facilities, a boiler house, and chemistry, physics, and metallurgy laboratories. The only mixed waste generated by the site is MLLW.

22.3.1 Mixed Waste

22.3.1.1 High-Level Waste

There is no HLW currently stored or expected to be generated at KAPL.

22.3.1.2 Mixed Transuranic Waste

There is no MTRU waste currently stored at KAPL. MTRU waste may be generated in the future.

22.3.1.3 Mixed Low-Level Waste

KAPL currently has in storage as of December 31, 1992, 0.81 m^3 (54.04 kg) of MLLW consisting of 4 streams: mercury materials, asbestos contaminated with mercury, trichloroethylene (TCE) still bottoms, and rags contaminated with Freon 113. All stored waste is subject to the LDR. Of these 4 streams, only the TCE and the mercury stream are expected to be generated in the future. Ten other waste types are predicted to be generated from facility and equipment maintenance, cleaning and repair, inventory control of outdated chemicals, laboratory analyses, general laboratory waste, and equipment decommissioning. The 5-year projected generation of mixed waste is about 10 m^3 (7,800 kg) (Table 22.3-1).

Waste minimization includes eliminating wherever technically allowed, the use of acetone and other F-listed solvents, lead and chromium-based paints, lead shielding in disposal containers, and chemical paint removers.

22.3.2 Treatment Facilities

Small quantities of mixed waste are generated at KAPL. As of this date, no treatment facilities for the waste have been identified. Where possible, simple treatment by stablization in the accumulation container will be performed in accordance with applicable state regulations.

Table 22.3-1
Mixed Wastes at the Knolls Atomic Power Laboratory - Knolls

Waste Type/Matrix	Number of Waste Streams	Inventory		Number of Waste Streams	Five-Year Projection	
		(m^3)	(kg)		(m^3)	(kg)
WASTE TYPE -- MLLW						
CH, Organic Liquids	0	0.00	0.00	2	2.10	2,820.00
CH, Organic Sludges/particulates	1	0.20	15.80	2	0.50	650.00
CH, Inorganic Sludges/particulates	0	0.00	0.00	1	0.40	245.00
CH, Organic Debris	1	0.40	28.80	2	2.90	549.00
CH, Inorganic Debris	1	0.20	9.21	1	0.50	680.00
CH, Heterogeneous Debris	1	<0.10	0.23	1	<0.10	1.15
CH, Lab Packs Without Metals	0	0.00	0.00	2	2.70	855.00
CH, Elemental Lead	0	0.00	0.00	1	1.00	2,000.00
Sub-Total MLLW:	4	0.81	54.04	12	10.15	7,800.15
TOTAL:	4	0.81	54.04	12	10.15	7,800.15

22.3.3 Technology Development

Since radiation levels are not of sufficient significance to affect treatment, these mixed waste streams should require technology comparable to that used in treating similar hazardous, but non-radioactive waste streams. Concentration of radionuclides in treatment residues will need to be considered. There are no site-specific technology needs or development activities for KAPL.

22.3.4 Excess Heavy Metal Bearing Equipment

During equipment decommissioning, every effort is made to separate lead-bearing and other heavy metal components from the radioactive parts of the equipment to avoid declaring the entire unit mixed waste. The equipment containing recyclable heavy metals expected to become excess in the next 5 years is approximately 1.29 m^3 (6,000 kg).

WASTE

PROFILE

SHEETS

Knolls Atomic Power Laboratory
Knolls Site

KAPL/KNOLLS-WPS-1

April 1993

ROADMAP TO WASTE PROFILE SHEETS (WPS)

Waste Profile Sheets (WPS) have been compiled in this report for each of the mixed waste streams identified at the different DOE sites. Each WPS is a concise summary of the information required by the FFCAct-1992, with waste stream specific data primarily derived from the Waste Management Information System (WMIS) database. Each WPS consists of the following items:

Header: The information in the header in each WPS includes the State, the official name of the site, an identification number, an identifying waste stream name, the waste type, and the waste matrix. The identification number is either a number assigned by the WMIS database or a number assigned by the site. The waste stream name is a unique identifier which corresponds to the name used in the WMIS database, or is assigned by the site. The waste type is either HLW, MTRU, or MLLW. The waste matrix corresponds to the categories (or their further subdivisions) defined earlier based on the physical and chemical form of the waste.

Waste Stream Description and Source: This section of the WPS presents a short description of the source of the waste and the waste stream characteristics.

Inventory Table: The inventory table in each WPS reports the volume (m^3) and/or mass (kg) of each waste stream currently in storage, and projected to be generated in the next five years. The table also indicates the date assumed in calculating the current and projected inventories. As required by the FFCAct-1992, the table also differentiates between waste not subject to LDR and that subject to LDR for the current inventory.

Treatability Group: This section lists the name of the treatability group to which the waste stream belongs.

Treatment Status, Technology Status: This section of the WPS lists the status of the technology that could be applied to the waste stream for compliance with the LDR. This section provides information on if the waste stream is currently being treated, and if technology options and facilities for the treatment exist.

Radiation Characteristics Section: This section of the WPS provides additional information on the radiological characteristics of the waste (in addition to characterizing the waste stream as HLW, MTRU, or MLLW). This section of the WPS specifies whether the waste stream is contact handled or remote handled, if the radionuclides are alpha or beta/gamma emitters, and if they contain activation products.

Radiation Effects Section: As required by the FFCAct-1992, this section of the WPS lists possible effects of the radiological characteristics of the waste stream on treatment technologies that could be applicable to that waste stream. For example, radiation levels may require remote handling of the waste and affect the design and operation of the treatment facility. The presence of volatile radionuclides may require the containment of all off-gases from the treatment system.

Waste Minimization Activities: As required by the FFCAct-1992, this section of the WPS provides information on the waste minimization practices being used for the waste stream. This section provides information on if the waste minimization practices include good operating practices, technology changes, raw material changes, product changes, etc.

EPA Code: This table of the WPS reports the EPA hazardous waste codes applicable to the waste stream, the basis for assigning the codes (process knowledge or sampling/analysis), the LDR basis (which is either technology based or concentration based), and the BDAT for each of the EPA hazardous waste codes.

In summary, the WPS for each waste stream, along with the site sections in the report for each State (Section B), summarize the site-specific information required by the FFCAct-1992.

State: New York | ID #: 0000000003

Site: KNOLLS ATOMIC POWER LABORATORY

Waste Stream Name: MISCELLANEOUS LABORATORY CHEMICALS

Matrix: Lab Packs without Metals | Waste Type: MLLW

Waste Stream Description and Source:
Unusable chemicals.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	2.0	605.0

Treatability Group:
MLLW CH, Lab Packs without Metals

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary. Technology to treat this waste should be consistent with technology needed to treat equivalent solely hazardous waste.

Radiation Characteristics:
1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:
Radiation levels are not expected to cause significant radiological problems during treatment; treatment would be similar to that done on non-radioactive hazardous waste having the same characteristics. Concentration of radionuclides in treatment residues will be considered.

Waste Minimization Activities:
Good operating practices and inventory procedures.

EPA CODES
Waste Characterization Basis: Process knowledge

No applicable RCRA Codes have been identified.

The alternate LDR treatment standards for labpachs is incineration as a method of treatment and a requirement for the incinerator residues to meet the treatment standards for the TC toxic metals (i.e., D004-D008, and D010-D011).

State: New York	**ID #: 0000000004**
Site: KNOLLS ATOMIC POWER LABORATORY	
Waste Stream Name: CUTTING OILS, LIQUIDS, LUBRICANTS	
Matrix: Organic Liquids	**Waste Type: MLLW**

Waste Stream Description and Source:
Lubricating cutting oils or liquids.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	0.100	120.0

Treatability Group:
MLLW CH, Organic Liquids, Toxic Metals w/ Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary. Technology to treat this waste should be consistent with technology needed to treat equivalent solely hazardous waste.

Radiation Characteristics:
1) Contact-handled
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
Radiation levels are not of significance to affect treatment. Concentration of radionuclides in treatment residues will be considered.

Waste Minimization Activities:
Good operating practices.

State: New York | ID #: 0000000004

Site: KNOLLS ATOMIC POWER LABORATORY

Waste Stream Name: CUTTING OILS, LIQUIDS, LUBRICANTS

Matrix: Organic Liquids | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D005	Conc.	Chemical Precipitation; or Stabilization
D006B	Conc.	Stabilization
D007	Conc.	Chemical Reduction followed by Stabilization
D008B	Conc.	Stabilization
D009C	Conc.	Thermal Recovery of Metals; Acid Leaching; Stabilization; or Incineration
D011	Conc.	Stabilization

State: New York **ID #: 0000000005**

Site: KNOLLS ATOMIC POWER LABORATORY

Waste Stream Name: TRICHLOROETHYLENE

Matrix: Organic Sludges/Particulates **Waste Type: MLLW**

Waste Stream Description and Source:
Still bottoms on speedi-dry (clay) from the distillation of trichloroethylene for reuse.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.200	15.8	0.200	15.8	0.100	20.0

Treatability Group:
MLLW CH, Organic Sludges/Particulates, Toxic Organics

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary. Technology to treat this waste should be consistent with technology needed to treat equivalent solely hazardous waste.

Radiation Characteristics:
1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:
Radiation levels are not expected to cause significant radiological problems during treatment; treatment would be similar to that done on non-radioactive hazardous waste having the same characteristics. Concentration of radionuclides in treatment residues will be considered.

Waste Minimization Activities:
Waste is no longer generated.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D040		Not currently prohibited under the LDR Program.

State: New York	ID #: 0000000006
Site: KNOLLS ATOMIC POWER LABORATORY	
Waste Stream Name: MERCURY MATERIALS	
Matrix: Heterogeneous Debris	Waste Type: MLLW

Waste Stream Description and Source:
Cleanup of mercury, absorbed on sponges.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.010	0.230	0.010	0.230	0.050	1.2

Treatability Group:
MLLW CH, Heterogeneous Debris, Toxic Metals w/ Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary. Technology to treat this waste should be consistent with technology needed to treat equivalent solely hazardous waste.

Radiation Characteristics:
1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:
Radiation levels are not expected to cause significant radiological problems during treatment; treatment would be similar to that done on non-radioactive hazardous waste having the same characteristics. Concentration of radionuclides in treatment residues will be considered.

Waste Minimization Activities:

Good operating practices.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D009B	Tech.	Mercury Roast/Retort

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the

State: New York	ID #: 0000000006
Site: KNOLLS ATOMIC POWER LABORATORY	
Waste Stream Name: MERCURY MATERIALS	
Matrix: Heterogeneous Debris	Waste Type: MLLW

following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: New York | ID #: 0000000007

Site: KNOLLS ATOMIC POWER LABORATORY

Waste Stream Name: ASBESTOS CONTAMINATED WITH MERCURY

Matrix: Inorganic Debris | Waste Type: MLLW

Waste Stream Description and Source:
Mercury spilled onto insulated piping.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.200	9.2	0.200	9.2	0.000	0.000

Treatability Group:
MLLW CH, Inorganic Debris, Toxic Metals w/ Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary. Technology to treat this waste should be consisitent with technology needed to treat equivalent solely hazardous waste.

Radiation Characteristics:
1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:
Radiation levels are not expected to cause significant radiological problems during treatment; treatment would be similar to that done on non-radioactive hazardous waste having the same characteristics. Concentration of radionuclides in treatment residues will be considered. Radionuclide is Co-60.

Waste Minimization Activities:

Waste is no longer generated.

EPA CODES
Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D009C	Conc.	Thermal Recovery of Metals; Acid Leaching; Stabilization; or Incineration

State: New York	**ID #: 0000000007**
Site: KNOLLS ATOMIC POWER LABORATORY	
Waste Stream Name: ASBESTOS CONTAMINATED WITH MERCURY	
Matrix: Inorganic Debris	**Waste Type: MLLW**

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: New York	**ID #: 0000000008**
Site: KNOLLS ATOMIC POWER LABORATORY	
Waste Stream Name: FREON 113 ON RAGS	
Matrix: Organic Debris	**Waste Type: MLLW**

Waste Stream Description and Source:
Dye penetrant with Freon 113 used for equipment examination.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.400	28.8	0.400	28.8	0.000	0.000

Treatability Group:
MLLW CH, Organic Debris, Toxic Organics

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary. Technology to treat this waste should be consistent with technology needed to treat equivalent solely hazardous waste.

Radiation Characteristics:
1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:
Radiation levels are not expected to cause significant radiological problems during treatment; treatment would be similar to that done on non-radioactive hazardous waste having the same characteristics. Concentration of radionuclides in treatment residues will be considered.

Waste Minimization Activities:
Waste stream is no longer generated.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F002	Conc.	Incineration

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical,

State: New York	**ID #: 0000000008**
Site: KNOLLS ATOMIC POWER LABORATORY	
Waste Stream Name: FREON 113 ON RAGS	
Matrix: Organic Debris	**Waste Type: MLLW**

or thermal), macro/microencapsulation or sealing.

State: New York | ID #: 0000000009

Site: KNOLLS ATOMIC POWER LABORATORY

Waste Stream Name: OILS CONTAINING HEAVY METALS

Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:

Lubricating pump and hydraulic oils from maintenance and repair of various equipment and machinery.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	2.0	2,700.0

Treatability Group:

MLLW CH, Organic Liquids, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Assessing technologies to determine if the technology exists, and if so, whether it needs modification. Technology to treat this waste should be consistent with technology needed to treat equivalent solely hazardous waste.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

Radiation levels are not expected to cause significant radiological problems during treatment; treatment would be similar to that done on non-radioactive hazardous waste having the same characteristics. Concentration of radionuclides in treatment residues will be considered.

Waste Minimization Activities:

Good operating practices.

State: New York **ID #: 0000000009**

Site: KNOLLS ATOMIC POWER LABORATORY

Waste Stream Name: OILS CONTAINING HEAVY METALS

Matrix: Organic Liquids **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D005	Conc.	Chemical Precipitation; or Stabilization
D006B	Conc.	Stabilization
D007	Conc.	Chemical Reduction followed by Stabilization
D008B	Conc.	Stabilization
D011	Conc.	Stabilization

State: New York | ID #: 0000000011

Site: KNOLLS ATOMIC POWER LABORATORY

Waste Stream Name: MISCELLANEOUS LABAORATORY CHEMICALS

Matrix: Lab Packs without Metals | Waste Type: MLLW

Waste Stream Description and Source:
Unusable chemicals.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	0.700	250.0

Treatability Group:
MLLW CH, Lab Packs without Metals

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary. Technology to treat this waste should be consistent with technology needed to treat equivalent solely hazardous waste.

Radiation Characteristics:
1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:
Radiation levels are not expected to cause significant radiological problems during treatment; treatment would be similar to that done on non-radioactive hazardous waste having the same characteristics. Concentration of radionuclides in treatment residues will be considered.

Waste Minimization Activities:

Good operating practices and inventory procedures.

EPA CODES
Waste Characterization Basis: Process Knowledge

No applicable RCRA Codes have been identified.

The alternate LDR treatment standards for labpachs is incineration as a method of treatment and a requirement for the incinerator residues to meet the treatment standards for the TC toxic metals (i.e., D004-D008, and D010-D011).

State: New York | ID #: 0000000012

Site: KNOLLS ATOMIC POWER LABORATORY

Waste Stream Name: ORGANIC DEBRIS CONTAINING HEAVY METALS

Matrix: Organic Debris | Waste Type: MLLW

Waste Stream Description and Source:
Maintenance and repair of facility systems and laboratory analysis.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	2.5	234.0

Treatability Group:
MLLW CH, Organic Debris, Toxic Metals w/ Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary. Technology to treat this waste should be consistent with technology needed to treat equivalent solely hazardous waste.

Radiation Characteristics:
1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:
Radiation levels are not expected to cause significant radiological problems during treatment; treatment would be similar to that done on non-radioactive hazardous waste having the same characteristics. Concentration of radionuclides in treatment residues will be considered.

Waste Minimization Activities:

Good operating practices.

State: New York | ID #: 0000000012

Site: KNOLLS ATOMIC POWER LABORATORY

Waste Stream Name: ORGANIC DEBRIS CONTAINING HEAVY METALS

Matrix: Organic Debris | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D005	Conc.	Chemical Precipitation; or Stabilization
D006B	Conc.	Stabilization
D007	Conc.	Chemical Reduction followed by Stabilization
D008B	Conc.	Stabilization
D009D	Tech.	Amalgamation
D011	Conc.	Stabilization

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: New York **ID #: 0000000014**

Site: KNOLLS ATOMIC POWER LABORATORY

Waste Stream Name: MERCURY DEBRIS AND EQUIPMENT

Matrix: Inorganic Debris **Waste Type: MLLW**

Waste Stream Description and Source:
General laboratory waste

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	0.500	680.0

Treatability Group:
MLLW CH, Inorganic Debris, Toxic Metals w/ Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary. Technology to treat this waste should be consistent with technology needed to treat equivalent solely hazardous waste.

Radiation Characteristics:
1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:
Radiation levels are not of significance to affect treatment. Concentration of radionuclides in treatment residues will be considered.

Waste Minimization Activities:

Good operating practices.

State: New York **ID #: 0000000014**

Site: KNOLLS ATOMIC POWER LABORATORY

Waste Stream Name: MERCURY DEBRIS AND EQUIPMENT

Matrix: Inorganic Debris **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D005	Conc.	Chemical Precipitation; or Stabilization
D006B	Conc.	Stabilization
D007	Conc.	Chemical Reduction followed by Stabilization
D008B	Conc.	Stabilization
D009D	Tech.	Amalgamation
D011	Conc.	Stabilization

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: New York **ID #: 0000000015**

Site: KNOLLS ATOMIC POWER LABORATORY

Waste Stream Name: LEAD IN BRICKS, SHEETS, OR WOOL

Matrix: Elemental Lead **Waste Type: MLLW**

Waste Stream Description and Source:
Lead shielding.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	1.000	2,000.0

Treatability Group:
MLLW CH, Elemental Lead, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary.

Waste-Specific Radiation Effects on Treatment:
TBD - waste not yet generated.

Waste Minimization Activities:
1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.
2) Waste avoidance due to recycling/reuse: solvent, oil, and metals recycling; chemical exchange and reuse; and packaging material reuse.

During equipment decommissioning, every effort will be made to determine which lead-bearing or other heavy metal components are contaminated in order to avoid declaring the entire unit mixed waste.

EPA CODES
Waste Characterization Basis: Unknown

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008B	Conc.	Stabilization

State: New York | ID #: 0000000018

Site: KNOLLS ATOMIC POWER LABORATORY

Waste Stream Name: INORGANIC SLUDGE/PARTICULATES CONTAINING HEAVY METALS

Matrix: Inorganic Sludges/Particulates | Waste Type: MLLW

Waste Stream Description and Source:

System residues and particulates from maintenance, decontamination or deactivation and paint chips.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	0.400	245.0

Treatability Group:

MLLW CH, Inorganic Sludges/Particulates, Toxic Metals w/ Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time.

Technology Status:

Technology exists. No modifications are necessary. Technology to treat this waste should be consistent with technology needed to treat equivalent solely hazardous waste.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

Radiation levels are not expected to cause significant radiological problems during treatment; treatment would be similar to that done on non-radioactive hazardous waste having the same characteristics. Concentration of radionuclides in treatment residues will be considered.

Waste Minimization Activities:

Good operating practices.

State: New York ID #: 0000000018

Site: KNOLLS ATOMIC POWER LABORATORY

Waste Stream Name: INORGANIC SLUDGE/PARTICULATES CONTAINING HEAVY METALS

Matrix: Inorganic Sludges/Particulates Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D005	Conc.	Chemical Precipitation; or Stabilization
D006B	Conc.	Stabilization
D007	Conc.	Chemical Reduction followed by Stabilization
D008B	Conc.	Stabilization
D009D	Tech.	Amalgamation
D011	Conc.	Stabilization

State: New York | ID #: 0000000036

Site: KNOLLS ATOMIC POWER LABORATORY

Waste Stream Name: ORGANIC DEBRIS CONTAINING HEAVY METALS

Matrix: Organic Debris | Waste Type: MLLW

Waste Stream Description and Source:

Clothes and plastics from maintenance and repair of facility systems and laboratory analysis

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	0.400	315.0

Treatability Group:

MLLW CH, Organic Debris, Toxic Organics

Treatment Status:

Technology Status:

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:

Radiation levels are not expected to cause significant radiological problems during treatment; treatment would be similar to that done on non-radioactive hazardous waste having the same characteristics. Concentration of radionuclides in treatment residues will be considered. Radionuclide is Co-60.

Waste Minimization Activities:

Good operating practices.

State: New York | ID #: 0000000036

Site: KNOLLS ATOMIC POWER LABORATORY

Waste Stream Name: ORGANIC DEBRIS CONTAINING HEAVY METALS

Matrix: Organic Debris | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Unknown

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F001	Conc.	Incineration
F002	Conc.	Incineration
F003	Conc.	Incineration

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: New York | ID #: 0000000043

Site: KNOLLS ATOMIC POWER LABORATORY

Waste Stream Name: ORGANIC SLUDGE/PARTICULATES CONTAINING HEAVY METALS

Matrix: Organic Sludge/Particulates | Waste Type: MLLW

Waste Stream Description and Source:
Cleaning/deactivation of piping systems or repair of equipment. The waste stream includes oganic sludges/particulates and paint chips.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	0.400	630.0

Treatability Group:
MLLW CH, Organic Sludge/Particulates

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Contact-handled
2) Alpha emitter, < 10 nCi/g

Waste-Specific Radiation Effects on Treatment:
Radiation levels are not expected to cause significant radiological problems during treatment; treatment would be similar to that done on non-radioactive hazardous waste having the same characteristics. Concentration of radionuclides in treatment residues will be considered. Radionuclide is Co-60.

Waste Minimization Activities:

Good Operating Practices. Use of lead and chromium-based paints is being eliminated where practicable.

General Comments:
Waste stream not yet generated.

EPA CODES
Waste Characterization Basis: Unknown

No applicable RCRA Codes have been identified.

22.4 Knolls Atomic Power Laboratory - Kesselring Site

The Knolls Atomic Power Laboratory (KAPL) is operated by KAPL, Inc., a wholly owned subsidiary of the Martin Marietta Corporation under contract to the DOE. KAPL consists of 3 sites: the Knolls and Kesselring Sites in New York and the Windsor Site in Connecticut. These sites are engaged solely in research and development for the design and operation of naval nuclear propulsion plants. Activities relating to naval nuclear propulsion systems are performed in accordance with the requirements and authority of the Naval Nuclear Propulsion Program, which is described in section 1.3. The Kesselring and Windsor prototype sites are also used to provide full scale testing of propulsion plant hardware, and to train personnel to operate these plants. Since the prototype plants are operated and maintained in the same manner as actual ship propulsion plants, the type of maintenance and overhaul work performed is similar to that performed on nuclear-powered ships.

The KAPL - Kesselring Site is located 3.3 km north of Schenectady, New York near the town of West Milton (Figure 22-1). The site occupies 300 acres of land. Facilities at the site include 4 pressurized water naval propulsion plants, administrative offices, training facilities, equipment service buildings, a boiler house, cooling towers, and waste-handling facilities. The only mixed waste generated by the site is MLLW.

22.4.1 Mixed Waste

22.4.1.1 High-Level Waste

There is no HLW currently stored or expected to be generated at KAPL - Kesselring Site.

22.4.1.2 Mixed Transuranic Waste

There is no MTRU currently stored or expected to be generated at KAPL - Kesselring Site.

22.4.1.3 Mixed Low-Level Waste

KAPL - Kesselring Site has as of December 31, 1992, 1.72 m^3 (332.3 kg) of MLLW in storage. The waste consists of 11 waste streams (Table 22.4-1); cooling water filters contaminated with lead and silver, lead contaminated debris, scintillation cocktails, and cadmium-plated solids from equipment maintenance. All stored waste is subject to the LDR. Of these, only the cadmium-plated solids stream is expected to be generated in the future. Seven other waste types are predicted to be generated from equipment maintenance, cleaning and repair, inventory control of outdated chemicals, laboratory analyses, and equipment decommissioning. The 5-year projected generation of mixed waste is 13.95 m^3 (13,884 kg) (Table 22.4-1).

All waste streams are contact-handled, beta/gamma emitters with Co-60 as the primary radionuclide.

Waste minimization includes eliminating wherever technically allowed, the use of acetone and other F-listed solvents, lead and chromium-based paints, lead shielding in disposal containers, and chemical paint removers.

Table 22.4-1

MIXED WASTES AT KNOLLS ATOMIC POWER LAB. - KESSELRING

Waste Type/Matrix	Number of Waste Streams	Inventory		Number of Waste Streams	Five-Year Projection	
		(m^3)	(kg)		(m^3)	(kg)
WASTE TYPE -- MLLW						
CH, Organic Liquids	0	0.00	0.00	2	1.40	2,970.00
CH, Organic Sludges/particulates	0	0.00	0.00	1	4.20	3,900.00
CH, Inorganic Sludges/particulates	0	0.00	0.00	1	0.50	360.00
CH, Organic Debris	2	1.70	327.00	2	3.90	2,515.00
CH, Inorganic Debris	1	<0.10	5.00	2	0.65	789.00
CH, Lab Packs With Metals	0	0.00	0.00	1	1.00	650.00
CH, Lab Packs Without Metals	1	<0.10	0.30	1	1.30	900.00
CH, Elemental Lead	0	0.00	0.00	1	1.00	1,800.00
Sub-Total MLLW:	4	1.72	332.30	11	13.95	13,884.00
TOTAL:	4	1.72	332.30	11	13.95	13,884.00

22.4.2 Treatment Facilities

Small quantities of mixed waste are generated at KAPL - Kesselring Site. As of this date, no treatment facilities for the waste have been identified. Where possible, simple treatment by stabilization in the accumulation container will be performed in accordance with applicable state regulations.

22.4.3 Technology Development

Since radiation levels are not of significance to affect treatment, these mixed waste streams should require technology comparable to that used in treating similar hazardous, but non-radioactive waste streams. Concentration of radionuclides in treatment residues will need to be considered. There are no site-specific technology development activities for KAPL - Kesselring Site.

22.4.4 Excess Heavy Metal Bearing Equipment

During equipment decommissioning, every effort is made to separate lead-bearing and other heavy metal components from the radioactive parts of the equipment to avoid declaring the entire unit mixed waste. The equipment containing recyclable heavy metals expected to become excess in the next 5 years is 131.4 m^3 (90,000 kg).

WASTE

PROFILE

SHEETS

Knolls Atomic Power Laboratory

Kesselring

KAPL-KS-WPS-1

April 1993

4692

Waste Profile Sheets (WPS) have been compiled in this report for each of the mixed waste streams identified at the different DOE sites. Each WPS is a concise summary of the information required by the FFCAct-1992, with waste stream specific data primarily derived from the Waste Management Information System (WMIS) database. Each WPS consists of the following items:

Header: The information in the header in each WPS includes the State, the official name of the site, an identification number, an identifying waste stream name, the waste type, and the waste matrix. The identification number is either a number assigned by the WMIS database or a number assigned by the site. The waste stream name is a unique identifier which corresponds to the name used in the WMIS database, or is assigned by the site. The waste type is either HLW, MTRU, or MLLW. The waste matrix corresponds to the categories (or their further subdivisions) defined earlier based on the physical and chemical form of the waste.

Waste Stream Description and Source: This section of the WPS presents a short description of the source of the waste and the waste stream characteristics.

Inventory Table: The inventory table in each WPS reports the volume (m^3) and/or mass (kg) of each waste stream currently in storage, and projected to be generated in the next five years. The table also indicates the date assumed in calculating the current and projected inventories. As required by the FFCAct-1992, the table also differentiates between waste not subject to LDR and that subject to LDR for the current inventory.

Treatability Group: This section lists the name of the treatability group to which the waste stream belongs.

Treatment Status, Technology Status: This section of the WPS lists the status of the technology that could be applied to the waste stream for compliance with the LDR. This section provides information on if the waste stream is currently being treated, and if technology options and facilities for the treatment exist.

Radiation Characteristics Section: This section of the WPS provides additional information on the radiological characteristics of the waste (in addition to characterizing the waste stream as HLW, MTRU, or MLLW). This section of the WPS specifies whether the waste stream is contact handled or remote handled, if the radionuclides are alpha or beta/gamma emitters, and if they contain activation products.

Radiation Effects Section: As required by the FFCAct-1992, this section of the WPS lists possible effects of the radiological characteristics of the waste stream on treatment technologies that could be applicable to that waste stream. For example, radiation levels may require remote handling of the waste and affect the design and operation of the treatment facility. The presence of volatile radionuclides may require the containment of all off-gases from the treatment system.

Waste Minimization Activities: As required by the FFCAct-1992, this section of the WPS provides information on the waste minimization practices being used for the waste stream. This section provides information on if the waste minimization practices include good operating practices, technology changes, raw material changes, product changes, etc.

EPA Code: This table of the WPS reports the EPA hazardous waste codes applicable to the waste stream, the basis for assigning the codes (process knowledge or sampling/analysis), the LDR basis (which is either technology based or concentration based), and the BDAT for each of the EPA hazardous waste codes.

In summary, the WPS for each waste stream, along with the site sections in the report for each State (Section B), summarize the site-specific information required by the FFCAct-1992.

State: New York | ID #: 0000000019

Site: KNOLLS ATOMIC POWER LAB. - KESSELRING

Waste Stream Name: FILTERS CONTAMINATED WITH LEAD, SILVER

Matrix: Organic Debris | Waste Type: MLLW

Waste Stream Description and Source:
Cooling water system cleaning.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.200	47.0	0.200	47.0	0.000	0.000

Treatability Group:
MLLW CH, Organic Debris, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary. Technology to treat this waste should be consistent with technology needed to treat equivalent solely hazardous waste.

Radiation Characteristics:
1) Contact-handled
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
Radiation levels are not expected to cause significant radiological problems during treatment; treatment would be similar to that done on non-radioactive hazardous waste having the same characteristics. Concentration of radionuclides in treatment residues will be considered. Radionuclides are Co-60, Fe-55, Mn-54, Co-58, Ni-63.

Waste Minimization Activities:
Waste stream is no longer generated.

State: New York **ID #: 0000000019**

Site: KNOLLS ATOMIC POWER LAB. - KESSELRING

Waste Stream Name: FILTERS CONTAMINATED WITH LEAD, SILVER

Matrix: Organic Debris **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008B	Conc.	Stabilization
D011	Conc.	Stabilization

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: New York
ID #: 0000000022
Site: KNOLLS ATOMIC POWER LAB. - KESSELRING
Waste Stream Name: CADMIUM-PLATED SOLIDS
Matrix: Inorganic Debris
Waste Type: MLLW

Waste Stream Description and Source:
Equipment maintenance.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.020	5.0	0.020	5.0	0.100	15.0

Treatability Group:
MLLW CH, Inorganic Debris, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary. Technology to treat this waste should be consistent with technology needed to treat equivalent solely hazardous waste.

Radiation Characteristics:
1) Contact-handled
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
Radiation levels are not expected to cause significant radiological problems during treatment; treatment would be similar to that done on non-radioactive hazardous waste having the same characteristics. Concentration of radionuclides in treatment residues will be considered. Radionuclides are Co-60, Fe-55, Mn-54, Co-58, Ni-63.

Waste Minimization Activities:
Good operating practices.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D006B	Conc.	Stabilization

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the

State: New York	ID #: 0000000022
Site: KNOLLS ATOMIC POWER LAB. - KESSELRING	
Waste Stream Name: CADMIUM-PLATED SOLIDS	
Matrix: Inorganic Debris	Waste Type: MLLW

following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: New York | ID #: 0000000023
Site: KNOLLS ATOMIC POWER LAB. - KESSELRING
Waste Stream Name: OILS CONTAINING HEAVY METALS
Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:
Lubricating, pump and hydraulic oils from maintenance and repair of various equipment and machinery.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	1.000	2,475.0

Treatability Group:
MLLW CH, Organic Liquids, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary. Technology to treat this waste should be consistent with technology needed to treat equivalent solely hazardous waste.

Radiation Characteristics:
1) Contact-handled
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
Radiation levels are not expected to cause significant radiological problems during treatment; treatment would be similar to that done on non-radioactive hazardous waste having the same characteristics. Concentration of radionuclides in treatment residues will be considered. Radionuclide is Co-60.

Waste Minimization Activities:
Good operating practices.

State: New York **ID #: 0000000023**

Site: KNOLLS ATOMIC POWER LAB. - KESSELRING

Waste Stream Name: OILS CONTAINING HEAVY METALS

Matrix: Organic Liquids **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D005	Conc.	Chemical Precipitation; or Stabilization
D006B	Conc.	Stabilization
D007	Conc.	Chemical Reduction followed by Stabilization
D008B	Conc.	Stabilization
D011	Conc.	Stabilization

State: New York | ID #: 0000000025
Site: KNOLLS ATOMIC POWER LAB. - KESSELRING
Waste Stream Name: MISCELLANEOUS LABORATORY CHEMICALS
Matrix: Lab Packs without Metals | Waste Type: MLLW

Waste Stream Description and Source:
Unusable chemicals.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.001	0.300	0.001	0.300	1.3	900.0

Treatability Group:
MLLW CH, Lab Packs without Metals

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary. Technology to treat this waste should be consistent with technology needed to treat equivalent solely hazardous waste.

Radiation Characteristics:
1) Contact-handled
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
Radiation levels are not expected to cause significant radiological problems during treatment; treatment would be similar to that done on non-radioactive hazardous waste having the same characteristics. Concentration of radionuclides in treatment residues will be considered. Radionuclide is Co-60.

Waste Minimization Activities:
Inventory control.

General Comments:
Due to nature of work (R&D), virtually any waste code is possible.

EPA CODES
Waste Characterization Basis: Process Knowledge

No applicable RCRA Codes have been identified.

State: New York | ID #: 0000000026

Site: KNOLLS ATOMIC POWER LAB. - KESSELRING

Waste Stream Name: ORGANIC DEBRIS CONTAINING HEAVY METALS

Matrix: Organic Debris | Waste Type: MLLW

Waste Stream Description and Source:
Maintenance and repair of facility systems and laboratory analysis.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	1.5	280.0	1.5	280.0	3.5	2,200.0

Treatability Group:
MLLW CH, Organic Debris, Toxic Metals w/ Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary. Technology to treat this waste should be consistent with technology needed to treat equivalent solely hazardous waste.

Radiation Characteristics:
1) Contact-handled
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
Radiation levels are not expected to cause significant radiological problems during treatment; treatment would be similar to that done on non-radioactive hazardous waste having the same characteristics. Concentration of radionuclides in treatment residues will be considered. Radionuclide is Co-60.

Waste Minimization Activities:
Good operating practices.

State: New York | ID #: 0000000026

Site: KNOLLS ATOMIC POWER LAB. - KESSELRING

Waste Stream Name: ORGANIC DEBRIS CONTAINING HEAVY METALS

Matrix: Organic Debris | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D005	Conc.	Chemical Precipitation; or Stabilization
D006B	Conc.	Stabilization
D007	Conc.	Chemical Reduction followed by Stabilization
D008B	Conc.	Stabilization
D009D	Tech.	Amalgamation
D011	Conc.	Stabilization

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: New York | ID #: 0000000028
Site: KNOLLS ATOMIC POWER LAB. - KESSELRING
Waste Stream Name: INORGANIC DEBRIS AND EQUIPMENT
Matrix: Inorganic Debris | Waste Type: MLLW

Waste Stream Description and Source:
General laboratory waste.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	0.550	774.0

Treatability Group:
MLLW CH, Inorganic Debris, Toxic Metals w/ Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary. Technology to treat this waste should be consistent with technology needed to treat equivalent solely hazardous waste.

Radiation Characteristics:
1) Contact-handled
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
Radiation levels are not expected to cause significant radiological problems during treatment; treatment would be similar to that done on non-radioactive hazardous waste having the same characteristics. Concentration of radionuclides in treatment residues will be considered. Radionuclide is Co-60.

Waste Minimization Activities:
Good operating practices.
Product change.

State: New York	**ID #: 0000000028**
Site: KNOLLS ATOMIC POWER LAB. - KESSELRING	
Waste Stream Name: INORGANIC DEBRIS AND EQUIPMENT	
Matrix: Inorganic Debris	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D005	Conc.	Chemical Precipitation; or Stabilization
D006B	Conc.	Stabilization
D007	Conc.	Chemical Reduction followed by Stabilization
D008B	Conc.	Stabilization
D009C	Conc.	Thermal Recovery of Metals; Acid Leaching; Stabilization; or Incineration
D011	Conc.	Stabilization

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: New York	**ID #: 0000000030**
Site: KNOLLS ATOMIC POWER LAB. - KESSELRING	
Waste Stream Name: INORGANIC SLUDGES/PARTICULATES	
Matrix: Inorganic Sludges/Particulates	**Waste Type: MLLW**

Waste Stream Description and Source:
System residues and maintenance; paint chips.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	0.500	360.0

Treatability Group:
MLLW CH, Inorganic Sludges/Particulates, Toxic Metals w/o Mercury

Treatment Status:
Paint chips will be subjected to simple treatment by stabilization in the accumulation container in accordance with state regulations.

Technology Status:
Technology exists. No modifications are necessary. Technology to treat this waste should be consistent with technology needed to treat equivalent solely hazardous waste.

Radiation Characteristics:
1) Contact-handled
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
Radiation levels are not expected to cause significant radiological problems during treatment; treatment would be similar to that done on non-radioactive hazardous waste having the same characteristics. Concentration of radionuclides in treatment residues will be considered. Radionuclide is Co-60.

Waste Minimization Activities:
Good operating practices.
Substitute non-hazardous paints wherever possible.

State: New York | ID #: 0000000030

Site: KNOLLS ATOMIC POWER LAB. - KESSELRING

Waste Stream Name: INORGANIC SLUDGES/PARTICULATES

Matrix: Inorganic Sludges/Particulates | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D006B	Conc.	Stabilization
D008B	Conc.	Stabilization

State: New York **ID #: 0000000032**

Site: KNOLLS ATOMIC POWER LAB. - KESSELRING

Waste Stream Name: ORGANIC SLUDGES/PARTICULATES CONTAINING HEAVY METALS

Matrix: Organic Sludges/Particulates **Waste Type: MLLW**

Waste Stream Description and Source:
System residues and maintenance; paint chips.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	4.2	3,900.0

Treatability Group:
MLLW CH, Organic Sludges/Particulates, Toxic Metals w/ Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary. Technology to treat this waste should be consistent with technology needed to treat equivalent solely hazardous waste.

Radiation Characteristics:
1) Contact-handled
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
Radiation levels are not expected to cause significant radiological problems during treatment; treatment would be similar to that done on non-radioactive hazardous waste having the same characteristics. Concentration of radionuclides in treatment residues will be considered. Radionuclide is Co-60.

Waste Minimization Activities:
Good operating practices. Substitue with non-hazardous paint where practicable.

State: New York ID #: 0000000032

Site: KNOLLS ATOMIC POWER LAB. - KESSELRING

Waste Stream Name: ORGANIC SLUDGES/PARTICULATES CONTAINING HEAVY METALS

Matrix: Organic Sludges/Particulates Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D005	Conc.	Chemical Precipitation; or Stabilization
D006B	Conc.	Stabilization
D007	Conc.	Chemical Reduction followed by Stabilization
D008B	Conc.	Stabilization
D009D	Tech.	Amalgamation
D011	Conc.	Stabilization

State: New York ID #: 0000000033

Site: KNOLLS ATOMIC POWER LAB. - KESSELRING

Waste Stream Name: ORG. DEBRIS CONTAMINATED WITH CLEANING/DECON. SOLUTIONS

Matrix: Organic Debris Waste Type: MLLW

Waste Stream Description and Source:
Maintenance or Decommissioning and Decontamination.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	0.400	315.0

Treatability Group:
MLLW CH, Organic Debris, Toxic Organics

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary. Technology to treat this waste should be consistent with technology needed to treat equivalent solely hazardous waste.

Radiation Characteristics:
1) Contact-handled
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
Radiation levels are not expected to cause significant radiological problems during treatment; treatment would be similar to that done on non-radioactive hazardous waste having the same characteristics. Concentration of radionuclides in treatment residues will be considered. Radionuclide is Co-60.

Waste Minimization Activities:
Good operating practices.

State: New York ID #: 0000000033

Site: KNOLLS ATOMIC POWER LAB. - KESSELRING

Waste Stream Name: ORG. DEBRIS CONTAMINATED WITH CLEANING/DECON. SOLUTIONS

Matrix: Organic Debris Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F001	Conc.	Incineration
F002	Conc.	Incineration
F003	Conc.	Incineration

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: New York	**ID #: 0000000034**
Site: KNOLLS ATOMIC POWER LAB. - KESSELRING	
Waste Stream Name: LEAD BRICKS, SHEETS, OR WOOL	
Matrix: Elemental Lead	**Waste Type: MLLW**

Waste Stream Description and Source:
Lead shielding.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	1.000	1,800.0

Treatability Group:
MLLW CH, Elemental Lead, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary.

Waste-Specific Radiation Effects on Treatment:
TBD-waste not yet generated.

Waste Minimization Activities:
1) Improved operating practices: changes in material handling and inventory procedures; waste segregation; and changes in production scheduling.
2) Waste avoidance due to recycling/reuse: solvent, oil, and metals recycling; chemical exchange and reuse; and packaging material reuse.

During equipment decommissioning, every effort will be made to determine which lead-bearing or other heavy metal components are contaminated in order to avoid declaring the entire unit mixed waste.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008B	Conc.	Stabilization

State: New York | ID #: 0000000035

Site: KNOLLS ATOMIC POWER LAB. - KESSELRING

Waste Stream Name: LUBRICATING CUTTING OILS OR LIQUIDS

Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:
Lubricating cutting oils or liquids. This waste stream includes organic liquid.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	0.400	495.0

Treatability Group:
MLLW CH, Organic Liquids, Toxic Metals w/ Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary. Technology to treat this waste should be consistent with technology needed to treat equivalent solely hazardous waste.

Radiation Characteristics:
1) Contact-handled
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
Radiation levels are not expected to cause significant radiological problems during treatment; treatment would be similar to that done on non-radioactive hazardous waste having the same characteristics. Concentration of radionuclides in treatment residues will be considered. Radionuclide is Co-60.

Waste Minimization Activities:
Good operating practices.

State: New York **ID #: 0000000035**

Site: KNOLLS ATOMIC POWER LAB. - KESSELRING

Waste Stream Name: LUBRICATING CUTTING OILS OR LIQUIDS

Matrix: Organic Liquids **Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D005	Conc.	Chemical Precipitation; or Stabilization
D006B	Conc.	Stabilization
D007	Conc.	Chemical Reduction followed by Stabilization
D008B	Conc.	Stabilization
D009C	Conc.	Thermal Recovery of Metals; Acid Leaching; Stabilization; or Incineration
D011	Conc.	Stabilization

State: New York | ID #: 0000000036

Site: KNOLLS ATOMIC POWER LAB. - KESSELRING

Waste Stream Name: MISCELLANEOUS LABORATORY CHEMICALS

Matrix: Lab packs with Metals | Waste Type: MLLW

Waste Stream Description and Source:
Unusable chemicals.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	1.000	650.0

Treatability Group:
MLLW CH, Lab packs with Metals

Treatment Status:
Have not identified a planned facility for this waste stream at this time.

Technology Status:
Technology exists. No modifications are necessary. Technology to treat this waste should be consistent with technology needed to treat equivalent solely hazardous waste.

Radiation Characteristics:
1) Contact-handled
2) Beta/gamma emitter

Waste-Specific Radiation Effects on Treatment:
Radiation levels are not expected to cause significant radiological problems during treatment; treatment would be similar to that done on non-radioactive hazardous waste having the same characteristics. Concentration of radionuclides in treatment residues will be considered. Radionuclide is Co-60.

Waste Minimization Activities:
Inventory control.

General Comments:
Due to nature of work (R&D), virtually any waste code is possible.

EPA CODES
Waste Characterization Basis: Process Knowledge

No applicable RCRA Codes have been identified.

22.5 West Valley Demonstration Project

The West Valley Demonstration Project (WVDP) is located on the site of the only commercial nuclear fuel reprocessing plant to have operated in the United States. WVDP facilities occupy approximately 0.8 km^2 of the 13.5 km^2 Western New York Nuclear Services Center (WNYNSC) in West Valley, New York, a rural setting approximately 50 km south of Buffalo, New York (Figure 22-1). The site includes the only commercial nuclear reprocessing plant operated from 1966 to 1972 under a long-term lease from the New York State Energy Research and Development Authority (NYSERDA). The reprocessing generated approximately 2500 m^3 of highly radioactive liquid waste stored in underground steel tanks, then the approved method for storing high-level radioactive liquid waste. In 1976, the plant operator notified NYSERDA of its intention to cease operations.

In 1980, the West Valley Demonstration Project Act (Act) (Public Law 96-368) authorized DOE to conduct a high-level radioactive waste management demonstration project at the WNYNSC. WVDP was established to demonstrate that liquid waste from the reprocessing of spent nuclear fuel can be managed safely in the United States. Congress mandated: solidification of high-level radioactive waste; development of suitable containers for permanent disposal; transportation to a federal repository for permanent disposal; disposal of low-level radioactive waste and transuranic waste generated by the project; and decontamination and decommissioning of tanks and other facilities needed for the project. These activities are to be completed in accordance with the requirements of the Nuclear Regulatory Commission (NRC). The terms of the Act limit DOE's activities to those outlined in the Act. The treatment, storage, or disposal of any other waste types is not permissible, unless the Act is amended.

DOE, with its contractor West Valley Nuclear Services Inc., assumed operational control of the site in 1982. The Project is funded by DOE (90 percent) and NYSERDA (10 percent). Upon completion of WVDP Act directives, DOE will leave the premises.

WVDP has been operating under RCRA interim status for treatment and storage of radioactive mixed waste since June 1990. WVDP recently negotiated a Federal and State Facility Compliance Agreement (FSFCA) that addresses various mixed waste management and compliance issues. This agreement was executed in March 1993.

As of December 31, 1992, approximately 300 m^3 of mixed waste consisting of 22 MLLW, 1 mixed transuranic (MTRU), and 2 high-level waste (HLW) streams is stored at the West Valley site. Major waste groups are summarized in Table 22.5-1. Based on process knowledge, the predominant radionuclides present in waste streams are Cs-137/Ba-137m, Sr-90/Y-90, Pu, Am-241, and U. All MTRU waste and MLLW streams are contact-handled and contain beta/gamma and alpha-emitting radionuclides. The MTRU waste and MLLW streams pose no significant handling problems for treatment because of their relatively low radiation levels. Treatment technology exists for all waste streams; however, in most cases, available off-site treatment facilities have not been identified. The only operations waste at WVDP is that associated with the Project preparations for solidification of the HLW. MLLW and MTRU waste stream sources are routine laboratory analyses performed in conjunction with the treatment of HLW and equipment and facility maintenance and repair.

22.5.1 Mixed Waste

22.5.1.1 Mixed High Level Waste

The 2 HLW streams from the former nuclear-fuel reprocessing facility account for over 95 percent (about 290 m^3) of the total current volume of stored mixed waste. WVDP strategy is to separate high-level waste into 2 streams. One, a small-volume stream containing most of the radioactivity will be processed to a borosilicate glass waste form and ultimately disposed in a federal repository. The other, a large-volume stream of decontaminated liquid is being concentrated and immobilized as cement waste for storage on-site. The cemented, low-level radioactive waste no longer exhibits any hazardous characteristics.

During past commercial reprocessing operations at West Valley, spent fuel was dissolved in hot nitric acid. The resulting solution was separated into the desired products (uranium, plutonium), as well as unwanted fission products. Uranium and plutonium were purified and shipped off-site. The resultant corrosive acid waste solution was raised to a high pH through the addition of caustic soda and stored in tank 8D-2 (approximately 2,500 m^3). Waste from reprocessing 1 batch of fuel containing thorium was stored as an acid solution in tank 8D-4 (45 m^3). Approximately 90 percent (by volume) of the 8D-2 tank waste is supernatant liquid; the remainder is sludge at the tank bottom. Laboratory analysis has determined that the principal radionuclides are Sr-90/Y-90 in the sludge and Cs-137/Ba-137m in the supernatant.

Treatment of the supernatant began in 1988 and ended in 1990. Eighty percent of the radioactivity was removed, and 10,394 drums of cemented nonhazardous low-level radioactive waste were produced. Pretreatment of the sludge, washing with a slightly caustic solution to remove sulfates that are detrimental to the vitrification process, began in 1991. The reported HLW volume does not include the caustic solution periodically added as part of the treatment process.

WVDP removed Cs-137 from the supernatant using a custom zeolite ion-exchange resin. The sludge wash waters are also being pretreated in this manner. The spent ion-exchange media is stored in tank 8D-1, a tank that was designed as an identical spare to tank 8D-2. The resin will be blended with the 8D-2 sludge, the acidic thorium waste, and glass-forming chemicals to form the feed stock for the melter that produces the final vitrified product.

The WPS at the end of Section 22 provide details (required by the Federal Facilities Compliance Act) for each HLW stream as of December 31, 1992.

22.5.1.2 Mixed Transuranic Waste

The 1 identified MTRU waste stream at West Valley, lead shielding, accounts for 0.45 m^3 or <0.15 percent of the total waste volume. This waste is no longer being generated and is stored in Building SWMU-15. The waste-stream profile is presented at the end of Section 22.

22.5.1.3 Mixed Low-Level Waste

Twenty-two waste streams account for almost 13 m^3 of MLLW volume, with 9.6 m^3 of the total subject to LDR regulatory requirements. Eleven streams are no longer being generated. Major waste sources (see Table 22.5-1) are: decommissioned lead shielding (77 percent by volume), organic liquids (20

Table 22.5-1
Mixed Wastes at West Valley Demonstration Project

Waste Type/Matrix	Number of Waste Streams	Inventory (m^3)	Inventory (kg)	Number of Waste Streams	Five-Year Projection (m^3)	Five-Year Projection (kg)
WASTE TYPE -- HLW						
RH, Aqueous Liquid	1	45.42	45,420.00	0	0.00	0.00
RH, Inorganic Sludges/particulates	1	243.56	365,340.00	0	0.00	0.00
Sub-Total HLW:	2	288.98	410,760.00	0	0.00	0.00
WASTE TYPE -- MLLW						
CH, Organic Liquids	15	2.53	2,528.51	6	3.14	3,140.14
CH, Aqueous Liquid	4	0.40	397.74	3	2.67	2,667.00
CH, Heterogeneous Debris	1	<0.10	14.39	1	<0.10	2.50
CH, Elemental Lead	1	9.21	13,815.20	1	1.35	2,023.00
CH, Batteries (lead Acid, Cadmium)	1	<0.10	33.80	1	0.12	176.20
Sub-Total MLLW:	22	12.17	16,789.64	12	7.27	8,008.84
WASTE TYPE -- MTRU						
CH -alpha, Elemental Lead	1	0.45	680.90	0	0.00	0.00
Sub-Total MTRU:	1	0.45	680.90	0	0.00	0.00

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Table 22.5-1 (Continued)
Mixed Wastes at West Valley Demonstration Project

Waste Type/Matrix	Number of Waste Streams	Inventory		Number of Waste Streams	Five-Year Projection	
		(m^3)	(kg)		(m^3)	(kg)
WASTE TYPE -- MTRU						
TOTAL:	25	301.61	428,230.54	12	7.27	8,008.84

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percent), primarily from used oil from contaminated equipment, and aqueous liquids (3 percent) from laboratory analyses required as part of the HLW processing. A new stream, Tc aqueous waste from laboratory analyses, is expected to be generated in 1993. The identified MLLW streams have been characterized by either sampling and analysis or process knowledge.

An estimated 7.3 m^3 of new MLLW will be generated during the next 5 years. Approximately 1.4 m^3 of waste lead shielding is predicted to be generated in 1993. Generation is expected to cease after this year because a lead-management plan has been developed and implemented that provides for the reuse of contaminated lead. The waste stream consisting of fuels, oils, and lubricating fluids is predicted to be generated at a rate of 0.60 m^3/yr through 1997. Corrosive waste streams will be neutralized when generated in the future and therefore no 5-year predictions are made.

The MLLW is currently stored in Building SWMU-11, except the lead shielding, which is stored in Building SWMU-16.

With the exception of the corrosive waste streams, MLLW will not be treated on-site. The current inventory of contaminated lead shielding is being held for possible treatment, decontamination or encapsulation by a commercial facility. Lead residues from decontamination processes will be macroencapsulated. The possibility of using commercial treatment facilities is also being evaluated for the organic liquid waste streams. Treatment technology options have been evaluated for the remaining waste streams; however, suitable facilities are not available. As required by the West Valley FSFCA, annual reassessments of treatment availability will be completed.

A number of waste minimization activities have been initiated in addition to neutralization of the corrosive waste streams and reuse of lead shielding. New analytical procedures that reduce or eliminate the use of hazardous chemicals are being investigated. The use of paint containing heavy metals is being eliminated unless absolutely required. Oil changes in equipment and vehicles are based on the rate of lubricant breakdown as evidenced by analytical results rather than routine scheduling. Alcohol thermometers are used wherever possible and the use of lead-acid batteries is being reduced by attrition on a case-by-case basis.

The WPS at the end of this section provide details for each MLLW stream as of December 31, 1992.

22.5.3 Treatment Facilities

Although the Integrated Radwaste Treatment System (IRTS) and the West Valley Vitrification System (WVVS) are technically capable of treating a variety of mixed wastes, WVDP's current RCRA Interim Status Application only identifies site waste streams. DOE's mission pursuant to the West Valley Demonstration Act of 1980 (Public Law 96-368) is specifically limited to the Project Activities identified in the Act. Treatment of outside waste is prohibited as a Project Activity. The Cooperative Agreement between DOE and NYSERDA specifically provides in Section 4.02 that the Western New York Nuclear Services Center is to be used to carry out the purposes of the Act, unless NYSERDA agrees to an alternative that does not interfere with the WVDP. Existing and planned West Valley HLW treatment facilities are summarized in Table 22.5-2.

22.5.3.1 Existing Treatment Facilities

Mixed waste treatment facilities currently in use at WVDP are summarized in Table 22.5-3. The IRTS processes the HLW Solutions (supernatant and sludge wash solutions) from the HLW storage tanks. The system consists of 4 facilities: the Sludge Mobilization and Wash System (SMWS), where the HLW sludge is mixed and washed with a caustic solution; the Supernatant Treatment System (STS), where HLW solutions are passed through zeolite-filled ion-exchange columns to remove radioactive constituents; the Liquid Waste Treatment System (LWTS), which concentrates the liquid from the STS by evaporation; and the Cement Solidification System (CSS), where evaporator bottoms from the LWTS are blended with cement to produce solidified waste. Although these facilities are capable of independent operation, they normally operate in series and are permitted together as 1 treatment system. Therefore, the permitted and normal operating treatment capacities are defined for the entire treatment system, not the individual components. Under normal operating conditions, the system can process 1700 m^3 of feed per year. The system design capacity, permitted capacity, and maximum capacity is 2305 m^3/yr.

The SMWS uses a series of caustic and water additions primarily to aid in the dissolution of sulfates from the sludge. The STS reduces the radionuclide concentration in the HLW solutions to a level where it can be reclassified as low-level waste. The primary radionuclide removed is Cs-137; however, any other (+1)-valence ion or radionuclides with other valence states could be removed by changing to a different ion-exchange resin. The resin currently used was chosen for its ability to remove Cs-137, but it will also remove some of the Pu and Sr-90. Heavy metals will pass through the ion-exchange system without removal. The STS cannot be used to treat waste streams containing significant amounts of organic chemicals or PCBs.

The CSS is used to cement an alkaline Low Level Mixed Waste that contains heavy metals (chromium) above the RCRA toxicity characteristics (TC) level. A computer-controlled batch-process system provides the optimum mixing time and waste-to-cement ratio for the particular liquid waste-stream to be processed. The CSS contains 3 subsystems. The waste feed system consists of a waste dispensing vessel; it is limited to liquid or slurry feed streams. The waste/cement mixing system consists of 2 high-shear mixers, a cement storage bin, and a chemical additive storage unit. The material handling system pours the cement/waste mixture into 0.27 m^3 square drums, moves and monitors the drums through a drum capping station, radiation survey station, and places the drums in an on-site drum storage facility.

The CSS is a grouting facility with a computer-aided control system and a process for testing grouts prior to batch processing to assure solidification and quality of the final product. The CSS can handle low-level liquid waste streams containing heavy metals, and plutonium concentrations up to 50 nCi/g. A CSS-type facility could be used to encapsulate solids if a different feed system were designed.

The effluent from the LWTS is mixed waste due to its high alkalinity and heavy metal content; however, once it is cemented, the resulting solid waste form is not mixed waste because, upon testing, it does not exceed the regulatory limits set forth in the toxicity characteristic leaching procedure (TCLP) constituent list.

Table 22.5-2
West Valley Demonstration Project
Current Planned Facilities - Treatment Category
Mixed Waste Treatment Facilities

Facility/System	Operating Status*	Feed Types	Final Waste Form	HLW MTRU MLLW	Alpha **	RH CH	Hg	Other Toxic Metals	Toxic Organics
Integrated Radwaste Treatment System (1)	Operating	Aqueous Liquids, Inorganic Sludges	Cemented Waste, Aqueous Liquids, Inorganic Sludge	HLW	✓	RH	✓	✓	
Vitrification Facility	Planned, 1996	Inorganic Sludges, Liquids	Vitrified Glass	HLW	✓	RH	✓	✓	

* Because DOE is still in the planning/conceptual state, in the design stages, or in the construction stage for these facilities, schedules and capacities are subject to changes based on the availability of funds, results of treatability studies permit issuance, etc.

** Activity level is greater than 100 nCi/g alpha.

Note (1): The Integrated Radwaste Treatment System (IRTS) consists of 4 subsystems: the Sludge Mobilization and Wash System (SMWS), the Supernatant Treatment System (STS), the Liquid Waste Treatment System (LWTS), and the cement Solidification System (CSS). These 4 subsystems operate in series as one treatment system - the IRTS. The reported capacity is for the IRTS.

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22.5.3.2 Planned Treatment Facilities

The planned mixed waste treatment facility at WVDP is summarized in Table 22.5-2 and Table 22.5-4. The Vitrification Facility at West Valley is scheduled to begin operation in 1996. DOE is currently in the design/construction stage of the facility. Schedules for operation are subject to changes, based on several factors, such as availability of funds, permit issues, etc. The HLW sludge from 8D-2, the acidic thorium waste from 8D-4 and the ion-exchange media from 8D-1 will be blended, mixed with glass-formers (principally oxides of silicon, boron, and sodium), concentrated, and transferred to a slurry-fed ceramic melter. The melter will evaporate remaining liquid, decompose nitrates and carbonates, and fuse the glass formers, and waste into a homogeneous, chemically bonded durable solid. Gases from the melter will be cooled and treated in a high-efficiency off-gas treatment system.

The borosilicate glass, containing HLW, will be cast into 0.6 m x 3 m stainless steel canisters. Each canister will contain about 2 tons of borosilicate glass and 100,000 Ci of radioactivity. An estimated 300 canisters will be produced during 2 years of operation (1996 to 1998). After being filled, cooled, and decontaminated, the canisters will be temporarily stored in a large shielded cell on site pending shipment to a federal repository. The design capacity for the WVVS is 83 m^3/yr.

22.5.4 Site-Specific Treatment Technology Development

The ion-exchange material used in the STS was developed jointly by Pacific Northwest Laboratory and a commercial supplier specifically to decontaminate the West Valley supernatant and sludge wash solutions. A recent refinement of this technology, titanium-treated zeolite, has resulted in more efficient Pu removal. The liquid-fed ceramic melter planned for WVDP is based on earlier melters developed at Pacific Northwest Laboratory, but it was specifically designed to accommodate the estimated WVDP waste stream and throughput.

Table 22.5-3
West Valley Demonstration Project
Mixed Waste Treatment Facilities
Currently In Use for Mixed Wastes

Facility/System	Treatment Type(s)	Allowable Waste		Ident. of MW Streams to be Treated	Normal Operating Capacity (m3/yr)
		Radioactive Type(s)	Physical/Chemical Matrix		
Integrated Radwaste Treatment System (1)	Precipitation, Salts Dissolution, Ion Exchange, Evaporation, Stabilization	HLW, RH	Aqueous Liquids, Inorganic Sludges	HLW Sludge	1,700

Note (1): The Integrated Radwaste Treatment System (IRTS) consists of 4 subsystems: the Sludge Mobilization and Wash System (SMWS), the Supernatant Treatment System (STS), the Liquid Waste Treatment System (LWTS), and the cement Solidification System (CSS). These 4 subsystems operate in series as one treatment system - the IRTS. The reported capacity is for the IRTS.

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Table 22.5-4
West Valley Demonstration Project
Mixed Waste Treatment Facilities
Planned or Under Construction for Mixed Wastes

Facility/System	Treatment Type(s)	Allowable Waste		Ident. of MW Streams to be Treated	Design Capacity (m3/yr)**	Date Avail. for Treating MW**
		Radioactive Type(s)	Physical/Chemical Matrix			
Vitrification Facility	Vitrification	HLW, RH	Inorganic Sludges, Liquid	Inorganic Sludges, Thorex	83.0	1996

** Because DOE is still in the planning/conceptual stage, in the design stages, or in the construction stage for these facilities, schedules and capacities are subject to changes based on the availability of funds, results of treatability studies, permit issuance, etc.

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WASTE

PROFILE

SHEETS

West Valley Demonstration Project

WVDP-WPS-1

April 1993

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Waste Profile Sheets (WPS) have been compiled in this report for each of the mixed waste streams identified at the different DOE sites. Each WPS is a concise summary of the information required by the FFCAct-1992, with waste stream specific data primarily derived from the Waste Management Information System (WMIS) database. Each WPS consists of the following items:

Header: The information in the header in each WPS includes the State, the official name of the site, an identification number, an identifying waste stream name, the waste type, and the waste matrix. The identification number is either a number assigned by the WMIS database or a number assigned by the site. The waste stream name is a unique identifier which corresponds to the name used in the WMIS database, or is assigned by the site. The waste type is either HLW, MTRU, or MLLW. The waste matrix corresponds to the categories (or their further subdivisions) defined earlier based on the physical and chemical form of the waste.

Waste Stream Description and Source: This section of the WPS presents a short description of the source of the waste and the waste stream characteristics.

Inventory Table: The inventory table in each WPS reports the volume (m^3) and/or mass (kg) of each waste stream currently in storage, and projected to be generated in the next five years. The table also indicates the date assumed in calculating the current and projected inventories. As required by the FFCAct-1992, the table also differentiates between waste not subject to LDR and that subject to LDR for the current inventory.

Treatability Group: This section lists the name of the treatability group to which the waste stream belongs.

Treatment Status, Technology Status: This section of the WPS lists the status of the technology that could be applied to the waste stream for compliance with the LDR. This section provides information on if the waste stream is currently being treated, and if technology options and facilities for the treatment exist.

Radiation Characteristics Section: This section of the WPS provides additional information on the radiological characteristics of the waste (in addition to characterizing the waste stream as HLW, MTRU, or MLLW). This section of the WPS specifies whether the waste stream is contact handled or remote handled, if the radionuclides are alpha or beta/gamma emitters, and if they contain activation products.

Radiation Effects Section: As required by the FFCAct-1992, this section of the WPS lists possible effects of the radiological characteristics of the waste stream on treatment technologies that could be applicable to that waste stream. For example, radiation levels may require remote handling of the waste and affect the design and operation of the treatment facility. The presence of volatile radionuclides may require the containment of all off-gases from the treatment system.

Waste Minimization Activities: As required by the FFCAct-1992, this section of the WPS provides information on the waste minimization practices being used for the waste stream. This section provides information on if the waste minimization practices include good operating practices, technology changes, raw material changes, product changes, etc.

EPA Code: This table of the WPS reports the EPA hazardous waste codes applicable to the waste stream, the basis for assigning the codes (process knowledge or sampling/analysis), the LDR basis (which is either technology based or concentration based), and the BDAT for each of the EPA hazardous waste codes.

In summary, the WPS for each waste stream, along with the site sections in the report for each State (Section B), summarize the site-specific information required by the FFCAct-1992.

State: New York | ID #: 377
Site: WEST VALLEY DEMONSTRATION PROJECT
Waste Stream Name: HIGH-LEVEL WASTE SLUDGE
Matrix: Inorganic Sludges/Particulates | Waste Type: HLW

Waste Stream Description and Source:

The HLW sludge waste stream is composed of the precipitate formed from the neutralization of the first cycle Purex acid waste, which was generated by the former owner/operator's fuel reprocessing. The sludge will eventually be transferred to the Vitrification Facility for processing into vitrified HLW. This glass waste form will meet the BDAT for LDR.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
243.6	365,340.0	0.000	0.000	243.6	365,340.0	0.000	0.000

Treatability Group:

HLW RH, Inorganic Sludges/Particulates, Toxic Metals w/ Mercury

Treatment Status:

Currently being treated on-site at the Integrated Radwaste Treatment System facility. Vitrification will follow this pretreatment step. Vitrification facility is under construction.

Technology Status:

Technology exists. No modifications are necessary.

Radiation Characteristics:

1) Remote handled
2) Beta/gamma emitter

The predominant radionuclides present in this waste stream are: Cs-137/ Ba-137m, Sr-90/ Y-90 Pu, Am-241, and U. Activity level is > 100 nCi/gram alpha.

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) Radiation levels requiring remote handling will affect the design and operation of a treatment facility, i.e., need for robotics, additional shielding, etc.
3) Certain isotopes of U, Pu, Am, Cm, Cf, Np and Th are non-accountable if present below specific levels, and require different levels of safeguards, depending on the amount present. Treatments resulting in concentration of the material can result in the "roll up" of large volumes of non-accountable wastes into a smaller volume of accountable waste or change a mixed low-level waste to a TRU waste.
4) Radioactive decay may produce significant amounts of heat that needs to be considered during

State: New York ID #: 377
Site: WEST VALLEY DEMONSTRATION PROJECT
Waste Stream Name: HIGH-LEVEL WASTE SLUDGE
Matrix: Inorganic Sludges/Particulates Waste Type: HLW

treatment and disposal.

Waste Minimization Activities:

1) Not Applicable.

General Comments:

There are no waste minimization activities indicated for this waste stream because it is no longer being generated.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D005	Tech.	High Level Vitrification
D006B	Tech.	High Level Vitrification
D007	Tech.	High Level Vitrification
D009C	Tech.	High Level Vitrification
D010	Tech.	High Level Vitrification

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State: New York	ID #: 1036
Site: WEST VALLEY DEMONSTRATION PROJECT	
Waste Stream Name: LOW LEVEL RADIOACTIVE LEAD	
Matrix: Elemental Lead	Waste Type: MLLW

Waste Stream Description and Source:

This waste was generated as lead shielding and was removed from various areas of the plant.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
2.1	3,151.6	7.1	10,663.6	9.2	13,815.2	1.3	2,023.0

Treatability Group:

MLLW CH, Elemental Lead, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time. Current inventory is being held for decontamination or encapsulation. Remaining residues from decontamination processes will be macroencapsulated.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g
3) Beta/gamma emitter

Based upon former site reprocessing activities, the following radionuclides may be present in this waste stream: Cs-137/Ba-137m, Sr-90/Y-90, Pu, Am-241, and U.

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Contaminated lead shielding is being re-used in contaminated areas.

State: New York ID #: 1036

Site: WEST VALLEY DEMONSTRATION PROJECT

Waste Stream Name: LOW LEVEL RADIOACTIVE LEAD

Matrix: Elemental Lead Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

State: New York	ID #: 1037
Site: WEST VALLEY DEMONSTRATION PROJECT	
Waste Stream Name: ORGANIC EXTRACTION WASTE	
Matrix: Organic Liquids	Waste Type: MLLW

Waste Stream Description and Source:

This waste stream is generated from analysis of HLW/LLW material on-site. It consists of lab extraction wastes from uranium, plutonium, technitium, and iodine analyses.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.037	36.8	0.037	36.8	0.050	50.0

Treatability Group:

MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time. The possibility of treatment at a MW-permitted commercial facility is under evaluation.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g
3) Beta/gamma emitter

Based upon former site reprocessing activities, the following radionuclides may be present in this waste stream: Cs-137/Ba-137m, Sr-90/Y-90, Pu, Am-241, and U.

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

An analytical method based on ion-exchange has been developed that will greatly reduce organic MW inventory. Analytical methods that use only non-hazardous reagents are under development.

State: New York ID #: 1037

Site: WEST VALLEY DEMONSTRATION PROJECT

Waste Stream Name: ORGANIC EXTRACTION WASTE

Matrix: Organic Liquids Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F003	Conc.	Incineration
F005A	Conc.	Incineration

State: New York | ID #: 1040
Site: WEST VALLEY DEMONSTRATION PROJECT
Waste Stream Name: ZINC BROMIDE
Matrix: Aqueous Liquid | Waste Type: MLLW

Waste Stream Description and Source:
This waste stream is an aqueous zinc bromide solution removed from a window shield.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.299	299.0	0.000	0.000	0.299	299.0	2.5	2,497.0

Treatability Group:
MLLW CH, Aqueous Liquid, Ignitable, Corrosive, or Reactive Only

Treatment Status:
Have not identified a planned facility for this waste stream at this time. Plan to neutralize the current inventory of this waste on-site in CY93.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Contact-handled
2) Alpha emitter, < 10 nCi/g
3) Beta/gamma emitter

Based upon former site reprocessing activities, the following radionuclides may be present in this waste stream: Cs-137/Ba-137m, Sr-90/Y-90, Pu, Am-241, and U.

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
Elementary neutralization will be performed upon generation.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002A	Tech.	Deactivation

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State: New York | ID #: 1045

Site: WEST VALLEY DEMONSTRATION PROJECT

Waste Stream Name: DECON SOLUTION

Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:

This waste stream is predominantly methylene chloride that had previously been used as decon solution. The commercial name of this material is "Zipstrip."

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.003	2.9	0.003	2.9	0.000	0.000

Treatability Group:

MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time. The possibility of treatment at a MW-permitted commercial facility is under evaluation.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g
3) Beta/gamma emitter

Based upon former site reprocessing activities, the following radionuclides may be present in this waste stream: Cs-137/Ba-137m, Sr-90/Y-90, Pu, Am-241, and U.

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

There are no waste minimization activities indicated for this waste stream because it is no longer being generated.

State: New York ID #: 1045
Site: WEST VALLEY DEMONSTRATION PROJECT
Waste Stream Name: DECON SOLUTION
Matrix: Organic Liquids Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
U080	Conc.	Incineration

State: New York | ID #: 1048
Site: WEST VALLEY DEMONSTRATION PROJECT
Waste Stream Name: PU SCINTILLATION
Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:
This waste stream was generated as a result of on-site plutonium analyses of HLW/LLW material. This procedure is no longer being performed on-site.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.004	3.9	0.004	3.9	0.000	0.000

Treatability Group:
MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:
Have not identified a planned facility for this waste stream at this time. The possibility of treatment at a MW-permitted commercial facility is under evaluation.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Contact-handled
2) Alpha emitter, < 10 nCi/g
3) Beta/gamma emitter

Based upon former site reprocessing activities, the following radionuclides may be present in this waste stream: Cs-137/Ba-137m, Sr-90/Y-90, Pu, Am-241, and U.

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
There are no waste minimization activities indicated for this waste stream because it is no longer being generated.

State: New York ID #: 1048
Site: WEST VALLEY DEMONSTRATION PROJECT
Waste Stream Name: PU SCINTILLATION
Matrix: Organic Liquids Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F005A	Conc.	Incineration

State: New York | ID #: 1051
Site: WEST VALLEY DEMONSTRATION PROJECT
Waste Stream Name: PYRIDINE/CYANIDE WASTE
Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:
The material is a lab waste generated during cyanide analyses that are no longer performed on-site.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.022	21.8	0.022	21.8	0.000	0.000

Treatability Group:
MLLW CH, Organic Liquids, Toxic Organics and Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time. The possibility of treatment at a MW-permitted commercial facility is under evaluation.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Contact-handled
2) Alpha emitter, < 10 nCi/g
3) Beta/gamma emitter

Based upon former site reprocessing activities, the following radionuclides may be present in this waste stream: Cs-137/Ba-137m, Sr-90/Y-90, Pu, Am-241, and U.

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
There are no waste minimization activities indicated for this waste stream because it is no longer being generated.

State: New York ID #: 1051
Site: WEST VALLEY DEMONSTRATION PROJECT
Waste Stream Name: PYRIDINE/CYANIDE WASTE
Matrix: Organic Liquids Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002A	Tech.	Deactivation
D007	Conc.	Chemical Reduction followed by Stabilization
D011	Conc.	Stabilization
D038		Not currently prohibited under the LDR Program.

State: New York	ID #: 2084
Site: WEST VALLEY DEMONSTRATION PROJECT	
Waste Stream Name: INSTRUMENT OIL W/MERCURY	
Matrix: Organic Liquids	Waste Type: MLLW

Waste Stream Description and Source:

This waste stream was drained from an instrument that previously contained mercury upon removal from service. Visible quantities of mercury are present in the fluid.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
< 0.001	0.310	0.000	0.000	< 0.001	0.310	0.000	0.000

Treatability Group:

MLLW CH, Organic Liquids, Toxic Metals w/ Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time. Treatment for this waste is available for nonradioactive waste streams. Yearly reassessment of treatment availability will be performed.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g
3) Beta/gamma emitter

Based upon former site reprocessing activities, the following radionuclides may be present in this waste stream: Cs-137/Ba-137m, Sr-90/Y-90, Pu, Am-241, and U.

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

There are no waste minimization activities indicated for this waste stream because it is no longer generated.

State: New York | ID #: 2084

Site: WEST VALLEY DEMONSTRATION PROJECT

Waste Stream Name: INSTRUMENT OIL W/MERCURY

Matrix: Organic Liquids | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D009A	Tech.	Incineration; or Mercury Roast/Retort

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State: New York | ID #: 2085

Site: WEST VALLEY DEMONSTRATION PROJECT

Waste Stream Name: METHANOL

Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:

This waste stream is generated as a result of cleaning sampling equipment.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	< 0.001	0.860	< 0.001	0.860	0.010	10.1

Treatability Group:

MLLW CH, Organic Liquids, Ignitable, Corrosive, or Reactive Only

Treatment Status:

Have not identified a planned facility for this waste stream at this time. The possibility of treatment at a MW-permitted commercial facility is under evaluation.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g
3) Beta/gamma emitter

Based upon former site reprocessing activities, the following radionuclides may be present in this waste stream: Cs-137/Ba-137m, Sr-90/Y-90, Pu, Am-241, and U.

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Methanol is required by EPA guidance SW-846 for cleaning equipment.

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration

State: New York | ID #: 2086

Site: WEST VALLEY DEMONSTRATION PROJECT

Waste Stream Name: PAINT

Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:

This waste stream is unused portions of flammable paints.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.015	15.0	0.015	15.0	0.025	25.0

Treatability Group:

MLLW CH, Organic Liquids, Ignitable, Corrosive, or Reactive Only

Treatment Status:

Have not identified a planned facility for this waste stream at this time. Treatment for this waste is available for nonradioactive waste streams. Yearly reassessment of treatment availablility will be performed.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g
3) Beta/gamma emitter

Based upon former site reprocessing activities, the following radionuclides may be present in this waste stream: Cs-137/Ba-137m, Sr-90/Y-90, Pu, Am-241, and U.

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Good operating practices.

State: New York | ID #: 2086
Site: WEST VALLEY DEMONSTRATION PROJECT
Waste Stream Name: PAINT
Matrix: Organic Liquids | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration

State: New York	ID #: 2372
Site: WEST VALLEY DEMONSTRATION PROJECT	
Waste Stream Name: THOREX WASTE	
Matrix: Aqueous Liquid	Waste Type: HLW

Waste Stream Description and Source:

This waste stream consists of high level radioactive, mixed waste resulting from former spent fuel reprocessing activites by the previous owner/operator of the facility.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
45.4	45,420.0	0.000	0.000	45.4	45,420.0	0.000	0.000

Treatability Group:

HLW RH, Aqueous Liquid, Toxic Metals w/o Mercury

Treatment Status:

Plan to treat on-site at the planned Vitrification Facility.

Technology Status:

Technology exists. No modifications are necessary. Vitrification Facility is under construction.

Radiation Characteristics:

1) Beta/gamma emitter
2) Remote handled
3) Other (explain in Comments section)

The predominant radionuclides present in this waste stream are : Cs-137/Ba-137m, Sr-90/Y-90, Pu, Am-241, and U. Activity level is > 100 nCi/gram alpha.

Waste-Specific Radiation Effects on Treatment:

1) Treatment could result in plating, precipitation, or some other form of concentration, which could cause workers to receive a significant radiation exposure. The potential for concentration of beta and gamma emitters will affect the design and operation of a treatment facility.
2) Radiation levels requiring remote handling will affect the design and operation of a treatment facility, i.e., need for robotics, additional shielding, etc.
3) Certain isotopes of U, Pu, Am, Cm, Cf, Np and Th are non-accountable if present below specific levels, and require different levels of safeguards, depending on the amount present. Treatments resulting in concentration of the material can result in the "roll up" of large volumes of non-accountable wastes into a smaller volume of accountable waste or change a mixed low-level waste to a TRU waste.
4) Radioactive decay may produce significant amounts of heat that needs to be considered during treatment and disposal.

State: New York ID #: 2372

Site: WEST VALLEY DEMONSTRATION PROJECT

Waste Stream Name: THOREX WASTE

Matrix: Aqueous Liquid Waste Type: HLW

Waste Minimization Activities:

There are no waste minimization activities indicated for this waste because it is no longer being generated.

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002A	Tech.	High Level Vitrification
D005	Tech.	High Level Vitrification
D006B	Tech.	High Level Vitrification
D007	Tech.	High Level Vitrification
D010	Tech.	High Level Vitrification

State: New York | ID #: 2397
Site: WEST VALLEY DEMONSTRATION PROJECT
Waste Stream Name: PAINT W/ METALS
Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:
Unused portions of flammable paint containing metals.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.013	12.7	0.013	12.7	0.005	5.0

Treatability Group:
MLLW CH, Organic Liquids, Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time. Treatment for this waste is available for nonradioactive waste streams. Yearly reassessment of treatment availability will be performed.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Contact-handled
2) Alpha emitter, < 10 nCi/g
3) Beta/gamma emitter

Based upon former site reprocessing activities, the following radionuclides may be present in this waste stream: Cs-137/Ba-137m, Sr-90/Y-90, Pu, Am-241, and U.

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
Paints with heavy metals have been eliminated unless required by a specification.

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State: New York | ID #: 2397

Site: WEST VALLEY DEMONSTRATION PROJECT

Waste Stream Name: PAINT W/ METALS

Matrix: Organic Liquids | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
D007	Conc.	Chemical Reduction followed by Stabilization
D008B	Conc.	Stabilization

State: New York | ID #: 0000000001
Site: WEST VALLEY DEMONSTRATION PROJECT
Waste Stream Name: PU AQUEOUS WASTE
Matrix: Aqueous Liquid | Waste Type: MLLW

Waste Stream Description and Source:

This waste stream is the aqueous phase of an extraction analysis. This waste stream is generated as a result of analysis of HLW/LLW material on-site.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.010	10.4	0.010	10.4	0.050	50.0

Treatability Group:

MLLW CH, Aqueous Liquid, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time. Treatment for this waste is available for nonradioactive waste streams. Yearly reassessment of treatment availability will be performed.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g
3) Beta/gamma emitter

Based upon former site reprocessing activities, the following radionuclides may be present in this waste stream: Cs-137/Ba-137m, Sr-90/Y-90, Pu, Am-241, and U.

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Good laboratory practices.

State: New York	**ID #: 0000000001**
Site: WEST VALLEY DEMONSTRATION PROJECT	
Waste Stream Name: PU AQUEOUS WASTE	
Matrix: Aqueous Liquid	**Waste Type: MLLW**

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D011	Conc.	Stabilization

State: New York | ID #: 0000000002
Site: WEST VALLEY DEMONSTRATION PROJECT
Waste Stream Name: SR ORGANIC WASTE
Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:

This waste stream is the organic phase of lab extraction wastes for strontium analyses. It is generated as a result of analysis of HHW/LLW material on-site.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
< 0.001	0.040	0.009	9.0	0.010	9.0	0.050	50.0

Treatability Group:

MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time. Treatment for this waste is available for nonradioactive waste streams. Yearly reassessment of treatment availability will be performed.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g
3) Beta/gamma emitter

Based upon former site reprocessing activities, the following radionuclides may be present in this waste stream: Cs-137/Ba-137m, Sr-90/Y-90, Pu, Am-241, and U.

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Alternate laboratory methods are under investigation.

State: New York ID #: 0000000002
Site: WEST VALLEY DEMONSTRATION PROJECT
Waste Stream Name: SR ORGANIC WASTE
Matrix: Organic Liquids Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
F003	Conc.	Incineration

State: New York | ID #: 0000000003
Site: WEST VALLEY DEMONSTRATION PROJECT
Waste Stream Name: LEAD ACID BATTERIES
Matrix: Batteries (lead acid, cadmium) | Waste Type: MLLW

Waste Stream Description and Source:
This waste was generated from previous decontamination and decommissioning of equipment.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.023	33.8	0.023	33.8	0.118	176.2

Treatability Group:
MLLW CH, Batteries (lead acid, cadmium), Toxic Metals w/o Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time. Treatment for this waste is available for nonradioactive waste streams. Yearly reassessment of treatment availability will be performed.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Contact-handled
2) Alpha emitter, < 10 nCi/g
3) Beta/gamma emitter

Based upon former site reprocessing activities, the following radionuclides may be present in this waste stream: Cs-137/Ba-137m, Sr-90/Y-90, Pu, Am-241, and U.

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
Use is being reduced through attrition on a case-by-case basis.

State: New York ID #: 0000000003
Site: WEST VALLEY DEMONSTRATION PROJECT
Waste Stream Name: LEAD ACID BATTERIES
Matrix: Batteries (lead acid, cadmium) Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002A	Tech.	Deactivation
D008A	Tech.	Secondary Lead Smelting

State: New York | ID #: 0000000004
Site: WEST VALLEY DEMONSTRATION PROJECT
Waste Stream Name: TOLUENE
Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:
Waste was generated during research and development of a new laboratory method. Development was discontinued due to potential additional mixed waste generation.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	< 0.001	0.300	<0.001	0.300	0.000	0.000

Treatability Group:
MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:
Have not identified a planned facility for this waste stream at this time. The possibilty of treatment at a MW-permitted commercial facility is under evaluation.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Contact-handled
2) Alpha emitter, < 10 nCi/g
3) Beta/gamma emitter

Based upon former site reprocessing activities, the following radionuclides may be present in this waste stream: Cs-137/Ba-137m, Sr-90/Y-90, Pu, Am-241, and U.

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
No longer generated.

State: New York | ID #: 0000000004
Site: WEST VALLEY DEMONSTRATION PROJECT
Waste Stream Name: TOLUENE
Matrix: Organic Liquids | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
U220	Conc.	Incineration

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State: New York | ID #: 0000000005
Site: WEST VALLEY DEMONSTRATION PROJECT
Waste Stream Name: TC AQUEOUS WASTE
Matrix: Aqueous Liquid | Waste Type: MLLW

Waste Stream Description and Source:

Aqueous phase from laboratory analyses for technetium. Stream will be initially generated during FY93.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.000	0.000	0.000	0.000	0.120	120.0

Treatability Group:

MLLW CH, Aqueous Liquid, Toxic Organics

Treatment Status:

Have not identified a planned facility for this waste stream at this time. Treatment for the waste is available for non-radioactive waste streams. Yearly reassessment of treatment availability will be performed.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Alpha emitter, < 10 nCi/g
2) Beta/gamma emitter
3) Contact-handled

Based upon former site reprocessing activities, the following radionuclides may be present in this waste stream: Cs-137/Ba-137m, Sr-90/Y-90, Pu, Am-241, and U.

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

Investigating the use of ICP-Mass Spec for analysis (would result in zero waste).

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State: New York | ID #: 0000000005

Site: WEST VALLEY DEMONSTRATION PROJECT

Waste Stream Name: TC AQUEOUS WASTE

Matrix: Aqueous Liquid | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002B	Tech.	Deactivation
F005A	Conc.	Incineration

State: New York | ID #: 0000002398
Site: WEST VALLEY DEMONSTRATION PROJECT
Waste Stream Name: DU SQUEEZE
Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:

This waste stream is a cleaning solvent consisting of a blend of solvents, surfactants, and other detergent components. It was classified as a waste because its shelf-life had been exceeded.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.014	14.4	0.000	0.000	0.014	14.4	0.000	0.000

Treatability Group:

MLLW CH, Organic Liquids, Ignitable, Corrosive, or Reactive Only

Treatment Status:

Have not identified a planned facility for this waste stream at this time. Treatment for this waste is available for non-radioactive waste streams. Yearly reassessment of treatment availability will be performed.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g
3) Beta/gamma emitter

Based upon former site reprocessing activities, the following radionuclides may be present in this waste stream: Cs-137/Ba-137m, Sr-90/Y-90, Pu, Am-241, and U.

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

No longer generated.

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State: New York | ID #: 0000002398

Site: WEST VALLEY DEMONSTRATION PROJECT

Waste Stream Name: DU SQUEEZE

Matrix: Organic Liquids | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration

State: New York | ID #: 0000002399
Site: WEST VALLEY DEMONSTRATION PROJECT
Waste Stream Name: FUELS, OILS, AND LUBRICATING FLUIDS
Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:
This waste stream was generated as a result of site maintenance activities on vehicles and equipment.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.070	68.0	2.3	2,321.0	2.4	2,389.0	3.0	3,000.0

Treatability Group:
MLLW CH, Organic Liquids, Toxic Organics and Metals w/o Mercury

Treatment Status:
Plan to treat off-site.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Contact-handled
2) Alpha emitter, < 10 nCi/g
3) Beta/gamma emitter

Based upon former site reprocessing activities, the following radionuclides may be present in this waste stream: Cs-137/Ba-137m, Sr-90/Y-90, Pu, Am-241, and U.

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
Equipment and vehicle oil changes are based on the rate of lubricant breakdown as evidenced through analytical results versus normal schedules for change-out of oil.

State: New York ID #: 0000002399
Site: WEST VALLEY DEMONSTRATION PROJECT
Waste Stream Name: FUELS, OILS, AND LUBRICATING FLUIDS
Matrix: Organic Liquids Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration
D006B	Conc.	Stabilization
D008B	Conc.	Stabilization
D018		Not currently prohibited under the LDR Program.
D019		Not currently prohibited under the LDR Program.
D038		Not currently prohibited under the LDR Program.
D039		Not currently prohibited under the LDR Program.
D040		Not currently prohibited under the LDR Program.
F002	Conc.	Incineration

State: New York | ID #: 0000002400
Site: WEST VALLEY DEMONSTRATION PROJECT
Waste Stream Name: MERCURY WASTES
Matrix: Heterogeneous Debris | Waste Type: MLLW

Waste Stream Description and Source:
This waste stream consists of mercury and spill clean-up materials.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.010	14.4	0.000	0.000	0.010	14.4	0.002	2.5

Treatability Group:
MLLW CH, Heterogeneous Debris, Toxic Metals w/ Mercury

Treatment Status:
Have not identified a planned facility for this waste stream at this time. Treatment for this waste is available for non-radioactive waste streams. Yearly reassessment of treatment availability will be performed.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Contact-handled
2) Alpha emitter, < 10 nCi/g
3) Beta/gamma emitter

Based upon former site reprocessing activities, the following radionuclides may be present in this waste stream: Cs-137/Ba-137m, Sr-90/Y-90, Pu, Am-241, and U.

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
Mercury thermometers are necessary to achieve the desired accuracy. Use of alcohol thermometers was evaluated and have been substituted wherever possible.

State: New York | ID #: 0000002400
Site: WEST VALLEY DEMONSTRATION PROJECT
Waste Stream Name: MERCURY WASTES
Matrix: Heterogeneous Debris | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D009B	Tech.	Mercury Roast/Retort

The alternate LDR treatment standard for debris is treatment prior to land disposal using any of the following technologies: extraction (physical, chemical or thermal), destruction (biological, chemical, or thermal), macro/microencapsulation or sealing.

State: New York

ID #[illegible]2401

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Site: WEST VALLEY DEMONSTRATION PROJECT

Waste Stream Name: ORGANIC LIQUID - IGNITABLE

Matrix: Organic Liquids

Waste Type: MLLW

Waste Stream Description and Source:

This waste stream is an ignitable organic liquid generated as a result of site inventory and clean-up activities.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.000	0.000	0.010	10.3	0.010	10.3	0.000	0.000

Treatability Group:

MLLW CH, Organic Liquids, Ignitable, Corrosive, or Reactive Only

Treatment Status:

Have not identified a planned facility for this waste stream at this time. Treatment for this waste is available for non-radioactive waste streams. Yearly reassessment of treatment availability will be performed.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g
3) Beta/gamma emitter

Based upon former site reprocessing activities, the following radionuclides may be present in this waste stream: Cs-137/Ba-137m, Sr-90/Y-90, Pu, Am-241, and U.

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

No longer generated.

State: New York | ID #: 0000002401
Site: WEST VALLEY DEMONSTRATION PROJECT
Waste Stream Name: ORGANIC LIQUID - IGNITABLE
Matrix: Organic Liquids | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D001A	Tech.	Fuel Substitution; Organics Recovery; or Incineration

State: New York | ID #: 0000002402
Site: WEST VALLEY DEMONSTRATION PROJECT
Waste Stream Name: SPENT DEGREASER MIXTURES
Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:
This waste stream is a mixture of various spent degreasers generated from equipment degreasing activities.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.003	3.3	0.007	7.2	0.011	10.5	0.000	0.000

Treatability Group:
MLLW CH, Organic Liquids, Toxic Organics

Treatment Status:
Have not identified a planned facility for this waste stream at this time. The possibility of treatment at a MW-permitted commercial facility is under evaluation.

Technology Status:
Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:
1) Contact-handled
2) Alpha emitter, < 10 nCi/g
3) Beta/gamma emitter

Based upon former site reprocessing activities, the following radionuclides may be present in this waste stream: Cs-137/Ba-137m, Sr-90/Y-90, Pu, Am-241, and U.

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
No longer generated.

4692

State: New York | ID #: 0000002402

Site: WEST VALLEY DEMONSTRATION PROJECT

Waste Stream Name: SPENT DEGREASER MIXTURES

Matrix: Organic Liquids | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Sampling/Analysis

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
F001	Conc.	Incineration
F003	Conc.	Incineration
F005A	Conc.	Incineration

State: New York | ID #: 0000002403

Site: WEST VALLEY DEMONSTRATION PROJECT

Waste Stream Name: SURFA-ETCH

Matrix: Aqueous Liquid | Waste Type: MLLW

Waste Stream Description and Source:

This waste stream is an etching solution containing phosphoric acid that was generated from cleaning activities.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
< 0.001	0.250	0.000	0.000	< 0.001	0.250	0.000	0.000

Treatability Group:

MLLW CH, Aqueous Liquid, Ignitable, Corrosive, or Reactive Only

Treatment Status:

Plan to treat on-site at a TBD facility. Plan to neutralize the current inventory of this waste on-site in CY93.

Technology Status:

Technology exists. No modifications are necessary.

Radiation Characteristics:

1) Contact-handled
2) Alpha emitter, < 10 nCi/g
3) Beta/gamma emitter

Based upon former site reprocessing activities, the following radionuclides may be present in this waste stream: Cs-137/Ba-137m, Sr-90/Y-90, Pu, Am-241, and U.

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

No longer generated.

State: New York | ID #: 0000002403
Site: WEST VALLEY DEMONSTRATION PROJECT
Waste Stream Name: SURFA-ETCH
Matrix: Aqueous Liquid | Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002A	Tech.	Deactivation

State: New York | ID #: 0000002404

Site: WEST VALLEY DEMONSTRATION PROJECT

Waste Stream Name: TRU LEAD

Matrix: Elemental Lead | Waste Type: MTRU

Waste Stream Description and Source:

This waste stream was generated as lead shielding and was removed from various areas of the plant.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.454	680.9	0.000	0.000	0.454	680.9	0.000	0.000

Treatability Group:

MTRU CH/AL, Elemental Lead, Toxic Metals w/o Mercury

Treatment Status:

Have not identified a planned facility for this waste stream at this time. Treatment for this waste is available for non-radioactive waste streams. Yearly reassessment of treatment availability will be performed.

Technology Status:

Technology exists. Needs modifications or verification for application to DOE waste streams.

Radiation Characteristics:

1) Transuranic contaminants
2) Contact-handled
3) Beta/gamma emitter

Based upon former site reprocessing activities, the following radionuclides may be present in this waste stream: Cs-137/Ba-137m, Sr-90/Y-90, Pu, Am-241, and U.

Waste-Specific Radiation Effects on Treatment:

1) None.

Waste Minimization Activities:

No longer generated.

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State: New York	ID #: 0000002404
Site: WEST VALLEY DEMONSTRATION PROJECT	
Waste Stream Name: TRU LEAD	
Matrix: Elemental Lead	Waste Type: MTRU

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D008C	Tech.	Macroencapsulation

845

State: New York | ID #: 0000002408
Site: WEST VALLEY DEMONSTRATION PROJECT
Waste Stream Name: CAUSTIC WASTES
Matrix: Aqueous Liquid | Waste Type: MLLW

Waste Stream Description and Source:
This waste stream consists of uranyl nitrate flush and liquid cement mixture generated as a result of cement solidification process testing.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
0.061	61.0	0.027	27.1	0.088	88.1	0.000	0.000

Treatability Group:
MLLW CH, Aqueous Liquid, Ignitable, Corrosive, or Reactive Only

Treatment Status:
Have not identified a planned facility for this waste stream at this time. Plan to neutralize the current inventory of this waste on-site in CY93.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Alpha emitter, < 10 nCi/g
2) Beta/gamma emitter
3) Contact-handled

Based upon former site reprocessing activities, the following radionuclides may be present in this waste stream: Cs-137/Ba-137m, Sr-90/Y-90, Pu, Am-241, and U.

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
No longer generated.

State: New York
ID #: 0000002408
Site: WEST VALLEY DEMONSTRATION PROJECT
Waste Stream Name: CAUSTIC WASTES
Matrix: Aqueous Liquid
Waste Type: MLLW

EPA CODES

Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002B	Tech.	Deactivation

State: New York | ID #: 0000002409

Site: WEST VALLEY DEMONSTRATION PROJECT

Waste Stream Name: CITRIC ACID SOLUTION

Matrix: Organic Liquids | Waste Type: MLLW

Waste Stream Description and Source:
This waste stream was excessed material used during decontamination activities.

Current Inventory as of December 31, 1992						Projected Generation 1993 through 1997	
Not Subject To LDR Prohibition		Subject To LDR Prohibition		TOTAL			
m^3	kg	m^3	kg	m^3	kg	m^3	kg
< 0.001	0.880	0.000	0.000	< 0.001	0.880	0.000	0.000

Treatability Group:
MLLW CH, Organic Liquids, Ignitable, Corrosive, or Reactive Only

Treatment Status:
Plan to treat on-site at a TBD facility. Plan to neutralize the current inventory of this waste on-site in CY93.

Technology Status:
Technology exists. No modifications are necessary.

Radiation Characteristics:
1) Alpha emitter, < 10 nCi/g
2) Beta/gamma emitter
3) Contact-handled

Based upon former site reprocessing activities, the following radionuclides may be present in this waste stream: Cs-137/Ba-137m, Sr-90/Y-90, Pu, Am-241, and U.

Waste-Specific Radiation Effects on Treatment:
1) None.

Waste Minimization Activities:
No longer generated.

EPA CODES
Waste Characterization Basis: Process Knowledge

Waste Codes	LDR Basis	Best Demonstrated Available Technologies
D002A	Tech.	Deactivation

Work Performed Under Contract Numbers:
DE-AC04-76DP00789
DE-AC06-76RL01830
DE-AC07-76ID01570
Letter Contract AF-6871

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