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Characterization of Past and Present Solid Waste Streams from the Plutonium Finishing Plant

D. R. Duncan
B. A. Mayancsik
Westinghouse Hanford Company

J. A. Pottmeyer
E. J. Vejvoda
J. A. Reddick
K. M. Sheldon
M. I. Weyns
Los Alamos Technical Associates

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Westinghouse Hanford Company P.O. Box 1970
Richland, Washington 99352

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E. P. Mertens, Manager Date
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EXECUTIVE SUMMARY

During the next two decades the transuranic (TRU) wastes now stored in the burial trenches and storage facilities at the Hanford Site are to be retrieved, processed at the Waste Receiving and Processing (WRAP) Facility, and shipped to the Waste Isolation Pilot Plant (WIPP) near Carlsbad, New Mexico for final disposal. Over 50% of the TRU waste to be retrieved for shipment to the WIPP has been generated at the Plutonium Finishing Plant (PFP), also known as the Plutonium Processing and Storage Facility and Z Plant.

The purpose of this report is to characterize the radioactive solid wastes generated by the PFP since its construction in 1947 using process knowledge, existing records, and history obtained from interviews. The PFP is currently operated by Westinghouse Hanford Company (WHC) for the U.S. Department of Energy (DOE). This report specifically excludes radioactive wastes generated at the Plutonium Metallurgy Laboratory (231-Z facility), which is operated for the DOE by the Pacific Northwest Laboratory (PNL). The wastes generated at the 231-Z facility will be covered in a later report.

The PFP is a collection of facilities that have been used primarily to produce plutonium metal and plutonium oxide to support national defense activities. The special nuclear materials (SNM) that form the feed for the PFP processing include, but are not limited to, plutonium bearing scrap, rework plutonium, incinerator ash, unirradiated fuel rods, and unique plutonium bearing solutions (e.g., plutonium nitrate solution from the Plutonium-Uranium Reduction and Extraction [PUREX] Plant). The purpose of the

initial feed processing is to prepare a purified plutonium nitrate solution that can be processed through a solvent extraction step and subsequently reduced to product. Processing at the PFP has included the fabrication of plutonium metal into useful parts, although that activity has been discontinued.

Four significant waste generating activities at the PFP have been identified. They are as follows:

- Plutonium processing
- Maintenance
- Housekeeping
- Waste processing.

The types and estimated quantities of waste resulting from these activities are discussed in detail in Section 3.0.

All solid wastes originating at the PFP are packaged for onsite or offsite storage or disposal. The waste packages are designed to safely contain the waste during transportation and storage, and to meet the criteria of the storage or disposal unit. Waste packaging and reporting requirements have undergone significant changes throughout the history of the PFP. Current and historical packaging and handling procedures for radioactive wastes at the PFP are provided in Section 4.0.

Information on the radioactive wastes generated at the PFP can be found in a number of existing documents and databases. The most important of these are the Solid Waste Information and Tracking System (SWITS) database and Solid Waste Burial Records (SWBRs). Facility personnel also provide excellent information about past waste generation and the procedures used to handle that waste. Section 5.0 was compiled using these sources to characterize the radioactive wastes, especially TRU wastes, generated at the PFP.

Between 1970 and 1991 33,546 containers of radioactive solid waste were generated at the PFP. These containers represent over 4.6 million kilograms (10 million pounds) of waste occupying 13,053 m^3 (460,959.84 ft^3) of space. Section 5.0 provides an in-depth look at this waste including the following:

- Weight and volume of the waste
- Container types and numbers
- Physical description of the waste
- Radiological components
- Hazardous constituents
- Classified waste
- Current storage and/or disposal locations.

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LIST OF TERMS

ABBREVIATIONS, ACRONYMS, AND INITIALISMS

AEC	U.S. Atomic Energy Commission (now DOE)
ALARA	as low as reasonably achievable
CERCLA	*Comprehensive Environmental Response Compensation and Liability Act of 1980*
CP	Chemical Processing
CSMO	Central Scrap Management Organization
D&D	decontamination and decommissioning
DL	Development Laboratory
DMA	Division of Military Applications
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
ECL	environmental control list
Ecology	Washington State Department of Ecology
EDE	effective dose equivalent
EDL	economic discard limit
EHW	extremely hazardous waste
EIS	environmental impact statement
EL	Engineering Laboratory
EPA	U.S. Environmental Protection Agency
ERDA-RL	Energy Research and Development Administration, Richland Operations (now RL)
FFTF	Fast Flux Test Facility
FG	fuels grade
FRP	fiberglass reinforced polyester
FSAR	final safety analysis report
GPP	general plant projects
HEDL	Hanford Environmental Development Laboratory
HEHF	Hanford Environmental Health Foundation
HEPA	high-efficiency particulate air (filter)
HVAC	heating, ventilating, and air conditioning
H/X	hydrogen-to-fissionable material atom ratio
IDLH	immediately dangerous to life and health
LANL	Los Alamos National Laboratory
LI/LO	load-in/load-out
LLW	low-level waste
LLWTF	Low-Level Waste Treatment Facility
LWDF	Liquid Waste Disposal Facility (241-Z Building)
MSDS	Material Safety Datasheet
MW	mixed waste
NDA	nondestructive assay
NRC	U.S. Nuclear Regulatory Commission
O&M	Operations and Maintenance
PCB	polychlorinated biphenyl
PFD	process flowsheet documents
PFP	Plutonium Finishing Plant
PFPEL	Plutonium Finishing Plant Engineering Laboratory
PNL	Pacific Northwest Laboratory
PPO	Plutonium Process Operations (234-5Z Building)

LIST OF TERMS (cont.)

ABBREVIATIONS, ACRONYMS, AND INITIALISMS

PRF	Plutonium Reclamation Facility (236-Z Building)
PRFP	Plutonium Reclamation Facility Plant
PSAR	preliminary safety analysis report
PSE	preliminary safety evaluation
PSF	Plutonium Storage Facility
PUREX	Plutonium-Uranium Reduction Extraction Plant
QC	quality control
R-SWIMS	Richland Solid Waste Information Management System
RCRA	*Resource Conservation and Recovery Act of 1976*
RHO	Rockwell Hanford Operations
RIDS	Records Inventory Disposition Sheet
RL	U.S. Department of Energy, Richland Field Office
RMA	remote mechanical A
RMC	remote mechanical C
RMW	radioactive mixed waste
S&S	Safeguards and Security
SAR	safety analysis report
SARP	safety analysis report for packaging
SDAR	Storage/Disposal Approval Record
SGSAS	Segmented Gamma Scan Assay System
SNM	special nuclear material
SRP	Savannah River Plant
SS&C	sand, slag, and crucible
SWBR	Solid Waste Burial Record
SWE	Solid Waste Engineering
SWITS	Solid Waste Information and Tracking System
SWSDR	Solid Waste Storage and Disposal Record
TBP	tributylphosphate
TCO	terminal cleanout operations
TRU	transuranic
TRUSAF	Transuranic Storage and Assay Facility
WAC	waste acceptance criteria
WG	weapons grade
WHC	Westinghouse Hanford Company
WIPP	Waste Isolation Pilot Plant
WRAP	Waste Receiving and Processing Facility
WT	waste treatment

BUILDINGS

232-Z	Waste Incinerator Layaway Building
234-5Z	Plutonium Process Operations (PPO)
236-Z	Plutonium Reclamation Facility
241-Z	Liquid Waste Disposal Facility (LWDF)
242-Z	Waste Treatment Layaway Building
2736-Z	Support Storage Complex Building
291-Z	Ventilation Exhaust Fans and Mechanical Service Equipment Building

1.0 INTRODUCTION

1.1 PURPOSE

The purpose of this report is to characterize, as far as possible, the solid waste generated by the Plutonium Finishing Plant (PFP) since its construction in 1947. This characterization is of particular interest in the planning of transuranic (TRU) waste retrieval operations (including the Waste Receiving and Processing [WRAP] Facility) because the PFP has generated approximately 55% of the TRU 55-gal drums currently stored at the Hanford Site. This report specifically excludes radioactive wastes generated at the Plutonium Metallurgy Laboratory (231-Z facility), which is operated for the U.S. Department of Energy (DOE) by the Pacific Northwest Laboratory (PNL). The wastes generated by this facility will be covered in a separate report.

1.2 BACKGROUND

Since 1944, the production of defense related materials at the Hanford Site has generated radioactive wastes. The bulk of these wastes have been disposed of or stored in the 200 East Area and 200 West Area burial grounds and waste storage facilities.

In the period between 1944 and 1970 both TRU and low-level wastes (LLW) were disposed of in shallow land trenches with no attempt to segregate these materials by their chemical or radioactive natures. In 1970 the U.S. Atomic Energy Commission (AEC) directed that AEC sites segregate "waste with known or detectable contamination of transuranium nuclides" from other waste types (*Immediate Action Directive 0511-21* [AEC 1970]). The TRU radionuclides are those with an atomic number greater than 92. The AEC further directed that these wastes be packaged and stored as contamination-free packages for at least 20 years. The 20-year interim storage period was to allow time to study permanent disposal options for TRU contaminated wastes.

The *Immediate Action Directive 0511-21* did not provide a detailed definition for TRU waste in 1970. The AEC contractors implemented the *Immediate Action Directive 0511-21* to the best of their ability with the instrumentation then available. In 1973, the *Atomic Energy Commission Manual* (AEC 1973) further defined TRU waste as material contaminated with certain alpha-emitting radionuclides with half-lives greater than 20 years and activity greater than 10 nCi/g. The radionuclides included were ^{233}U and its daughter products, as well as plutonium, and transplutonium nuclides with the exception of ^{238}Pu and ^{241}Pu. In 1982, the TRU waste segregation limit was raised to 100 nCi/g by DOE Order 5820.1, *Management of Transuranic Material* (DOE 1982).

In addition to radioactive materials, Hanford Site production plants and support operations used a wide variety of chemicals. Many of these chemicals are currently classified as dangerous or hazardous by the U.S. Environmental Protection Agency (EPA) and the Washington State Department of Ecology (Ecology). When dangerous or hazardous wastes are found in radioactive waste they are termed "mixed" wastes.

At the time much of the mixed waste was generated there were no definitions or regulations governing the storage, disposal, or documentation of mixed wastes. In 1987, the DOE issued a mixed by-product ruling stating that the hazardous components of mixed waste are regulated by the *Resource Conservation and Recovery Act of 1976* (RCRA) (DOE 1987). In November 1987, the EPA authorized Ecology to regulate the hazardous constituents of mixed waste at the Hanford Site (EPA 1987).

During the next two decades the TRU waste now stored in the burial trenches and storage facilities is to be retrieved, processed at the WRAP, and shipped to the Waste Isolation Pilot Plant (WIPP) near Carlsbad, New Mexico for final disposal. Over 50% of the TRU waste to be retrieved for shipment to the WIPP has been generated by the PFP.

1.3 SOURCES

Data for this study were compiled from a variety of sources. Each of the major sources used is listed with a few explanatory notes. Greater detail on each of the data sources can be found in the body of this document as the information from each is discussed.

Documents that describe the PFP processes — These documents include the *Plutonium Finishing Plant Safety Analysis Report* (WHC 1991), the *200 Areas Fact Book* (RHO 1985), and *Geometrically Favorable Plutonium Scrap Recovery Plant* (Bruns 1965), which were used to determine the solid wastes that may have been generated at the PFP during its 40-year history.

Documents that describe the PFP waste packaging and handling procedures — These documents include laboratory solid waste procedures (Louk 1991) and *Hanford Site Solid Waste Acceptance Criteria* (Willis and Triner 1991), which were used to describe packaging and handling practices.

Interviews — Interviews with current and former PFP personnel were used to gather information regarding unusual waste contents and historical waste handling and packaging procedures. The individuals interviewed represented both process and laboratory personnel, some of whom have been at the PFP for over 30 years.

Characterization data — These data were primarily derived from the Solid Waste Information and Tracking System (SWITS) database. The SWITS database was created in 1991 primarily with the solid waste data from the Richland Solid Waste Information Management System (R-SWIMS). The SWITS database contains information about radioactive wastes, both TRU and LLW, buried or stored in the 200 Areas since 1970. Data in SWITS were originally taken from Solid Waste Burial Records (SWBRs) and their replacement the Solid Waste Storage/ Disposal Records (SWSDRs). The SWBRs and SWSDRs, which will be jointly referred to as "burial records" in this document, often contain supplementary forms such as shipment manifests, U.S. Nuclear Regulatory Commission (NRC) 741 Forms, etc.

Hazardous waste components — These components were determined using information from the SWITS database, SWBRs, SWSDRs, and personnel interviews. Additional information was obtained from *Inventory of Chemicals Used at Hanford Site Production Plants and Support Operations (1944-80)* (Klem 1990) and *Unstable and Reactive Chemicals in TRU Retrievable Waste at the Hanford Site — A Review of Available Data* (Reddinger 1992).

1.4 SCOPE

The major sections of this document and the topics they cover are outlined briefly below. Because of the number of tables and figures included in this report, they appear at the end of each section.

Section 2.0 provides a brief description of the PFP physical plant and the operations that occur there. A short history of the significant occurrences and changes at the PFP follows this description.

Section 3.0 identifies the solid waste streams that arise from the PFP processes, maintenance operations, housekeeping operations, and waste processing. The types and amounts of solid waste that may have been generated from each of the waste streams are estimated.

Section 4.0 discusses the waste handling and packaging procedures used in the PFP operational facilities and in the PFP Analytical Laboratories. Historical changes in waste handling, packaging, and recordkeeping are also reviewed in this section.

Section 5.0 contains the results of a search for actual waste container data. This section describes what is known about the physical, radiological and hazardous characteristics of the radioactive solid waste from the PFP.

Section 6.0 lists the references used in the compilation of this report.

Appendix A contains the PFP process flowsheets taken from the *Plutonium Finishing Plant Safety Analysis Report* (SAR) (WHC 1991).

Appendix B contains the original SWITS data run that forms the basis for most of the tables and figures found in Section 5.0.

Appendix C is composed of individual SWITS records for the heaviest containers generated by the PFP.

Appendix D is composed of individual SWITS records for the TRU waste containers with the heaviest gram loadings.

Appendix E contains the SWITS record for the one classified waste container listed as generated at the PFP.

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2.0 DESCRIPTION OF THE PFP

The PFP, also referred to as 234-5Z and Z Plant among others, is a collection of facilities that has primarily been used to produce plutonium metal and plutonium oxide to support national defense activities. The special nuclear materials (SNM) that form the feed for the PFP processing include, but are not limited to, plutonium-bearing caps, incinerator ash, silicon nitride crucibles, polystyrene cubes, plutonium-uranium mixtures, slag and crucible fragments, unirradiated fuel rods, plutonium-beryllium sources, and unique plutonium-bearing solutions (e.g., plutonium nitrate solution from the Plutonium-Uranium Reduction Extraction Plant [PUREX]). The PFP uses separate process lines to handle different feeds.

Numerous changes to equipment and processes have been made since the PFP was first started. The purpose of this section is to describe the PFP and to summarize the process history, so that solid waste generation activities can be compared to status of the PFP.

2.1 LOCATION

The PFP is located within DOE's Hanford Site in south-central Washington State (Figure 2-1). The PFP is situated in the west-central region of the Hanford Site within the 200 West Area (Figure 2-2). The location of the PFP relative to other plants in the 200 West Area is shown in Figure 2-3. A photograph of the PFP can be found in Figure 2-4.

2.2 PROCESS SUMMARY

The recently renamed PFP has been known as the Plutonium Process and Storage Facility, and more familiarly known as Z Plant. The plant was first operated in 1949. Both manual and remote mechanical processing have been employed at the plant.

Three types of feed materials are processed at the PFP to produce plutonium metal. Feed material types are handled differently in different process lines. The purpose of initial feed processing is to prepare a purified plutonium nitrate solution that can be processed through a solvent extraction step and subsequently reduced to product. Processing at the PFP has included fabrication of plutonium metal into useful parts, although that activity has been discontinued.

Historically, the main feed for the PFP was purified plutonium nitrate solution that was produced elsewhere in a fuel reprocessing plant. This feed was charged directly to one of the main process lines, which was initially a glovebox line. The glovebox line was replaced by remote mechanical lines, which were upgraded over the years. In time, processes were added to handle rework and scrap plutonium. These processes were used to convert the rework and scrap materials into a purified plutonium nitrate solution that could be handled by the main process. The PFP facilities have included laboratory facilities; shops for maintenance, chemical development, and instrumentation; and an incinerator that was used for processing scrap. Significant process changes in the PFP are described in the following section.

2.3 PFP PHYSICAL PLANT

The buildings that compose the PFP are shown in Figure 2-5. The primary PFP process and support buildings include 232-Z, 234-5Z, 236-Z, 241-Z, 242-Z, 291-Z, 2736-Z, and 2736-ZB. Some processes within the PFP buildings are no longer operated. For clarity, therefore, each of the process support buildings and their functions are described as follows.

- **Active** — An active process is currently operating or is scheduled for future operation.
- **Standby** — A standby process is not currently operating but is operable with appropriate repairs/upgrades. Future operations are not currently scheduled.
- **Layaway** — A layaway process is not operable without major repairs/upgrades. No operations are planned. This category is scheduled for terminal cleanout operations (TCO)/decontamination and decommissioning (D&D).
- **Future** — A future building, process, and/or enhancement that is planned for construction and operation.

2.3.1 The 234-5Z Building (Active)

The 234-5Z Building, also referred to as the 234-5 Building, has approximate dimensions of 54.9 m (180 ft) wide by 152.4 m (500 ft) long and extends from 2.9 m (9.5 ft) below grade to 14.3 m (46.8 ft) above grade. Floor levels are designated as basement, first floor, duct level, second floor, and roof level.

The 234-5Z basement mostly consists of pipe tunnels carrying drain piping to sumps. The first floor houses the two plutonium processing lines (remote mechanical A [RMA] and remote mechanical C [RMC] lines) and their control rooms; scrap stabilization gloveboxes; plutonium storage vaults; the plutonium nitrate feed load-in/load-out (LI/LO), blending, and storage facilities; the Engineering Laboratory and the Development Laboratory; the instrument maintenance shops; the building maintenance shops; the locker rooms with change facilities and restrooms; and office spaces. The duct level contains most of the service piping, ventilation ducts, and some filterboxes. The lunchroom, conference room, materials storage room, chemical feed preparation and aqueous make-up rooms, locker rooms with change facilities and restrooms, and office spaces are on the second floor. Also located on the second floor are exhaust air duct works, including filterboxes and filter rooms. The fan room, located on the northwestern corner of the second floor, houses the ventilation supply fans, the steam inlet and distribution system, air dryers, the distilled water still, air chilling units, and the vent and balance control room.

2.3.2 The 236-Z Building (Active)

The 236-Z Building is located south of the southeastern corner of the 234-5Z Building and is connected to it by the 242-Z Building. The 236-Z Building, built as the CAC-880 Project, houses the Plutonium Reclamation Facility (PRF). It is also referred to as 880, Plutonium Reclamation Facility Plant (PRFP), Plutonium Nitrate Production Facility, and 236.

The building is essentially a four-story structure, surmounted by a two-story penthouse. Its dimensions are about 24.1 m (79 ft) wide by 21.6 m (71 ft) long. Its outstanding internal structural feature is a single process equipment cell that is 9.8 m (32 ft) wide by 15.8 m (52 ft) long.

Maintenance shop facilities are located on the service (east) side of the building on the ground floor. The second floor of the service side is used for a maintenance glovebox and ventilation exhaust filters. Building service equipment and electrical switch gear are on the third floor of the service area. The fourth floor is used for chemical preparation, miscellaneous treatment, the operating control room, slag and crucible dissolver equipment, and a column room in which vertical sections of two liquid-liquid extraction columns penetrating the room from above and below are housed in a glovebox. The first through the fourth floors are serviced by a service elevator located within the east side of the building.

The process cell has a 0.6-m- (2-ft-) thick concrete wall between the cell and access hoods. These access hoods are stainless steel paneled hoods containing glass viewing windows and Hypalon* hood gloves. These hoods are located on both sides of the cell on the first two floors. The hoods contain process piping, pumps, valves, flowmeters, and other equipment that frequently requires maintenance.

The cell floor is covered with a stainless steel liner extending 45.7 cm (18 in.) up the side wall. The remaining cell wall and ceiling surfaces are covered with chemical-resistant coatings. Water-filled viewing windows on the third floor have adjacent remote control stations for the cell crane.

2.3.3 The 232-Z Building (Layaway)

The 232-Z Building houses the layaway contaminated waste recovery process. It was commonly called the incinerator. It was constructed by Project CGC-013, plutonium recovery process, and was partially decontaminated and decommissioned in 1984.

The 232-Z Building is located about 61 m (200 ft) south of the main portion of the 234-5Z Building and is about 30.5 m (100 ft) west of the 291-Z stack. Its approximate dimensions are 11.3 m (37 ft) wide by 17.4 m (57 ft) long. It is divided into areas for process, storage, changeroom, chemical preparation, ventilation and electrical equipment. Except for

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*Hypalon is a trademark of E.I. duPont de Nemours and Company.

ventilation supply and exhaust filtration, the 232-Z Building uses services from the 234-5Z Building. The 232-Z Building has been isolated from the 291-Z Building, although they were connected in the past.

2.3.4 The 241-Z Building (Active)

The 241-Z Building is designated as the Waste Treatment Facility. It is commonly called the 241-Z Sumps and in the past was called the 216-Z Large Waste Sump Tanks. The 241-Z Building is a buried structure, with a sheet metal enclosure over the top which houses a hoist for removing cell covers. It consists of five separate enclosures or ventilated cells, each containing a 20,000-L (5,283.5-gal) tank used to accumulate the liquid wastes generated in the PFP before transfer to the tank farms. Built of reinforced concrete, its approximate dimensions are 6.1 m (20 ft) wide by 28 m (92 ft) long.

At the southwest corner of the 241-Z vault deck is the equipment for the 241-Z vessel vent and vault ventilation system. The 7.3-m- (24-ft-) high stack (296-Z-3) and its associated fans, filters, and controls are located on a 4.3- by 5.5-m (14- by 18-ft) concrete pad.

2.3.5 The 242-Z Building (Layaway)

The 242-Z Building houses portions of the Waste Treatment and Americium Facility, which are in layaway and planned for future D&D. Built primarily by Project CGC-912, this building is usually referred to as "912" or "WT."

The 242-Z structure is between the southeastern corner of the 234-5Z and 236-Z Buildings. Along its east side runs a corridor connecting the 234-5Z, 242-Z, and 236-Z Buildings. At its west end is an entrance enclosure for outside entry into both 242-Z and the Engineering Laboratory area in the 234-5Z Building.

The 242-Z Building's approximate dimensions are 12.2 m (40 ft) wide, 7.9 m (26 ft) long, and 7 m (23 ft) high. The south portion, approximately 12.2 m (40 ft) wide by 3 m (10 ft) long, is the tank room (tank cell). This room extends the full inside building height. The north portion, designated the control room, has a mezzanine over its west half for chemical addition tanks.

The tank room in the 242-Z Building houses large process vessels, which are piped to the process gloveboxes of the control room. The 242-Z Building shares the main ventilation system in common with the 234-5Z and 236-Z Buildings and is equipped with the other PFP utilities and services.

2.3.6 The 270-Z Building (Active)

The 270-Z Building, also known as the PFP Operations Support Building, is a wood-frame structure with plaster board inner walls. This building houses Plant Management, Engineering, and Nuclear Facility Safety Personnel.

2.3.7 The 291-Z Building (Active)

The 291-Z Building, also known as the Exhaust Fan House, Exhaust Air Stack Building, and Compressor and Fan House, is a reinforced concrete structure located approximately 16.2 m (53 ft) south of the central part of the 234-5Z Building. Of irregular shape, its approximate dimensions are 22.6 m (74 ft) wide by 43.6 m (143 ft) long. Its overall height is approximately 7 m (23 ft), with only 1.2 m (4 ft) above grade. This building houses the exhaust fans, the mechanical service equipment, and the substation. Auxiliary to 291-Z is the 61-m- (200-ft-) high 291-Z-1 stack.

2.3.8 The 2736-Z Building (Active)

Building 2736-Z is the primary PFP Plutonium Storage Facility (PSF). Building 2736-Z is approximately 19.8 m (65 ft) long by 17 m (56 ft) wide. The building consists of four rooms for the storage of SNM, divided by a corridor running the width of the building. The building is constructed of reinforced concrete walls, 35.6 cm (14 in.) thick, supported by a cast-in-place concrete slab, 16.5 cm (6.5 in.) thick. Each storage room is approximately 8.5 by 8.5 m (28 by 28 ft). Rooms 1, 3, and 4 contain storage cubicles while room 2 has steel shelves and open floor storage.

2.3.9 The 2736-ZB Building (Active)

Building 2736-ZB, located immediately to the south of Building 2736-Z, is approximately 40.2 by 27.4 m (132 by 90 ft) with reinforced concrete walls (except for administrative areas) and roof.

The 2736-ZB shipping and receiving areas each provide approximately 92.9 m^2 (1,000 ft^2) of floor space to accommodate a maximum of 100 shipping containers the size of 55-gal drums. Containers are spaced to meet Westinghouse Hanford Company's criticality prevention and personnel exposure specifications as well as allowing corridor access to staging areas. The two areas are physically separated by a wall. The majority of shipping containers handled contain plutonium oxide powder, plutonium metal, or miscellaneous solid scrap materials from various onsite and offsite sources.

2.4 PROCESS AND FACILITY HISTORY

The following is a chronological list of historical events relating to the PFP.

- **July 1949** — Project C-198. Facility starts up with rubber glove/remote button line.
- **June 1951** — Project C-198 is mostly complete, including installation (but not startup) of the remote mechanical line (now known as the RMA line) that would replace the rubber glove/remote button line.

- **August 1951** — Development work is initiated on the Recuplex solvent extraction process for recovering plutonium from waste materials and from process solutions originating at separations plants.

- **May 1953** — Project C-413 is completed. This project provided improvements to the RMA line, including increased efficiency, capacity, and instrumentation, and added facilities. The project also added a second partial remote mechanical line called RMB. The RMA line started up and the rubber glove line shut down shortly before this project was completed.

- **April 1955** — Project C-496 is completed. This project installed the Recuplex Facility at the PFP.

- **May 1955** — Project CG-551 is completed. This project installed modifications to the fluorination and metal reduction steps of the RMA line to increase capacity.

- **September 1955** — Project CG-617 is completed. This project installed new process air drying facilities.

- **May 1958** — Project CG-691 is completed. This project installed equipment for continuous processing steps for oxalate formation, filtration, calcining to oxide, and conversion to plutonium fluoride. The purpose of this project was to decrease costs and increase output.

- **August 1958** — Project CG-756 provides fire protection modifications, including replacement of combustible exhaust filters with noncombustible filters.

- **June 1959** — Project CG-745 adds plutonium fabrication equipment to what was known as the RMC fabrication line.

- **September 1959** — Project CGC-800 installs radiation shielding and other equipment to reduce exposure to personnel working on the RMA line.

- **October 1959** — Project CG-723 converts the Recuplex Facility from a semi-works to a manufacturing facility. Safety, contamination control, and process control are improved. Conversion supports increased plutonium production activity.

- **January 1960** — Project CGC-826 replaces the plant 66-cm (26-in.) mercury vacuum system, including supplementary piping, modified filters, and cleanout facilities.

- **July 1960** — Project CG-734 installs a second remote mechanical line, with improved radiation protection, for producing plutonium metal. This line, known as RMC, is to operate in addition to the RMA line.

- **March 1961** — Project CG-789 installs additional fire protection systems.

- **September 1961** — Project CGC-813 installs the 232-Z Incinerator Building. The building includes equipment for leaching plutonium from wastes, for burning combustible plutonium-bearing materials, and for transferring the resulting product to cans.

- **April 1962** — An accidental nuclear excursion occurs in the Recuplex facility, hastening its planned abandonment. No mechanical damage or spread of contamination occurred.

- **July 1962** — Project CG-811 provides modernization of plutonium fabrication facilities and provides inspection facilities.

- **February 1963** — Project CGC-978 provides interim facilities to process the filtrate from the RMC line (pending installation of a replacement system for Recuplex). Ion exchange columns are installed in glovebox HA-46 and tanks are provided in cell 46 to process filtrate.

- **June 1964** — Project CGC-912 installs equipment to treat liquid process wastes that are routed to cribs. The purpose of the Project is to reduce the amount of plutonium discharged, since processing was increasing. The 242-Z Building is equipped with an ion exchange facility, solvent extraction column, process tanks, instrumentation, and a chemical makeup area.

- **June 1964** — Project CAC-880 installs the new PRF in the 236-Z Building. The PRF replaces the functions performed by the Recuplex facility. It is designed to concentrate liquid feeds, dissolve or otherwise process solid material, and to perform solvent extraction recovery of plutonium from aqueous streams.

- **May 1965** — Project CAC-121 installs a batch process americium recovery facility in the 242-Z Building. Feed to the facility is the solvent extraction waste stream from the 236-Z Building.

- **May 1965** — Project CGC-180 installs the Plutonium Buy-Back Facility in room 227 of the 234-5Z Building. The new facility handles shipping activities.

- **December 1965** — Fabrication of plutonium metal nuclear weapon components (Division of Military Applications line) ceases at the PFP.

- **June 1970** — Project HCP-640 upgrades fire protection systems.

- **October 1970** — Project HCE-637 upgrades the liquid waste treatment processes at 242-Z by providing a continuous system, and by increasing recovery of plutonium and americium.

- **September 1971** — Project HCE-658 modifies the PFP to produce plutonium oxide for use in the Fast Flux Test Facility (FFTF) program. The RMA line fluorinator is modified to be used as a second stage calciner. Production scale capability is provided for sieving, blending, sampling, canning, and weighing plutonium oxide.

- **November 1971** — Project HCE-651 modifies the PRF to recover plutonium from mixed plutonium/uranium scraps. The PRF was originally designed to process plutonium-bearing scrap in support of metal preparation and fabrication. It previously had only a limited capability for separating plutonium from uranium.

- **April 1973** — 232-Z Incinerator is shut down. The RMC line is placed in standby.

- **October 1973** — Project HCP-653 upgrades fire protection systems.

- **November 1973** — Project HCP-669 upgrades the PFP effluent control. The RMC line fluorinator is equipped with a new recirculating offgas scrubber, reducing the volume of some aqueous plutonium-bearing waste streams, comprised mainly of jet water. A new, underground encased piping system is installed to the 242-T Evaporator, for the transfer of all aqueous process waste to the tank farms. (This waste was previously sent to a crib.)

- **May 1974 to May 1976** — Decommissioning and disposal of DMA line equipment.

- **August 1976** — An explosion occurs in a 242-Z cation exchange column. The 242-Z Waste Treatment and Americium Recovery Facility is shut down.

- **February 1979** — The PRF is placed in standby.

- **December 1979** — The RMA line is shut down. Plutonium oxide blending and production end.

- **1979** — Central Scrap Management Organization (CSMO) inventory reduction begins and lasts through 1982.

- **September 1980** — The 242-Z Building is restabilized.

- **October 1980** — A fire in a plutonium-scrap can occurs in the 234-5Z Building, room 230-C, contaminating most of the Zone 3 operating area.

- **January 1981** — Decontamination of room 230-C is completed.

- **February 1981** — A new central station alarm facility is completed.

- **March 1981** — A new 43-cm (17-in.) mercury vacuum system is installed, replacing the 25-cm (10-in.) vacuum system.

- **January 1982** — Room 308 in the 234-5Z Building is contaminated during a filter change.

- **February 1982** — Decontamination of room 308 in the 234-5Z Building is completed.

- **May 1982** — The PFP TCO programs are initiated. During the next three years, the TCO program successfully completes 232-Z (Incinerator), the RMA line, and removes the 66-cm (26-in.) vacuum system. Approximately 1,400 0.61- by 0.61- by 0.30-m (2- by 2- by 1-ft) high-efficiency particulate air (HEPA) filters were removed with the vacuum system and sent to TRU waste.

- **August 1982** — Downloading and stabilization of the PRF is initiated.

- **December 1982** — The PRF downloading is completed.

- **June 1983** — The D&D is initiated in 232-Z (Incinerator). Highlights included removal of about 50% of the 232-Z gloveboxes, removal of about 66% of the Radioactive Acid Digestion Test Unit gloveboxes, and gloveboxes HC-30, HC-58, and HC-227.

- **1984** — The RMC cleanout takes place from 1984 to 1985.

- **January 1984** — The PRF is restarted. Initial feed is low weight percent plutonium scrap feed.

- **January 1984** — The PRF processing campaign began. The dates for the four processing campaigns follow:

PRF	Start date	End date
1984	January 1, 1984	November 18, 1984
1985	December 17, 1984	May 31, 1985
1986	December 23, 1985	March 31, 1986
1987	July 1, 1987	December 18, 1987

- **June 1985** — The RMC line is restarted, marking the beginning of seven RMC line campaigns.

RMC	Start date	End date
1985	July 1, 1985	October 31, 1985
1986-1	April 5, 1986	May 21, 1986
1986-2	June 6, 1986	July 22, 1986
1986-3	September 1, 1986	October 30, 1986
1988-1	July 11, 1988	August 18, 1988
1988-2	September 12, 1988	November 10, 1988
1988-3	March 15, 1989	June 2, 1989

- **January 1986** — The RMC Halon* dry fire suppressant system is installed.
- **August 1986** — Fire line safety upgrades completed.
- **September 1986** — The PFP operations are halted for 9 months to assess administrative controls. Procedures and training are enhanced.
- **March 1987** — A new 9AB filter box is installed.
- **May 1987** — The PFP roof security upgrades are completed.
- **June 1987** — Polychlorinated biphenyl (PCB) removal initiated.
- **March 1989** — The 270-Z Operational Office Support Building is constructed.
- **January 1991** — The PRF and RMC lines are operated sequentially.

In the forty-odd years that PFP has been in operation various processing missions have been accomplished. These include the following:

- Plutonium purification
- Oxide production
- Metal production
- Parts fabrication
- Plutonium recovery
- Recovery of ^{241}Am.

The PFP has been used for receipt and large-scale storage of onsite and offsite plutonium scrap and product materials.

2.5 CURRENT PFP PROCESSES AND OPERATIONS

The PFP complex is used to perform diversified plutonium processing, handling, storage, and support operations. Included in these operations are the following:

- SNM handling and storage
- Plutonium recovery
- Conversion of plutonium solutions into oxide and metal
- Laboratory support
- Radioactive waste handling
- Shutdown facility surveillance.

For a detailed narrative description of the PFP process systems refer to the PFP SAR (WHC 1991). The flow diagrams and the text are found in Appendix A of this report. These diagrams show the flow of materials and

*Halon is a trademark of Allied-Signal, Incorporated.

material balances for the plutonium handling and storage, plutonium recovery, and plutonium conversion operations. Many of the processes are "batch" operations; consequently, material balances are based on the normal "batch" size.

2.6 FUTURE PFP ACTIVITIES

An operational readiness review is currently being done for the resumption of operations at the PFP. After DOE acceptance of a Declaration of Readiness, a sequential startup of the PFP will begin. Startup is planned for 1993 and will begin in the PRF. Once the PRF is online other processes will be prepared for readiness.

The next startup is planned for glovebox HC-60. The RMC will then undergo a series startup to resume production of stable plutonium oxides. HA-21-I will then begin burning scrap. After process and material treatment requirements are met, characterization and process evaluation will occur in preparation of the transition to standby status.

Figure 2-1. Location of the Hanford Site.

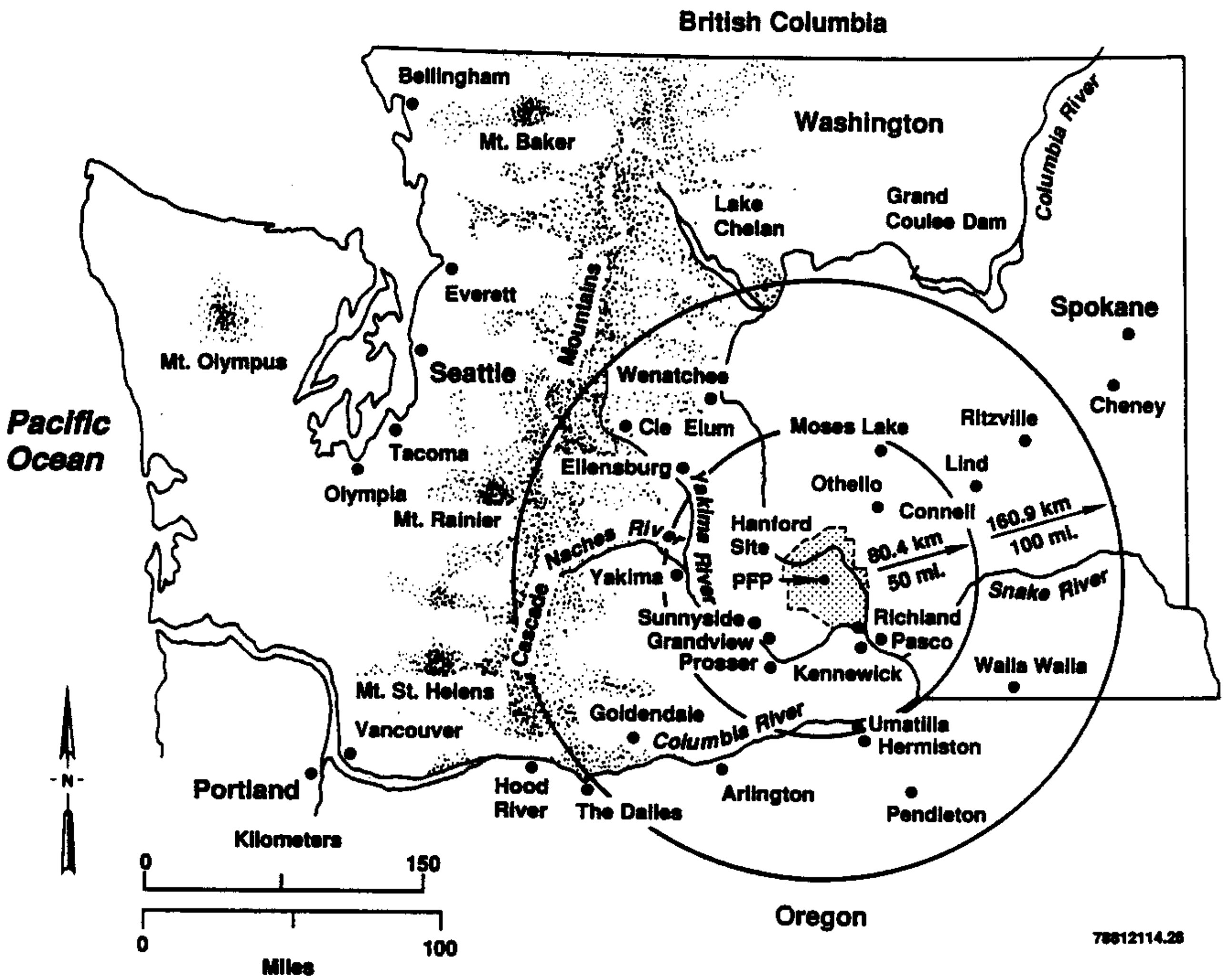


Figure 2-2. Hanford Site Map.

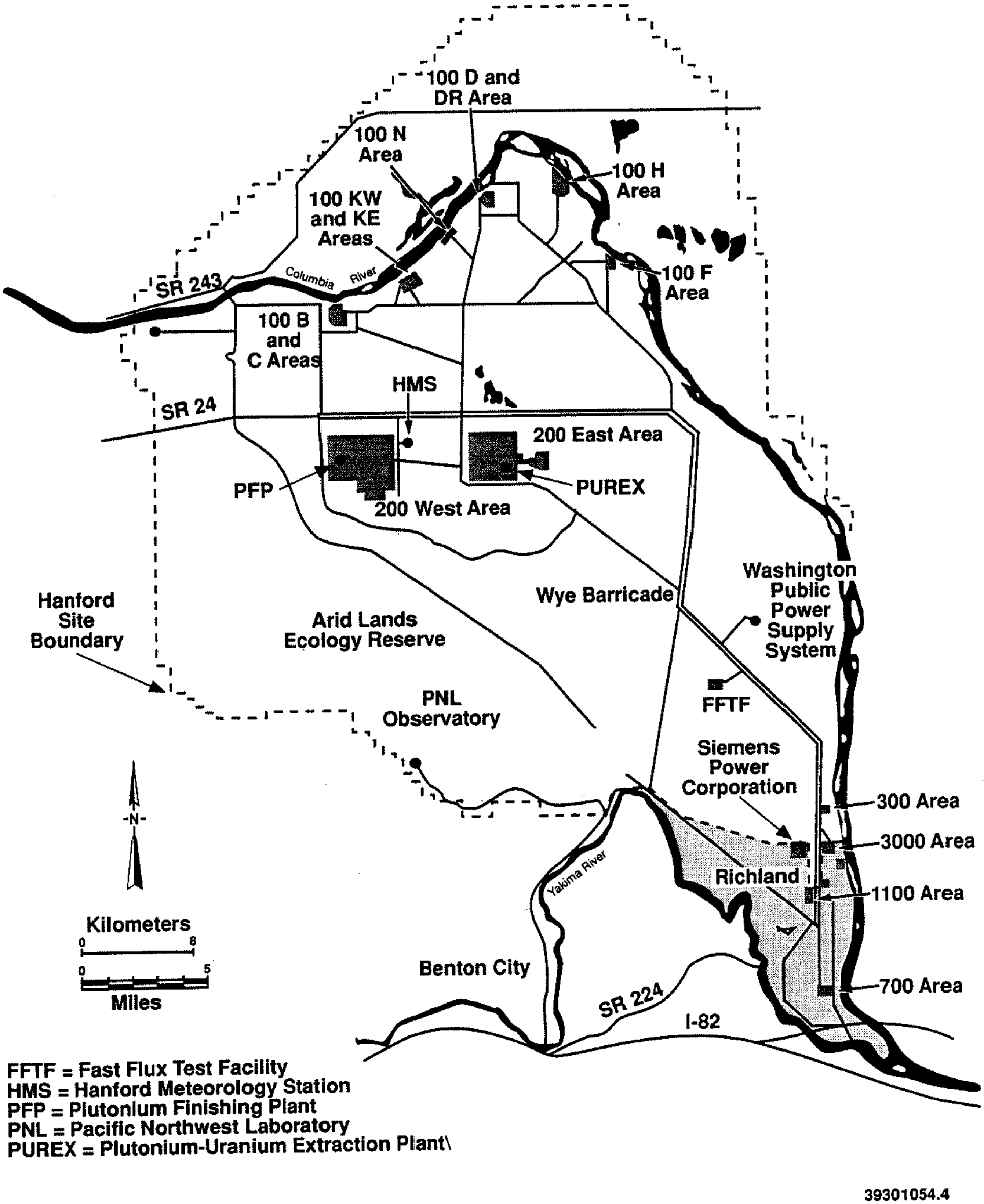


Figure 2-3. 200 West Area.

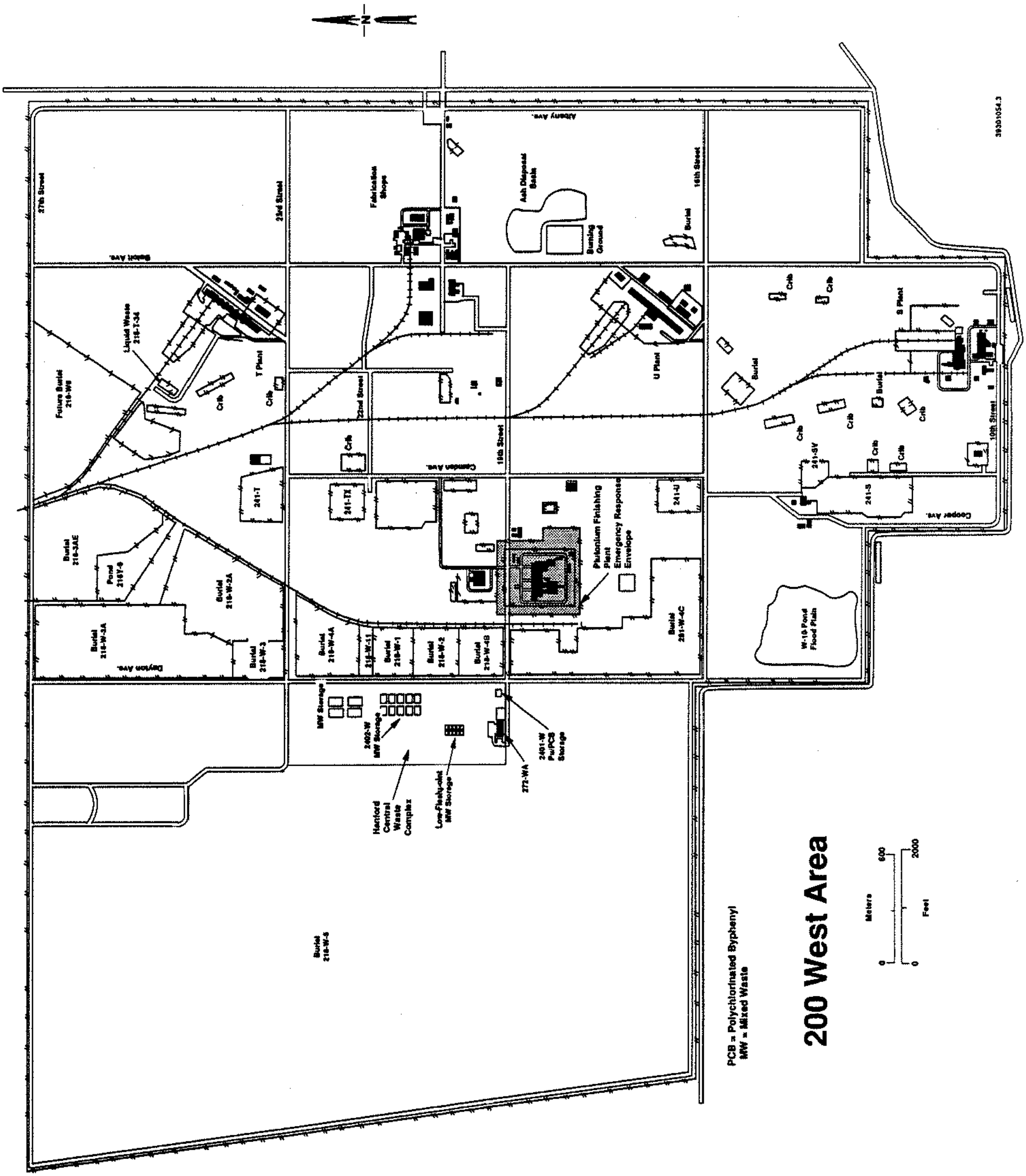


Figure 2-4. Aerial Photograph of the PFP.

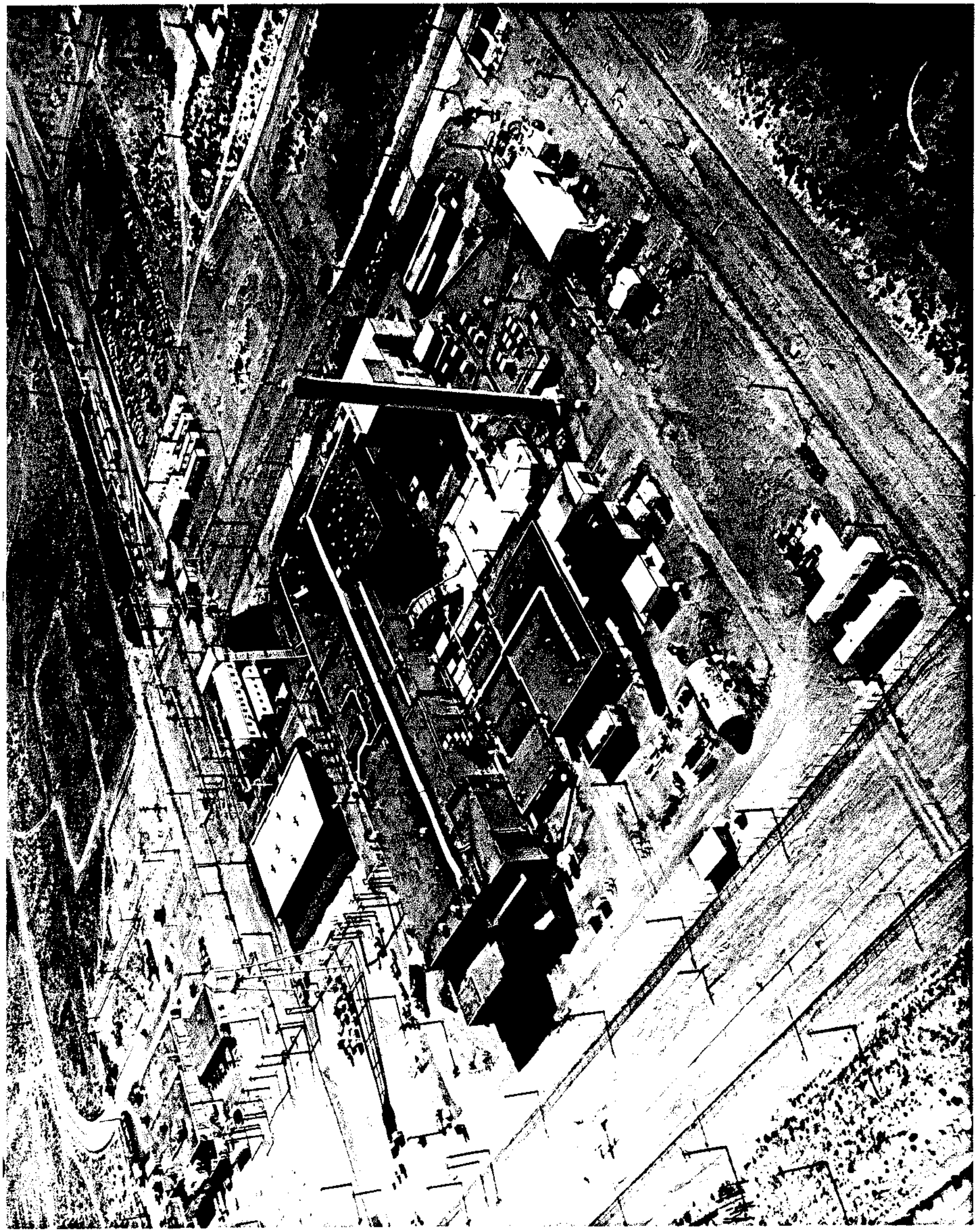
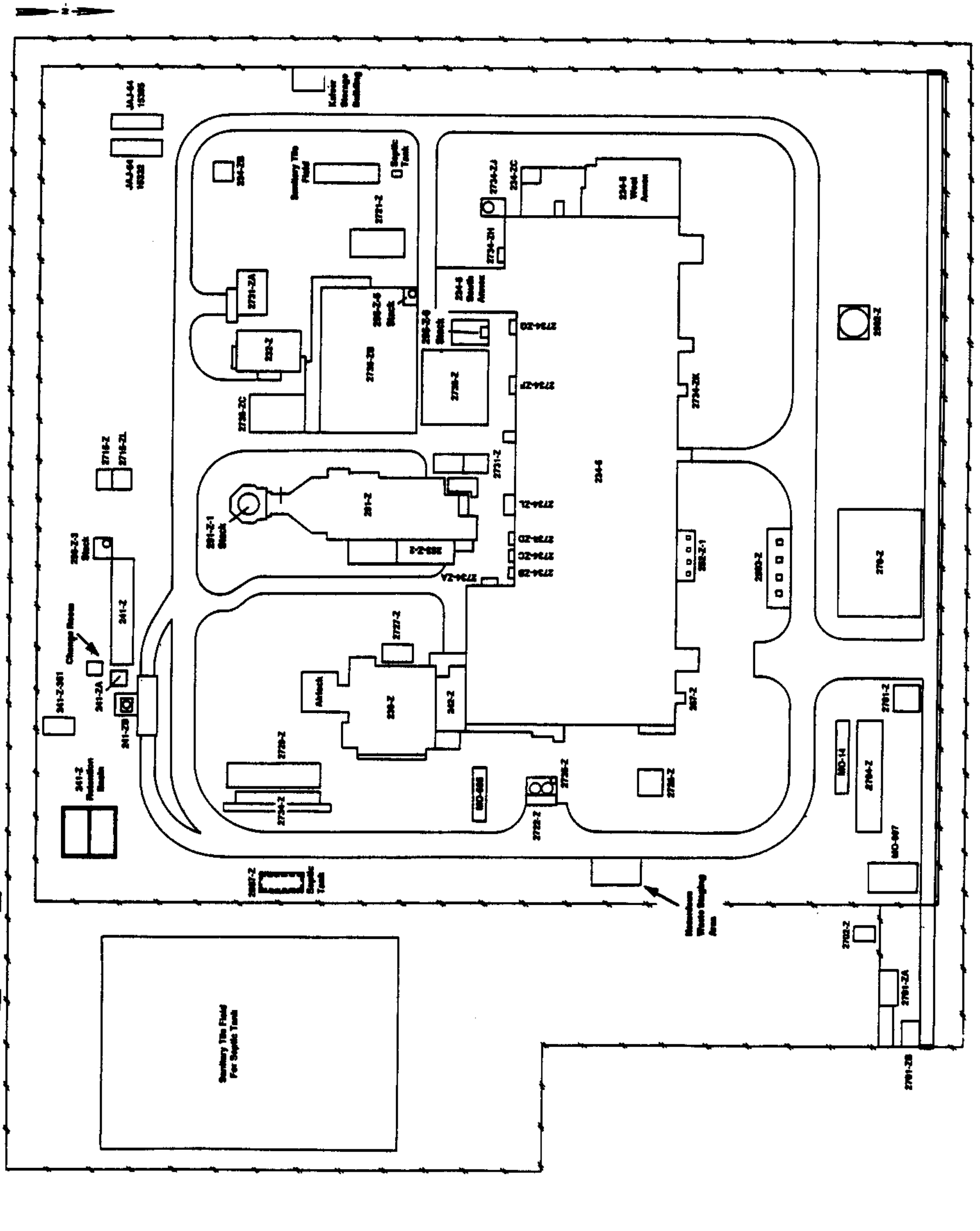


Figure 2-5. Main PFP Structures.



3.0 PFP SOLID WASTE STREAMS

3.1 INTRODUCTION

All solid wastes originating from the PFP are packaged for onsite or offsite storage or disposal. Radioactive solid wastes are packaged in metal drums or burial boxes, depending on the size of the wastes. Burial boxes are used to dispose of failed equipment, HEPA filters, and other radioactive solids too large to fit into 55-gal drums. Dangerous solid wastes are collected in metal drums. Nonradioactive, nondangerous solid wastes are generally collected in metal dumpsters. Figures 3-1 through 3-5 show the destination points for the PFP solid wastes.

Waste packages generated at the PFP must meet the criteria of the storage/disposal unit. For TRU wastes, these criteria are the WIPP Waste Acceptance Certification Criteria (WEC 1989). For LLWs these criteria are those established by the LLW burial grounds (Willis and Triner 1991). Hazardous and mixed waste must meet regulatory standards established by Ecology (1989) and the U.S. Department of Transportation (DOT) (1989).

3.2 RADIOACTIVE WASTE SEGREGATION

All radioactive solid wastes generated at the PFP are segregated at the point of generation depending on waste category. Solid wastes removed from gloveboxes and other wastes potentially contaminated with TRU elements are segregated as TRU wastes. These wastes are often referred to as "hood wastes." All other solid wastes generated within radiation control zones are segregated as LLW and are referred to as "room wastes." The TRU or LLWs that also contain regulated hazardous wastes are segregated as radioactive mixed waste (RMW), and noncertified TRU wastes are segregated from other TRU wastes.

Before 1988, TRU and LLWs were segregated mainly as combustibles, noncombustibles, and absorbed organics. Noncombustibles could include glass, metal equipment, piping, etc.; combustibles could include paper cartons, plastic bottles, rags, wood, plastic bags, drybox gloves, etc.

3.3 WASTE-GENERATING ACTIVITIES

Four significant waste-generating activities at the PFP have been identified:

1. Plutonium processing
2. Required maintenance
3. Housekeeping
4. Waste processing.

These activities and the waste streams associated with each are discussed in the following sections.

3.3.1 Plutonium Production Processes

The following major plutonium production processes have occurred at the PFP:

1. Plutonium recovery as plutonium nitrate solution from plutonium-bearing solid scrap and residues and mixed plutonium-uranium solid scrap and residues

2. Conversion of purified plutonium nitrate solutions to a plutonium oxide powder

3. Conversion of plutonium oxide to plutonium metal

4. Fabrication of nuclear weapon components from plutonium metal (1960-65).

5. Incineration of combustible plutonium-bearing materials (1964-73).

The waste streams associated with each of these processes are discussed below. For a more complete discussion of these processes and the location of each facility involved refer to Section 2.0 and Appendix A.

3.3.1.1 Plutonium Nitrate Feed Preparation. Plutonium-bearing solid materials are dissolved in a variable mixture of nitric acid and fluoride ions using hydrofluoric acid or fluoride salts as a fluoride ion source. The plutonium nitrate solution is transferred to the solvent extraction process while the dissolver heels are assayed for their plutonium content. A simplified flowsheet is shown in Figure 3-6, "Recoverable Material Dissolution Flowsheet."* If a dissolver heel is more than the economic discard limit (EDL), the heel is saved for reprocessing. If the heel is less than the EDL, it is transferred to solid waste treatment as TRU waste.

The plutonium-bearing solid materials processed through the dissolving systems in the PFP have encompassed more than 50 different types of scrap. Consequently, the composition of the discarded heels has varied accordingly. The most significant (by quantity) plutonium-bearing scrap processed has been sand, slag, and crucible (SS&C) waste generated by the metal reduction process. The SS&C consists of magnesium oxide sand, magnesium oxide crucible chips, calcium fluoride slag, calcium iodide booster, plutonium oxide, plutonium fluoride, free calcium metal, and traces of plutonium metal shot that did not coalesce during the bomb reduction. The composition of the discarded heel is shown in Figure 3-7, "Slag and Crucible Material Dissolution Flowsheet." As indicated in Figure 3-7, the major constituent of the dissolver heel is calcium fluoride (92.3%) with minor constituents of magnesium oxide (3.0%) and aluminum fluoride (4.4%) and trace quantities of silicon oxide, plutonium oxide, plutonium, and plutonium fluoride. Another major contributor to dissolver heels was the processing of incinerator ash. From 1964 to 1973, an incinerator operated in 232-Z and burned plutonium-contaminated gloves, rags, plastic bottles, paper cartons, and other

*The dissolution heels generated in dissolvers MT-5 and HC-46-F are assayed for plutonium content.

miscellaneous combustible materials. The resulting ash was processed to recover the plutonium, which correspondingly generated an insoluble ash heel. The major constituents were silicon oxide (35-45%) and carbon (10-40%) with metal oxides making up the remainder. This insoluble heel was discarded to solid waste treatment as TRU waste once the plutonium was less than the EDL.

From 1965 to 1977, plutonium nitrate solutions were shipped to industrial contractors engaged in nuclear fuel preparation. The solutions employed criticality-safe plastic cylinders (about 10-L volume) as the primary containers. A considerable number of these plastic cylinders were often discarded in TRU waste. because of exterior contamination.

A tantalum crucible lid was employed in the metal reduction process. This lid was leached to remove any spattered plutonium metal and was subsequently discarded as TRU waste.

Other plutonium-bearing solid scrap was received from onsite- and offsite-generated dissolver heels. These heels were generally refractory metal oxides and silicates and leached insoluble metal scrap such as stainless steels and tantalum items. These heels and substrates were discarded as TRU waste.

3.3.1.2 Solvent Extraction Process. The solvent extraction process generates a small amount of solid waste since essentially all processing reagents are liquids. Consequently, spent liquid reagents are either recycled or discarded to the tank farm as liquid waste. A small quantity of solid waste is collected from the CAW centrifuge as shown in Figure 3-8, "Typical Solvent Extraction Flowsheet." The collected solids are insoluble particulates representing refractory metal oxides, ceramics, carbon, and high-fired plutonium oxide. If the plutonium is less than the EDL, these collected particulates are discharged to solid waste treatment as TRU waste.

3.3.1.3 Plutonium Nitrate to Plutonium Tetrafluoride Conversion. The plutonium nitrate to plutonium tetrafluoride conversion process is shown in Figure 3-9, "Remote Mechanical C Line Flow Diagram, Nitrate Solution Through plutonium fluoride Production." As indicated in Figure 3-9, no solid process waste is generated except for glovebox sweepings and other housekeeping activities. Usually, the glovebox sweepings are high enough in plutonium to warrant processing. The liquid wastes are discharged to the tank farm or to the 241-Z Building. The scrubber step indicated by the dashed lines is a relatively recent addition to the process.

3.3.1.4 Plutonium Fluoride to Metal Conversion. The conversion of plutonium fluoride to a plutonium metal button is shown in Figure 3-10, "Remote Mechanical C Line Flow Diagram, plutonium fluoride Through Plutonium Metal Button Production." As shown in Figure 3-9, no solid process waste is generated. However, the slag and crucible produced is a high source of feed to the dissolvers.

3.3.1.5 Summary. The solid process wastes generated by the PRF and RMC line processing is minimal except for dissolver heels. The main source of TRU waste is from dissolver heels. The quantities of heels generated over the years of processing at the PFP are directly proportional to the plutonium scrap processed and the metal produced. A review of the metal production quantities per year and the kilograms of scrap processed can provide an estimate of the dissolver heels generated and discarded as TRU waste. The dissolver heels and other process solids were placed in plastic bottles and bagged out of the glovebox line.

3.3.1.6 Plutonium Component Fabrication. The fabrication of plutonium metal nuclear weapon components from 1960 to 1965 generated both TRU waste and classified waste. The TRU waste generated from foundry castings would be graphite molds, tantalum crucibles and funnels, ceramics, and furnace insulation. The TRU waste generated by machining and inspection operations would be spent machine tools, fixturing and gauging. Combustible waste would have been sent to the incinerator.

3.3.2 Maintenance Requirements

Solid waste generated by maintenance requirements was the result of five PFP mission assignments:

1. Plutonium metal schedules and requirements
2. Refurbishments/restarts to accomplish (1)
3. New processing assignments like the CSMO
4. Dismantling processes and D&D work
5. Safety upgrades to the facility and supporting systems.

The extent of maintenance activities with respect to the five assignments above requires searching the facility records and archives. Time does not permit an extensive search. It is assumed that the following events would have produced significant maintenance activities:

- Replaced combustible exhaust filters with noncombustible filters and installed other fire protection modifications (1958)
- RMC line weapon fabrication equipment removed (1970-72)
- Provided the 236-Z Building with the partitioning capability to recover plutonium from mixed plutonium-uranium scrap (1972)
- Restarted the PRF (1984)
- Restarted RMC plutonium metal line.

Solid wastes generated by maintenance activities are packaged by the PFP operators, not maintenance personnel. Consequently, there is a consistency associated with solid waste packaging and with glovebox-generated waste. Both drums and boxes are used.

Maintenance solid wastes include the following:

- Spent and failed processing equipment constructed from a combination of glass, rubber, metal, ceramics, and plastics
- Piping, tubing, flanges, fittings, valves, traps, vessels, furnaces, and hot plates

- Leaded glovebox windows (when unable to be salvaged)
- Miscellaneous items including bolts/nuts, straps, screws/nails, wire, connectors, and broken tools
- Sheet metal items including brackets, shelves, covers, and hoods.

3.3.3 Housekeeping Activities

The majority of the solid radioactive waste generated at the PFP consists of rags, paper cartons, HEPA filters, gloves, plastic bags, etc., which are generated mainly by housekeeping activities. The majority of the glovebox-generated housekeeping wastes are TRU, primarily from plutonium content. Glovebox sweepings and spill cleanups which contain recoverable quantities of plutonium are designated to the PRF for processing.

Cleanup of SNM physical inventories will generate a considerable quantity of housekeeping wastes.

3.3.4 Waste Processing Activities

The majority of waste generated by the PFP processes is liquid waste which is handled by the tank farm system or the crib system. Wastes generated by waste processing at the PFP may include those from the following sources.

- Process-generated scrap and residues are recycled through the dissolution processes which generate dissolver heels. These heels are eventually discarded as TRU waste when (reduced to) less than the EDL. The largest heels generated are from the recycling of slag and crucible from the bomb reduction process.
- Discarding the spent carbon tetrachloride-tributylphosphate (TBP) extraction solvent generates TRU-mixed waste with a very hazardous carbon tetrachloride component. This change out of extraction solvent occurs very infrequently and is not a routine change out.
- The SNM physical inventories generate wastes, as all plutonium-bearing materials must be measured for their plutonium content. In addition, process equipment is dismantled to measure plutonium holdups. At the same time, the dismantled equipment usually undergoes maintenance, which generates spent equipment waste. Large quantities of rags are usually generated via cleanup requirements.
- A caustic scrubber is used for the fluorination of plutonium oxide to plutonium fluoride to capture and neutralize the HF gas released. The spent scrubber (potassium hydroxide [KOH]) solution is sent to high salt waste.
- The operational history and TRU waste solids generated by the 242-Z waste solution treatment plant should be reviewed. It operated from 1964 to 1976, and was then shut down because of the accident involving americium.

3.4 HIGH PERIODS OF SOLID WASTE GENERATION

High amounts of solid waste may have been generated by the PFP as a result of one or more of the following events:

- Restarting any process facility such as the PRF and RMC line requires refurbishment, upgrades, and modifications. These maintenance efforts generate solid wastes via strip-out of equipment, equipment overhauls, etc.

- Periods of high plutonium metal production, like the period from 1985 to 1988, will generate solid wastes as described herein.

- Campaigns to reduce the plutonium inventory at the Hanford Site, such as those in the late 1960's and early 1970's, and in the early 1980's generate solid wastes related to producing plutonium oxide rather than metal. Classified production data must be reviewed to identify processing periods and production quantities.

- Strip-outs of facilities such as the Hanford Environmental Development Laboratory (HEDL) Radioactive Acid Digestion Test (RAD 2) facility, the 232-Z incinerator, the RMA and RMC weapon lines, and the Recuplex facility generate large quantities of solid waste.

- High periods of intense production at the PFP and other programmatic activities should be correlated with higher solid waste generation. These may include the following events.

  - Button lines (metal production) operated from 1950 to 1973 with varying metal outputs. See metal production schedules.

  - The RMC button line was restarted in 1985. From 1985 until 1988 the PFP ran seven processing campaigns.

  - Waste Treatment Building, 242-Z, was placed onstream to remove plutonium and ^{241}Am from the PFP waste effluent streams, and operated from July 1964 to August 1976. Americium-241 recovered and sent to PNL for further purification and used for alpha/gamma sources.

  - The PRF was cleaned out and refurbished (1984-85).

  - The PRF is restarted and runs from 1987 to 1988.

  - The RMA line is operated from 1971 to 1973, and then is cleaned out from 1974 to 1979. This was the plutonium oxide blending program for Babcock and Wilcox.

3.5 CURRENT PFP SOLID WASTE INVENTORY AND NOMINAL GENERATION RATES

The estimated radiological wastes listed below are taken from the PFP SAR (WHC 1991).

Radioactive waste generation rates are likely to have been estimated on the low side. This is done to avoid expenses that would result from a high estimate. The quantities of nonradioactive hazardous waste generated are likely to decrease because of new practices whereby non-Westinghouse Hanford Company contractors dispose of the nonradioactive wastes generated by their activities.

- WIPP-certifiable waste includes plastics (bags), cloth (rags), rubber, metal, and glass. The nominal generation rate for this type of waste is 96.28 m^3/yr (3,400 ft^3/yr) or 460 55-gal drums/yr.

  Burial boxes of mixed wastes (lead panels and leaded glass windows) are also WIPP-certifiable. Their nominal generation rate is 2.12 m^3/yr (75 ft^3/yr).

- Non-WIPP-certifiable waste includes waste-containing HEPA filters, aerosol cans, and leaded glovebox gloves. Nominal generation rates are as follows:

  - HEPA filters 20.32 by 20.32 cm (8 by 8 in.) — 0.42 m^3/yr (15 ft^3/yr) or two 55-gal drums/yr
  - Leaded glovebox gloves mixed waste — 2.12 m^3/yr (75 ft^3/yr) or ten 55-gal drums/yr
  - Burial boxes for items too large to fit into 55-gal drums — 198.21 m^3/yr (7,000 ft^3/yr).

  These are currently stored at the PFP, then shipped to retrievable storage.

- Low-level radioactive nonhazardous waste (mainly room waste) is transferred to burial grounds for disposal. In 1991, the total low-level radioactive nonhazardous waste was 1,035 55-gal drums or 221 m^3 (7,804.5 ft^3).

- Nonhazardous, zone 3 office waste includes paper, plastic, rubber, metal, and glass items; and clothing. The nominal generation rate is 45.87 m^3/yr (1,620 ft^3/yr) compacted or 220 55-gal drums/yr.

- Nonhazardous, zone 3 room waste includes paper, plastic, cloth, rubber, metal, and glass items. The nominal generation rate is 150.08 m^3/yr (5,300 ft^3/yr) compacted or 1,446 55-gal drums/yr.

- Nonhazardous aerosol cans are generated at a nominal rate of 0.42 m^3/yr (15 ft^3/yr) or two 55-gal drums/yr.

- The nonhazardous 0.61- by 0.61-m (2- by 2-ft) HEPA filters, including plywood- and metal-covered filters, are generated at a nominal rate of 16.99 m^3/yr (600 ft^3/yr).

- The nonhazardous, low-level burial box nominal waste generation rate is 2.83 m^3/yr (100 ft^3/yr).

- Hazardous fluorescent lamps nominal waste generation rate is 0.11 m^3/yr (4 ft^3/yr) or 0.5 55-gal drum/yr.

- Hazardous lead alkaline dry cell batteries, and wet cell batteries are generated at a nominal rate of 0.23 m^3/yr (8 ft^3/yr) or one 55-gal drum/yr.

- PCB-contaminated and absorbed organic wastes include TRU-absorbed organics (carbon tetrachloride, TBP, TBP in normal paraffin hydrocarbons, xylene, trimethyl benzene, nonionic detergent, and trioctal phosphine oxide) that are absorbed onto diatomaceous earth materials and placed into 55-gal drums. The nominal waste generation rate is 1.47 m^3/yr (52 ft^3/yr) or 7 drums/yr.

- TRU PCB-contaminated waste may consist of rags, protective clothing, tools, hydraulic hoses, and general equipment. The nominal waste generation rate is 0.84 m^3/yr (30 ft^3/yr) or four 55-gal drums/yr. The TRU PCB-contaminated burial box waste nominal generation rate is 1.41 m^3/yr (50 ft^3/yr). For TRU-PCB-hydraulic fluids (greater than 55 ppm and less than 70,000 ppm PCB in normal paraffin hydrocarbon or polyphenyl phosphate-based hydraulic fluids) the nominal waste generation rate is 1.41 m^3/yr (50 ft^3/yr) or seven 55-gal drums/yr.

- Low-level absorbed organics (12 L [3.17 gal] per drum) such as carbon tetrachloride and TBP are generated at a nominal rate of 1.41 m^3/yr (50 ft^3/yr).

- For low-level PCB hydraulic fluids (greater than 50 ppm and less than 70,000 ppm PCB in diesel or PYDRAUL or FYRQUEL* hydraulic fluids (30 L per drum) the nominal waste generation rate is 1.87 m^3/yr (66 ft^3/yr) or ninety 55-gal drums/yr.

- Other typical PFP wastes estimated on an annual basis are as follows:

  - Waste nitrates and other oxidizers — 2,481 kg (5,469.58 lb)

  - Benzenes and other halogenated benzenes — 65 kg (143.30 lb)

  - Toxic process chemicals — 840 kg (1,851.85 lb)

  - Carbon tetrachloride and other extremely hazardous hydrocarbons — 14 kg (30.86 lb)

*FYRQUEL is a trademark of Akzo Chemicals Incorporated.

- Acids — 437 kg (963.40 lb)
- Sodium hydroxide and alkaline liquids — 1,720 kg (3,791.89 lb)
- Poisonous laboratory chemicals — 4 kg (8.82 lb)
- Miscellaneous laboratory chemicals — 7.5 kg (16.53 lb)
- Flammable liquids — 17 kg (37.48 lb)
- Paint, thinners, resins, and asphalt — 127 kg (279.98 lb)
- Nonflammable refrigerated gas — 280 kg (617.28 lb).

3.6 FUTURE FACILITY CHANGES AND RESULTING WASTE OPERATION

The future facility changes described in the PFP SAR (WHC 1991) will produce radioactive, hazardous, and mixed wastes. Although accurate forecasts of solid waste quantities have not been made, personnel interviews indicate the possible scope of waste generation. Due to their conjectural nature, the actual wastes encountered, and the quantities produced, are likely to be greater than the following estimates. Since the PFP SAR was published, many of the projects listed have been either completed or canceled; only those projects likely to be undertaken will be described.

- **PFP Supply Air Pressure Control System upgrade** — This project will provide an upgrade of the 234-5Z Building supply air system. The damper units have already been replaced, and the controller will be replaced in the future. The controller, PRC-1, contains approximately 450 g (16 oz) of mercury.

- **Carbon tetrachloride pumping station and storage areas** — This project will provide a 3,000-gal stainless steel tank for storage of carbon tetrachloride. The waste generated in this project will be in the form of piping and tanks.

- **2736-ZB tile field** — This project will add an additional 1,000-gal septic tank and approximately 91.44 linear m (300 linear ft) of drain pipe to supplement the existing drain field. Quantities of radioactive soil will be excavated and require disposal.

- **232-Z Isolation Project** — This project will isolate the 232-Z ducting and building. Part of this project will involve the replacement of zone controllers in 234-5Z and the PRF. These controllers contain approximately 566 g (20 oz) of Gargoyle*, an oil which is classified as a hazardous waste.

*Gargoyle is a trademark of the Mobile Oil Corporation.

- **PFP liquid effluent treatment facilities** — This project will provide a TRU extraction system to remove TRU elements from the liquid effluents presently routed to the 241-Z Waste Retention Facility, and provide upgrades to 241-Z. Hazardous and mixed wastes will be generated by this project, primarily in the form of large quantities of contaminated soil.

- **PFP Liquid LLW System modification** — This project will provide a new LLW treatment facility, and the installation of a closed-loop cooling system. Radioactive and/or mixed waste may be generated in modest quantities, principally in the form of contaminated soil.

- **PFP fire safety upgrade** — This project will provide upgrades to the 234-5Z Building to meet a current DOE requirement. Radioactive waste will be generated in the changeout of some alarms and horns.

Figure 3-1. Destination of Nonradioactive, Nondangerous Solid Waste for Storage/Disposal.

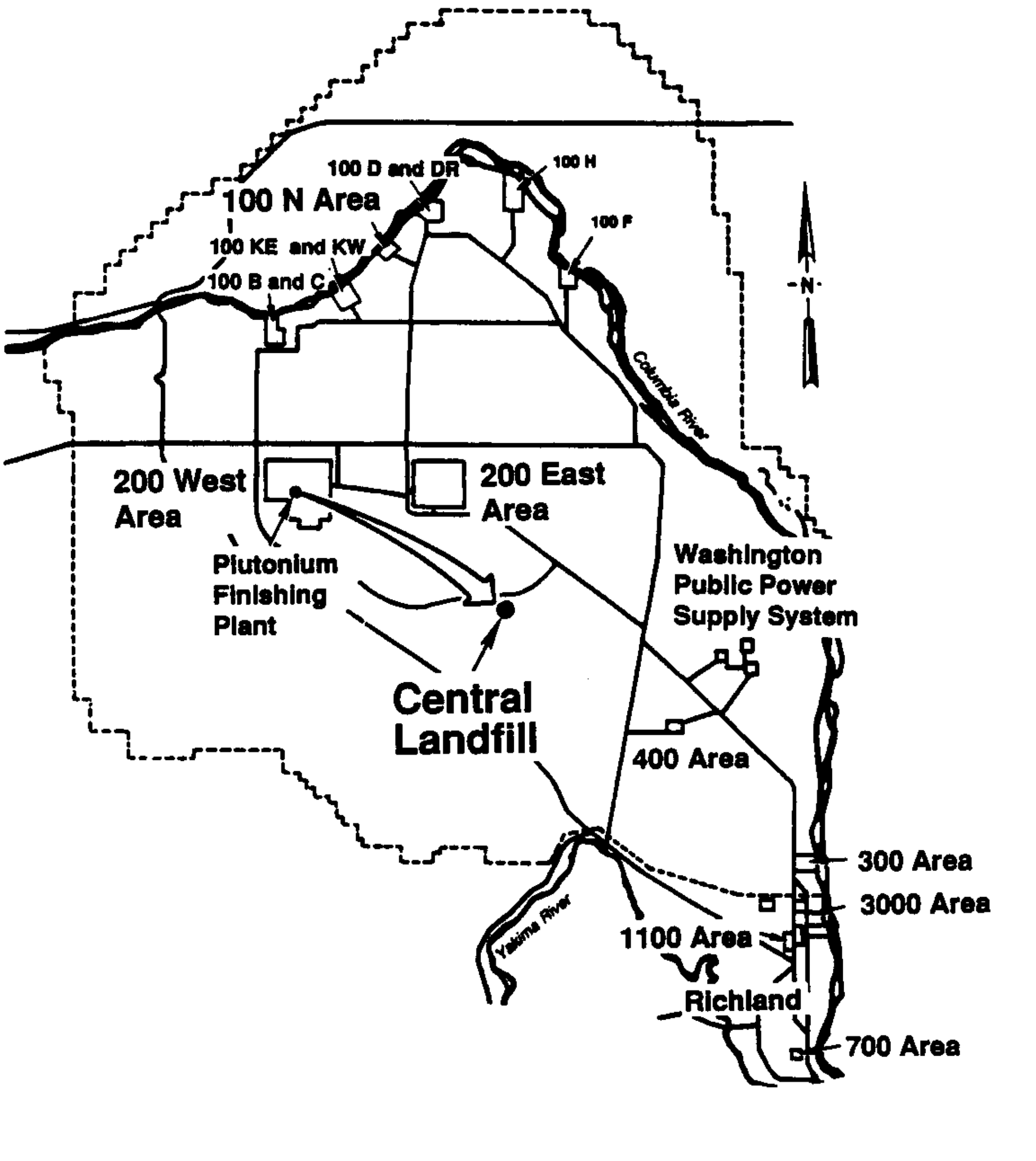


Figure 3-2. Destination of Nonradioactive, Dangerous Solid Waste for Disposal.

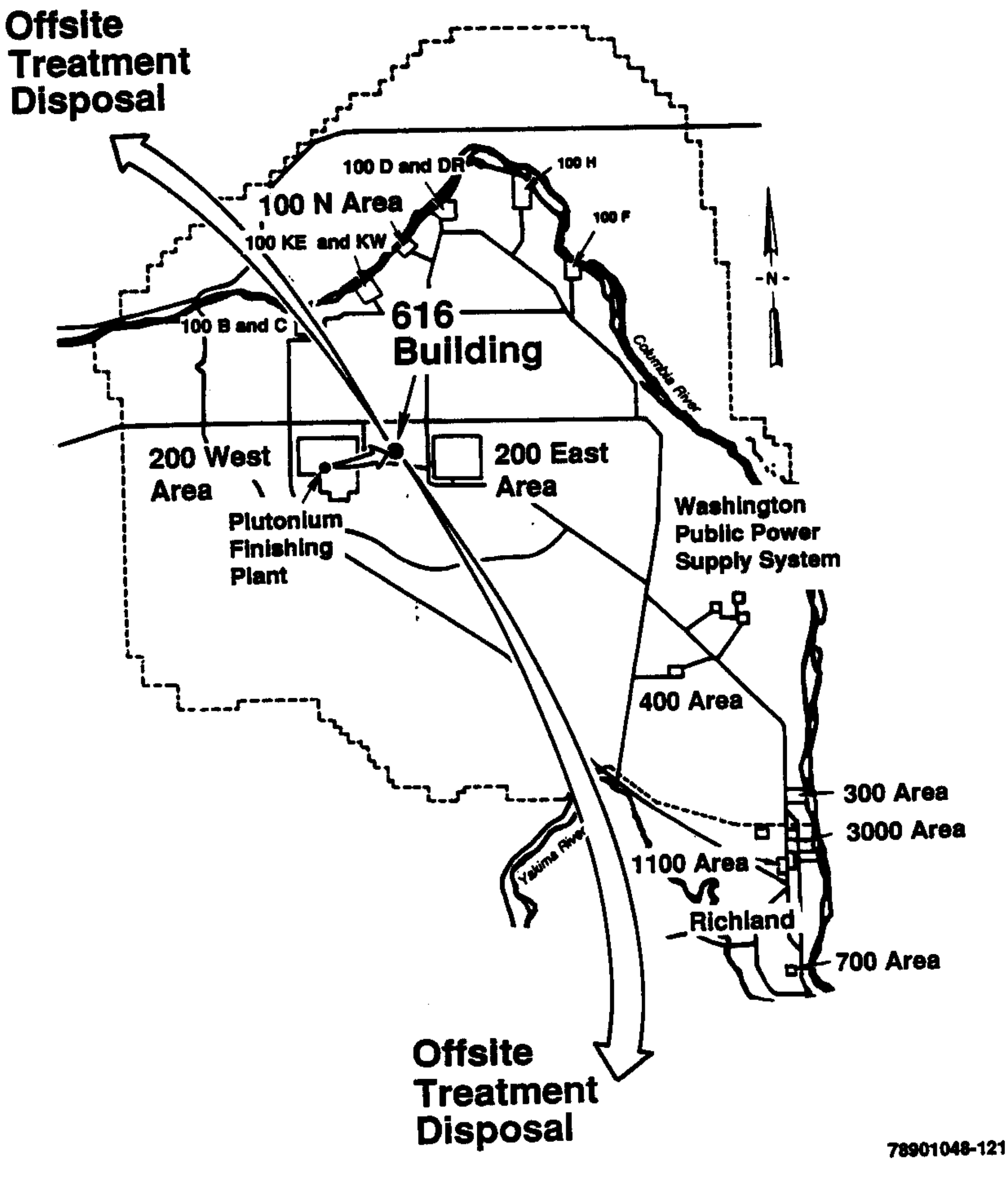


Figure 3-3. Destination of Low-Level Radioactive Solid Waste for Storage.

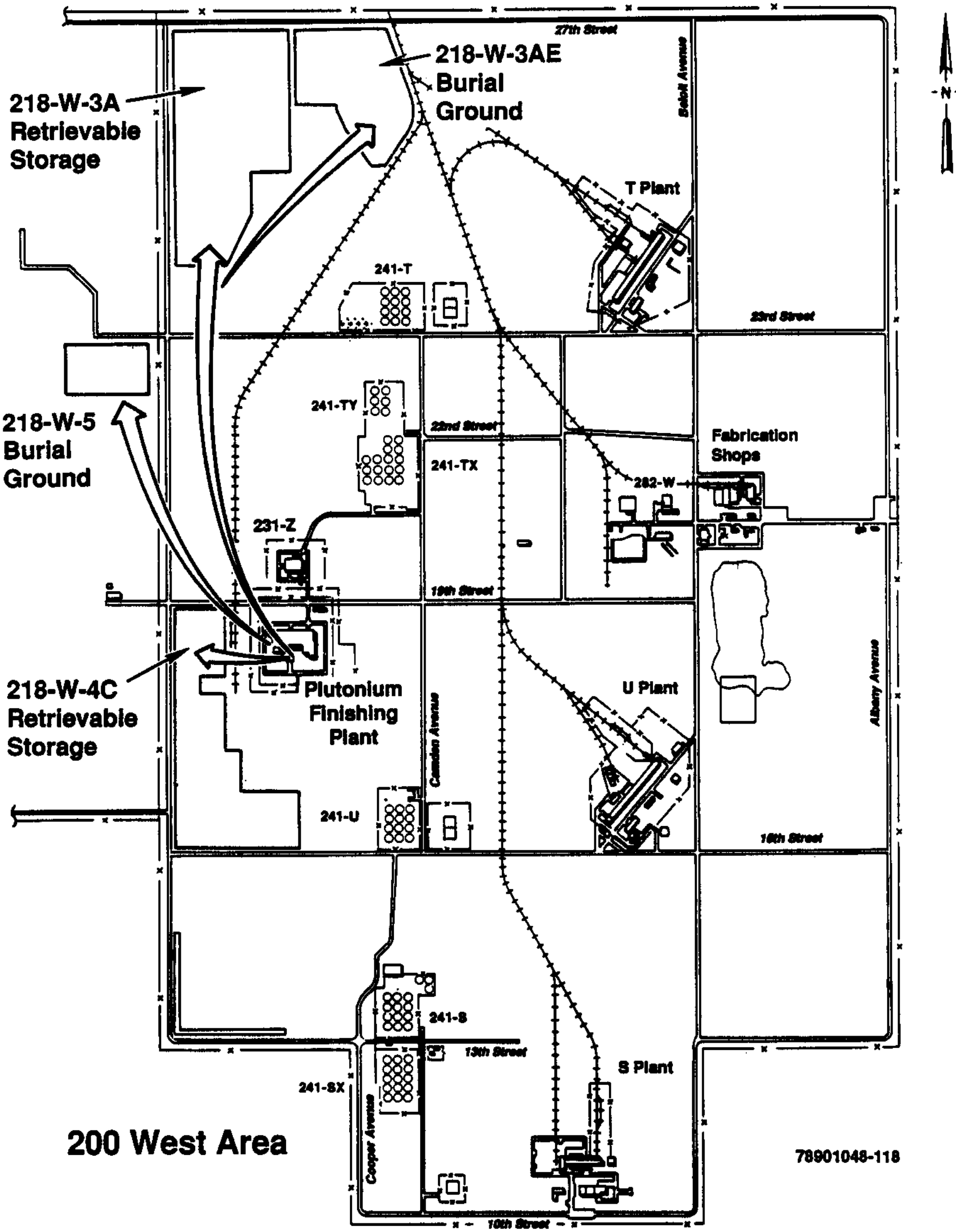


Figure 3-4. Destination of WIPP-Certifiable TRU Waste for Storage.

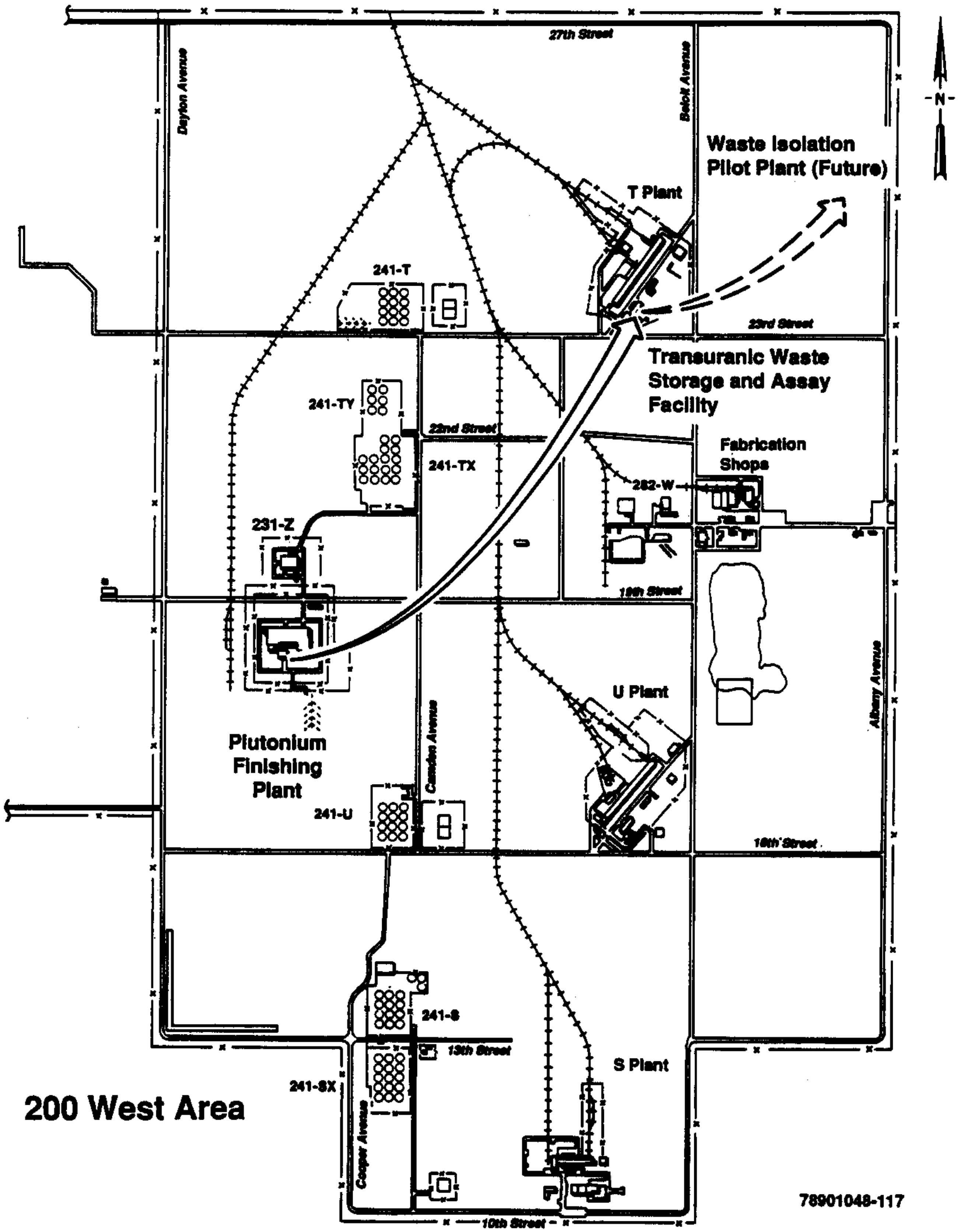


Figure 3-5. Destination of Non-WIPP-Certifiable TRU Waste for Storage.

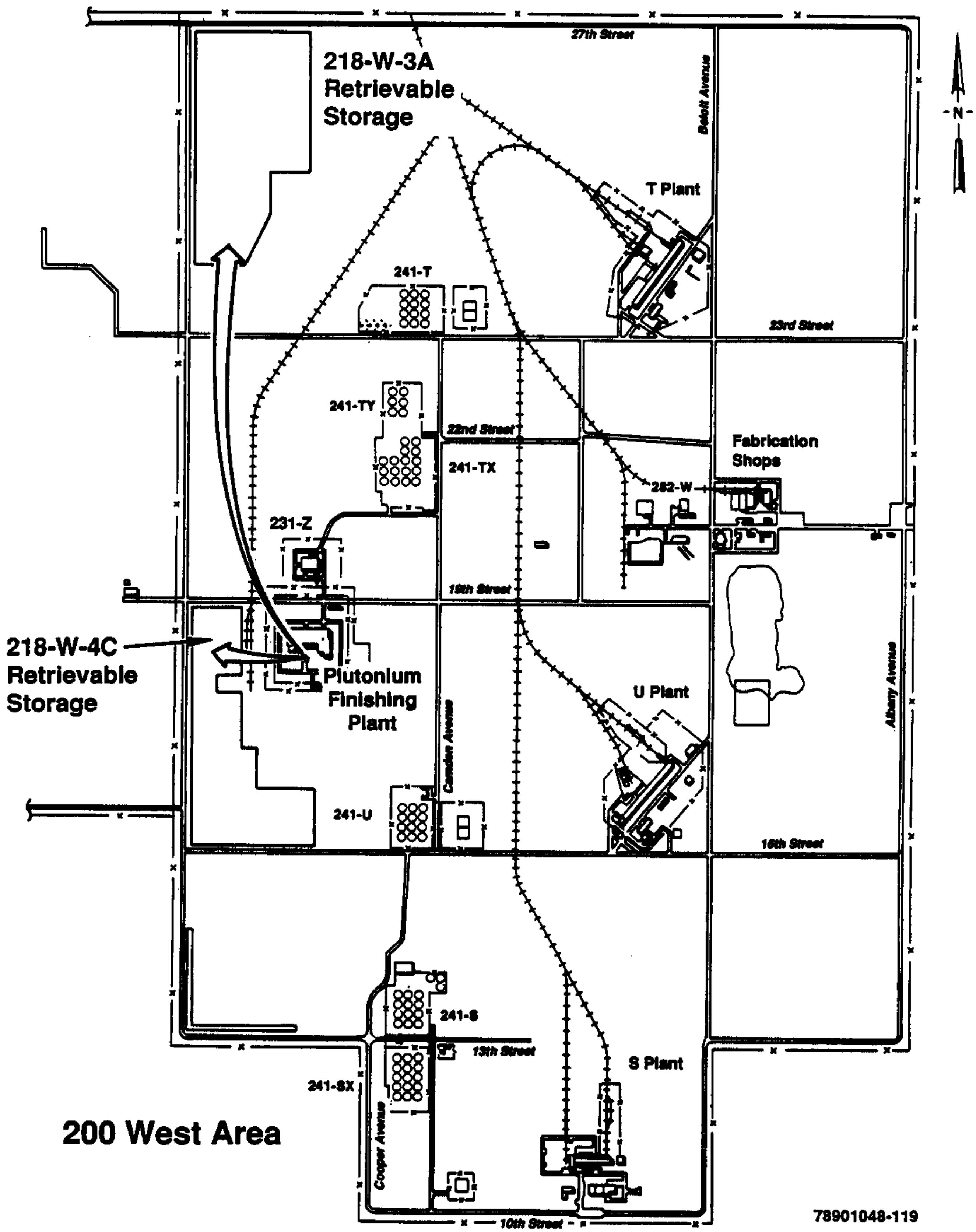


Figure 3-6. Recoverable Material Dissolution Flowsheet.

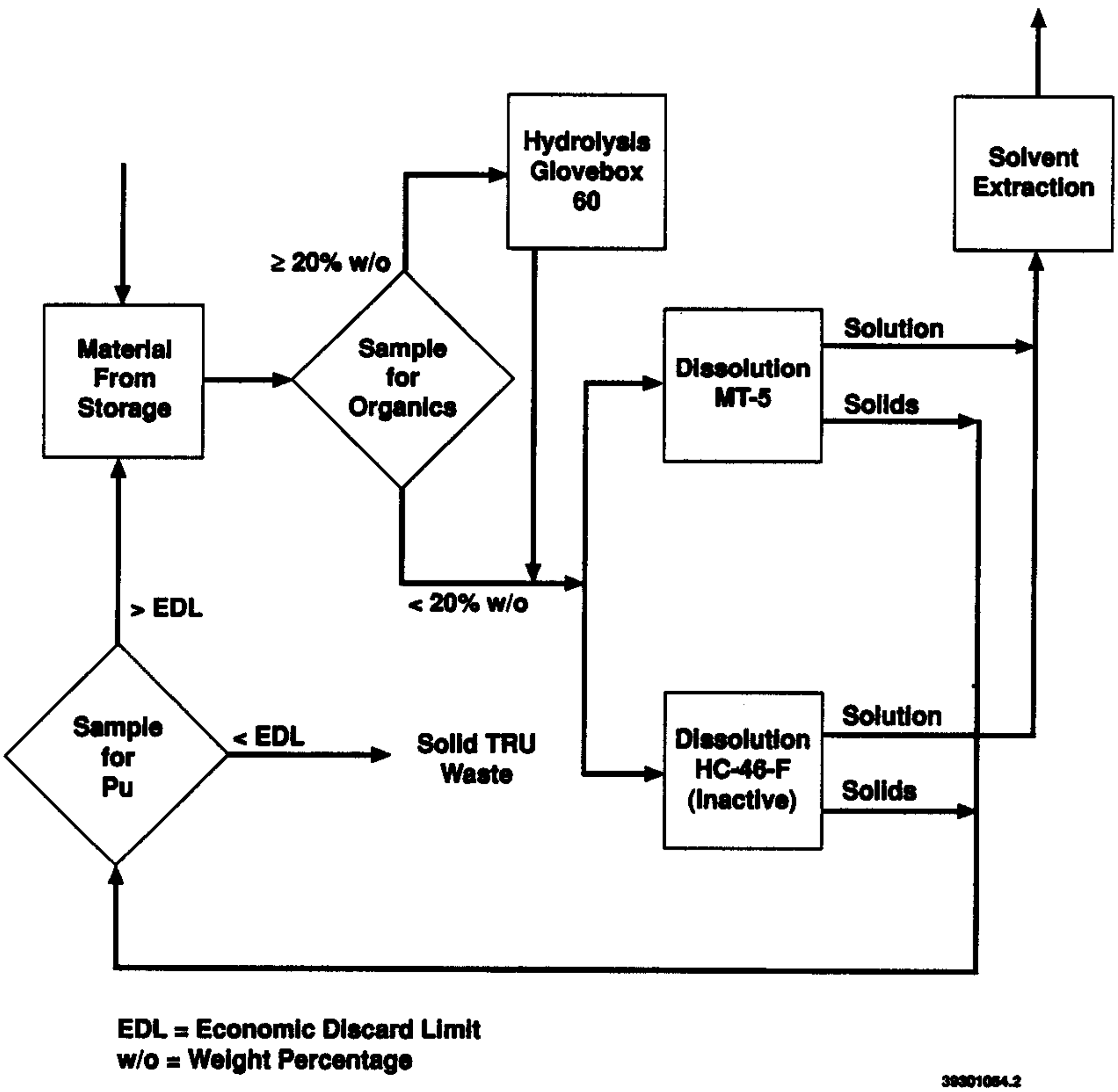


Figure 3-7. Slag and Crucible Material Dissolution Flowsheet

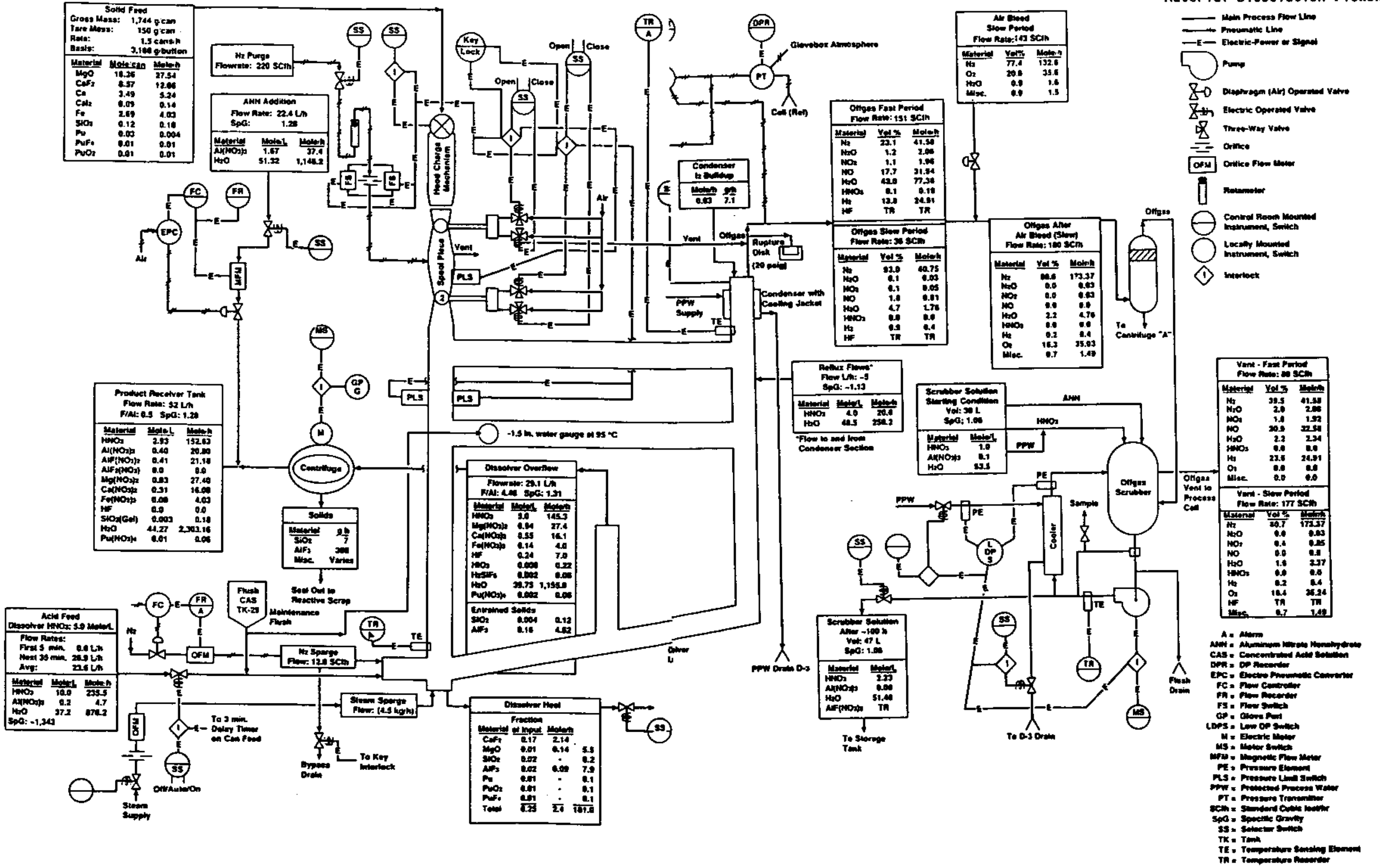


Figure 3-8. Typical Solvent Extraction Flowsheet.

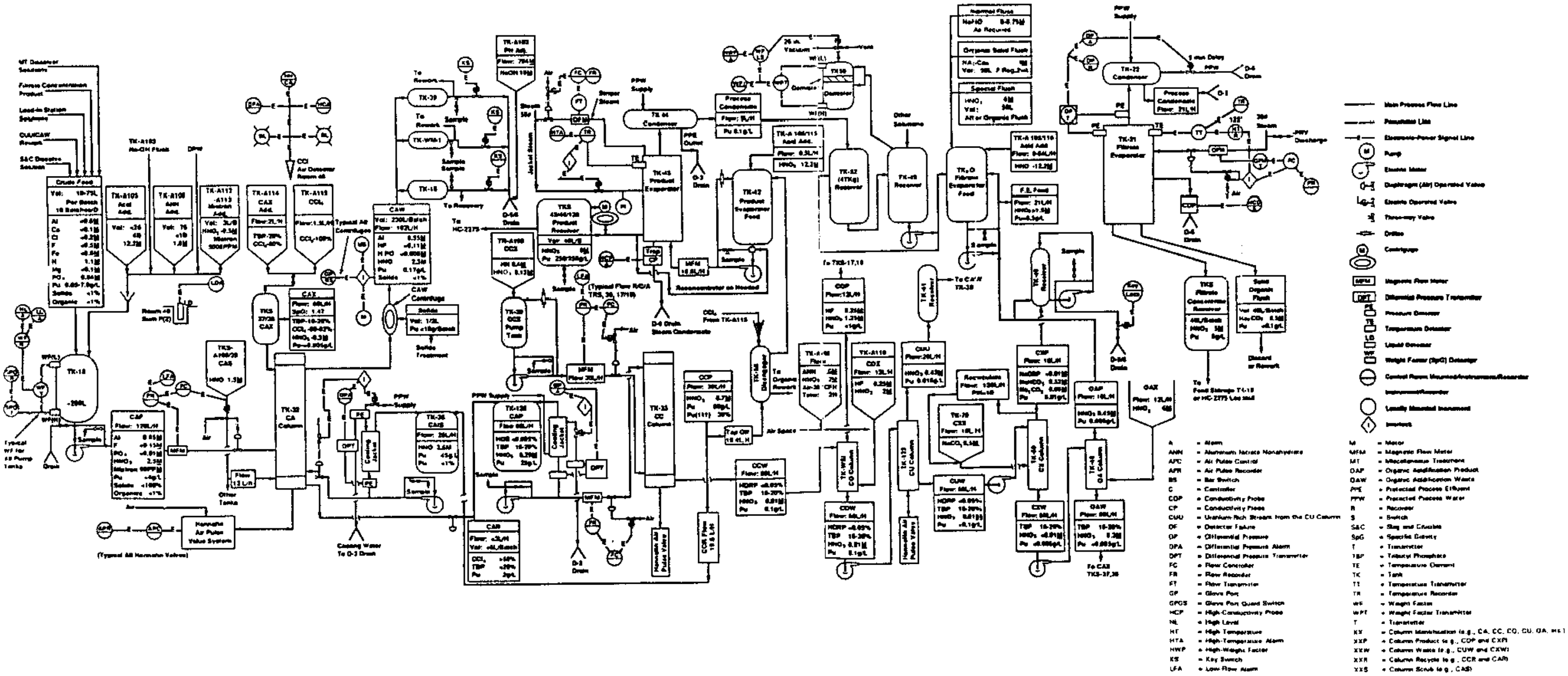


Figure 3-9. Remote Mechanical C Line Flow Diagram, Nitrate Solution Through Plutonium Fluoride Production.

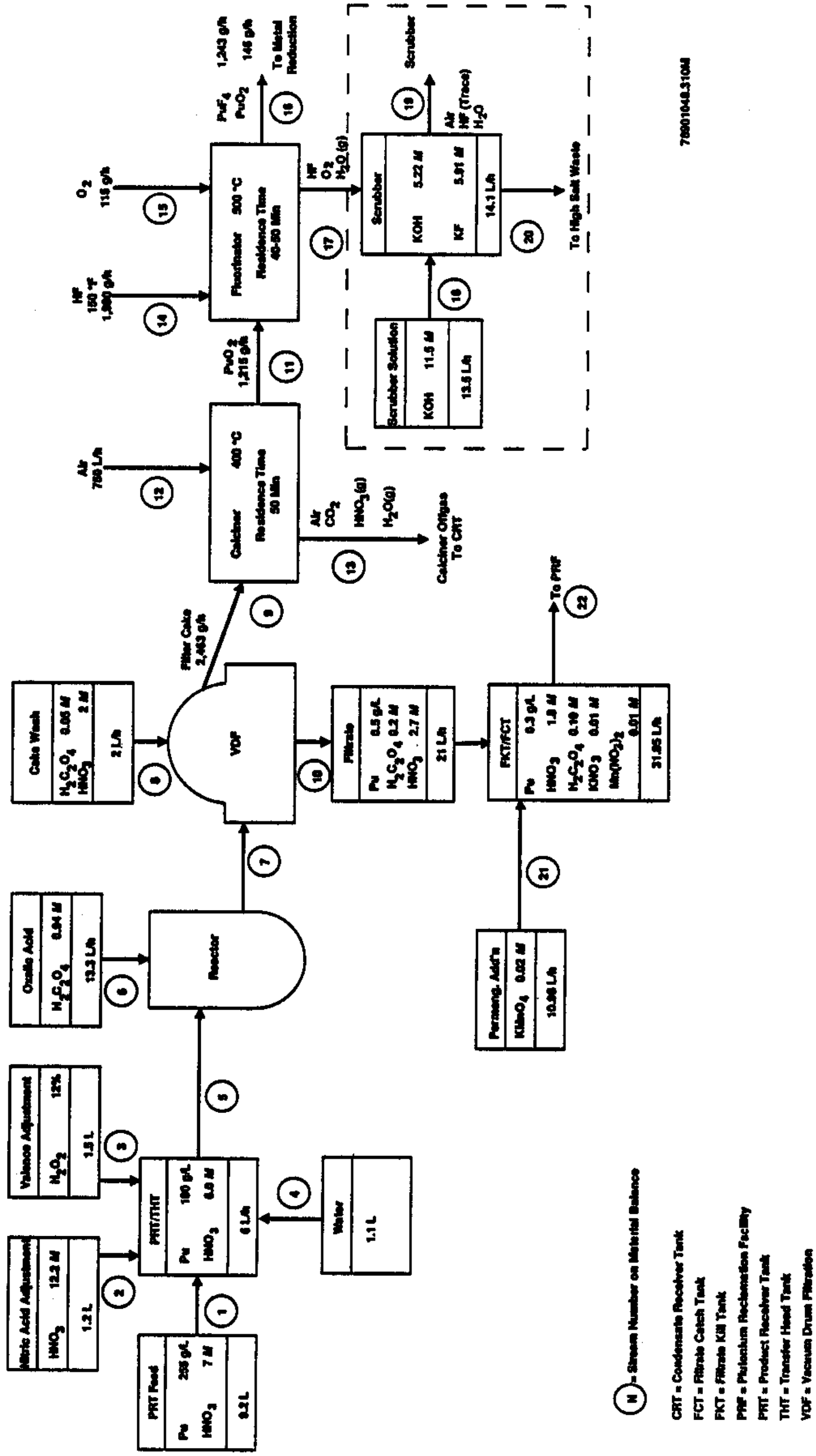
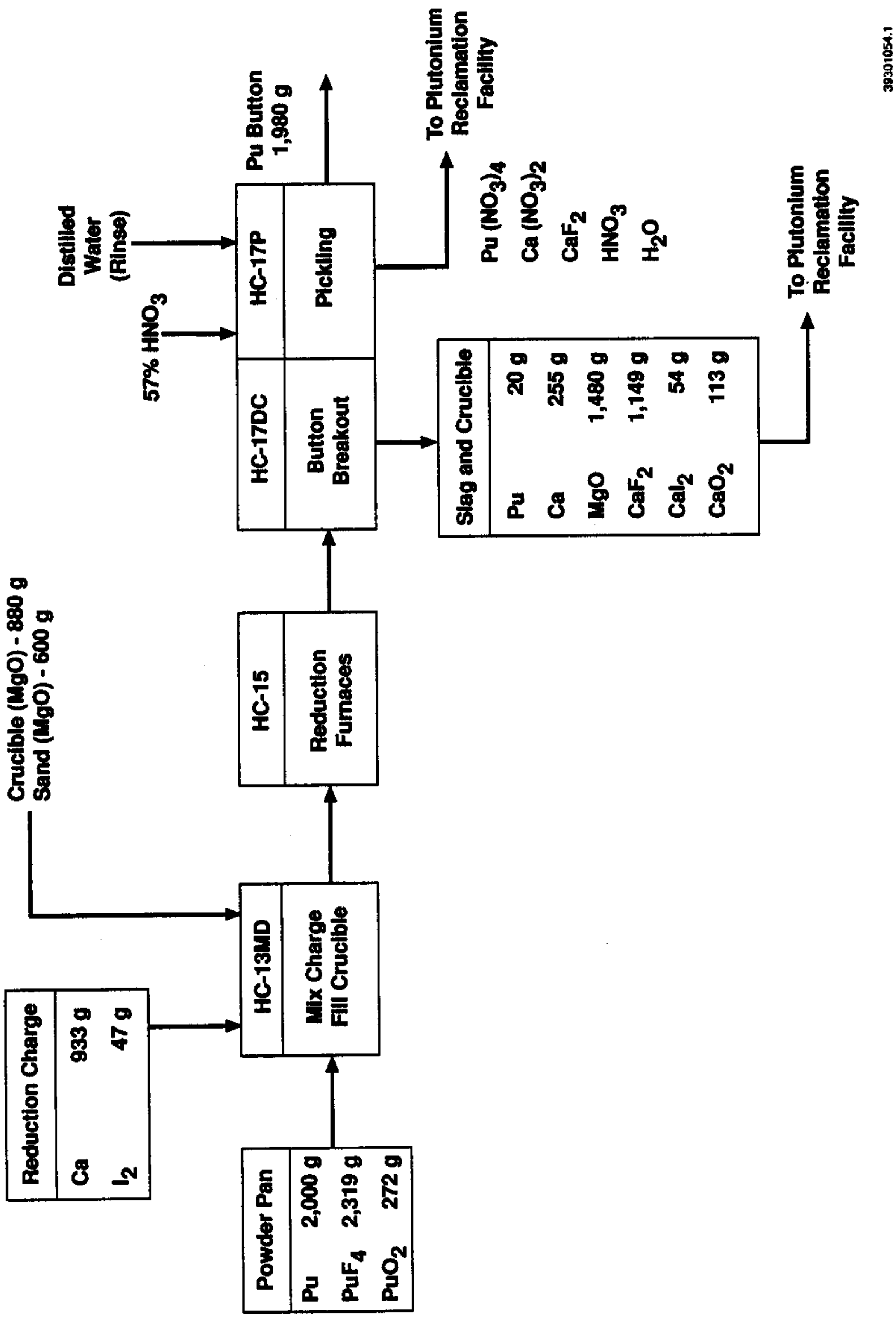


Figure 3-10. Remote Mechanical C Line Flow Diagram, Plutonium Fluoride Through Plutonium Button Production.



4.0 SOLID WASTE HANDLING PRACTICES AND PROCEDURES

4.1 HISTORICAL WASTE PACKAGING AND HANDLING PROCEDURES

Eleven historical waste packaging manuals were reviewed for information regarding packaging and labeling requirements for TRU waste in retrievable storage at the Hanford Site. These manuals covered requirements from 1974 to 1988.

Packaging requirements have changed over time and have become more stringent. Table 4-1 summarizes TRU waste storage requirements for the Hanford Site from 1970 through 1988. The columns in Table 4-1 are not symmetrical; where a definition or requirement is consistent between manuals, text is shared under several document number columns. A blank spot indicates that no requirements or definition are found in that manual. Definitions (i.e., hazardous and toxic materials, etc.) change from manual to manual and require reference to the particular manual.

Some of the more significant changes that have occurred in the past 20 years with regard to the packaging, handling, and recordkeeping for radioactive wastes from the PFP follow.

- The definition of TRU waste has changed since 1970, and the designation of waste packages as TRU has also changed. During the period from 1970 to 1973 TRU segregation was based on generator practice. From 1974 until 1982, TRU waste was segregated if the concentration of TRU was greater than 10 nCi/g. In 1982, the current 100 nCi/g definition for TRU waste was implemented by DOE.

- Because of the varied contents of the waste containers, chemical reactions can occur. Accumulation of gases, including hydrogen, may contribute to fire and/or explosion. Since 1978, all waste drums from PFP have been fitted with vent clips to allow continual release of gases and catalyst packs to recombine any hydrogen that may be produced.

- Criticality specifications limited the amount of TRU to less than 250 g (8.82 oz)/55-gal drum from 1975 to 1978 and to 200 g (7.05 oz)/drum after 1978. Before 1975 there were no criticality limits.

- Individual container weights were not required before 1977; however, estimated weights for pre-1977 containers were added to the records in the R-SWIMS database during the data re-entry program in the mid-1980's. Standard weights were given for each container type. All 55-gal drums, for example, were given a value of 68 kg (150 lb).

- Originally, waste burial records for TRU waste were not done for individual containers, but for entire shipments. In 1982, TRU waste burial and storage records began to be based on an individual container basis. The entry of unique data for each waste container into the R-SWIMS database was not fully implemented until 1984.

During the R-SWIMS re-entry program, historical TRU records were converted to an individual basis so that today there is one SWITS record for each TRU container stored at the Hanford Site.

The conversion from group data to individual container data required that some assumptions about the containers in the group be made. Chief among these assumptions was that an even distribution of radiological and hazardous constituents existed among the members of the group.

LLW records are still kept for multiple containers rather than for individual containers.

- Information on the hazardous constituents of waste containers was not required before 1986. During the R-SWIMS re-entry program any available information from the SWBRs was added. However, this information is limited.

- Physical descriptions of the waste contents were not required on the SWBR before 1978. The SWITS records for waste buried before 1978 list the contents as "miscellaneous" in most cases. In more recent years the physical contents description has become more detailed. Many of the records now include the weight and volume percentage of a given component in the waste container.

- Between 1972 and 1978 combustible and noncombustible waste components were segregated. Although the SWITS database did not retain a data field for this information, it was added to the physical contents description field.

- The most common TRU waste container used at the Hanford Site is the 55-gal steel drum. The DOT 17C or 17H drums with minimum wall thicknesses of 0.13 and 0.11 cm (0.053 and 0.043 in.), respectively, were both used. Before 1982 most of the drums were painted, so there is approximately 0.01 cm (0.005 in.) of paint on both the exterior and interior of the drums. In 1982, galvanized drums replaced the painted drums. Recycled 55-gal drums were also permitted for the storage of TRU waste from 1973 to 1978.

- Data for wastes generated before 1970 are not included in the SWITS database.

4.2 CURRENT WASTE HANDLING AND PACKAGING

All solid wastes originating at the PFP are packaged for onsite or offsite storage or disposal. The design objective for waste packaging is to safely contain the waste during temporary storage at the PFP and during transportation to storage or disposal units. The waste packages must also meet the criteria of the storage/disposal unit. For TRU wastes, these criteria are the WIPP waste acceptance/certification criteria (WEC 1989) and *Hanford Site Solid Waste Acceptance Criteria* (Willis and Triner 1991). For LLWs these criteria are those established by the LLW burial grounds (Willis and Triner 1991). Hazardous and mixed waste must meet regulatory standards established by Ecology and DOT. The objectives of solid waste management activities also include proper segregation of all types of solid wastes.

This section describes the equipment and procedures for packaging radioactive solid wastes currently in use at the PFP. Additional information can be found in the PFP SAR (WHC 1991); *Hanford Site Solid Waste Acceptance Criteria* (Willis and Triner 1991); and *Solid Waste Repackaging and Disposal — PFP Engineering Laboratories* (Louk 1991).

4.2.1 Equipment and System Description

Radioactive solid wastes are packaged in metal drums or burial boxes, depending on the size of the wastes. Burial boxes are used to dispose of failed equipment, HEPA filters, and other radioactive solids too large to fit into 55-gal drums. Dangerous solid wastes are collected in metal drums. Nonradioactive, nondangerous solid wastes are generally collected in metal dumpsters.

All radioactive solid wastes generated at the PFP are segregated at the point of generation depending on waste category. Solid wastes removed from gloveboxes and other wastes potentially contaminated with TRU elements are segregated as TRU wastes (hood wastes). All other solid wastes generated within radiation control zones are segregated as LLW (room wastes). In addition, TRU or LLWs that is also RMW are segregated, and noncertifiable TRU wastes are segregated from other TRU wastes.

Radioactive waste drums are not compacted at the PFP because of the potential for rupturing radioactively contaminated packages contained within the drum, which could result in a spread of radioactive contamination.

Radioactive waste drums consist of DOT 17C 55-gal galvanized or aluminized drums. Each drum is quality control (QC) inspected and approved before use and is provided with a trace number. Each drum contains 3 L (0.79 gal) of diatomaceous earth absorbent in the bottom of the drum, a minimum of 4-mil polyethylene liner, and 3 L (0.79 gal) of diatomaceous earth in the bottom of the liner. Drums are sealed with lock ring seals with lock bolts tightened to 54 joules (40 ft-lb) torque. Starting in 1979, the PFP drums were equipped with a carbon-filter vented lid. Those drums not equipped with the vented lid require that a vent clip and a hydrogen-oxygen recombinant catalyst pack be added to the drum to prevent pressurization resulting from the decomposition and/or interaction of organics that may be present.

Burial boxes consist of steel boxes that are painted inside and outside so that no bare metal is exposed. A box may be lined with a 6-mil polyethylene liner. Boxes are designed to be watertight and are kept closed when not filled. Once filled, boxes are bolted shut with bolts tightened to specified torques, and security seals are applied and inspected by QC staff.

The plutonium content of each drum or waste package is determined through nondestructive assay (NDA) techniques. The NDA is performed using a sodium iodide counter or small table Segmented Gamma Scan Assay System (SGSAS) counters. Drums are temporarily staged inside the PFP before NDA. Following

NDA, room waste drums are stored before they are transferred to the burial grounds. Hood waste drums are transferred to the 2736-ZB Building before they are transferred to the Transuranic Storage and Assay Facility (TRUSAF). Burial boxes are stored outside of the PFP, to the north, south, and west of the 234-5Z Building.

All drums are assayed when they reach TRUSAF. If a LLW drum assays at less that 100 nCi/g, it is sent to the burial grounds; if the LLW drum assays at greater than 100 nCi/g, it is sent back to the plant to be repackaged as TRU waste. If a TRU drum assays at less then 100 nCi/g, it is sent back to the plant to be repackaged as LLW.

A drum repackage facility is located in the 234-5Z Building. The repackaging facility consists of a glovebox with an attached greenhouse. Drums are opened and the contents removed and sealed into the glovebox for examination.

4.2.2 Operating Procedures

4.2.2.1 Monitoring of Solid Waste. Solid waste monitoring procedures include the use of administrative controls to control the quantities of radioactive materials placed in each waste container, and the use of NDA to determine the amount of plutonium present. As each waste package is placed into a waste container, a logsheet is filled out specifying the total amount of plutonium present. Room waste packages (i.e., packages obviously containing less than 1 g [0.03 oz] plutonium) may be placed directly into the waste container after being surveyed with a portable alpha radiation detector to verify that there is no surface contamination. Other waste packages must be placed in transfer containers and taken for NDA to determine the plutonium inventory before placement in the waste container. Management must be notified if the waste package contains greater than 200 g (7.05 oz) of plutonium. After NDA, the waste package is placed into the container. Waste packages are added until the waste container is determined to be full. Drums are considered full when any of the following conditions are met:

- PFP drums — When plutonium content reaches 200 g (7.05 oz) (WIPP limit)
- PRF drums — When plutonium content reached 150 g (5.29 oz) (based on the PRF operating experience; in some cases, total drum assay is higher than sum of individual package assays)
- HEPA filter drums — When the plutonium content reaches 200 g (7.05 oz), or 100 g (3.53 oz) if a filter contains more than 40 g (1.41 oz), which is the criticality limit.
- When the drum surface dose rate reaches 100 mrem/h at any point (TRUSAF limit). Drums with surface dose rates of up to 200 mrem/h may be accepted at the TRUSAF with a signed waiver. Two hundred mrem/h is the WIPP limit

- When the drum estimated gross weight reaches 136 kg (300 lb) (the PFP limit based on personnel drum handling safety) or up to 227 kg (500 lb) with management approval
- When waste reaches level of the top rolling hoop on the drum (Safety Analysis Report for Packaging [SARP] limit, to ensure compliance with DOE authorized shipping criteria).

After each drum is filled, the entire drum undergoes NDA to determine the plutonium inventory. Initially, drums are weighed and counted on the sodium iodide counter. Further actions depend upon the results of the assay, as follows.

- If less than 1 g (0.03 oz) — Attach standard DOT radioactive materials label, and remove fissile labels.
- If between 1 and 10 g (0.03 and 0.35 oz) — Attach standard package label recording identification number, type of material, gross weight, grams of fissile material, net weight; hydrogen-to-fissionable material atom ratio (H/X), and seal number. The H/X value is a gauge of the extent of moderation of fizzile materials. The H/X value reflects the moisture content of the package. The higher the H/X value, the greater the affinity of the waste package for water. Packages with high H/X values tend to attract and absorb water. The water acts as a moderator, making the material less stable. Low H/X values are desirable.
- If greater than 10 g (0.35 oz) — Transfer the drum to SGSAS in the 2736-ZB Building. Have NDA personnel count the drum. If greater than 200 g (7.05 oz) plutonium, notify management.

Waste packages and containers are also surveyed to control radiation exposure. The external surface dose from a waste drum may not exceed 200 mrem/h. Each waste package is limited to 20 dpm/100 cm^2 alpha smearable contamination.

4.2.2.2 Solid Waste Packaging and Handling Safety and Criticality Prevention. Criticality safety limits for solid waste management are based on determination of the fissionable material content of each waste package placed in a waste container and on observation of fissionable material limits and handling procedures. For 55-gal waste drums and transfer cans, the following procedures and limits have been established.

- Maximum plutonium or ^{235}U in 55-gal drums is 200 g (7.05 oz).
- Maximum plutonium permitted in a 55-gal drum containing HEPA filters is 200 g (7.05 oz) for filters with less than 40 g (1.41 oz) per filter or 100 g (3.53 oz) for filters with more than 40 g (1.41 oz) per filter.
- Maximum plutonium and ^{235}U in a yellow 23-kg (50-lb) lard can containing solid gloveboxes waste is 250 g (8.82 oz). Yellow cans are to be used for transportation only and not for storage.

The following criticality safety-related limits and procedures have been established for burial boxes.

- Plutonium content for each HEPA filter is not to exceed 40 g (1.41 oz) for a 60.96- by 60.96- by 30.48-cm (24- by 24- by 12-in.) filter, 20 g (0.71 oz) for a 60.96- by 60.96- by 30.48-cm (24- by 24- by 6-in.) filter, and 2 g (0.07 oz) for an 20.32- by 20.32- by 15.24-cm (8- by 8- by 6-in.) filter.

- Maximum plutonium content is 350 g (12.34 oz) per piece of equipment and 1,000 g (35.27 oz) per burial box.

- Burial boxes will contain a total of no more than 15 g (0.53 oz) of plutonium in all waste material other than equipment pieces or HEPA filters.

Additional safety procedures established for waste containers include the following.

- All water-soaked rags are wrung out and dried before loading. Acid-soaked rags are treated with dilute nitric acid, wrung out in a glovebox, and then neutralized with sodium hydroxide, wrung out in a glovebox again, and allowed to dry using drying bars in the glovebox. Diatomaceous earth is added to all packages that might contain inorganic liquid to help ensure that all free liquids are absorbed.

- Sharp corners and edges are padded and taped before packages are loaded into drums and boxes.

- Aerosol cans are to be disposed of in drums marked "Aerosol Cans Only." The cans are periodically removed and processed before disposal. Aerosol cans must be permanently vented before disposal.

- The HEPA filters are to be disposed of in drums marked "HEPA Filters Only" and are not placed in room or hood waste drums.

The following items are prohibited from waste drums and fiberboard boxes:

- Chemically incompatible materials in any waste container (40 CFR 265.313, [EPA 1989a])

- Explosives (10 CFR 61.56, [EPA 1990])

- Pyrophonics (10 CFR 61.56, [EPA 1990])

- Gas cylinders (including aerosol cans) that are not permanently vented

- Chelating compounds (prohibited from disposal only; they may be included in future treatment on a case-by-case basis (DOE Order 5820.2A [DOE 1988])

- Liquids, except as packaged in accordance with WHC-EP-0063-3 (Willis and Triner 1991) (40 CFR 265.314 [EPA 1989a] and 10 CFR 61.56 [EPA 1990]).

Administrative controls are relied upon for solid waste segregation. Separate waste containers are provided for each type of waste (i.e., room waste, certifiable hood waste, noncertifiable hood waste, mixed room waste, mixed hood waste, and dangerous waste). Logsheets are used to track the inventory of each waste container to ensure that unauthorized wastes are not present. In addition, written procedures exist for each waste and container type.

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Table 4-1. Comparison of Past and Present TRU Storage Requirements for the Hanford Site. (3 sheets)

Document numbers and dates								
ARH-3032 4/74 - 4/77	ARH-3032 Rev. 1 4/77 - 7/78	ARH-3032 Rev. 1 Sup. 1 8/78 - 12/78	ARH-3032 Rev. 1 Sup. 2 12/78 - 5/80	RHO-MA-222 5/80 - 6/82	RHO-MA-222 6/82 Revision 6/82 - 6/83	RHO-MA-222 Rev. 1 6/83 - 3/84	RHO-MA-222 Rev. 2* 7/84 - 8/85*	RHO-MA-222 Rev. 2 7/84 - 8/85*
TRU definition								
Waste containing plutonium and/or other TRU nuclides in concentrations greater than 10 nCi/g.	Waste containing or suspected of containing plutonium and/or other TRU nuclides in concentrations greater than 10 nCi/g.			Document unavailable.	Waste containing or suspected of containing transuranium alpha-emitting radionuclides with half-lives greater than 100 years or ^{233}U in concentrations greater than 10 nCi/g.	Document unavailable.	Waste containing alpha-emitting radionuclides with atomic numbers greater than 92 and half-lives greater than 20 years or ^{226}Ra or ^{233}U in concentrations greater than 100 nCi/g.	
Prohibited wastes types and packaging requirements								
Liquid wastes must be packaged with sufficient inert absorbent so that liquid will not flow if container is breached.			No free liquids.		No free liquids — except liquid organic wastes.		No free liquids — except liquid organic wastes.	No free liquids.
	Liquid organic waste-free or absorbed is prohibited (includes animal carcasses).		Liquid organic waste-free or absorbed is prohibited (includes all oils and animal carcasses).		Animal carcasses accepted if packaged per requirements.		Animal carcasses accepted if packaged per requirements.	
	Flammable absorbed liquids prohibited from disposal in caissons.		Damp or wet wastes with highly combustible or explosive liquids prohibited.				Sludges cannot contain free liquids.	
	Unreacted alkali metals prohibited.				Unreacted alkali metals prohibited.		Unreacted alkali metals prohibited with exceptions.	
			Explosives prohibited.		Explosives prohibited.		Pyrophorics and explosives prohibited except metal fines.	Explosives prohibited.
			Pyrophorics prohibited.		Pyrophorics prohibited.			Pyrophorics prohibited.
							Gas cylinders containing radioactive gases prohibited. Empty cylinders accepted if permanently vented.	Compressed gases prohibited.
		TRU waste packages shall be of a nature that no radioactive material escapes as a result of a breach of the container; pressurization of the container shall not occur and the container shall maintain its integrity for a period of 20 years. If a container is vented to prevent pressurization the vent shall equal or exceed a HEPA filter with regard to minimizing passage of radiation.			Waste materials that generate H_2, O_2, or NOx are prohibited unless permanently vented or catalyst package in container.		Waste materials that generate H_2, O_2, or NOx are prohibited unless permanently vented or catalyst package in container.	Waste containers that could repressurize to greater than 7 psi within 25 years require venting through HEPA filters.
	Hazardous and toxic materials must be treated prior to burial.				Hazardous and toxic materials accepted on case-by-case basis.		Hazardous and toxic materials must be treated to meet the waste acceptance criteria for disposal.	

Table 4-1. Comparison of Past and Present TRU Storage Requirements for the Hanford Site. (3 sheets)

Document numbers and dates								
ARH-3032 4/74 - 4/77	ARH-3032 Rev. 1 4/77 - 7/78	ARH-3032 Rev. 1 Sup. 1 8/78 - 12/78	ARH-3032 Rev. 1 Sup. 2 12/78 - 5/80	RHO-MA-222 5/80 - 6/82	RHO-MA-222 6/82 Revision 6/82 - 6/83	RHO-MA-222 Rev. 1 6/83 - 3/84	RHO-MA-222 Rev. 2* 7/84 - 8/85*	RHO-MA-222 Rev. 2 7/84 - 8/85*
Prohibited wastes types and packaging requirements (cont.)								
								Flammable solids (metal fines) must be mixed with chemically stable material to produce a solidified waste matrix (glass, concrete, etc.)
	Contamination that is easily airborne must be in an inner liner.				Loose contamination must be stabilized or contained so that the surface of the container remains free of detectable loose contamination.		Loose contamination must be stabilized or contained so that the surface of the container remains free of detectable loose contamination.	Powders, ashes, and similar particulates must be immobilized in concrete, glass, or similar solidified matrix if >1 weight % of the matrix weight is particulates <10 microns in diameter or if >15 weight % is <200 microns in diameter.
Beryllium requires double containment.					Double containment required for all TRU waste. Double containment is required for cadmium and mercury. Beryllium, cadmium, and mercury must be packaged with at least 6 in. of concrete on all sides.		Double containment required for all TRU waste. Double containment is required for cadmium and mercury. Beryllium, cadmium, and mercury must be packaged with at least 6 in. of concrete on all sides.	Double containment required for all TRU waste. Beryllium, cadmium, mercury and other class B poisons must be immobilized in concrete for burial.
					Liquid organic waste must be packaged unabsorbed in a sealed liquid-tight container (5-10 gal), overpackaged in 55-gal drum with a rigid polyethylene liner and filled to the top with at least two times the absorbent required to absorb the volume of liquid in the containers.		Liquid organic waste must be packaged unabsorbed in a sealed liquid-tight container (5-10 gal), over-packaged in 55-gal drum with a rigid polyethylene liner and filled to the top with at least two times the absorbent required to absorb the volume of liquid in the containers.	Liquid organic waste must be solidified for storage or disposal. Exceptions are considered on a case-by-case basis.

Table 4-1. Comparison of Past and Present TRU Storage Requirements for the Hanford Site. (3 sheets)

Document numbers and dates								
ARH-3032 4/74 - 4/77	ARH-3032 Rev. 1 4/77 - 7/78	ARH-3032 Rev. 1 Sup. 1 8/78 - 12/78	ARH-3032 Rev. 1 Sup. 2 12/78 - 5/80	RHO-MA-222 5/80 - 6/82	RHO-MA-222 6/82 Revision 6/82 - 6/83	RHO-MA-222 Rev. 1 6/83 - 3/84	RHO-MA-222 Rev. 2* 7/84 - 8/85*	RHO-MA-222 Rev. 2 7/84 - 8/85*
Labeling requirements								
Waste packages must be suitably labeled so that containers can be identified by cross-reference to permanent records.					Waste packages must be suitably labeled so that containers can be identified by cross-reference to permanent records.		Waste packages must be suitably labeled so that containers can be identified by cross-reference to permanent records.	
Beryllium must be labeled.					Beryllium, cadmium, and mercury must be labeled.		Beryllium, cadmium, and mercury must be labeled.	
	Hazardous and toxic waste must be labeled.				DOT labels required for all classes of waste that apply to the package.		DOT labels and color coding required on all waste packages.	
					Liquid organics must be labeled and must have flashpoint range listed on label.		Liquid organics must be labeled and must have flashpoint range listed on label.	
					Animal waste must be labeled.		Animal waste must be labeled.	
					Animal waste must be packaged in a 55-gal drum with a minimum 4-mil plastic liner, treated to suppress gas generation, and surrounded by two times amount of absorbent required to absorb any liquid present or that may result from the decay process.		Animal waste must be packaged in a 55-gal drum with a minimum 4-mil plastic liner, treated to suppress gas generation, and surrounded by two times amount of absorbent required to absorb any liquid present or that may result from the decay process.	
					Fissile material label required if contents include 1 or more grams. Plutonium quantity must be labeled if 1 or more grams of plutonium is in the container.		Fissile material label required if contents include 1 or more grams. Plutonium quantity must be labeled if 1 or more grams of plutonium is in the container.	

NOTE: For the period of 1970 through April 1974, document numbers are unknown.
*Includes RHO-MA-222, Rev. 3, 3A, and 4. The changes made in these revisions are general and do not affect the packaging, storage, or disposal requirements of TRU unstable or reactive wastes specifically. The requirements listed under Rev. 2 of RHO-MA-222 are effective up to the effective date of WHC-EP-0062, Rev. 0.
DOT = U.S. Department of Transportation.
HEPA = High-Efficiency Particulate Air (Filter).
TRU = Transuranic.

5.0 CHARACTERIZATION OF RETRIEVABLY STORED SOLID WASTE GENERATED BY PFP

The information found in this section is based primarily on data from the SWITS database. This database, which incorporated the older R-SWIMS database, is used to track information on radioactive and other wastes stored or disposed of at the Hanford Site. Radioactive solid waste packages have been tracked since 1970. In the intervening years, changes in the requirements and regulations governing radioactive wastes have affected quantity and quality of the data tracked in this database. Caveats are included in the text to alert the reader to changes that may affect the interpretation of the data provided.

The bulk of the data provided is limited to information about the TRU waste that was generated at the PFP; however, some general information on the non-TRU waste is included for completeness. The term non-TRU waste is used instead of LLW because a small percentage of the unsegregated waste is designated only as not TRU. The data on the TRU wastes are further segregated in this report by container type. Since the initial retrieval efforts and WRAP 1 will focus on 55-gal drums, these containers are considered separately from all other container types. Therefore, the term "other containers" in this report will refer to all container types, except 55-gal drums, combined. The term "drum" refers to 55-gal drums only.

The original SWITS data that form the basis for most of the tables and figures in this section can be found in Appendix B. Each computer run is preceded by the query used to generate the data.

5.1 SUMMARY OF PFP WASTE GENERATION

5.1.1 Waste Stored in 55-Gallon Steel Drums

The most common waste container for TRU waste stored at the Hanford Site is the 55-gal steel drum. The drums used are either DOT 17C or 17H drums with minimum wall thicknesses of 0.135 and 0.109 cm (0.053 and 0.043 in.), respectively. Before 1982 most of the drums were painted, so these drums have approximately 0.0127 cm (0.005 in.) of paint on both the exterior and interior of the drums. In 1982, galvanized drums replaced painted drums. Recycled 55-gal drums were also permitted for the storage of TRU waste between 1973 and 1978.

The 1970 *Immediate Action Directive* (AEC 1970) stipulated that TRU wastes be packaged and stored as contamination-free packages for at least 20 years. The 20-year interim period was to allow time to study permanent disposal options for TRU wastes.

As more of the 55-gal drums reach and exceed the 20-year storage mark, more attention has been given to ascertaining the condition of these drums. A discussion of the previous studies of steel drum corrosion and degradation can be found in WHC-EP-0225, Rev. 1 (Anderson et al. 1991).

Between 1970 and 1991, 28,269 55-gal drums of radioactive waste were generated at the PFP. This total includes 7,073 drums of LLW and 21,196 drums of TRU waste. The TRU waste drums, generated by the PFP, account for approximately 55% of the 55-gal TRU waste drums in retrievable storage at the Hanford Site.

Table 5-1 contains waste summary data for 55-gal drums of radioactive waste generated at PFP between 1970 and 1991. The upper portion of this table indicates the number, total weight, and total volume of TRU waste drums. TRU mixed waste drums are also indicated. The same information for non-TRU waste follows. At the bottom of the table are the relative percentages of TRU and non-TRU wastes by container number, weight, and volume. Figures 5-1 through 5-6 present this information graphically.

5.1.1.1 **Number of Drums**. Figure 5-1 provides a graph of the number of 55-gal drums of TRU and LLW generated at the PFP by year. The general trend shown in this figure is a gradual decrease in the ratio of TRU waste to LLW drums. This trend is shown more clearly in Figure 5-2 which shows the relative percentages of TRU and non-TRU waste drums by year. There are several reasons for this trend.

1. During the period from 1970 to 1973 segregation of TRU wastes was based on generator practice, rather than on concentration limits.

2. From 1974 to 1982, TRU waste was defined with a concentration of greater than 10 nCi/g.

3. In 1982, the current definition of greater than 100 nCi/g was implemented by DOE.

4. In 1985 TRUSAF was completed. TRUSAF has the ability to assay packaged waste accurately, and, as a result, the amount of waste designated as TRU declined dramatically during 1986 and all subsequent years.

There are two notable peaks in the number of TRU waste drums generated:

- **1979-80** — This period corresponds with the reduction in the Hanford Site plutonium-bearing scrap and residue inventory which was mandated by the Energy Research and Development Administration-Richland Operations Office (ERDA-RL) in 1978. This mandate led to material stabilization and subsequent onsite storage of a portion of this inventory during the 1979-82 time frame. The peak in onsite storage for these materials was in 1980.

- **1984-85** — With the PRF restart in January 1984 and the RMC line restart in June 1985, the peak in waste production corresponds to a peak in processing.

Non-TRU radioactive wastes were not disposed of in 55-gal drums in seven of the years since 1970: 1971-75, 1978, and 1984. Instead, most non-TRU waste was disposed of in a variety of different container types. These wastes and waste containers will be discussed in more detail in Section 5.1.2.

Since 1986, however, the number of 55-gal drums containing non-TRU radioactive waste has been steadily increasing as a proportion of the total number of drums. This is shown in Figure 5-2.

5.1.1.2 **Weight**. In the period between 1970 and 1991 approximately 1,426,060 kg (3,143,871.2 lb) of TRU waste and 414,744 kg (914,338.62 lb) of non-TRU waste generated at the PFP were stored in 55-gal drums. These numbers are estimates since container weights were not required for individual containers before 1977. During the R-SWIMS data re-entry program in the mid-1980's, all pre-1977 containers were assigned standard weights. All 55-gal drums, for instance, were assigned a value of 68 kg (150 lb), which most probably underestimates the true container weight. Since 1978 the mean weight for 55-gal drum is 79 kg (174 lb).

The results of a search for the heaviest drums generated at the PFP can be found in Table 5-2. For the reasons discussed in the paragraph above, the record for twenty six 55-gal drums weighing greater than 150 kg (330.69 lb) were all from the period between 1984 and 1992. The contents of these "heavy drums" are also included in Table 5-2. It should be noted that five of these drums contain more than 100 g (0.92 oz) of TRU waste. Appendix C contains the complete SWITS records for all 26 drums.

Figure 5-3 presents an annual look at the total weight of both TRU and non-TRU radioactive wastes stored in 55-gal drums. The relative percentages of weight for TRU and non-TRU drums generated annually at the PFP is shown in Figure 5-4. These figures show, once again, the dip in the amount of waste designated as TRU after TRUSAF began operations.

5.1.1.3 **Volume**. The total volume of TRU waste generated at the PFP and stored in 55-gal drums is 4,443 m^3 (156,902.21 ft^3). The total volume of non-TRU radioactive waste generated at the PFP and stored in 55-gal drums is 1,503 m^3 (53,077.66 ft^3). The volume of TRU and non-TRU waste generated between 1970 and 1991 at the PFP and stored in 55-gal drums is shown in Figure 5-5. The relative percentages of the total amount of radioactive waste stored in 55-gal drums is provided in Figure 5-6. Since all 55-gal drums have the same volume, the patterns shown in Figures 5-5 and 5-6 are the same as those described for Figures 5-1 and 5-2 (drum number), respectively. They are included here so that comparisons with Figures 5-7 and 5-8 can be made.

5.1.2 Waste Stored in Containers Other Than 55-Gallon Steel Drums

Radioactive solid wastes have been stored or disposed of in a wide variety of containers other than 55-gal steel drums. In this discussion these containers will be referred to as "other containers." Container types used for solid waste generated at the PFP include the following:

- Burlap, cloth, paper, or plastic bags
- Concrete boxes
- Fiberboard/plastic boxes, cartons, or cases
- Metal drums, barrels, and kegs (other than 55-gal drums)

- Metal boxes, cartons, or cases
- Fiberglass reinforced polyester (FRP) boxes
- Wooden boxes, cartons, or cases.

In addition some items such as gloveboxes; trucks, flatbeds, compactors or loadluggers; and self-contained equipment were disposed of or stored without additional packaging. These items are also included in the "other containers" category.

Between 1970 and 1991, 5,277 other containers of radioactive waste were generated at the PFP. Of these containers, 1,070 hold TRU waste, while 4,207 hold LLW. During this time a total of 28,269 55-gal drums of radioactive solid waste were generated at the PFP.

Table 5-3 summarizes the waste data for containers of radioactive waste other than 55-gal drums that were generated at the PFP between 1970 and 1991. The upper portion of this table indicates the number, total weight, and total volume of TRU waste stored in other containers. The number of other containers of TRU mixed waste is also provided. The same information for non-TRU waste follows. At the bottom of this table are the relative percentages of TRU and non-TRU wastes by container number, weight, and volume. Figures 5-7 through 5-12 present these data graphically.

5.1.2.1 Number of Other Containers. Figure 5-9 is a graph of the number of other containers of TRU and LLW generated at the PFP by year. Note that no TRU waste was packaged in containers other than 55-gal drums during the following six years: 1979, 1986, 1987, 1988, 1990, and 1991.

The largest number of other containers containing TRU waste (625) was generated in 1970. A second minor peak in the packaging of TRU waste in other containers is found during the period from 1981 and 1983. One reason for the peak during this time period is the reduction of Hanford Site's inventory of scrap and residue items mandated by ERDA-RL in 1978. This mandate led to the material stabilization and subsequent onsite storage of a portion of this inventory during 1979-82. Other contributors may be the decontamination of room 230-C in 1981 and the TCO of room 308 in 1982.

The greatest number of other containers containing non-TRU waste was recorded for 1970 and 1979-81. The latter peak is probably a result of the scrap inventory reduction.

Figure 5-10 presents the relative percentages of TRU and non-TRU containers other than 55-gal drums that were generated at the PFP on an annual basis. After 1976, other containers of TRU waste represent less than 40% of the yearly total.

5.1.2.2 Weight. In the period between 1970 and 1991 approximately 2,764,655 kg (6,094,918.4 lb) of radioactive solid waste was generated at the PFP and placed in containers other than 55-gal drums. This total weight includes approximately 1,464,454 kg (3,228,514.1 lb) of TRU and 1,300,201 kg (2,866,404.3 lb) of non-TRU contaminated material. These weights are approximations because individual container weights were not required to be recorded for individual containers before 1977. During an update of the R-SWIMS database in the mid-1980's all waste containers without a recorded weight were assigned standard values. For example, all 2-ft^3 boxes were given a standard weight of 5.5 kg (12 lb) and 5-gal lard cans were assigned a standard weight of 22.7 kg (50 lb).

Figure 5-11 depicts the weights of TRU and non-TRU waste stored in containers other than 55-gal drums on an annual basis. The following peaks in waste production on a weight basis are shown in Figure 5-11:

- **1975** — The greatest total weight of TRU waste was generated in 1975, when 51 containers accounted for 643,173 kg (1,417,929.8 lb) of weight. Unfortunately the records for these containers list the contents as "miscellaneous." The reason for this peak is unknown.

- **1976-78** — In August 1976 there was an explosion in the 242-Z cation exchange column, and the 242-Z Waste Treatment and Americium Recovery Facility was shut down. This may have resulted in the high weight of TRU contaminated waste disposed of between 1976 and 1978.

- **1980-81** — The greatest annual weight of radioactive waste generated by the PFP was found in 1980. The peak during this period is a result of the scrap inventory reduction, which was discussed previously. The plutonium scrap can fire in room 230-C of the 234-5Z Building that occurred in October 1980 involved scrap from the inventory mentioned above. The bulk of the weight disposed of during this period was composed of non-TRU waste.

- **1985** — In 1985, both PRF and the RMC line were operating. The weight peak during this period may be a result of restart and processing activities.

- **1989** — The peaks in weight and volume of other container TRU waste in 1989 are a result of the disposal of approximately 12 burial boxes of mixed waste. This was primarily large equipment that would not fit into 55-gal drums, including leaded glass, fluorescent lamps, and PCB ballast.

Figure 5-12 shows the percent contribution of TRU and non-TRU waste to the total annual weight of waste packaged in other containers. The relatively high proportion of TRU to non-TRU waste during the period from 1970 and 1978 reflects the TRU segregation limit of greater than or equal to 10 nCi/g used during those years.

The peak in the relative weight of TRU waste in the early 1980's is probably a result of some or all of the following:

- Scrap and residue inventory reduction

- Decontamination of rooms 230-C and 308 in the 234-5Z Building

- TCO programs for the 232-Z (incinerator), the RMA line, and the 66.04-cm (26-in.) vacuum system.

5.1.2.3 Volume. The volume of waste generated at the PFP and packaged in containers other than 55-gal drums during 1970-91 is 7,089 m^3 (250,344.31 ft^3). TRU wastes account for 3,987 m^3 (140,798.81 ft^3) of the total volume; non-TRU wastes account for 3,102 m^3 (109,545.5 ft^3).

Figure 5-7 shows annual volumes of TRU and non-TRU wastes generated by the PFP and packaged in containers other than 55-gal drums. Figure 5-8 shows the relative contribution of TRU and non-TRU wastes to the total volume of waste in other containers for each year.

Over 400 m^3 (14,125.79 ft^3) of radioactive waste was packaged in other containers during each of the following years: 1975, 1976, 1978, 1980, 1981, and 1985.

By far the largest annual volume of waste packaged in other containers was 1,675 m^3 (59,151.75 ft^3) in 1975, with TRU waste making up 98.5% of this volume.

5.1.3 Summary of Waste Generation Rates at PFP Between 1970 and 1991

5.1.3.1 Number of Waste Containers. Between 1970 and 1991 there were 33,546 containers of radioactive solid waste generated at the PFP. 55-gal drums account for 84% of this total; other containers account for the remaining 16%. Section 5.2 describes the container types used.

Overall, waste designated as TRU is stored in about two-thirds (66%) of the containers generated between 1970 and 1991. Non-TRU waste, mostly LLW, can be found in 34% of the containers. Figure 5-13 shows the total numbers of both TRU and non-TRU waste containers generated annually at the PFP during this period.

It should be remembered that several changes (discussed in Section 4.2) between 1970 and 1991 resulted in more waste being designated as LLW and less waste being designated as TRU. This trend is clearly seen in Figure 5-13. A significant portion of the waste stored as TRU may be able to be redesignated as LLW upon characterization at WRAP.

5.1.3.2 Total Weight. Over 4.6 million kilograms (10.14 million pounds) of radioactive solid waste was generated at the PFP between 1970 and 1991. Waste packaged in 55-gal drums accounts for about 40% of the total weight of waste from the PFP, with 60% of the total weight composed of waste packaged in some other type of waste container.

Waste designated as TRU comprises 63% of the total weight, while waste designated as non-TRU makes up the remainder. Figure 5-14 provides a graph of the total weight of TRU and non-TRU waste generated at the PFP on a yearly basis between 1970 and 1991.

5.1.3.3 Total Volume. In the 21-year period between 1970 and 1991, 13,035 m^3 (460,324.18 ft^3) of radioactive solid wastes were generated at the PFP. A little less than one-half (46%) of this volume is composed of 55-gal drums;

the remaining 54% of the volume is made up of other container types, ranging from cardboard boxes to self-contained equipment. Section 5.2 discusses the other container types and their respective volumetric capacities.

As was seen when looking at the total number and weight of containers, waste designated as TRU accounts for approximately two-thirds (65%) of the total waste volume and non-TRU waste accounts for the remainder. Figure 5-15 shows the total volume of TRU and non-TRU waste generated annually at the PFP between 1970 and 1991.

5.2 WASTE CONTAINERS

5.2.1 Non-TRU Waste Containers

Table 5-4 provides a summary of the non-TRU waste generated at the PFP from 1970 to 1991 by container type. The most common containers were 55-gal drums, but significant numbers of fiberboard/plastic boxes; burlap, cloth, paper or plastic bags; metal drums other than 55-gal; and self-contained equipment were also found. The greatest weight of non-TRU from the PFP is stored in 55-gal drums, followed by trucks, flatbeds, compactors, and loadluggers; wooden boxes; self-contained equipment; and metal drums (other than 55-gal) in decreasing order.

5.2.2 TRU Waste Containers

Table 5-5 provides a summary of the TRU waste generated annually at the PFP from 1970 to 1991 and is sorted by container type. A significant majority of TRU waste was stored in 55-gal drums. The percentages for all container types and the total weight of these containers are shown for each year in this table.

5.3 TRU WASTE STORAGE LOCATIONS

Table 5-6 provides the storage locations for TRU waste packaged in 55-gal drums by year. In general, the bulk of the drums generated in 1 year are stored in one or two facilities. Storage locations for TRU waste packaged in other containers are shown in Table 5-7. A summary of the PFP waste storage by storage location follows:

- **218-W-3A** — Burial Ground 218-W-3A consists of 14 earthen-bottom, gravel filled trenches, with waste emplaced from May 1970 to April 1988. The PFP 55-gal drum waste generated predominantly from 1970 to 1971 is stored here, with one additional drum from 1984. Other containers of waste generated from 1970 to 1978 are located in this area, including one known to contain lead, a hazardous constituent.

- **218-W-4B** — Burial Ground 218-W-4B, consisting of 14 trenches, accepted waste from August 1970 through September 1978. Drum and other container waste from the PFP was buried here during this time period. No record of hazardous material was made during the burial time.

- **218-W-4C** — Burial Ground 218-W-4C consists of six trenches, with the first waste emplaced in March 1978. PFP waste in drums has been sent to this area from 1978 to the present, with other containers emplaced from 1980 to 1985. Waste containers recorded as having hazardous constituents were buried from 1981 to 1987. These waste containers included a total of 63 drums and 10 other containers. The predominantly listed contaminants are asbestos and beryllium.

  A record search was done for waste containers with more than 300 g (10.58 oz) of TRU. Trench T01 contains heavily loaded TRU waste from the 1980 to 1982 period, corresponding to the CSMO inventory reduction. There are a total of ten 55-gal drums and 22 other containers with more than 300 g (10.58 oz) of TRU elements. The contents of these containers are listed as metal/iron/galvanized/sheet, with no hazardous constituents noted.

- **218-W-5** — Burial Ground 218-W-5 contains one 55-gal drum from the PFP, which does not contain mixed waste.

- **224-T** — The TRUSAF is used to store TRU waste certified for transfer to the WIPP. 55-gal drums from the PFP have been stored at this site from 1986 to the present, with mixed waste drums beginning in 1989. The primary hazardous contaminants are lead products, mercury, and heavy metals.

- **2401-W, 2402-W, and 2402-WB** — These buildings are located at the Hanford Central Waste Complex, in the 200 West Area. All PFP waste containers stored at these locations contain mixed waste. A total of forty four 55-gal drums and 14 other containers were stored here from 1982 to 1990. The principal hazardous constituents are lead and lead compounds, PCB, hydraulic fluid, and heavy metals.

- **FS8** — This is a Low Flashpoint Storage Module, and contains one non-drum container of mixed waste.

5.4 PHYSICAL CONTENTS OF TRU WASTE CONTAINERS

The physical contents for 55-gal drums are shown in Tables 5-8 through 5-14. There is a separate table for each storage location. The top portion of each table indicates the number of drums for which a given component is listed; the bottom portion of the table indicates the percentage of the total drums that number represents. It should be noted that before 1978 physical contents were not required to be listed on the burial records, so a great many of the contents on early records are listed only as "Miscellaneous."

The physical contents for TRU waste containers other than 55-gal drums can be found in Tables 5-15 through 5-21.

5.5 RADIOLOGICAL DESCRIPTION OF PFP SOLID WASTE

Table 5-22 shows the number of grams of TRU stored in 55-gal drums each year by storage location; Table 5-23 provides the same information for TRU waste containers other than 55-gal drums. Figure 5-16 combines the information on these tables in a graph that shows the total number of grams of TRU present in waste packages from the PFP by year. It should also be noted that not all SWITS records for TRU waste containers list the number of grams of TRU, particularly in the early 1970's.

The most striking observation about the TRU gram loading in containers from the PFP is the peak in 1980 when over 60,000 g (2,116.40 oz) of TRU were stored in just under 1,700 containers. The reason for this peak was the effort to reduce plutonium-bearing scrap and residue being stored at the Hanford Site.

In the late 1960's or early 1970's the Hanford Site was designated by the AEC as the CSMO for plutonium-bearing materials. The function of the CSMO was to accept plutonium scrap and residues from AEC sites and industrial contractors when recovery capability/capacity was not available.

The CSMO was to locate a recovery plant that could do the recovery and fund that plant for the recovery work. If not, CSMO was to carry out the recovery mission in the PRF/PFP. As the result of CSMO, the Hanford Site received a wide variety of plutonium-bearing material for recovery which generated a very large scrap and residue inventory.

The packaging for many of the materials in the Hanford Site inventory was marginal. The chemical stability for many of the scrap and residue items was questionable. Consequently, in 1978, ERDA-RL decided to reduce the Hanford Site inventory by carrying out the following three options:

1. Ship appropriate material to other sites (Los Alamos National Laboratory [LANL], Rocky Flats Plant [RFP], and Savannah River Plant [SRP]) for processing.

2. Process material with a low concentration of plutonium (e.g., ash and sand, slag, and crucible) so that it may be discarded.

3. Stabilize remaining material for long-term storage and repackage in a safe, storable configuration.

The three options were carried out during 1979-82 with activities peaking in 1980. The high TRU values shown in Figure 5-16 for 1979-82 are attributed to material stabilization, processing, and repackaging for offsite shipment and onsite storage, and the discard of low-level residues. The EDLs were changed to allow these low-level materials to be discarded. This discard was the largest contributor to the TRU values shown in Figure 5-16.

Tables 5-24 and 5-25 show the results of a R-SWIMS search for waste containers with more than 300 g (10.58 oz) of TRU. Notice that the 10 drums and 22 other containers all contain metal scrap, and were disposed of from 1980 to 1982. Appendix C contains the complete SWITS records for these waste containers.

Additional information about the radiological components of the TRU waste from the PFP can be found in Appendix B, Sections B.13 and B.14. Additional information found in these sections includes maximum dose rates and TRU isotope lists. None of the maximum dose rates found exceeded the limit for contact handled containers.

5.6 HAZARDOUS CONSTITUENTS OF SOLID WASTE GENERATED BY THE PFP

This section provides a review of the data on the hazardous components found in the SWITS database and on the original burial records. In addition, an inventory of the chemicals known to be used at the PFP and information from personnel interviews are included in this section. Because information on the nonradioactive, hazardous chemicals in waste containers was not required on burial records before 1987, information before that date is meager.

5.6.1 Chemical Inventories

Tables 5-26 through 5-28 provide several lists of chemicals used at the PFP and the PFP Analytical Laboratory between 1949 and 1980. These lists were developed by Klem (1990) to support waste characterization efforts for the single-shell tanks. Although most liquid wastes from the PFP did end up in the tanks, it may be possible to find small amounts of these chemicals in solid waste containers. These lists are based on chemical process flowsheets, essential material consumption records, letters, reports, and other historical data.

The final two columns in each of the tables cited above contain information on the toxicity and hazards associated with each of the chemicals listed. The first of these columns lists the EPA toxicity category, which was determined using the EPA "Spill Table" (EPA 1989b). Category X marks the most toxic chemicals, followed by Categories A, B, C, and D, listed in order of decreasing toxicity. The EPA "Spill Table" is incorporated by reference into the *Washington State Administrative Code*, Chapter 173-303, "Dangerous Waste Regulations." The final column lists the DOT designation found in the DOT "Hazardous Materials Table" (49 CFR 172.101).

5.6.2 Solid Waste Information and Tracking System

The information about the hazardous constituents of the solid waste from PFP is limited in the years before 1987. According to the SWITS database only 51 containers from the PFP are designated as mixed waste before 1986. Since 1986, reporting of hazardous constituents has improved considerably; 107 containers have been designated as mixed waste in the past 5 years. The greatest percentage of mixed waste was found in 1989 when 39% of all 55-gal drums and 100% of all other container types generated by the PFP contained mixed waste. A summary of the number of mixed waste containers and the percentages they represent can be found in Tables 5-29 and 5-30.

The hazardous constituent field in the SWITS database was searched for all containers from the PFP that contained radioactive mixed waste. Tables 5-31 through 5-34 show the hazardous constituents of TRU 55-gal drums sorted by storage location and year. In addition, these figures indicate the percentage of the total number of containers generated in that year and stored at that location that contain each constituent. Tables 5-35 through 5-40 show the same information for TRU containers other than 55-gal drums.

5.6.3 Burial Records

The SWBR or SWSDR for a given container is the source of waste container information abstracted for the SWITS database. Often these records will have more detailed information on the hazardous components of a waste container than is found in SWITS. Additional data can also be found on the supplementary forms often attached to the SWBR or SWSDR. These supplementary documents include Uniform Hazardous Waste Manifests, Contents Inventory Sheets, NRC 741 Forms, and Storage/Disposal Approval Records (SDARs).

In the current study, a review of the burials records for all TRU mixed waste containers was made. Table 5-41 contains a summary of the information obtained.

5.6.4 Interviews With PFP Analytical Laboratory and Process Facility Personnel

A list of known or suspected components in the solid waste stream was produced from the information gained in interviews with the Analytical Laboratory and process facility personnel.

The list of known or suspected hazardous constituents was compiled using the information gained from interviewing process and Analytical Laboratory personnel. The SWITS records for waste shipments received from the PFP do not specify the part of the facility from which the waste originated. It is impossible to discern the PFP analytical waste from PFP process waste by solely analyzing the computer records.

The following constituents are either suspected or known components of the solid waste stream from the PFP. Interviewees were asked to provide information concerning the quantity, form, packaging, and relevant use of the constituents. It is important to note that the liquids below were probably disposed of in a nonliquid form, often absorbed by kitty litter, rags, cotton swabs, laboratory coats, etc.

Acetone — Acetone was part of the laboratory process before being replaced by alcohol.

Asbestos — The PFP personnel estimated the amount of asbestos that was part of the waste stream was small. The asbestos was primarily in the form of insulation removed during remodeling or maintenance work. Old steamline installations and some old gaskets (high heat exposure) within certain process vessels located in glovebox lines and outside glovebox lines contained some asbestos. The asbestos was present in the insulation used in furnaces, steamlines and gaskets. The asbestos was packaged in lined burial boxes and galvanized 55-gal drums.

In the Analytical Laboratory, asbestos was part of the emission spectroscopy process and was possibly in floor tiles. Cleanup and packaging is believed to have been in accordance with regulations at the time.

Benzene — During the 1960's a lot of benzene was used in the Analytical Laboratory. In the 1970's there was a big push to get rid of it, thus a lot less was used.

Beryllium — Former PFP process personnel recalled that very little beryllium is present in solid wastes. However, beryllium was part of the PFP Analytical Laboratory in several capacities. It served as a standard for metals. Beryllium was also used in neutron multipliers and NDA.

Calcium — Calcium metal is employed in the PFP to reduce plutonium fluoride powder to a plutonium metal button. The reduction charge contains about 10-20% over the stoichiometric amount of calcium required. Consequently, the unreacted free calcium metal becomes part of the reduction slag, which is mainly calcium fluoride. The reduction slag was recycled aqueously to recover residual amounts of plutonium remaining in the slag. Therefore, unreacted calcium was destroyed and its corresponding solution species was sent to the tank farms.

Any calcium metal spilled outside the glovebox line was treated to produce calcium oxide or calcium hydroxide and properly disposed of according to the disposal practices in effect at that time.

There is a remote chance, on an infrequent basis, that spilled calcium metal in a glovebox line could have been swept up with glovebox sweepings and trash. The quantity would have been very small (less than 50 g [1.76 oz]) and would probably have reacted with the carbon dioxide and water in the glovebox to form less reactive calcium salts. These calcium salts would probably be in the form of pellets or shot.

One interview respondent recalled a sample of calcium being part of a carbon analysis.

Carbon Tetrachloride — A considerable amount of carbon tetrachloride was used in the Analytical Laboratory for the analysis of gallium. There were dilute samples, process samples, and a percentage of organic solutions involved.

Ethers — Before 1970, ethers were a part of the laboratory process.

Hydrazine — Small amounts of hydrazine were used in the laboratory as a standard solution test.

Hydrogen Peroxide — 20% hydrogen peroxide was used in mass spectroscopy in the Analytical Laboratory.

Lithium Fluoride — Lithium fluoride was used in emission spectroscopy in the Analytical Laboratory.

Mercuric Salts — Before 1983, mercuric salts were a part of the processes at the PFP Analytical Laboratory.

Mercuric Nitrate — One respondent thought that mercuric nitrate may have been used for an emission spectroscopy chemical assay in the PFP Analytical Laboratory. Another described its use in assisting the dissolution of plutonium-aluminum fuel pins that were not irradiated.

Mercuric Sulfate — Mercuric sulfate was used for a chemical assay.

Mercuric Thiocyanate — Small amounts of mercuric thiocyanate were used in the PFP Analytical Laboratory.

Mercury — As a result of broken instrumentation, manometers, etc., minute amounts of mercury are suspected in solid waste burial. According to the 1975 environmental impact statement (EIS), ERDA-1538, mercury is not a part of the 200 Area process chemical inventory. However, mercuric nitrate was purchased and stored in polylined ice cream cartons for use at the PFP. About 45.36 kg/yr (100 lb/yr) were used.

During the 1950's and 1960's the Analytical Laboratory carried out triple distillations to purify mercury for analytical equipment and vacuum diffusion pumps. The method used for the disposal of distillation bottoms was not known by the personnel interviewed. A large amount of mercury was also used in the galometry process at the PFP Analytical Laboratory.

Nitric Acid — Two mechanisms could have introduced nitric acid into the solid waste stream. The first is through rags used to clean up glovebox spills, whereby all of the nitric acid was not removed by subsequent water rinses and drying. Nitric acid has a tendency to nitrate the cellulose in the rags, significantly lowering the ignition point and thereby increasing the fire risk.

The second mechanism involved residual nitric acid solution left in discarded equipment that was removed by maintenance, such as valves, pumps, filters, etc. These items have a variety of hold-up cavities that are not amenable to convenient, easy drainage. Consequently, small quantities of nitric acid (less than 50 mL [1.69 fl oz]) could have been sent out with the solid waste stream. However, with time, these solutions would have probably dried up and the nitric acid reacted with the surrounding material. Nevertheless, it is still a concern and warrants appropriate precautions.

Both concentrated nitric acid and fuming concentrated nitric acid were used in the PFP Analytical Laboratory. None of the Analytical Laboratory respondents noted amounts or packaging.

Oxalic Acid — Oxalic acid, in both liquid and powder form, was part of the PFP Analytical Laboratory. Oxalic acid was used for non-rad cold procedures.

PCBs — PCBs were used in several capacities in the Analytical Laboratory. They were used in lathes, in equipment such as elevator pumps, and in laboratory pumps. It is possible that the PCBs also were used in bomb parts. Any of the oils used in the machine shop also could contain PCBs.

Potassium Permanganate — Potassium permanganate was premade at the 222-S Analytical Laboratory and shipped to the PFP.

Propane — From 1965 to 1973, 0.45-kg (1-lb) propane cylinders were used in processing plutonium. About one to three cylinders were used per week. Exhausted cylinders were discarded to TRU waste and packaged in cardboard boxes. The cylinders were not punctured to release any residual propane. Initially, the cylinder control valve was removed before discarding the spent cylinder. Consequently, the valve was discarded along with the cylinder to TRU waste. Occasionally, the valve would malfunction, causing the discard of cylinders having higher levels of propane. The amount of time this practice continued after January of 1973 is not known.

Rhodium/Platinum — Rhodium and platinum are tightly controlled precious metals that were, as a whole, accounted for. There is a possibility that small amounts ended up in solid waste.

Sodium Fluoride — During the 1960's, sodium fluoride powder was used in a uranium procedure. It was also used for chemical assays and as a soak for electrodes in the PFP Analytical Laboratory.

Sodium Hydroxide — During the 1960's, sodium hydroxide was used in a highly concentrated form, approximately 50%. Since then the concentration has dropped to 6% or less. Rags coated with sodium hydroxide were disposed of in numerous ways. Some were incinerated and others went into boxes and drums. It is possible that some sodium-hydroxide may be double bagged and stored in 20-year retrievable drums.

Sodium Nitrate — Sodium nitrate was used in the PFP Analytical Laboratory as a standard and a reagent.

Sodium Oxalate — One of the interview respondents recalled sodium oxalate being used as a standard in the PFP Analytical Laboratory.

Sulfuric Acid — Approximately 1 *M* sulfuric acid was used as a chemical assay in the PFP Analytical Laboratory. Another use was for nonradioactive cold procedures.

TBP-Carbon Tetrachloride — On several occasions the solvent extractant tributyl phosphate - carbon tetrachloride (TBP/carbon tetrachloride) employed in PRF would emulsify. Failure to break the emulsion would result in a change out. The emulsified TBP/Carbon tetrachloride would be placed in polybottles (probably 4-L size) along with conwed absorbent pads to absorb the liquid phase. The polybottles were then placed in 55-gal drums for disposal. The polybottles were secured within the drums with absorbent and padding.
A complete changeout would generate a significant (greater than 10) number of drums.

The following constituents were also used in Analytical Laboratory processes at the PFP and may show up in solid waste packages:

- Acetic acid
- Iron and tungsten (in form of rings/chips)
- Isopropyl ethyl alcohol
- Metal oxides (emission spectroscopy standards)
- Potassium hydroxide
- Silver chloride
- Silver nitrate
- Silver sulfate.

5.7 CLASSIFIED WASTE

Only one container from the PFP is designated as classified TRU waste in the SWITS database. This container is a 55-gal drum stored at 218W 3A. It contains 26 g (0.92 oz) of plutonium and 2.455 kg (5.41 lb) of enriched uranium. The full SWITS record for this container can be found in Appendix E.

Figure 5-1. PFP 55-Gallon Drums Generated Annually.

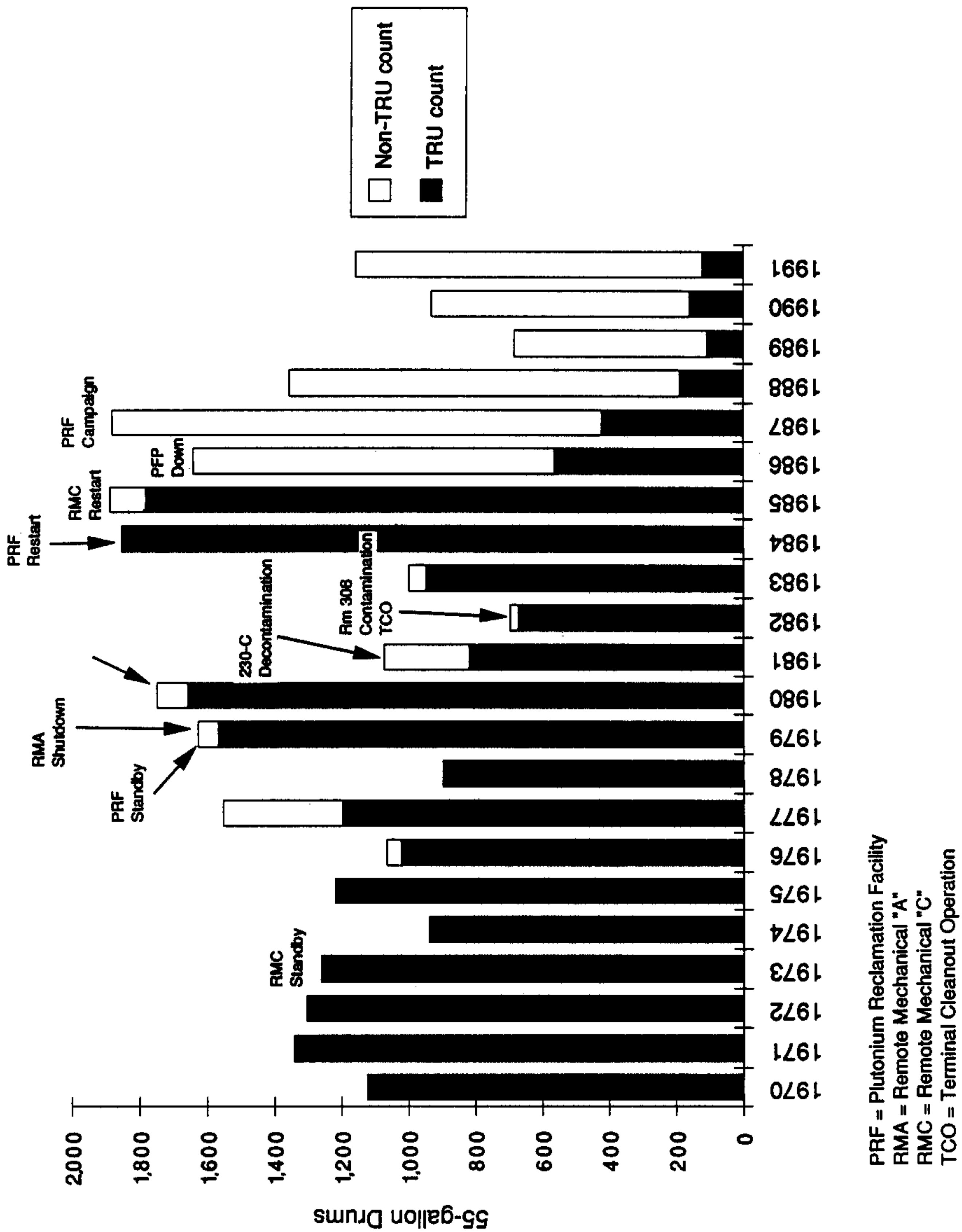

Figure 5-2. Percentage of TRU and Non-TRU 55-Gallon Drums Generated Annually at the PFP.

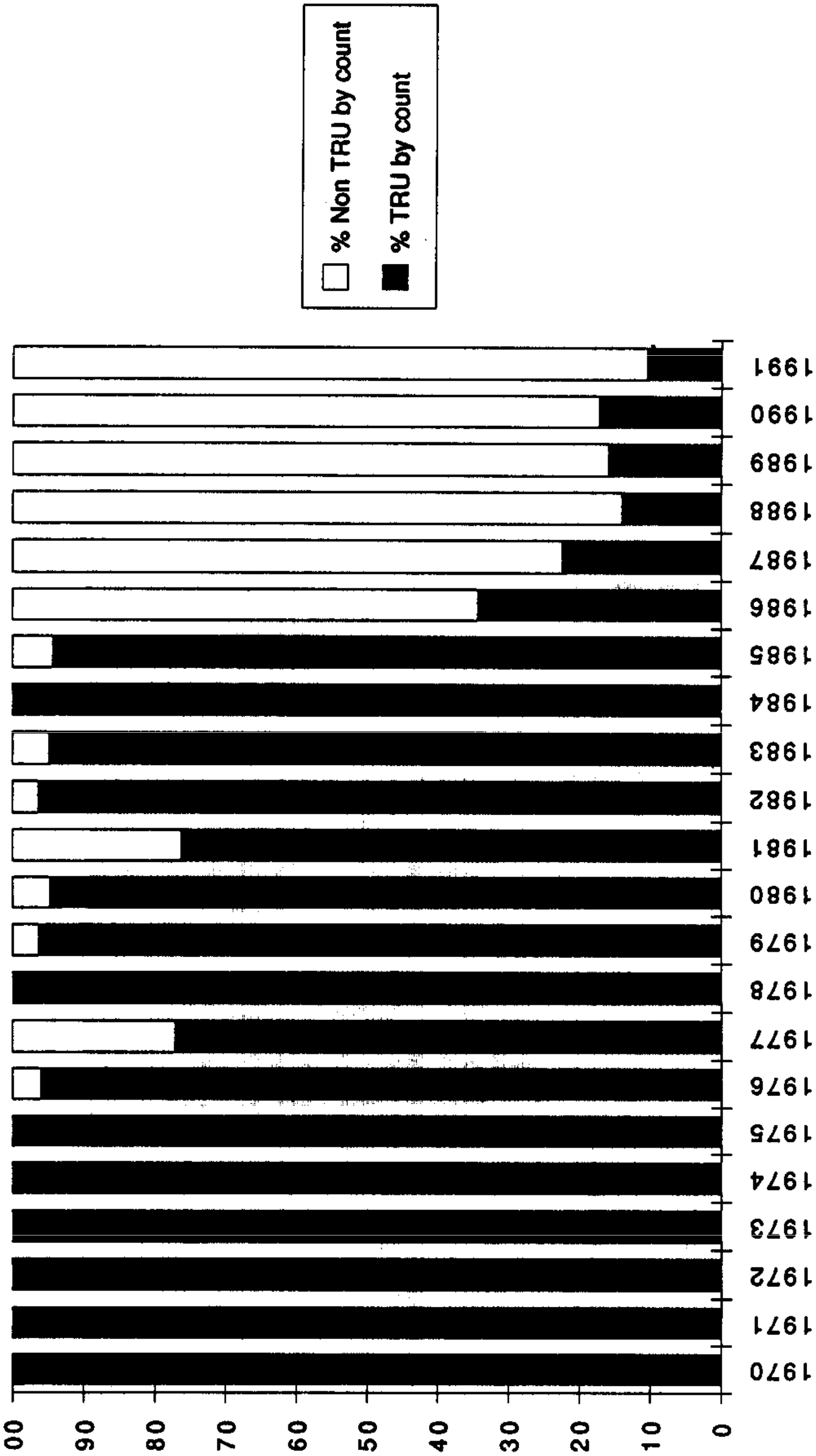

Figure 5-3. Total Weight of Radioactive Waste Stored in 55-Gallon Drums Generated Annually at the PFP.

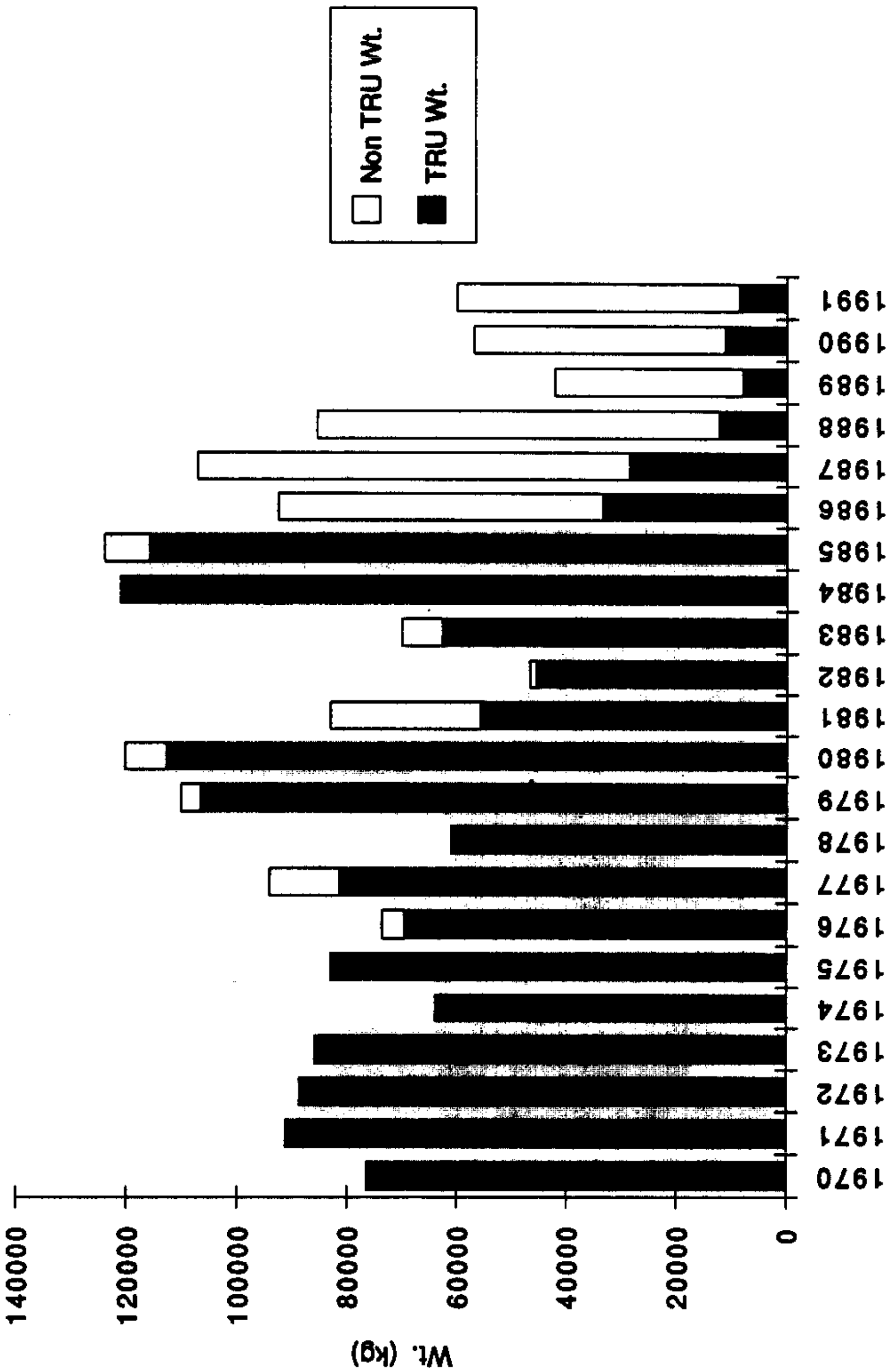

Figure 5-4. Percent Weight of TRU and Non-TRU 55-Gallon Drums Generated Annually at the PFP.

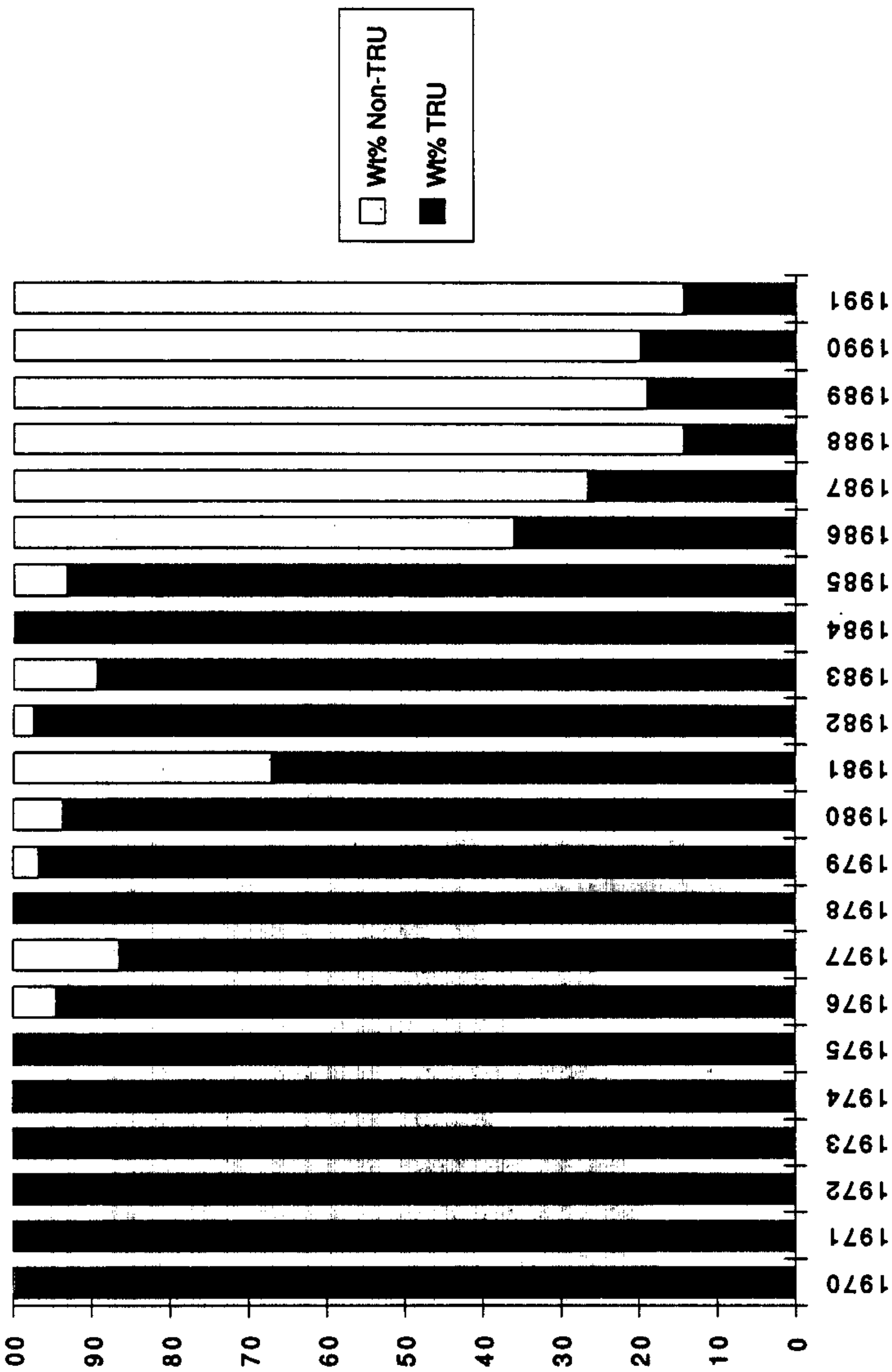

Figure 5-5. Volume of Radioactive Waste Stored in 55-Gallon Drums Generated Annually at the PFP.

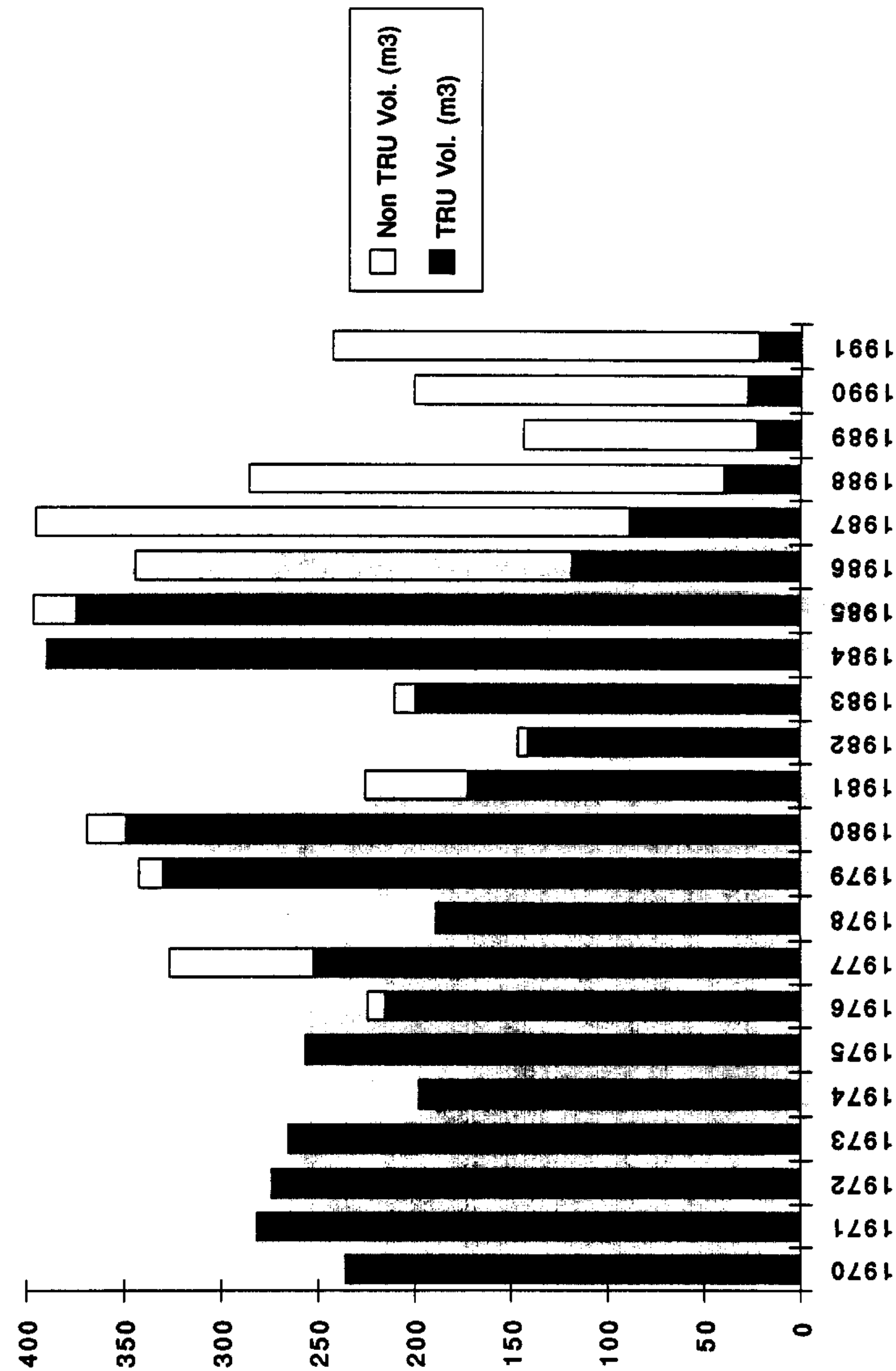

Figure 5-6. Percent Volume of TRU and Non-TRU 55-Gallon Drums Generated Annually at the PFP.

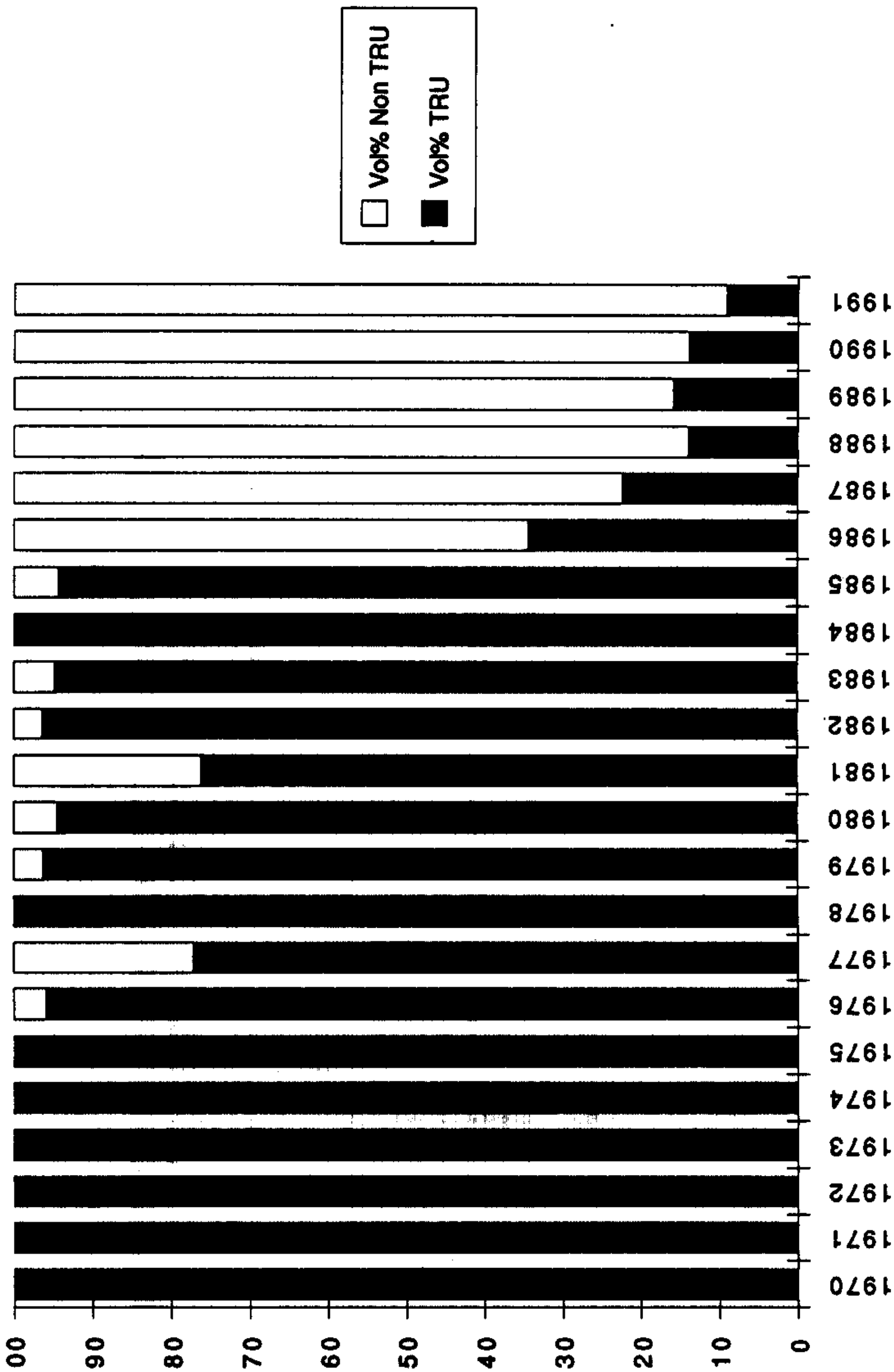

Figure 5-7. Volume of Radioactive Waste Stored in Containers Other Than 55-Gallon Drums Generated Annually at the PFP.

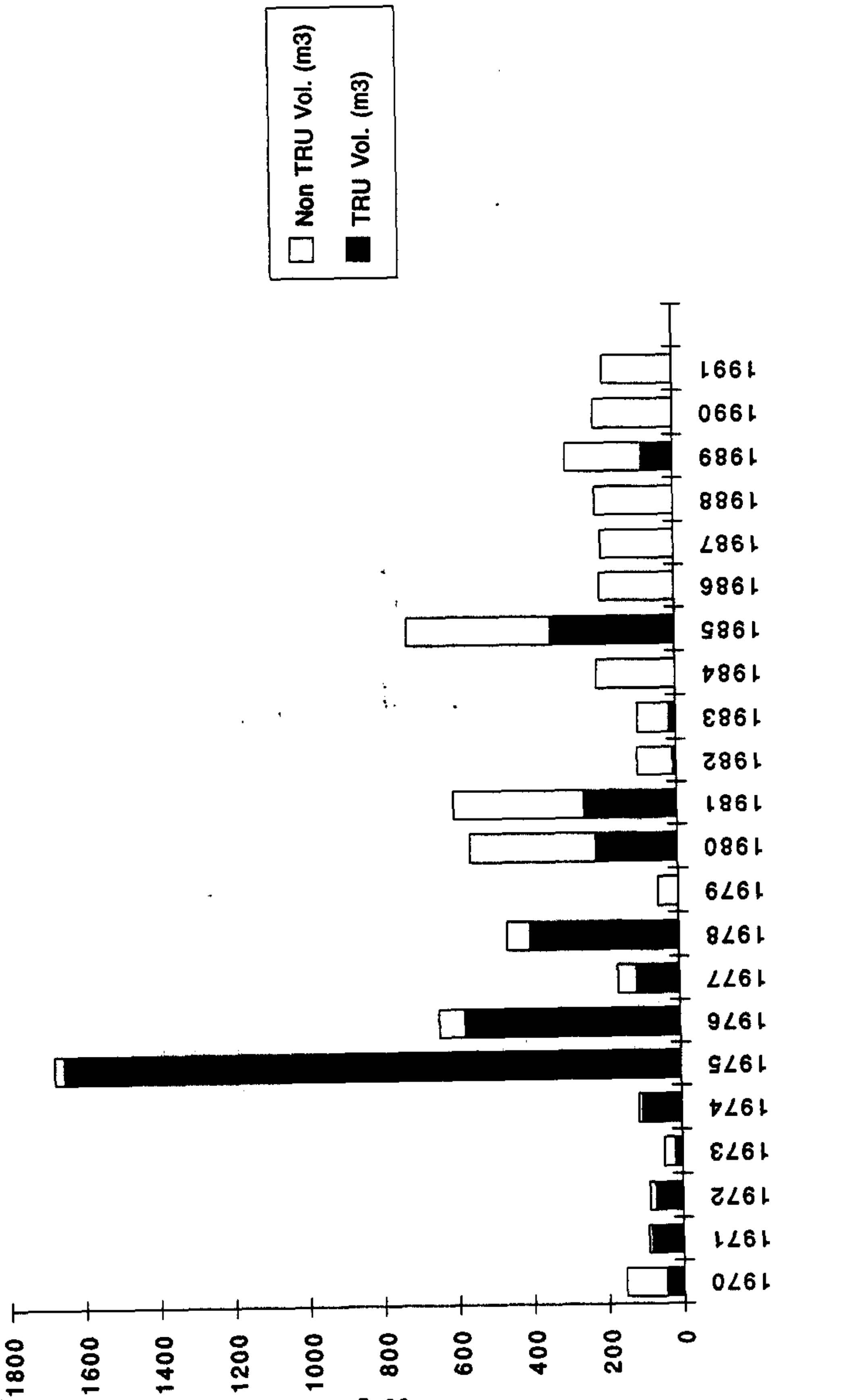

Figure 5-8. Percent Volume of TRU and Non-TRU Containers Other Than 55-Gallon Drums Generated Annually at the PFP.

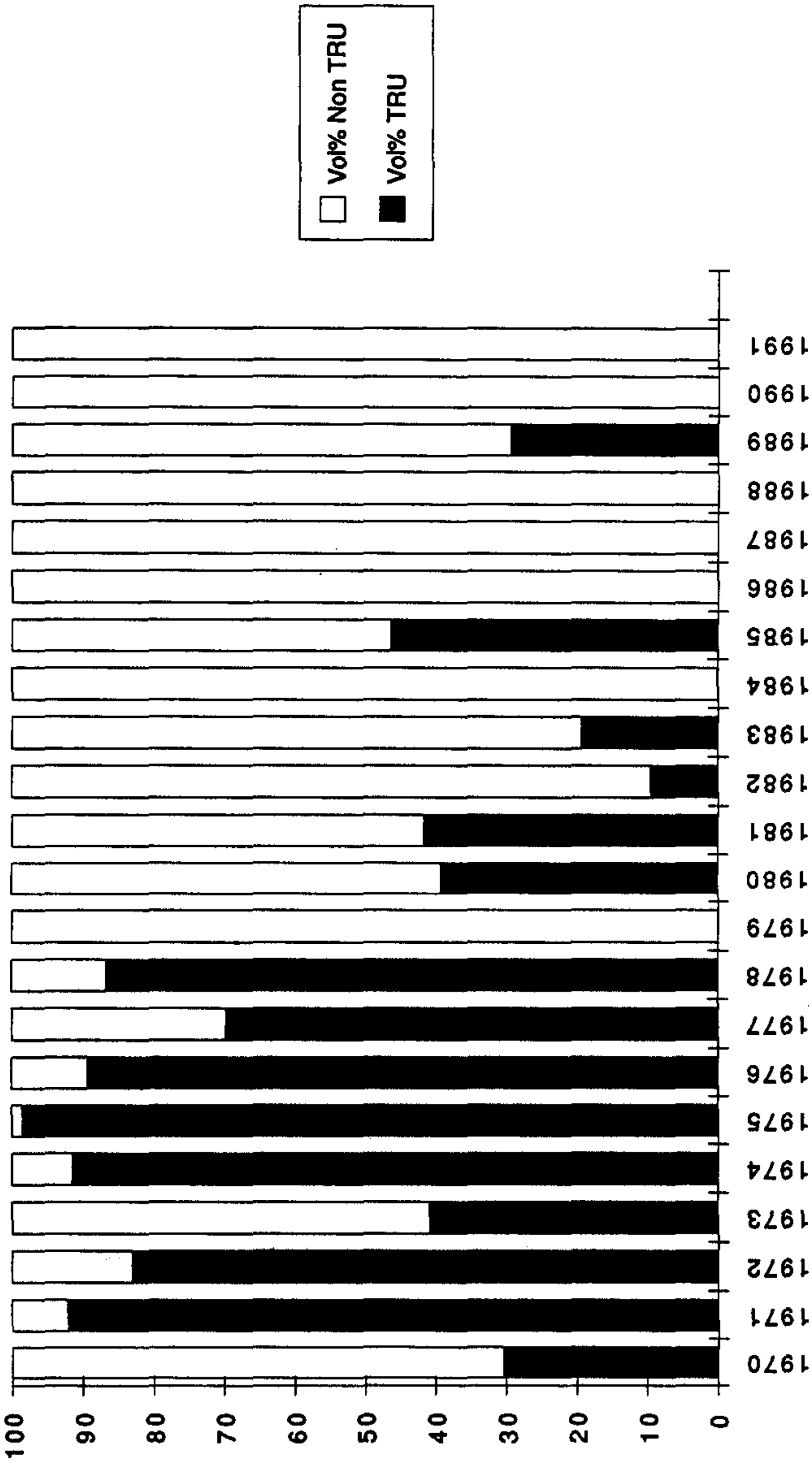

Figure 5-9. Containers Other Than 55-Gallons Drums Generated Annually at the PFP.

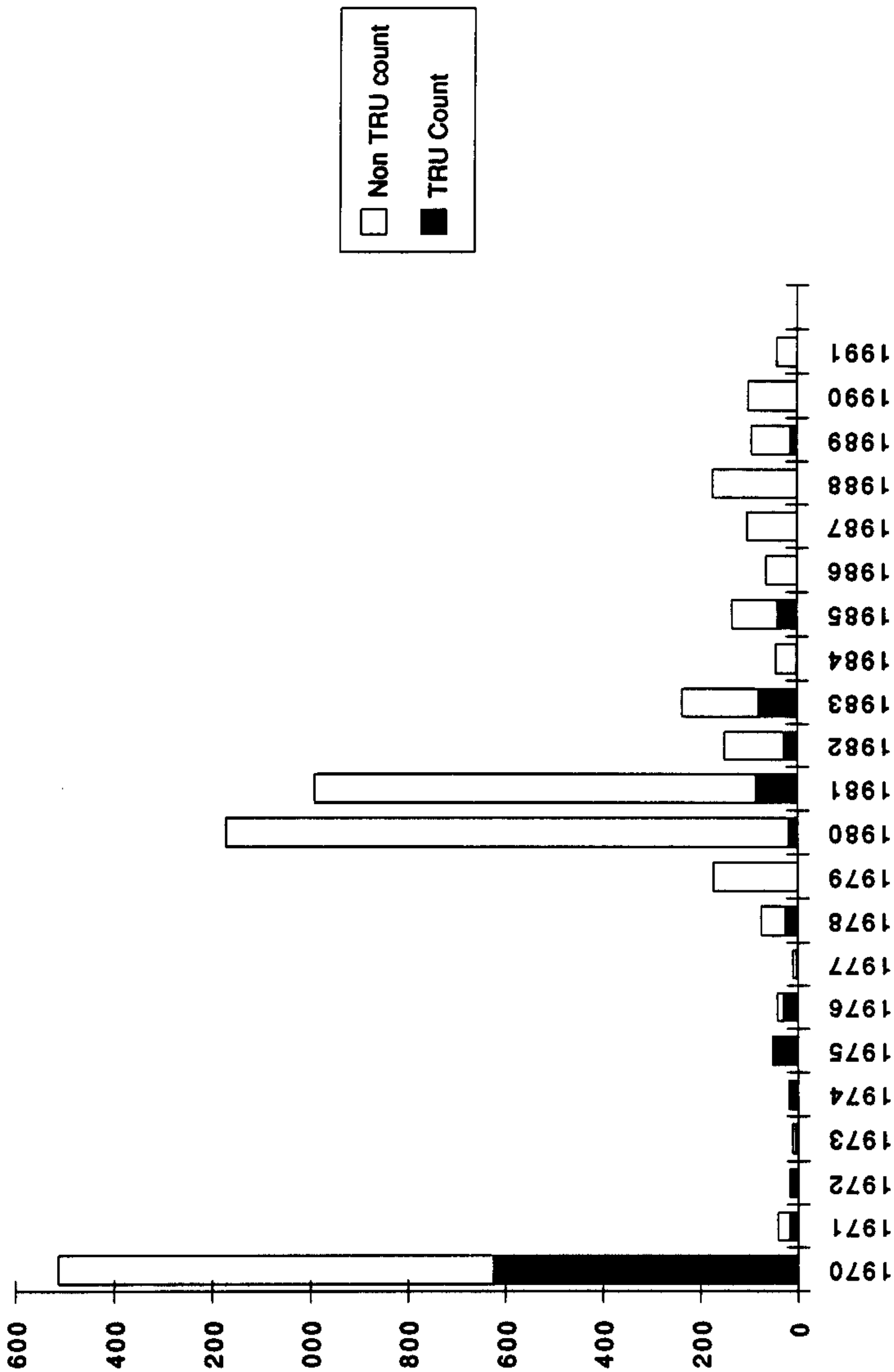

Figure 5-10. Percentage of TRU and Non-TRU Containers Other Than 55-Gallon Drums Generated Annually at the PFP.

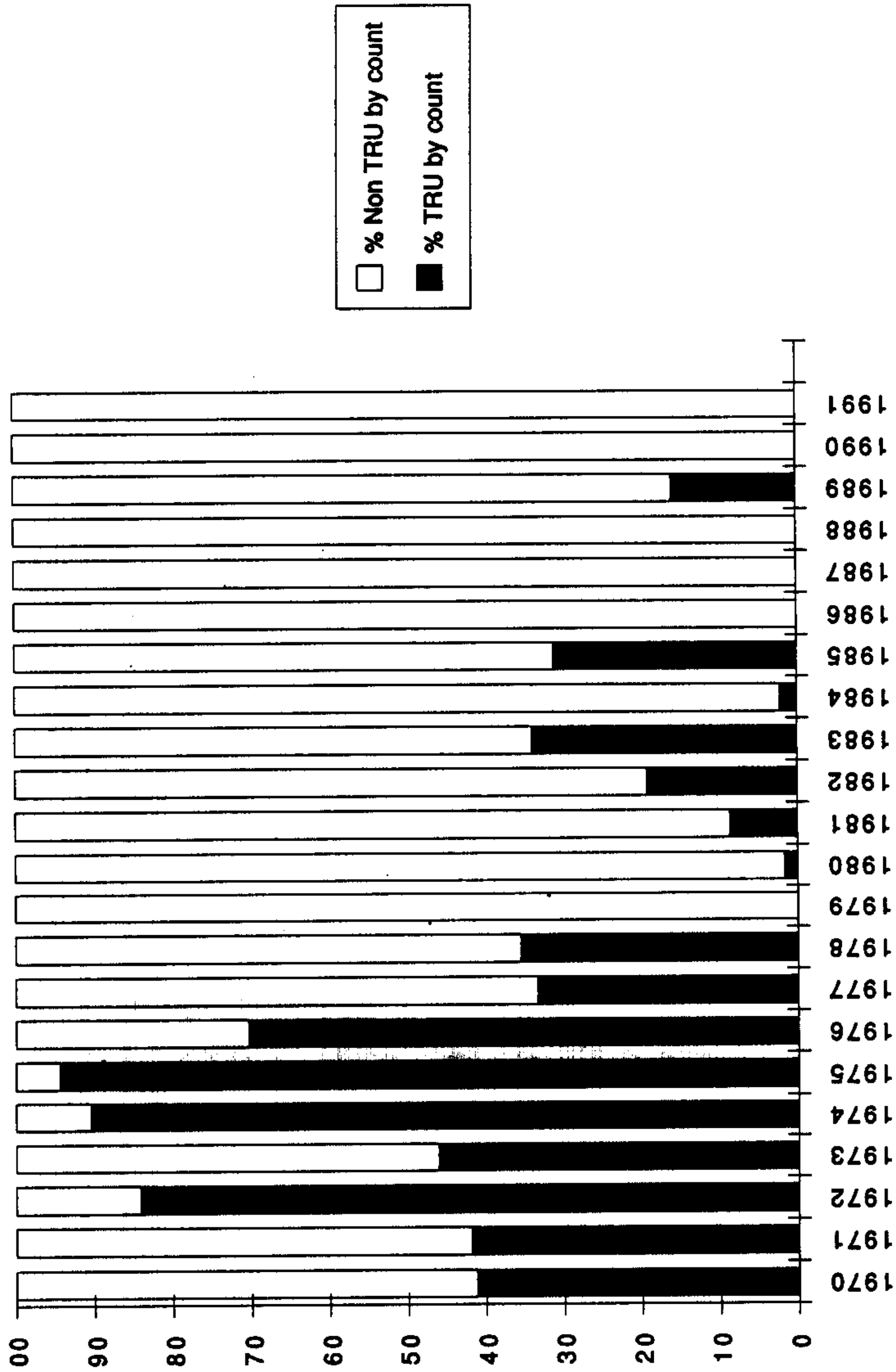

Figure 5-11. Total Weight of Radioactive Waste Stored in Containers Other Than 55-Gallon Drums Generated Annually at the PFP.

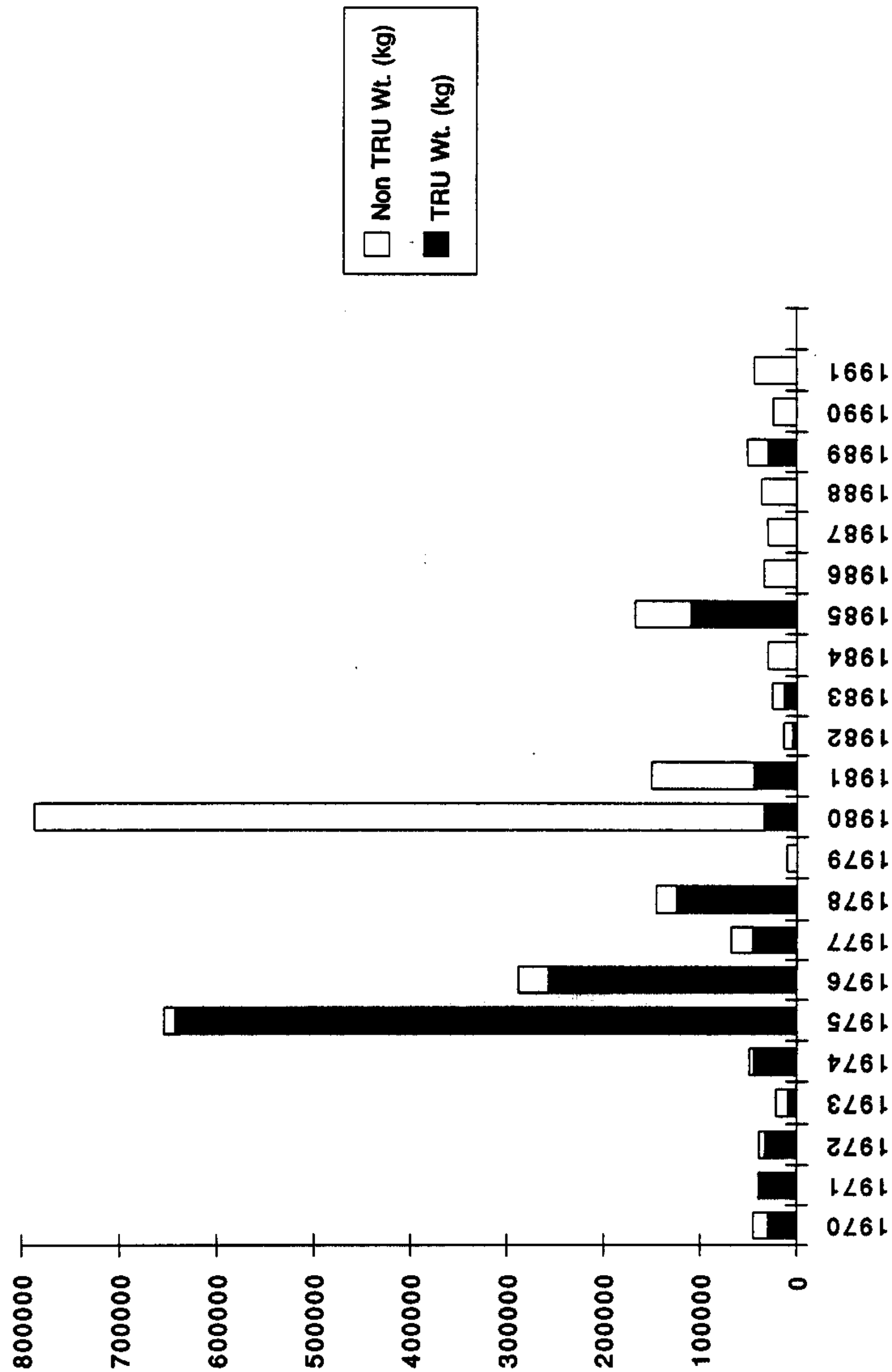

Figure 5-12. Percent Weight of TRU and Non-TRU Containers Other Than 55-Gallon Drums Generated Annually at the PFP.

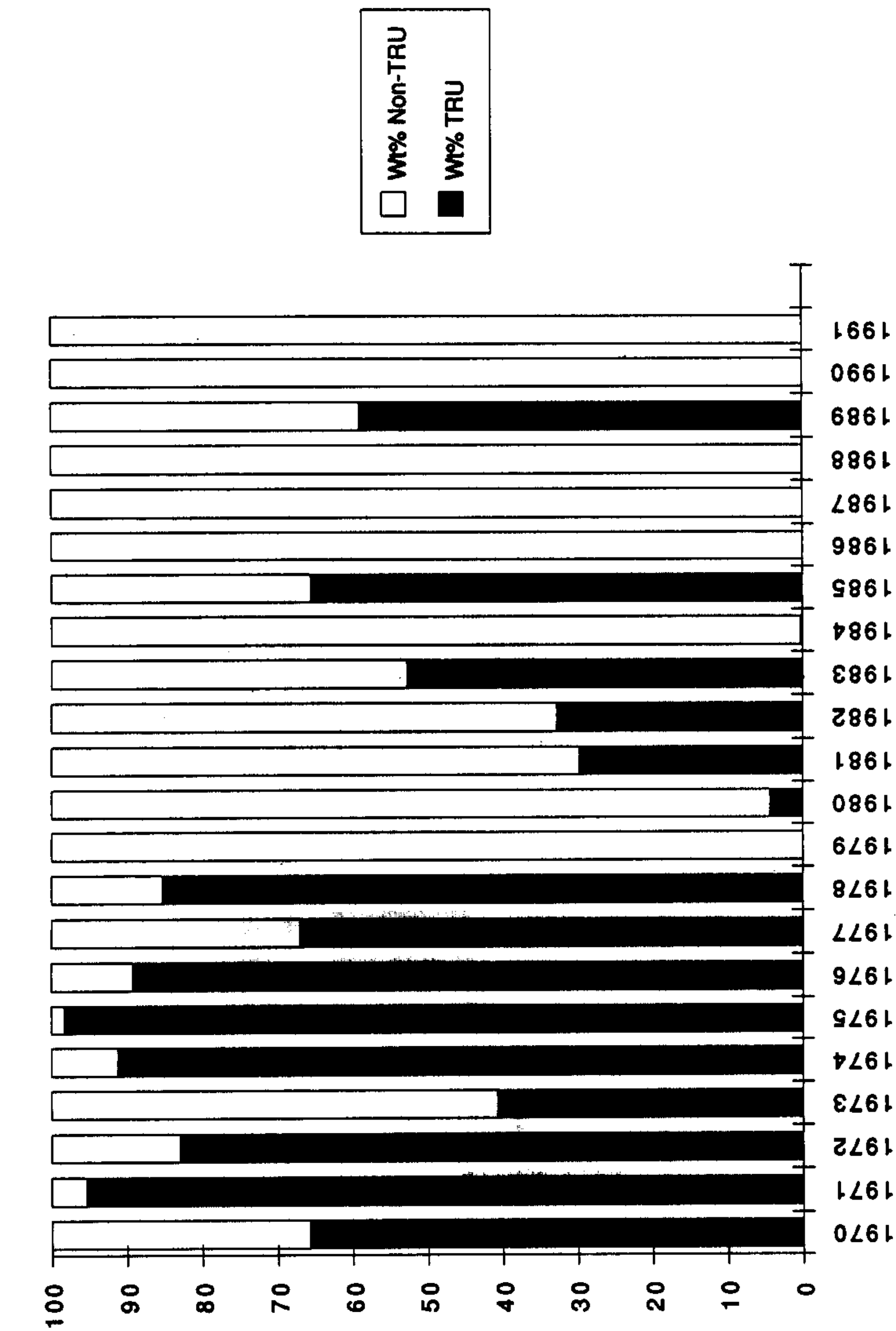

Figure 5-13. Total Number of Waste Containers
Generated by PFP Annually.

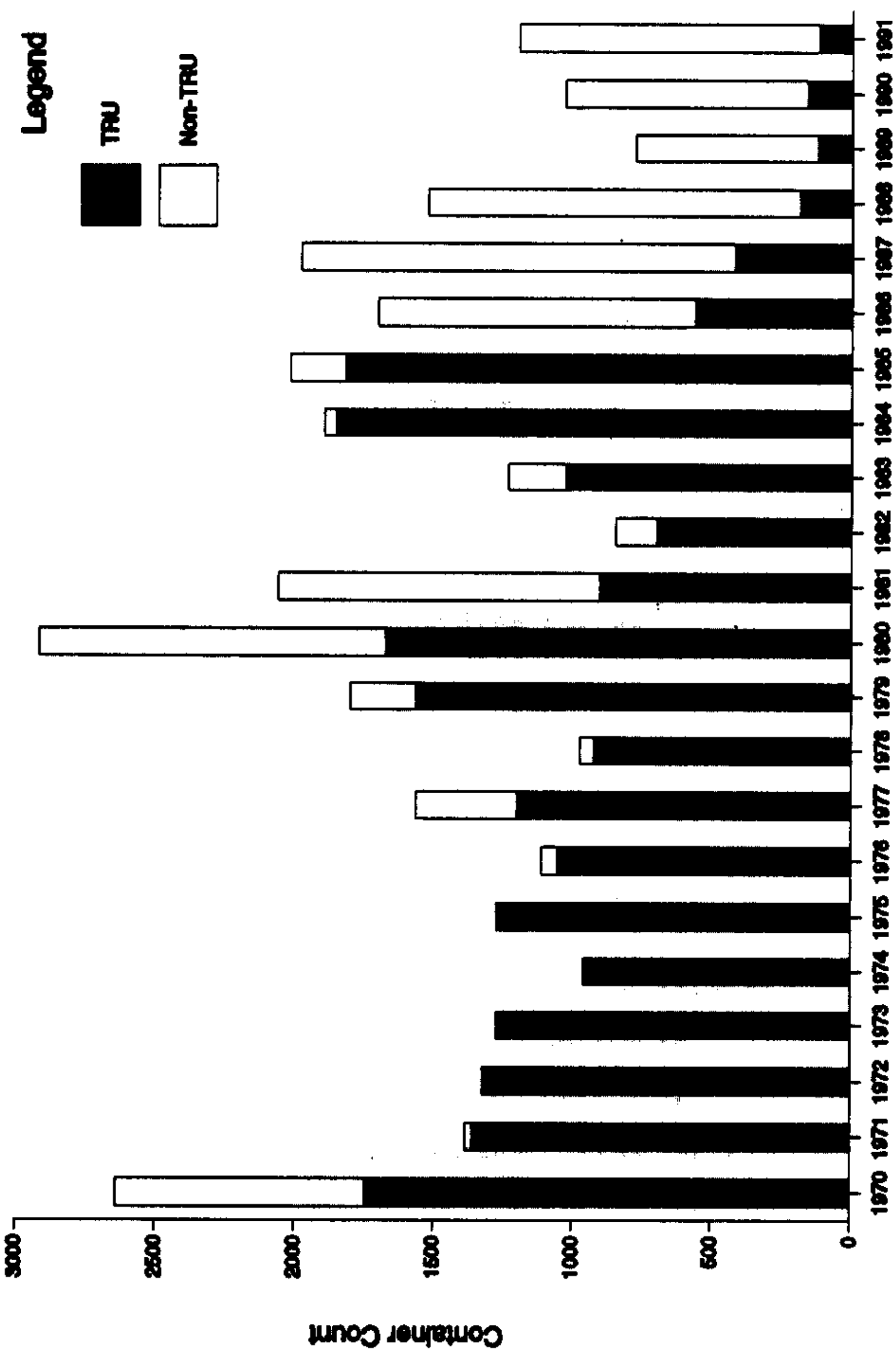

Figure 5-14. Total Weight of Waste Generated by PFP Annually.

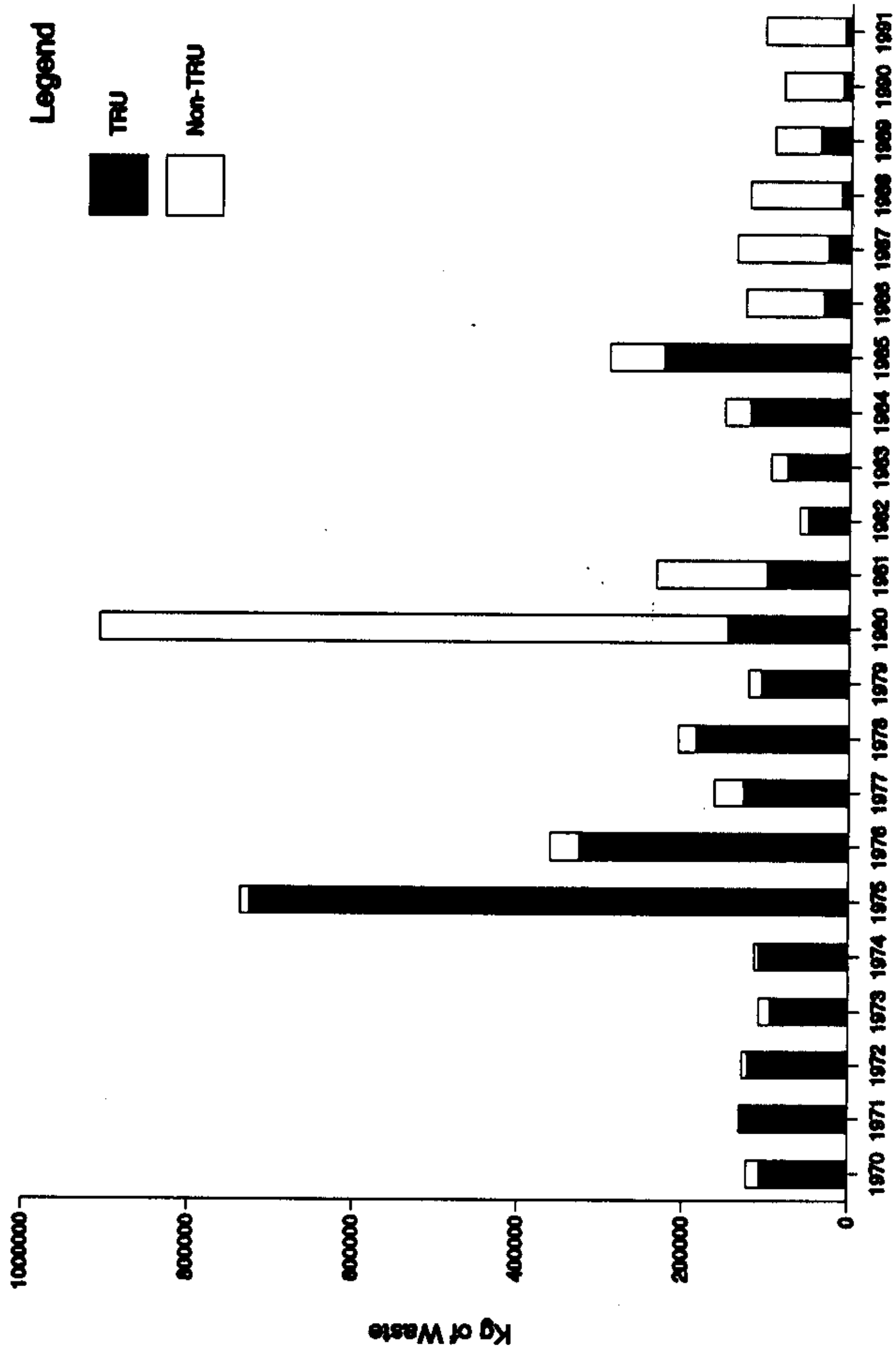

Figure 5-15. Total Volume of Waste Generated by PFP Annually.

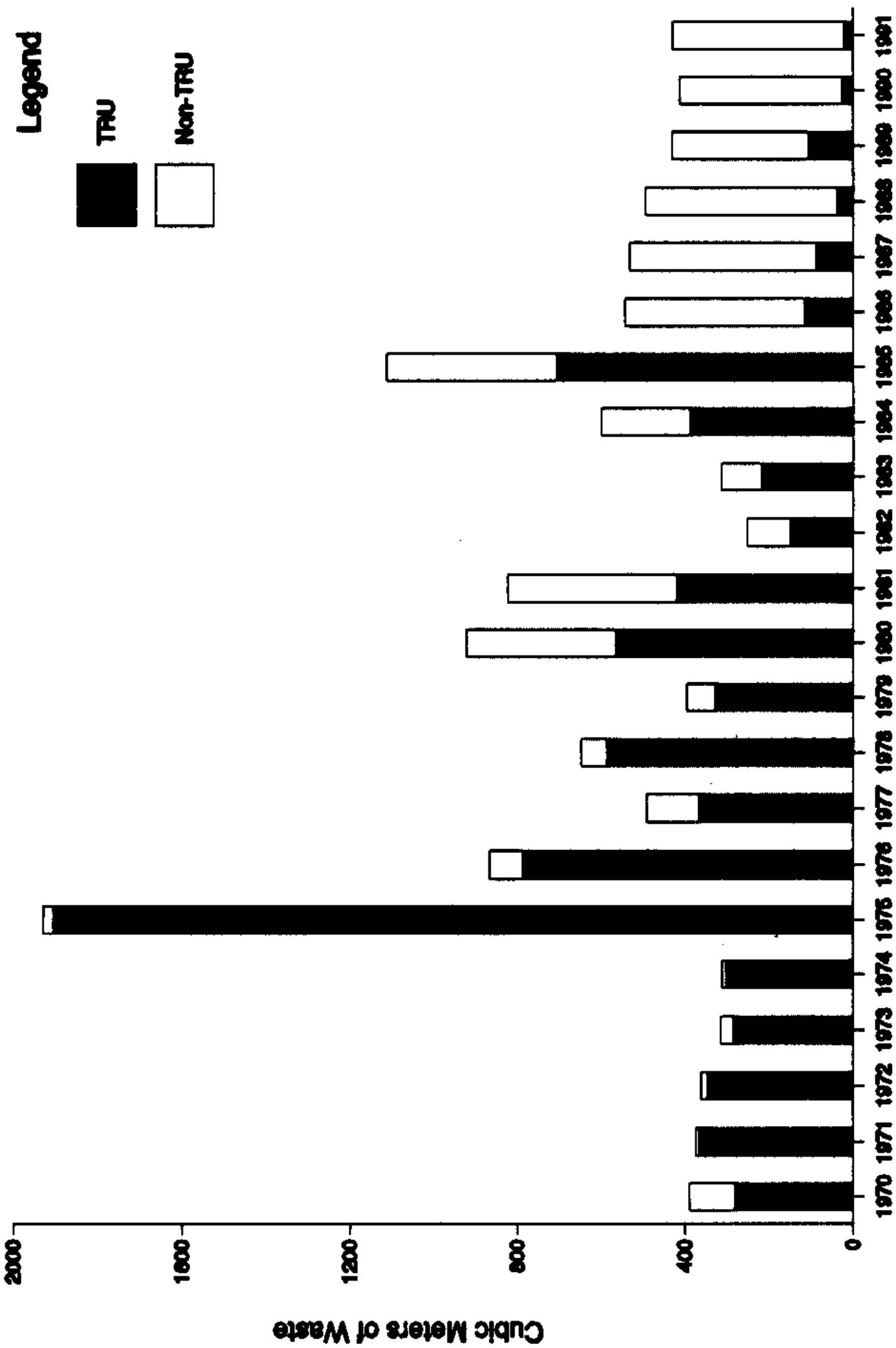

Figure 5-16. Grams of TRU Stored in Waste Generated by PFP.

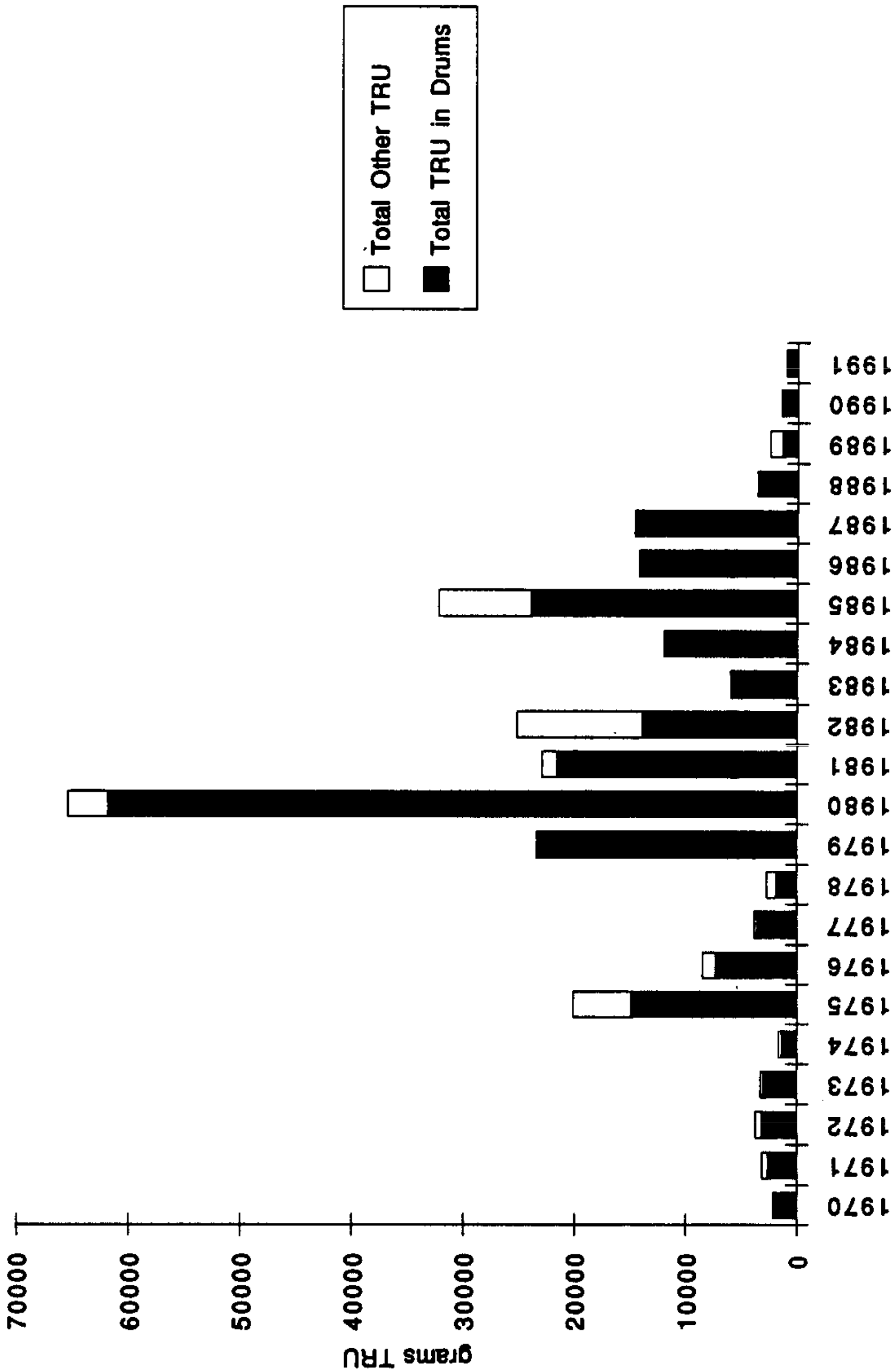

Table 5-1. Waste Summary Data for 55-Gallon Drums Generated at the PFP from 1970 to 1991.

234-5Z Waste Summary Data for 55 Gallon Drums																						
55 Gal. Drums	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
TRU count	1123	1343	1306	1264	942	1222	1025	1199	900	1569	1658	819	672	949	1855	1782	564	422	190	109	161	122
TRU Wt. (kg)	76409	91357	88860	86071	64094	83145	69657	81444	61236	106746	112897	55819	45650	62774	121391	115894	33501	28650	12349	8085	11351	8680
TRU Vol. (m3)	236	282	274	266	198	257	215	252	189	329	348	172	141	200	390	374	118	89	40	23	28	22
TRU MW count													6	4	3	27	0	0	10	43	21	18
Non TRU count	3	0	0	0	0	0	43	355	0	60	92	255	25	51	0	106	1078	1459	1165	575	771	1035
Non TRU Wt. (kg)	204	0	0	0	0	0	4037	12741	0	3512	7574	27337	1173	7438	0	8285	59198	78666	73283	34203	45648	51445
Non TRU Vol. (m3)	1	0	0	0	0	0	9	74	0	13	20	54	5	11	0	22	226	307	246	121	173	221
% TRU by count	100	100	100	100	100	100	96	77	100	96	95	76	96	95	100	94	34	22	14	16	17	11
% Non TRU by count	0.27	0	0	0	0	0	4	23	0	4	5	24	4	5	0	6	66	78	86	84	83	89
Wt% TRU	100	100	100	100	100	100	95	86	100	97	94	67	97	89	100	93	36	27	14	19	20	14
Wt% Non-TRU	0.27	0	0	0	0	0	5	14	0	3	6	33	3	11	0	7	64	73	86	81	80	86
Vol% TRU	100	100	100	100	100	100	96	77	100	96	95	76	96	95	100	94	34	22	14	16	14	9
Vol% Non TRU	0.27	0	0	0	0	0	4	23	0	4	5	24	4	5	0	6	66	78	86	84	86	91
% of TRU Drums that are TRU MW by count													1	0.42	0.16	2	0	0	5	39	13	15

Table 5-2. PFP 55-Gallon Drums Over 150 Kilograms. (2 sheets)

Year	Container identification	Drum weight (kg)	TRU waste (g)	Physical contents	Hazardous components
1984	A11392	162	1.00	Metal/iron/galvanized/sheet	
	A11478	189	6.00	Metal/iron/galvanized/sheet	
	A11778	159	1.00	Metal/iron/galvanized/sheet	
	A11787	180	1.00	Metal/iron/galvanized/sheet	
1985	A11608	178	179.00	Metal/iron/galvanized/sheet/ plastic/polyurethane	
	A12236	150	125.00	Plastic/polyurethane	
	A12615	192	1.00	Paper/cardboard	
	A12764	150	1.00	Metal/iron/galvanized/sheet	
	A13135	165	82.00	Plastic/polyurethane	
	A13200	177	1.00	Dirt/soil/diatomaceous earth	
	A13201	154	2.00	Dirt/soil/diatomaceous earth	
	A13203	154	1.00	Dirt/soil/diatomaceous earth	
	A13205	182	1.00	Dirt/soil/diatomaceous earth	
	A13209	159	3.00	Dirt/soil/diatomaceous earth	
	A13220	177	1.00	Dirt/soil/diatomaceous earth	
	A13237	216	1.00	Metal/iron/galvanized/sheet	
1986	A14053	153	123.00	Metal/iron/galvanized/sheet	
	A15015	155	145.00	Metal/iron/galvanized/sheet	
	A10107	154	103.00	Metal/iron/galvanized/sheet	
1987	A17826	193	24.00	Metal/iron/galvanized/sheet	

Table 5-2. PFP 55-Gallon Drums Over 150 Kilograms. (2 sheets)

Year	Container identification	Drum weight (kg)	TRU waste (g)	Physical contents	Hazardous components
1990	220-A20220	208	26.00	Lead	Lead, acid
	212-A21207	152	39.00	Lead shielding	Lead, lead chromate
	220-A21295	150	44.00	Rubber/lead	Lead, lead chromate, lead acid, barium, cadmium, mercury
1992	RHZ-213-A22341	173	13.00	Rubber/hazardous constituents	Lead, lead chromate
	RHZ-218-A22350	150	20.00	Plastic/polyurethane	Barium, cadmium, mercury
	RHZ-213-A22515	154	74.90	Hazardous constituents	Lead, lead chromate, barium, cadmium, mercury

TRU = Transuranic.

Table 5-3. Waste Summary Data for Containers Other Than 55-Gallon Drums Generated at the PFP from 1970 to 1991.

234-5Z TRU Waste Summary Data for other containers (not 55 gal drums)	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
TRU Count	625	18	16	6	19	51	31	4	27	0	20	86	29	80	1	42	0	0	0	15	0	0
TRU Wt. (kg)	29996	38446	33117	9006	45099	643173	257352	45985	124427	0	34638	44912	4760	13528	86	109829	0	0	0	30100	0	0
TRU Vol. (m3)	47	86	74	20	105	1650	575	116	399	0	218	249	10	20	0.21	333	0	0	0	85	0	0
TRU MW count						1						7	3							15		
Non TRU count	890	25	3	7	2	3	13	8	49	174	1151	904	122	156	44	93	64	103	173	79	101	43
Non TRU Wt. (kg)	15597	1868	6782	13106	4344	11226	31056	22587	21423	10863	753601	106053	9753	12099	30309	57588	34473	30543	36879	20820	24866	44365
Non TRU Vol. (m3)	107	7	15	30	10	25	69	50	61	55	338	349	96	84	211	385	200	197	210	203	213	187
% TRU by count	41	42	84	46	90	94	70	33	36	0	2	9	19	34	2	31	0	0	0	16	0	0
% Non TRU by count	59	58	16	54	10	6	30	67	64	100	98	91	81	66	98	69	100	100	100	84	100	100
Wt% TRU	66	95	83	41	91	98	89	67	85	0	4	30	33	53	0	66	0	0	0	59	0	0
Wt% Non-TRU	34	5	17	59	9	2	11	33	15	100	96	70	67	47	100	34	100	100	100	41	100	100
Vol% TRU	30	92	83	41	92	99	89	70	87	0	39	42	10	19	0	46	0	0	0	29	0	0
Vol% Non TRU	70	8	17	59	8	1	11	30	13	100	61	58	90	81	100	54	100	100	100	71	100	100
% TRU Containers that are TRU MW by count						2						8	10							100		

Table 5-4. Summary of Low-Level Waste Generated at 234-5Z from 1970 through 1991.

Container type	Number	Weight (kg)
55-gal steel drums	7395	426,968.37
Burlap, cloth, paper, or plastic bags	772	34,465.02
Concrete boxes (1970 only)	10	331.12
Dump trucks	24	3,149.02
Fiberboard/plastic boxes, cartons, and cases	1235	15,857.06
Gloveboxes (1976 and 1981)	3	2,626.28
HEPA filters	365	11,206.44
Metal boxes, cartons, and cases	87	23,036.94
Metal drums, barrels, and kegs (other than 55-gal drums)	514	43,898.93
Miscellaneous scrap	122	24,600.01
Self-contained equipment	817	59,019.76
Portable tanks	4	734.82
Trucks, flatbeds, compactors, and loadluggers	201	326,525.07
Wooden boxes, cartons, and cases	71	69,156.63
Total	11,620	1,069,921.47

HEPA = High-efficiency particulate air.

Table 5-5. TRU Waste Generated at 234-5Z by Container Type and Year. (5 sheets)

Container type	Container size	Container number	Percent of total	Total container weight (kg)	Percent weight	Volume	Percent volume
1970							
Burlap, cloth, paper, or plastic bags	N/A	6	0.3	130	0.1		
Concrete boxes	N/A	1	0.1	20,638	19.4	46.02	16.3
Fiberboard/plastic boxes, cartons, cases	2 ft^3 Unknown	4 523	0.2 29.9	22 6,641	<0.1 6.2		
Gloveboxes	N/A						
Metal drums, barrels, kegs	55 gal 30 gal 5 gal	1,123 8 55	64.2 0.5 3.2	76,409 327 1,247	71.8 0.3 1.2	235.83 0.93	83.4 0.3
Miscellaneous scrap	N/A	1	0.1	25	>0.1		
Self-contained equipment	N/A	26	1.5	920	0.9		
Trucks, flatbeds, compactors, loadlugger	N/A	1	0.1	45	<0.1		
Total		1,748		106,404		282.78	
1971							
Gloveboxes	N/A	2	0.2	4,877	3.8	10.87	3.0
Metal boxes, cartons, cases	3*3*4 3*5*8 4*4*5 4*6*16.5 5*7*17 Unknown	3 1 1 1 1 1	0.2 0.1 0.1 0.1 0.1 0.1	1,372 1,524 1,016 5,030 7,557 3,048	1.1 1.2 0.8 3.9 5.8 2.4	3.06 3.40 2.27 11.21 16.85 6.80	0.8 0.9 0.6 3.0 4.6 1.9
Metal drums, barrels, kegs	30 gal 55 gal	5 1,343	0.4 98.7	204 91,357	0.2 70.4	8,203 0.58	76.7 0.2
Self-contained equipment	N/A	2	0.2	3,658	2.8	8.16	2.2
Wooden boxes, cartons, cases	4*5*6	1	0.1	10,160	7.8	22.65	6.2
Total		1,361		129,803		8,288.85	
1972							
Gloveboxes	N/A	4	0.3	6,096	5.0	3.40	1.0
Metal boxes, cartons, cases	80.8 ft^3 115 ft^3 149 ft^3 156 ft^3 197 ft^3 252 ft^3 269 ft^3 3*4*10 4*5.5*16 4*5*6*10	1 1 1 2 1 1 1 1 1 1	0.1 0.1 0.1 0.2 0.1 0.1 0.1 0.1 0.1 0.1	1,026 1,461 1,892 3,963 2,502 3,201 3,416 1,524 4,471 3,429	0.8 1.2 1.6 3.3 2.1 2.6 2.8 1.2 3.7 2.8	2.29 3.26 4.22 8.83 5.58 7.14 7.62 3.40 9.97 7.65	0.7 1.0 1.3 2.6 1.7 2.1 2.3 1.0 3.0 2.3
Metal drums, barrels, kegs	55 gal 110 gal	1,306 1	98.8 0.1	88,860 136	72.9 0.1	274.26 0.42	81.1 0.1
Total		1,322		121,977		338.04	

Table 5-5. TRU Waste Generated at 234-5Z by Container Type and Year. (5 sheets)

Container type	Container size	Container number	Percent of total	Total container weight (kg)	Percent weight	Volume	Percent volume
1973							
Metal boxes, cartons, cases	197 ft^3 4*6*10	1 2	0.1 0.2	2,502 6,096	2.6 6.4	5.58 13.59	2.0 4.8
Metal drums, barrels, kegs	55 gal 110 gal	1,264 3	99.5 0.2	86,071 408	90.5 0.4	265.65 1.26	92.9 0.4
Total		1,270		95,077		286.08	
1974							
Metal boxes, cartons, cases	2*3*15 3*4*10 4*6*10 4*8*10 4*8*16 5*10*13 5.2*7.1*10.5 5.2*7.1*16.5	1 1 2 1 1 1 2 1	0.1 0.1 0.2 0.1 0.1 0.1 0.2 0.1	1,143 152 6,096 4,064 6,504 8,255 9,879 7,779	1.1 0.1 5.6 3.7 6.0 7.6 9.1 7.1	2.55 3.40 13.59 9.06 14.50 18.41 22.03 17.34	0.8 1.1 4.5 3. 4.8 6.1 7.3 5.7
Metal drums, barrels, kegs	55 gal 110 gal	942 9	98.0 0.9	64,094 1,225	58.7 1.1	197.82 3.77	65.4 1.3
Total		961		109,191		302.47	
1975							
Fiberglass reinforced polyester boxes	9*10.67*16 10.5*10.7*12 4*4*7 4.83*5*8 6.3*8*14.7 9*10.68*20 9*10.7*12 9*11.6*20	4 1 6 2 1 10 11 6	0.3 0.1 0.5 0.2 0.1 0.8 0.9 0.5	56,050 17,069 8,540 4,923 9,652 20,070 154,946 134,408	10.3 3.3 1.6 0.9 1.8 3.7 28.4 24.6	38.06 19.03 10.93 21.52 173.98 543.91 358.83 59.49	2.4 1.2 0.7 1.4 11.1 34.5 22.8 3.8
Metal boxes, cartons, cases	3.7*6.5*13.2 5.2*7.1*10.5 5.2*7.1*10.5 5.2*7.1*16.5	1 5 1* 3	0.1 0.4 0.1 0.2	3,937 24,698 4,940 23,305	0.7 4.5 0.9 4.3	8.78 11.02 55.08 17.32	0.6 0.7 3.5 1.1
Metal drums, barrels, kegs	55 gal	1,222	96.0	83,145	15.2	256.62	16.3
Total		1,273		545,683		1,574.57	
1976							
Fiberglass reinforced polyester boxes	4*4*7 8*10*16 9*10.67*20 9*10.7*12 9*11.6*20	5 1 7 3 1	0.5 0.1 0.7 0.3 0.1	7,265 17,490 170,790 43,898 16,003	2.2 5.4 52.2 13.4 4.9	16.20 38.99 380.78 97.86 35.68	2.1 4.9 48.2 12.4 4.5
Metal drums, barrels, kegs	55 gal 110 gal	1,025 14	97.1 1.3	69,657 1,905	21.3 0.6	215.25 5.87	27.2 0.7
Total		1,056		327,008		790.63	

Table 5-5. TRU Waste Generated at 234-5Z by Container Type and Year. (5 sheets)

Container type	Container size	Container number	Percent of total	Total container weight (kg)	Percent weight	Volume	Percent volume
1977							
Fiberglass reinforced polyester boxes	8*10*16 9*10.7*12	2 1	0.2 0.1	27,215 12,419	21.4 9.8	72.49 32.62	19.7 8.9
Metal boxes, cartons, cases	5.2*7.1*10.5	1	0.1	6,350	5.0	11.02	3.
Metal drums, barrels, kegs	55 gal	1,199	99.7	81,444	63.9	252.08	68.5
Total		1,203		127,428		368.21	
1978							
Fiberglass reinforced polyester boxes	4*4*7 6.5*8*14.6 6.5*8*18.5 8*8*10.7 9.5*9.9*12	9 9 3 2 1	1.0 1.0 0.3 0.2 0.1	3,629 73,110 25,773 6,917 4,423	2.0 39.4 13.9 3.7 2.4	28.55 193.69 81.38 39.36 32.08	
Metal boxes, cartons, cases	4*4*7 4*6*15	1 2	0.1 0.2	1,432 9,144	0.8 4.9	3.17 20.39	
Metal drums, barrels, kegs	55 gal	900	97.1	61,236	33.0	189.00	
Total		927		185,664		587.62	
1979							
Metal drums, barrels, kegs	55 gal	1,569	100	106,746	100	329.49	100
Total		1,569		106,746		329.49	
1980							
Fiberglass reinforced polyester boxes	4*4*7 9*10.67*16 9*10.7*12	2 4 1	0.1 0.2 0.1	2,343 25,809 4,423	1.6 17.5 3.0	6.34 173.87 32.59	1.1 30.7 5.8
Metal drums, barrels, kegs	55 gal Unknown	1,658 13	98.8 0.8	112,896 2,064	76.5 1.4	348.39 5.45	61.5 1.0
Total		1,678		147,535		566.64	
1981							
Fiberglass reinforced polyester boxes	9*10.67*16	5	0.6	30,254	30.0	217.34	51.6
Metal drums, barrels, kegs	55 gal Unknown Unknown	819 74 7*	90.5 8.2 0.8	55,819 13,082 1,576	55.4 13.0 1.6	172.05 0.89 31.01	40.8 0.2 7.4
Total		905		100,731		421.29	

Table 5-5. TRU Waste Generated at 234-5Z by Container Type and Year. (5 sheets)

Container type	Container size	Container number	Percent of total	Total container weight (kg)	Percent weight	Volume	Percent volume
1982							
Metal drums, barrels, kegs	30 gal	4	0.6	794	1.6	0.53	0.4
	55 gal	665	94.9	45,099	89.5	0.21	0.1
	55 gal	1*	0.1	68	0.1	1.26	0.8
	55 gal	6**	0.9	483	1.0	139.71	92.3
	110 gal	15	2.1	2,041	4.1	6.29	
	Unknown	3*	0.4	544	1.1	0.38	4.2
	Unknown	7	1.0	1,381	2.7	2.93	1.9
Total		701		50,410		151.31	
1983							
Metal boxes, cartons, cases	4*6*10	1	0.1	3,704	5.5	6.99	3.2
Metal drums, barrels, kegs	55 gal	929	90.3	61,249	90.3	3.36	1.5
	55 gal	16*	1.6	1,207	1.8	0.84	0.4
	55 gal	4**	0.4	319	0.5	195.30	88.9
	Unknown	79	7.7	1,381	2.0	13.09	6.0
Total		1,029		67,860		219.58	
1984							
Metal drums, barrels, kegs	55 gal	1,855	99.9	121,391	99.9	389.54	100
Miscellaneous scrap	N/A	1	0.1	86	0.1	0.21	<0.1
Total		1,856		121,477		389.75	
1985							
Metal boxes, cartons, cases	4*4*7	2	0.1	1,471	0.7	5.60	0.85
	6*6*7	2	0.1	2,907	1.3	15.00	2.1
	Unknown	38	2.1	105,451	46.7	312.31	44.2
Metal drums, barrels, kegs	55 gal	1,755	96.2	113,551	50.3	2.73	0.4
	55 gal	13*	0.7	1.2	0.5	2.94	0.4
	55 gal	14**	0.8	3	0.6	368.55	52.1
				1,320			
Total		1,824		224,704.2		707.13	
1986							
Metal drums, barrels, kegs	55 gal	564	100	33,502	100	118.44	100
Total		564		33,502			
1987							
Metal drums, barrels, kegs	55 gal	442	100	28,650	100	88.62	100
Total		442		28,650		88.62	
1988							
Metal drums, barrels, kegs	55 gal	180	94.7	11,649	94.3	2.10	5.3
	55 gal	10**	5.3	700	5.7	37.80	94.7
Total		190		12,349		39.90	

Table 5-5. TRU Waste Generated at 234-5Z by Container Type and Year. (5 sheets)

Container type	Container size	Container number	Percent of total	Total container weight (kg)	Percent weight	Volume	Percent volume
1989							
Metal boxes, cartons, cases	149 ft^3 4*4*7 4*4*7 4.5*4.5*7.3 5.6*6.5*9.3 6*6*7 6*6*7	1* 1* 1** 5** 4** 1* 1**	0.8 0.8 0.8 4.0 3.2 0.8 0.8	1,361 1,043 1,724 9,344 11,884 2,177 2,449	3.6 2.7 4.5 24.5 31.1 5.7 6.4	3.17 3.17 21.03 38.44 7.14 7.14 4.21	3.0 3.0 19.6 35.8 6.6 6.6 3.9
Metal drums, barrels, kegs	55 gal 55 gal 55 gal 85 gal	66 37* 6** 1*	53.2 29.8 4.8 0.8	4,393 3,254 439 118	11.5 8.5 1.2 0.3	7.77 1.26 13.86 0.28	7.2 1.2 12.9 0.9
Total		124		38,186		107.47	
1990							
Metal drums, barrels, kegs	55 gal 55 gal 55 gal	140 20* 1**	87.0 12.4 0.6	8,836 123 46	98.1 1.4 0.5	4.20 0.21 23.52[1]	
Total		161	100	9,005	100		
1991							
Metal drums, barrels, kegs	55 gal 55 gal	104 18*	85.3 14.8	6,968 1,712	80.3 19.7	3.77 18.45[2]	17.0 83.0
Total		122		8,680		22.22	

NOTE: To convert from gallons to liters multiply by 3.785. To convert from cubic feet to cubic meters multiply by 2,831,685 E-02.

[1]This volume is based on 112 55-gal drums.

[2]This volume is based on eighty eight 55-gal drums.

* = Mixed waste.

** = Mixed waste with PCBs.

NA = Not applicable.

PCB = Polychlorinated biphenyls.

Table 5-6. TRU Waste in 55-Gallon Drums: Drum Count by Storage Facility.

234-5Z TRU Waste in 55 Gallon Drums: Drum Count Stored by Location																						
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
218W3A	1112	537													1							
218W4B		806	1306	1264	942	1222	1025	1199														
218W4C									900	1569	1658	819	666	945	1854	1768	445	10	11		53	18
218W5																					1	
224-T																	119	412	169	100	106	104
2401-W													6	4		14			10	8	1	
2402W																						
2402WB																				1		
FSB																						
Total	1112	1343	1306	1264	942	1222	1025	1199	900	1569	1658	819	672	949	1855	1782	564	422	190	109	161	122

Table 5-7. TRU Waste in Containers Other Than 55-Gallon Drums: Container Count by Storage Facility.

234-5Z TRU Waste in Containers Other than 55 Gal. Drums: Container Count Stored by Location	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
218W3A	8	1				46	14	4	24													
218W4B	1	17	16	6	19	5	17		3													
218W4C											20	86	29	80	1	42						
218W5																						
224-T																						
2401-W																				11		
2402W																				2		
2402WB																				1		
FS8																				1		
Total	9	18	16	6	19	51	31	4	27	0	20	86	29	80	1	42	0	0	0	15	0	0

Table 5-8. Distribution and Percentage of TRU 55-Gallon Drum Physical Contents by Storage Location — 218W3A.

Distribution of PFP TRU 55 gallon Drum Physical Contents by Storage Location - 218W3A - drum count	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Metal/Iron/Galv/Sheet															1							
Misc/Unknown/Other	1112	537																				

Percent of TRU 55 gallon drums from PFP stored at 218W3A by year and physical contents	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Metal/Iron/Galv/Sheet															100							
Misc/Unknown/Other	100	100																				

Table 5-9. Distribution and Percentage of TRU 55-Gallon Drum Physical Contents by Storage Location — 218W4B.

Distribution of PFP TRU 55 gallon Drum Physical Contents by Storage Location - 218W4B - drum count

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Misc/Unknown/Other		806	1306	1264	942	1222	1025	1200														

Percent of TRU 55 gallon drums from PFP stored at 218W4B by year and physical contents

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Misc/Unknown/Other		100	100	100	100	100	100	100														

Table 5-10. Distribution and Percentage of TRU 55-Gallon Drum Physical Contents by Storage Location — 218W4C. (2 sheets)

Distribution of PFP TRU 55 gallon Drum Physical Contents by Storage Location - 218W4C - drum count																						
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Abs/KLtr/Vermiculite												59	35			11	16					
Air													16									
Aluminum																1						
Asbestos																10	5	1				
Ashes												26	37			2						
Cement																12						
Ceramics																4						
Cloth/rags/nylon									3	12	1104	323	98	25	972	1225	298	4	1		26	2
Concrete											7	22	2		9	14	2					
Conweb Pads																9	2					
Copper Metal														4			2					
Cork																	25					
Dirt/soil/diatomaceous												9				15	38	3	8		26	2
Fiberglass												7					2					
Filters											1	7	4									
Floor sweeps												7										
Floor tile																	2					
Foam/styrofoam																2						
Glass										58	253	138	77	98	380	295	150		1		1	1
Leather																4	1					
Metal/Iron/Galv/Sheet										66	449	353	246	193	559	374	228	8	5		3	1
Misc/Uknown/Other									897	1491	9											
Oils																9						
Organics													1	12	4							
Paints/Lucite												1				1						
Paper/cardboard									3	12	1150	411	415	741	1611	1511	418	10	11		26	2
Plastic/polyurethane									3	12	1148	660	469	886	1820	1745	443	10	11		26	2
Resins																	1					
Rubber									3	12	1057	470	402	722	1500	1515	399	7	4		26	2
Sand																	5					
Silica gel													19									
Sludges												26										
Stainless Steel															1	13	41					
Wood/lumber/plywood											20	11	6		20	36	18	9	9		3	

Table 5-10. Distribution and Percentage of TRU 55-Gallon Drum Physical Contents by Storage Location — 218W4C. (2 sheets)

Percent of TRU 55 gallon drums from PFP stored at 218W4C by year and physical contents

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Abs/KLtr/Vermiculite												7	5			1	4					0
Air													2									
Aluminum																0.06						
Asbestos																1	1	10				
Ashes												3	6			0.11						
Cement																1						
Ceramics																0.23						
Cloth/rags/nylon									0	1	67	39	15	3	52	69	67	40	9		49	11
Concrete											0	3	0		0	1	0					
Conweb Pads																1	0				0	
Copper Metal														0			0				0	
Cork																	6					
Dirt/soil/diatomaceous												1				1	9	30	73		49	11
Fiberglass												1					0.45					
Filters											0.06	1	1									
Floor sweeps												1										
Floor tile																	0					
Foam/styrofoam																0						
Glass										4	15	17	12	10	20	17	34		9		2	6
Leather																0.23	0.22					
Metal/Iron/Galv/Sheet										4	27	43	37	20	30	21	51	80	45		6	6
Misc/Uknown/Other									100	95	1											
Oils																1						
Organics													0.15	1	0.22							
Paints/Lucite												0.12				0.06						
Paper/cardboard									0	1	69	50	62	78	87	85	94	100	100		49	11
Plastic/polyurethane									0	1	69	81	70	94	98	99	100	100	100		49	11
Resins																	0.22					
Rubber									0	1	64	57	60	76	81	86	90	70	36		49	11
Sand																	1					
Silica gel													3									
Sludges												3										
Stainless Steel															0.05	1	9					
Wood/lumber/plywood											1	1	1		1	2	4	90	82		6	
Unidentified																						0

Table 5-11. Distribution and Percentage of TRU 55-Gallon Drum Physical Contents by Storage Location — 218W5.

Distribution of PFP TRU 55 gallon Drum Physical Contents by Storage Location - 218W5 - drum count

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Cloth/rags/nylon																					1	
Dirt/soil/diatomaceous																					1	
Paper/cardboard																					1	
Plastic/polyurethane																					1	
Rubber																					1	

Percent of TRU 55 gallon drums from PFP stored at 218W5 by year and physical contents

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Cloth/rags/nylon																					100	
Dirt/soil/diatomaceous																					100	
Paper/cardboard																					100	
Plastic/polyurethane																					100	
Rubber																					100	

Table 5-12. Distribution and Percentage of TRU 55-Gallon Drum Physical Contents by Storage Location — 224T. (2 sheets)

Distribution of PFP TRU 55 gallon Drum Physical Contents by Storage Location - 224T - drum count

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Abs/KLtr/Vermiculite																		2		4	1	
Aluminum																				1		
Asbestos																				1		
Batteries																					1	
Brick/firebrick																	1					
Carborundum																						1
Cement																			1	2		
Ceramics																	2		1			
Cloth/rags/nylon																	81	298	130	60	78	85
Concrete																		7				
Conweb Pads																				10	2	1
Cork																	13	9	3	1	1	8
Dirt/soil/diatomaceous																	60	354	157	82	103	104
Fiberglass																					1	
Glass																	48	173	86	26	20	53
Graphite																		1				
Grout																						1
Hazardous Constituents																					7	14
Insulation Non-asbestos																		1		1		
Lead																				21	15	4
Lead shielding																					3	
Leather																	2	2		2	2	
Mercury																					1	
Metal/Iron/Galv/Sheet																	102	319	133	58	64	87
Misc/Uknown/Other																		5	8			
Organics																				6		
Paints/Lucite																						4
Paper/cardboard																	108	351	160	75	90	89
Plastic/polyurethane																	119	407	164	99	104	103
Resins																						1
Rubber																	114	361	157	85	92	93
Sand																			1		1	
Stainless Steel																		9	3	4	6	
Wood/lumber/plywood																	1	7	6	11	15	17

Table 5-12. Distribution and Percentage of TRU 55-Gallon Drum Physical Contents by Storage Location — 224T. (2 sheets)

Percent of TRU 55 gallon drums from PFP stored at 224T by year and physical contents

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Abs/KLtr/Vermiculite																		0		4	1	
Aluminum																				1		
Asbestos																				1		
Batteries																					1	
Brick/firebrick																	1					
Carborundum																						1
Cement																			1	2		
Ceramics																	2		1			
Cloth/rags/nylon																	68	72	77	60	74	82
Concrete																		2				
Conweb Pads																				10	2	1
Cork																	11	2	2	1	1	8
Dirt/soil/diatomaceous																	50	86	93	82	97	100
Fiberglass																					3	
Glass																	40	42	51	26	19	51
Graphite																		0.24				
Grout																						1
Hazardous Constituents																					7	13
Insulation Non-asbestos																		0.24		1		
Lead																				21	14	4
Lead shielding																					3	
Leather																	2	0		2	2	
Mercury																					1	
Metal/Iron/Galv/Sheet																	86	77	79	58	60	84
Misc/Uknown/Other																		1	5			
Organics																				6		
Paints/Lucite																						4
Paper/cardboard																	91	85	95	75	85	86
Plastic/polyurethane																	100	99	97	99	98	99
Resins																						1
Rubber																	96	88	93	85	87	89
Sand																			1		1	
Stainless Steel																		2	2	4	6	
Wood/lumber/plywood																	1	2	4	11	14	16

Table 5-13. Distribution and Percentage of TRU 55-Gallon Drum Physical Contents by Storage Location — 2401W.

Distribution of PFP TRU 55 gallon Drum Physical Contents by Storage Location - 2401W - drum count	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Abs/KLtr/Vermiculite													4							3		
Cloth/rags/nylon																			5	3		
Conweb pads														4						6	1	
Dirt/soil/diatomaceous																				3		
Lead																				1		
Metal/iron/galv./sheet																			1	3		
Oils													4			14				2	1	
Organics																			10			
Paper/cardboard													2			14				1		
PCB																					1	
Plastic/polyurethane													2			14			10	8	1	
Rubber													2						3	4		
Wood/lumber/plywood																				1		

Percent of TRU 55 gallon drums from PFP stored at 2401W by year and physical contents	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Abs/KLtr/Vermiculite													67							38		
Cloth/rags/nylon																			50	38		
Conweb pads														100						75	100	
Dirt/soil/diatomaceous																				38		
Lead																				13		
Metal/iron/galv./sheet																			10	38		
Oils													67			100				25	100	
Organics																			100			
Paper/cardboard													33			100				13		
PCB																					100	
Plastic/polyurethane													33			100			100	100	100	
Rubber													33						30	50		
Wood/lumber/plywood																				13		

Table 5-14. Distribution and Percentage of TRU 55-Gallon Drum Physical Contents by Storage Location — 2402WB.

Distribution of PFP TRU 55 gallon Drum Physical Contents by Storage Location - 2402WB - drum count

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Chemicals																				1		
Cloth/rags/nylon																				1		
Dirt/soil/diatomaceous																				1		
Metal/iron/galv./sheet																				1		
Plastic/polyurethane																				1		
Rubber																				1		

Percent of TRU 55 gallon drums from PFP stored at 2402WB by year and physical contents

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Chemicals																				100		
Cloth/rags/nylon																				100		
Dirt/soil/diatomaceous																				100		
Metal/iron/galv./sheet																				100		
Plastic/polyurethane																				100		
Rubber																				100		

Table 5-15. Distribution and Percentage of TRU Container Physical Contents by Storage Location — 218 W3A.

Distribution of PFP TRU Other Container Physical Contents by Storage Location - 218W3A - container count	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Misc./Unknown/Other	8	1			1	46	14	4	24													

Percent of TRU Other Containers from PFP stored at 218W3A by year and physical contents	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Misc./Unknown/Other	100	100			13	100	100	100	100													

Table 5-16. Distribution and Percentage of TRU Container Physical Contents by Storage Location — 218 W4B.

Distribution of PFP TRU Other Container Physical Contents by Storage Location - 218W4B - container count																						
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Misc./Unknown/Other	1	17	16	6	18	5	17		3													

Percent of TRU Other Containers from PFP stored at 218W3A by year and physical contents																						
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Misc./Unknown/Other		100	100			100			100													

Table 5-17. Distribution and Percentage of TRU Container Physical Contents by Storage Location — 218 W4C.

Distribution of PFP TRU Other Container Physical Contents by Storage Location - 218W4C - container count	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Abs/KLtr/Vermiculite																2						
Aluminum																1						
Cement																1						
Cloth/rags/nylon																2						
Concrete													1									
Filters																4						
Glass											1					5						
Metal/iron/galv/sheet											20	52	25	80	1	30						
Paper/cardboard											2	3				8						
Plastic/polyurethane											6	68	5		1	36						
Plexiglass														1								
Rubber														1		1						
Sand																1						
Silica Gel												5	2									
Stainless Steel																24						
Teflon													4									
Wood/lumber/plywood											4	3				10						

Percent of TRU Other Containers from PFP stored at 218W4C by year and physical contents	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Abs/KLtr/Vermiculite																5						
Aluminum																2						
Cement																2						
Cloth/rags/nylon																5						
Concrete													3									
Filters																10						
Glass											5					12						
Metal/iron/galv/sheet											100	60	86	100	100	71						
Paper/cardboard											10	3				19						
Plastic/polyurethane											30	79	17		100	86						
Plexiglass														1								
Rubber														1		2						
Sand																2						
Silica Gel												6	7									
Stainless Steel																57						
Teflon													14									
Wood/lumber/plywood											20	3				24						

Table 5-18. Distribution and Percentage of TRU Container Physical Contents by Storage Location — 2401W.

Distribution of PFP TRU Other Container Physical Contents by Storage Location - 2401W - container count	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Cloth/rags/nylon																				3		
Concrete																				1		
Glass																				7		
Lead																				4		
Metal/iron/galv./sheet																				11		
Oils																				3		
Paper/cardboard																				1		
Plastic/polyurethane																				11		
Wood/lumber/plywood																				8		

Percent of TRU Other Containers from PFP stored at 2401W by year and physical contents	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Cloth/rags/nylon																				27		
Concrete																				9		
Glass																				64		
Lead																				36		
Metal/iron/galv./sheet																				100		
Oils																				27		
Paper/cardboard																				9		
Plastic/polyurethane																				100		
Wood/lumber/plywood																				73		

Table 5-19. Distribution and Percentage of TRU Container Physical Contents by Storage Location — 2402W.

Distribution of PFP TRU Other Container Physical Contents by Storage Location - 2402W - container count

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Cloth/rags/nylon																				1		
Dirt/soil/diatomaceous																				1		
Lead																				1		
Metal/iron/galv./sheet																				2		
Paper/cardboard																				1		
Plastic/polyurethane																				2		
Wood/lumber/plywood																				2		

Percent of TRU Other Containers from PFP stored at 2402W by year and physical contents

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Cloth/rags/nylon																				50		
Dirt/soil/diatomaceous																				50		
Lead																				50		
Metal/iron/galv./sheet																				100		
Paper/cardboard																				50		
Plastic/polyurethane																				100		
Wood/lumber/plywood																				100		

Table 5-20. Distribution and Percentage of TRU Container Physical Contents by Storage Location — 2402 WB.

Distribution of PFP TRU Other Container Physical Contents by Storage Location - 2402WB - container count

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Cloth/rags/nylon																				1		
Metal/iron/galv./sheet																				1		
Paper/cardboard																				1		
Plastic/polyurethane																				1		
Rubber																				1		

Percent of TRU Other Containers from PFP stored at 2402WB by year and physical contents

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Cloth/rags/nylon																				100		
Metal/iron/galv./sheet																				100		
Paper/cardboard																				100		
Plastic/polyurethane																				100		
Rubber																				100		

Table 5-21. Distribution and Percentage of TRU Container Physical Contents by Storage Location — FS8.

Distribution of PFP TRU Other Container Physical Contents by Storage Location - FS8 - container count

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Conweb pads																				1		
Dirt/soil/diatomaceous																				1		
Organics																				1		
Plastic/polyurethane																				1		
Wood/lumber/plywood																				1		

Percent of TRU Other Containers from PFP stored at FS8 by year and physical contents

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Conweb pads																				100		
Dirt/soil/diatomaceous																				100		
Organics																				100		
Plastic/polyurethane																				100		
Wood/lumber/plywood																				100		

Table 5-22. TRU Waste in 55-Gallon Drums: Total Grams of TRU by Storage Facility.

234-5Z TRU Waste in 55 Gallon Drums: Total Grams TRU Stored by Location	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
218W3A	2189	1067													26							
218W4B		1581	3209	3070	1396	14941	7333	3620														
218W4C									1897	23472	61909	21582	13901	5983	11960	23928	8770	395	215			16
218W5																						
224-T																	5487	14290	3480	1381	1561	1090
2401-W																2			3	11	0	
2402W																						
2402WB																				1		
FS8																						
Total TRU in Drums	2189	2649	3209	3070	1396	14941	7333	3620	1897	23472	61909	21582	13901	5983	11986	23930	14256	14685	3698	1393	1561	1106

Table 5-23. TRU Waste in Containers Other Than 55-Gallon Drums: Total Grams of TRU by Storage Facility.

234-5Z TRU Waste in Containers Other than 55 Gal. Drums: Total Grams TRU Stored by Location	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
218W3A	16	0			240	4619	1171	274	829													
218W4B	20	543	586	274	84	551	3		21													
218W4C											3551	1361	11332	36	5	8353						
218W5																						
224-T																						
2401-W																				964		
2402W																				153		
2402WB																				11		
FSB																				0		
Total Other TRU	36	543	586	274	324	5170	1174	274	850	0	3551	1361	11332	36	5	8353	0	0	0	1129	0	0

Table 5-24. TRU Waste from 234-5Z Containing High Quantities of ^{238}Pu.

Disposal date	SWSDR number	Volume (ft^3)*	Weight (kg)	Total dose rate (mrem)	Pu (g)	Mixed fission products (g)	^{238}Pu (g)
10/28/80	801541	7.400 E+00	68.04	1.000 E+00	1.000 E-04	1.000 E-03	5.125 E+02
10/28/80	801542	7.400 E+00	68.04	1.000 E+00	1.000 E-04	1.000 E-03	5.150 E+02
10/28/80	801543	7.400 E+00	68.04	1.000 E+00	1.000 E-04	1.000 E-03	2.221 E+02
10/28/80	801544	7.400 E+00	68.04	1.000 E+00	1.000 E-04	1.000 E-03	3.134 E+02
10/28/80	801545	7.400 E+00	68.04	1.000 E+00	1.000 E-04	1.000 E-03	5.013 E+02
10/28/80	801546	7.400 E+00	68.04	1.000 E+00	1.000 E-04	1.000 E-03	3.972 E+02
10/28/80	801547	7.400 E+00	68.04	1.000 E+00	1.000 E-04	1.000 E-03	5.126 E+02
10/28/80	801548	7.400 E+00	68.04	1.000 E+00	1.000 E-04	1.000 E-03	5.143 E+02
10/28/80	801549	7.400 E+00	68.04	1.000 E+00	1.000 E-04	1.000 E-03	5.117 E+02
10/28/80	801550	7.400 E+00	68.04	1.000 E+00	1.000 E-04	1.000 E-03	4.948 E+02
10/28/80	801551	7.400 E+00	68.04	1.000 E+00	1.000 E-04	1.000 E-03	4.839 E+02
10/28/80	801552	7.400 E+00	68.04	1.000 E+00	1.000 E-04	1.000 E-03	2.517 E+02
Total		8.880 E+01	816.48		1.200 E-03	1.200 E-02	5.230 E+03

NOTE: Stored in 55-gal drums in burial ground 4C, trench T01, no known hazardous constituents present. All 12 drums contain metal/iron/galvanized/steel. The information in this table should be considered suspect because of the uniformity of the 12 drums reactivities, weights, plutonium contents, and mixed fission product contents. Also, no fission products are expected to be in PFP waste.

*To convert from cubic feet to cubic meters multiply by 2.831,685 E-02.

SWSDR = Solid Waste Storage and Disposal Record.

Table 5-25. PFP Waste in Other Containers Containing More Than 300 Grams of TRU. (2 sheets)

Container ID	Disposal date	Volume (m^3)	Weight (kg)	Total dose rate (mrem)	Plutonium (g)	Uranium (natural)	Uranium (depleted)
R409	10/16/80	0.419	159	1.00 E+99	3.2 E+02	9.29 E+03	
R488	10/16/80	0.419	159	1.00 E+00	3.1 E+02	9.29 E+03	
CCS74-137	3/04/82	0.419	197	2.00 E+00	8.49 E+02	4.30 E+04	
CCS75-138	3/04/82	0.419	197	2.00 E+00	6.87 E+02	4.30 E+04	
CCS74-141	3/04/82	0.419	197	2.00 E+00	6.87 E+02	4.30 E+04	
CCS74-142	3/04/82	0.419	197	2.00 E+00	7.68 E+02	4.30 E+04	
CCS74-143	3/04/82	0.419	197	2.00 E+00	3.94 E+02	4.30 E+04	
CCS74-149	3/04/82	0.419	136	2.00 E+00	9.10 E+02	4.30 E+04	
7774-412	3/25/82	0.419	136	1.00 E+00	4.76 E+02	1.43 E+04	4.43 E+03
7774-413	3/25/82	0.419	136	1.00 E+00	3.97 E+02	1.66 E+04	3.00 E+03
7774-414	3/25/82	0.419	136	1.00 E+00	4.56 E+02	1.43 E+04	3.00 E+03
7774-415	3/25/82	0.419	136	1.00 E+00	4.36 E+02	1.43 E+04	4.43 E+03
7774-416	3/25/82	0.419	136	1.00 E+00	3.17 E+02	1.43 E+04	4.43 E+03
7774-417	3/25/82	0.419	136	1.00 E+00	3.97 E+02	1.66 E+04	4.43 E+03
7774-418	3/25/82	0.419	136	1.00 E+00	3.57 E+02	1.66 E+04	3.00 E+03
7774-419	3/25/82	0.419	136	1.00 E+00	3.97 E+02	1.43 E+04	3.00 E+03
7774-421	3/25/82	0.419	136	1.00 E+00	4.16 E+02	1.66 E+04	4.43 E+03
7774-422	3/25/82	0.419	136	1.00 E+00	4.16 E+02	1.66 E+04	3.00 E+03
7774-423	3/25/82	0.419	136	1.00 E+00	3.96 E+02	1.43 E+04	3.00 E+03

Table 5-25. PFP Waste in Other Containers Containing More Than 300 Grams of TRU. (2 sheets)

Container ID	Disposal date	Volume (m^3)	Weight (kg)	Total dose rate (mrem)	Plutonium (g)	Uranium (natural)	Uranium (depleted)
7774-424	3/25/82	0.419	136	1.00 E+00	4.29 E+02	1.43 E+04	4.43 E+03
7774-425	3/25/82	0.419	136	1.00 E+00	6.70 E+02	1.66 E+04	3.00 E+03
7774-426	3/25/82	0.419	136	1.00 E+00	4.29 E+02	1.43 E+04	4.43 E+03

NOTE: Containers are stored in Burial Ground 218-W04C, Trench T01. All contain metal/iron/galvanized/sheet, and no listed hazardous constituents.

Table 5-26. PFP (Z Plant) Plutonium Conversion to Oxide (200 West Area) (1973-76).

Compound name	Formula	Toxicity category
Hydrogen peroxide	H_2O_2	DOT oxidizer above 8% TOX D- 8-20% C-90%
Nitric acid	HNO_3	Oxidizer/corrosive
Oxalic acid	$HO_2CCO_2 \cdot 2H_2O$	Not regulated
Potassium permanganate	$KMnO_4$	D/oxidizer

DOT = U.S. Department of Transportation.
TOX = Toxicity category.

Table 5-27. PFP (Z Plant): Plutonium Reclamation and Waste Treatment (200 West Area) (1973-76). (2 sheets)

Compound name	Formula	EPA category	Comments and DOT classification
Aluminum	Al		Feed constituent no TOX data/flammable solid
Aluminum nitrate nonahydrate	$Al(NO_3)_3 \cdot 9H_2O$	D	No DOT data
Aluminum nitrate (monobasic)	$Al(OH)(NO_3)_2$	D	Oxidizer
Beryllium	Be		Feed constituent
Calcium	Ca		Feed constituent flammable solid also requires "Dangerous When Wet" label
Carbon tetrachloride	CCl_4	D	ORM-A
Dibutyl butyl phosphonate	$CH_3(CH_2)_3PO_3[CH_3(CH_2)_{33}]_2$		Insufficient for data/ no DOT information
Dodecane	$CH_3(CH_2)_{10}CH_3$		Feed constituent insufficient TOX data no DOT information
Anti-Foam B[1]	Silicon emulsion		Product name
Gallium	Ga		Feed constituent no TOX data ORM-B
Gallium oxide	Ga_2O_3		Feed constituent insufficient TOX data no DOT information
Hydrazine	$H_2NNH_2 \cdot H_2O$	B	Flammable liquid and poison/corrosive
Hydrochloric acid	HCl	D	Nonflammable gas/corrosive
Hydrofluoric acid	HF		LC_{50} 1,276 ppm/inhalation hazard /corrosive
Hydroxylamine hydrochloride	$NH_2OH \cdot HCI$		Insufficient TOX data no DOT information
Hydroxylamine nitrate	$NH_2OH \cdot HCO_3$		No entry
Iodine	I_2		Feed constituent 14 g/kg-LD50 no DOT information
Iron	Fe		Scrap container LD50-30 g/kg no DOT information

Table 5-27. PFP (Z Plant): Plutonium Reclamation and Waste Treatment (200 West Area) (1973-76). (2 sheets)

Compound name	Formula	EPA category	Comments and DOT classification
Magnesium oxide	MgO		Feed constituent insufficient TOX data no DOT information
Mercuric nitrate	$Hg(NO_3)_2 \cdot H_2O$	B	Oxidizer/poison
Mistron[2]	$MgSiO_3$		Product name talc - asbestos no TOX data/no DOT information/ insufficient TOX data
Molybdenum	Mo		Feed constituent no DOT information
Nitric acid	HNO_3	C	Oxidizer/corrosive
Oxalic acid	$HO_2CCO_2H \cdot 2H_2O$		
Potassium carbonate	K_2CO_3	D	
Sodium carbonate	Na_2CO_3		Insufficient TOX data/DOT-IM: oxidizer
Sodium fluoride	NaF		No TOX data/corrosive
Sodium hydroxide	NaOH		Insufficient TOX data/corrosive
Sodium nitrate	$NaNO_3$	D	Oxidizer
Sulfamic acid	NH_2SO_3H	D	Feed constituent DOT-IM: corrosive
Tributyl phosphate	$(C_4H_9)_3PO_4$		LD50 3 g/kg/no DOT information

[1]Anti-Foam B is a trademark of Dow Corning Corporation.
[2]Mistron is a trademark of Cyprus Mines Corporation.
DOT = U.S. Department of Transportation.
EPA = U.S. Environmental Protection Agency.
IM = Irritating material.
ORM = Other regulated materials.
TOX = Toxicity catagory.

Table 5-28. PFP (Z Plant): Analytical Laboratory (200 West Area)(1973-79). (3 sheets)

Compound name	Formula	EPA category	Comments and DOT classification
Acetric acid	CH_3CO_2H	C	Corrosive
Acetone	$CH_3C_2H_3O$		LD50 20 g/kg/flammable liquid
Alizarin yellow	$C_{14}H_8O_4$		No TOX data/no DOT
Aluminum nitrate nonahydrate	$Al(NO_3)_3 \cdot 9H_2O$		
Aluminum nitrate (mono basic)	$Al(OH)(NO_3)_2$		
Aluminum sulfate	$Al(SO_4)_3$		Insufficient TOX data/ORM-B
Ammonium chloride	NH_4Cl	D	No DOT
Ammonium hydroxide	NH_4OH	C	Corrosive
Ammonium oxalate	$(NH_4)_2C_2O_4$		No TOX data/ORM-A
Ammonium sulfate	$(NH_4)_2SO_4$	D	No DOT
Arsenazo III	Arsenic compounds	D	Product name
Boric acid	H_3BO_3	D	No DOT
Bromocresol purple	C_7H_6OHBr		No entry (blue and green only)
Carbon tetrachloride	CCl_4		
Ceric ammonium nitrate	$Ce(NH_4)_2(NO_3)_6$		
Dibutyl phosphate	$(n\text{-}C_4H_9)_2HPO_4$		No TOX data no DOT information
Ferric ammonium sulfate	$FeNH_4SO_4$		No entry
Ferric nitrate	$Fe(NO_3)_3 \cdot 6H_2O$		No TOX data/oxidizer
Ferrous ammonium sulfate	$(NH_4)_2SO_4FeSO_4 \cdot 6H_2O$		No TOX data/no DOT
Ferrous sulfamate	$Fe(SO_3NH_2)_2$		No entry
Hydrazime	$N_2H_4 \cdot H_2O$		
Hydrobromic acid	HBr		LC50 2858 ppm/ inhalation hazard/ nonflamable gas/ corrosive

Table 5-28. PFP (Z Plant): Analytical Laboratory (200 West Area)(1973-79). (3 sheets)

Compound name	Formula	EPA category	Comments and DOT classification
Hydrochloric acid	HCl		
Hydrofluoric acid	HF		
Hydrogen peroxide	H_2O_2		
Hydroiodic acid	HI		Corrosive/no TOX data
Hydroxylamine hydrochloride	$HN_2OH \cdot HCl$		
Hydroxylamine nitrate	$NH_2OH \cdot HNO_3$		
Methanol	CH_3OH	D	Flammable liquid
Napthylamine	$C_{10}H_9N$	D	DOT IM: poison
Nitric acid	HNO_3	C	Oxidizer, corrosive
Oxalic acid	$HO_2CCO_2H \cdot 2H_2O$		
Phosphoric acid	H_3PO_4	D	Corrosive
Potassium acetate	$KC_2H_3O_2$	D	No DOT
Potassium dichromate	K_2CrO_7		Insufficient TOX data/ORM-A
Potassium iodate	KIO_3		Insufficient TOX data/no DOT
Potassium permanganate	$KMnO_4$		
Silver oxide	AgO	D	No DOT
Sodium bisulfate	$NaHSO_4$		No TOX data/ORM-B
Sodium carbonate	Na_2CO_3		
Sodium fluoride	NaF		
Sodium hydroxide	$NaOH$		
Sodium nitrate	$NaNO_3$		
Sodium nitrite	$NaNO_2$		No entry
Sodium oxalate	$Na_2C_2O_4$		Insufficient TOX data/no DOT
Sodium tartrate	$Na_2C_2H_4O_6 \cdot 2H_2O$		Insufficient TOX data/no DOT
Sulfamic acid	NH_2SO_3H		
Sulfonic acid (chloro)	$ClHSO_3$		No TOX data/corrosive

Table 5-28. PFP (Z Plant): Analytical Laboratory (200 West Area)(1973-79). (3 sheets)

Compound name	Formula	EPA category	Comments and DOT classification
Sulfuric acid	H_2SO_4	D	Corrosive
Thenoyltrifluoracetone	$(CH)_3SCOCH_2COCF_3$		No entry
Thymophthalein	$C_{29}H_{30}O_4$		No entry
Toluene	$C_6H_5CH_3$	D	Flammable liquid
Tributyl phosphate	$(C_4H_9)_3PO_4$		
Triisooctylamine	$C_{24}H_{51}N$	D	No DOT
Tris(hydroxymethyl) amino methane	$(CH_2OH)_3CNH_2$		Not regulated/no DOT
Xylene	$C_6H_4(CH_3)_2$	D	Flammable liquid

DOT = U.S. Department of Transportation.
EPA = U.S. Environmental Protection Agency.
ORM = Other regulated material.
TOX = Toxicity category.

Table 5-29. TRU Mixed Waste Stored in 55-Gallon Drums by Storage Facility.

234-5Z TRU Total Mixed Waste (including PCB) 55 gallon drums - count by Storage Area	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
218W3A																						
218W4B																						
218W4C													1	16	3	13						
218W5																						
224-T																				34	20	18
2401-W													6	4		14			10	8	1	
2402W																						
2402WB																				1		
FSB																						
Total Drums	0	0	0	0	0	0	0	0	0	0	0	0	7	20	3	27	0	0	10	43	21	18

Table 5-30. TRU Mixed Waste Containers Other Than 55-Gallon Drums by Storage Facility.

234-52 TRU Total Mixed Waste (including PCB) in other than 55 gallon drums - count by Storage Area	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
218W3A						1																
218W4B																						
218W4C												7	3									
218W5																						
224-T																						
2401-W																				11		
2402W																				2		
2402WB																				1		
FS8																				1		
Total Count	0	0	0	0	0	1	0	0	0	0	0	7	3	0	0	0	0	0	0	15	0	0

Table 5-31. Number and Percent of TRU Mixed Waste Drums Stored at 218W4C Containing Hazardous Constituents.

Distribution of PFP 55 gallon TRU-RMW Drum Contents by Storage Location - 218W4C - drum count

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Asbestos															14	10	5	1				
Copper														4								
Corrosive															3							
Oil														12		9						
Organic													1			4						

Note: Asbestos is not counted as RMW.

Percent of TRU 55 gal drums from PFP Stored at 218W4C by year and contents

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Asbestos															0.76	0.57	1.12	10.00				
Copper														0.42								
Corrosive															0.16							
Oil														1.27		0.51						
Organic													0.15			0.23						

Table 5-32. Number and Percent of TRU Mixed Waste Drums Stored at 224-T Containing Hazardous Constituents.

Distribution of PFP 55 gallon TRU-RMW Drum Contents by Storage Location - 224-T - drum count

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Acid																					1	
ANN																						1
Asbestos																				1		
Barium																					1	11
Cadmium																					9	11
Calcium chlorofluorophosphate																					1	
Carbon tetrachloride																				10		
Chromium																						2
Lead																				24	20	17
Lead Acid																					3	2
Pb Chromate																					8	15
Lead Chromate Cl Paraff.																					4	
Mercury																					9	11
KOH																						2
Selenium																						1
H2SO4																					1	2
TBP																				9		
unidentified																						1

Percent of TRU 55 gal drums from PFP Stored at 224-T by year and contents

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Acid																					1	
ANN																						1
Asbestos																				1		
Barium																					1	11
Cadmium																					8	11
Calcium chlorofluorophosphate																					1	
CCl4																				10		
Chromium																						2
Lead																				24	19	16
Lead Acid																					3	2
Lead Chromate																					8	14
Lead Chromate Cl Paraff.																					4	
Mercury																					8	11
KOH																						2
Selenium																						1
H2SO4																					1	2
TBP																				9		
unidentified																						1

Table 5-33. Number and Percent of TRU Mixed Waste Drums Stored at 2401W Containing Hazardous Constituents.

Distribution of PFP 55 gallon TRU-RMW Drum Contents by Storage Location - 2401W - drum count

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Amercoat 234																				1		
Hydraulic Fluid																			10	5	1	
Lead																				2		
PCB													6	4		14			10	6	1	

Percent of TRU 55 gal drums from PFP Stored at 2401W by year and contents

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Amercoat 234																				13		
Hydraulic Fluid																			100	63	100	
Lead																				25		
PCB													100	100		100			100	75	100	

Table 5-34. Number and Percent of TRU Mixed Waste Drums Stored at 2402 WB Containing Hazardous Constituents.

Distribution of PFP 55 gallon TRU-RMW Drum Contents by Storage Location - 2402WB - drum count	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
KOH																				1		
NaOH																				1		

Percent of TRU 55 gal drums from PFP Stored at 2402WB by year and contents	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
KOH																				100		
NaOH																				100		

Table 5-35. Number and Percentage of TRU Mixed Waste Containers Other Than 55-Gallon Drums Stored at 218W3A Containing Hazardous Constituents.

Distribution of PFP Other Container TRU-RMW Contents by Storage Location - 218W3A - container count																						
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Lead						1																
Percent of TRU other containers from PFP Stored at 218W3A by year and contents																						
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Lead						2																

Table 5-36. Number and Percentage of TRU Mixed Waste Containers Other Than 55-Gallon Drums Stored at 218W4C Containing Hazardous Constituents.

Distribution of PFP Other Container TRU-RMW Contents by Storage Location - 218W4C - container count

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Asbestos																1						
Beryllium												7	3									

Percent of TRU other containers from PFP Stored at 218W4C by year and contents

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Asbestos																2						
Beryllium												8	10									

Table 5-37. Number and Percentage of TRU Mixed Waste Containers Other Than 55-Gallon Drums Stored at 2401W Containing Hazardous Constituents.

Distribution of PFP Other Container TRU-RMW Contents by Storage Location - 2401W - container count

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Barium																				11		
Cadmium																				10		
Calcium chlorofluorophosphate																				11		
Lead																				4		
Mercury																				11		
PCB																				11		

Percent of TRU other containers from PFP Stored at 2401W by year and contents

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Barium																				100		
Cadmium																				91		
Calcium chlorofluorophosphate																				100		
Lead																				36		
Mercury																				100		
PCB																				100		

Table 5-38. Number and Percentage of TRU Mixed Waste Containers Other Than 55-Gallon Drums Stored at 2402W Containing Hazardous Constituents.

Distribution of PFP Other Container TRU-RMW Contents by Storage Location - 2402W - container count

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Barium																				1		
Cadmium																				1		
Calcium chlorofluorophosphate																				1		
Lead																				1		
Mercury																				1		

Percent of TRU other containers from PFP Stored at 2402W by year and contents

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Barium																				50		
Cadmium																				50		
Calcium chlorofluorophosphate																				50		
Lead																				50		
Mercury																				50		

Table 5-39. Number and Percentage of TRU Mixed Waste Containers Other Than 55-Gallon Drums Stored at 2402WB Containing Hazardous Constituents.

Distribution of PFP Other Container TRU-RMW Contents by Storage Location - 2402WB - container count	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
2-butoxyethanol																				1		
Phosphoric acid																				1		

Percent of TRU other containers from PFP Stored at 2402W by year and contents	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
2-butoxyethanol																				100		
Phosphoric acid																				100		

Table 5-40. Number and Percentage of TRU Mixed Waste Containers Other Than 55-Gallon Drums Stored at FS8 Containing Hazardous Constituents.

Distribution of PFP Other Container TRU-RMW Contents by Storage Location - FS8 - container count

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Tributyl phosphate																				1		
Trimethyl benzene																				1		
Xylene																				1		
unidentified																				1		

Percent of TRU other containers from PFP Stored at FS8 by year and contents

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Tributyl phosphate																				100		
Trimethyl benzene																				100		
Xylene																				100		
unidentified																				100		

Table 5-41. Summary of Information from Solid Waste Storage Disposal Records for Containers of TRU Mixed Waste. (10 sheets)

Date accepted	Pin number	Manifest number	SWSDR number	Hazardous constituents	Waste codes[1]	Weight (kg)/%
05/07/81	390.A	N/A	810089	Pu/Be sources	N/A	N/A
05/07/81	240.A	N/A	810188	Pu/Be sources	N/A	N/A
05/07/81	381.A	N/A	810186	Pu/Be sources	N/A	N/A
05/07/81	441	N/A	810187	Pu/Be sources	N/A	N/A
02/14/83	ZORGA9173	N/A	830009	Organic absorbed	N/A	N/A
02/14/83	ZORGA9172	N/A	830010	Organic absorbed	N/A	N/A
02/14/83	ZORGA9183	N/A	830011	Organic absorbed	N/A	N/A
02/14/83	ZORGA9189	N/A	830012	Organic absorbed	N/A	N/A
02/14/83	ZORGA9181	N/A	830008	Organic absorbed	N/A	N/A
02/14/83	ZORGA9188	N/A	830013	Organic absorbed	N/A	N/A
01/20/83	ZORGA9126	N/A	830003	Fab oil absorbed	N/A	N/A
01/20/83	ZORGA9143	N/A	830006	Fab oil absorbed	N/A	N/A
01/20/83	ZORGA9139	N/A	830004	Fab oil absorbed	N/A	N/A
01/20/83	ZORGA9140	N/A	830005	Fab oil absorbed	N/A	N/A
01/20/83	ZORGA9144	N/A	830007	Fab oil absorbed	N/A	N/A
01/20/83	ZORGA9125	N/A	830002	Fab oil absorbed	N/A	N/A
11/29/83	8303A9232	N/A	890042	PCB 56.3 ppm	N/A	N/A
11/29/83	8303A9230	N/A	890044	PCB 56.3 ppm	N/A	N/A
11/29/83	8303A9632	N/A	890045	PCB 56.3 ppm	N/A	N/A

Table 5-41. Summary of Information from Solid Waste Storage Disposal Records for Containers of TRU Mixed Waste. (10 sheets)

Date accepted	Pin number	Manifest number	SWSDR number	Hazardous constituents	Waste codes*	Weight (kg)/%
11/29/83	830319231	N/A	890043	PCB 56.3 ppm	N/A	N/A
06/30/82	ZORGA8996	N/A	890041	Contaminated oil	N/A	N/A
06/30/82	ZORGA8815	N/A	830001	Organics absorbed	N/A	N/A
06/30/82	ZORGA8993	N/A	890038	Contaminated oil	N/A	N/A
06/30/82	ZORGA8994	N/A	890039	Contaminated oil	N/A	N/A
06/30/82	ZORGA8995	N/A	890040	Contaminated oil	N/A	N/A
06/09/89	RHZ-212-A19191	PFP08904	890431	Lead gloves	WT01, D008	27.84
06/09/89	RHZ-212-A19567	PFP08904	890435	Lead gloves	WT01, D008	24.55
06/09/89	RHZ-212-A18446	PFP08907	890429	CCl_4, TBP	WC01, WP01, WT01	CCl_4 9.5 TBP 5.9
06/09/89	RHZ-212-A19296	PFP08904	890432	Lead gloves	WT01, D008	37.35/52
06/09/89	RHZ-213-A19574	PFP08904	890434	Lead: brick/glass	WT01, D008	83.45/90
06/09/89	RHZ-212-A18445	PFP08907	890428	CCl_4, TBP	WC01, WP01, WT01	CCl_4 9.5 TBP 5.9
06/09/89	RHZ-212-A19446	PFP08904	890433	Lead gloves	WT01, D008	39.4/43
06/09/89	RHZ-212-A18447	PFP08907	890430	CCl_4, TBP	WC01, WP01, WT01	CCl_4 9.5 TBP 5.9
06/09/89	RHZ-212-A18444	PFP08907	890427	CCl_4, TBP	WC01, WP01, WT01	CCl_4 9.5 TBP 5.9
06/13/89	RHZ-213-A19387	PFP08906	890001	Hydrolic fluid/PCB (760 ppm)	WT02	Fluid 2.6 PCB 0.002

Table 5-41. Summary of Information from Solid Waste Storage Disposal Records for Containers of TRU Mixed Waste. (10 sheets)

Date accepted	Pin number	Manifest number	SWSDR number	Hazardous constituents	Waste codes*	Weight (kg)/%
06/13/89	RHZ-213-A19394	PFP08906	890002	hydrolic fluid/PCB (760 ppm)	WT02	Fluid 5.9 PCB 0.005
06/13/89	RHZ-213-A19396	PFP08906	890004	Hydrolic fluid/PCB (760 ppm)	WT02	Fluid 24.18 PCB 0.19
06/13/89	RHZ-213-A19395	PFP08906	890003	Hydrolic fluid/PCB (760 ppm)	WT02	Fluid 18.13 PCB 0.03
07/14/89	RHZ-212-A19826	PFP08913	890467	Lead	D008, WT01	4.0/13
07/14/89	RHZ-220-A19847	PFP08914	890473	Lead gloves	D008, WT01	5.0
07/14/89	RHZ-212-A19862	PFP08913	890470	Lead gloves	D008, WT01	2.0
07/14/89	RHZ-212-A19860	PFP08913	890468	Lead metal	D008, WT01	2.5/4
07/14/89	RHZ-220-A19846	PFP08914	890472	Lead: gloves, shield	D008, WT01	18.0/42
07/14/89	RHZ-212-A19135	PFP08913	890463	Lead (metal tool)	D008, WT01	64.5/73
07/14/89	RHZ-212-A19808	PFP08913	890465	Lead	D008, WT01	34.98/71
07/14/89	RHZ-212-A19518	PFP08913	890466	Lead	D008, WT01	15.67/49
07/14/89	RHZ-212-A19715	PFP08913	890464	Lead (metal tool)	D008, WT01	25.5/37
07/14/89	RHZ-213-A19790	PFP08914	890469	Lead	D008, WT01	43.1/52
07/14/89	RHZ-212-A19812	PFP08913	890471	Lead: metal, glass	D008, WT01	22.1/37
07/20/89	RHZ-213-A19411	PFP08920	890494	Lead gloves	WT01, D008	24.5/45
07/20/89	RHZ-213-A19867	PFP08920	890493	Lead gloves	WT01, D008	37.5/39
07/20/89	RHZ-212-A19866	PFP08920	890495	Lead: gloves, apron	WT01, D008	37.5/38
07/25/89	RHZ-212-A19813	PFP08921	890502	Lead gloves	WT01, D008	1.0/2

Table 5-41. Summary of Information from Solid Waste Storage Disposal Records for Containers of TRU Mixed Waste. (10 sheets)

Date accepted	Pin number	Manifest number	SWSDR number	Hazardous constituents	Waste codes*	Weight (kg)/%
07/25/89	RHZ-212-A18517	PFP08902	890501	CCl_4: TBP absorbed	WC01, WP01, WT01	CCl_4 9.5 TBP 5.9
07/25/89	RHZ-212-A18497	PFP08920	890500	CCl_4: TBP absorbed	WT01, WC01, WP01	CCl_4 9.5 TBP 5.9
07/25/89	RHZ-212-A19729 *WIS	PFP08903	900001	CCl_4: TBP absorbed	WT01, WC01, WP01	CCl_4 6.5 TBP 4.0
07/25/89	RHZ-212-A18517	PFP08920	890501	CCl_4: TBP absorbed	WT01, WC01, WP01	CCl_4 9.5 TBP 5.9
07/25/89	RHZ-212-A18496	PFP08920	890498	CCl_4: TBP absorbed	WT01, WC01, WP01	15.4/35
07/25/89	RHZ-212-A18497	PFP08902	890500	CCl_4, TBP	WC01, WP01, WT01	CCL_4 9.5 TBP 5.9
07/25/89	RHZ-212-A19862 *WIS	PFP08913	900002	Lead gloves	WT01, D008	2.0
07/25/89	RHZ-212-A18496	PFP08902	890499	CCl_4, TBP	WC01, WP01, WT01	15.4/35
07/26/89	RHZ-213-A19318	PFP08926	890028	PCB (760 ppm) hydraulic fluid	WT02	0.011/72 33.989
07/26/89	RHZ-213-A19875	PFP08925	890029	PCB (760 ppm)	WT02	0.002
07/31/89	RHZ-87-025	PFP08930	890030	Above (no Pb)	ABOVE -D008	0.03139
07/31/89	RHZ-87-029	PFP08931	890031	Above (no Pb)	ABOVE -D008	0.28041
08/02/89	RHZ-87-037	PFP08933	890032	Lead + above list	D008 + ABOVE	Pb207.0/3.5 Trace 0.06378
08/04/89	RHZ-86-14	PFP08936	890001	N_2PO_4 2-butoxyethanol	D002	0.322/ /022/

Table 5-41. Summary of Information from Solid Waste Storage Disposal Records for Containers of TRU Mixed Waste. (10 sheets)

Date accepted	Pin number	Manifest number	SWSDR number	Hazardous constituents	Waste codes*	Weight (kg)/%
08/07/89	RHZ-87-041	PFP08943	890033	Lead + above list	D006, D009, WT01, WC01, WC02	Pb1137.5/15 Trace 0.03139
08/07/89	RHZ-87-044	PFP08937	900034	Above list (no Pb)	ABOVE - D008	0.03139
08/08/89	RHZ-87-039	PFP08941	890037	Trace PCB (500 ppm) Hg, Ba, Cd, $CaClFlPO_4$	D009, WT001, D006, WC01, WC02	0.03139
08/08/89	RHZ-85-001	PFP08939	890002	Trace Hg, Cd, Ba, $CaClPO_4$	D009, D006, WT01, WC02	0.03136
08/08/89	RHZ-87-028	PFP08946	890036	Trace PCB (500 ppm) Hg, Ba, Cd, $CaClFlPO_4$	D009, WT001, D006, WC01, WC02	0.09417
08/08/89	RHZ-86-002	PFP08938	890035	Lead + above list	D008 + ABOVE	Pb724.0/17 Trace 0.102225
08/08/89	RHZ-87-023	PFP08945	890001	Lead	DW008, WR01	103.4/20
08/09/89	RHZ-86-010	PFP08944	890015	Trace PCB, Hg, Cd, Ba, $CaClFlPO_4$ + Lead	D008, WT01, D009, D006, WC01, WC02	Pb103.4/10 Trace 0.03139
08/10/89	RHZ-87-031	PFP08932	890017	Above (no Pb)	ABOVE -D008	0.113357
08/10/89	RHZ-85-002	PFP08940	890016	Above (no Pb)	ABOVE -D008	0.06278
08/22/89	RHZ-212-A18597	PFP08929	890001	Scintillation fluid (60% xylene, 15% Tri/meth. benzone, 1% TBP, 4% CCl_4)	F003, D001, WT01	6.7/12 absorbed
08/29/89	RHZ-212-A19843	PFP08948	NA	Lead gloves	WT01, D008	7.21/11
08/29/89	RHZ-212-A19931	PFP08948	890592	Lead: glove/shield	WT01, D008	59.0/86
08/29/89	RHZ-212-A19843	PFP08948	890591	Lead gloves	WT01, D008	7.21/11

Table 5-41. Summary of Information from Solid Waste Storage Disposal Records for Containers of TRU Mixed Waste. (10 sheets)

Date accepted	Pin number	Manifest number	SWSDR number	Hazardous constituents	Waste codes*	Weight (kg)/%
11/07/89	RHZ-212-A19998	PFP08958	890459	Lead (shield, glove)	D008, WT01	24.5/54
12/14/89	RHZ-212-A20060	PFP08960	890002	NaOH, KOH	D002	6.0/25 5.0/
12/14/89	RHZ-213-A20072	PFP08963	890462	Lead (glove, brick), Amercoat 232 ($PbCrO_4$)	D008, WT01, SC02, D007	68.5/62 0.05/
12/19/89	RHZ-212-A20061	PFP08964	890610	Lead gloves	WT01, D008	41.6/54
01/17/90	RHZ-220-A20220		900001	Lead, lead acid	D008, WT01, D002	Pb 123.36 Acid 0.14
02/02/90	RHZ-220-A20356	09003	900003	Pb, Hg, Trace: Ba, Cd, $CaClFlPO_4$	D008, WT01, D005, D006, D009, WC02	Pb 26.32 Hg 0.01, rest <
02/02/90	RHZ-212-A20312	09003	900002	Lead, lead acid	D008, WT01, D002, WT09	Pb 44.42 Acid 0.2
03/01/90	WHZ-220-A20361	09004	900004	Pb, Ba, Cd, Hg	D008, WT01, D005, D006, D007, D009, WC02	Pb 70.0 Ba 0.05 Cd 0.05 Hg 0.1
04/23/90	RHZ-212-A20499	09007	900039	Pb, Ba, Cd, Hg	D008, WT01, D005, D006, D007	Ba 0.08 Cd 0.08 Hg 0.08 Pb 19.0
04/23/90	RHZ-213-A20536	09007	900041	Pb, Ba, Cd, Hg, $PbCrO_2$, (Cl. parafin)	D008, WT01, D007, WC02, D005, D006, D009	Pb 36.9 CrO_2 1.0 Ba 0.001 Hg 0.001 Cd 0.001

Table 5-41. Summary of Information from Solid Waste Storage Disposal Records for Containers of TRU Mixed Waste. (10 sheets)

Date accepted	Pin number	Manifest number	SWSDR number	Hazardous constituents	Waste codes*	Weight (kg)/%
04/23/90	RHZ-212-A20576	09007	900040	Pb, Ba, Cd, Hg, $PbCrO_2$, (Cl. parafin)	D008, WT01, D007, WC02, D005, D006, D009	Pb 43.5 CrO_2 0.02 Ba 0.03 Cd 0.03 Hg 0.04
05/22/90	RHZ-212-A20759	09008	900095	Ba, Cd, Pb, Hg, $PbCrO_2$, (Cl. parafin)	D008, D007, WC02, WT01, D005, D006, D009	Hg 0.1 Cd 0.1 Ba 0.8 Pb, 40.95 CrO_2 0.2
05/22/90	RHZ-220-A20646	09008	900094	Pb, $PbCrO_2$, (Cl. parafin)	D007, D008, WT01, WC02	Pb 27.0 CrO_2 1.0
06/01/90	RHZ-211-A20917	09013	900001	Hydrolic oil 190 ppm PCB	WT01	1.0/5
07/20/90	RHZ-220-A20790	PFP09014	900114	Ba, Cd, Pb, Hg, H_2SO_4	D002, D005, D006, D008, D009, WT01, WC02	Ba 0.02, Cd 0.02, Pb 43.06, Hg 0.02, SUL. 0.02
07/20/90	RHZ-213-A20916	PFP09014	900113	Pb, $PbCrO_2$, (Cl. parafin)	D007, D008, WT01, WC02	Pb 53.8865 CrO_2 0.1
07/20/90	RHZ-220-A20834	PFP09014	900115	Lead	D008, WT01	51.0/26
09/13/90	RHZ-211-A21030	09020	900259	Pb, $PbCrO_2$	D008, D007, WT01, WC02	Pb 21.74 CrO_2 0.2
10/31/90	RHZ-213-A21275	09025	900371	Pb, $PbCrO_2$	D008, D007, WT01, WC02	Pb 32.14 CrO_2 0.08

Table 5-41. Summary of Information from Solid Waste Storage Disposal Records for Containers of TRU Mixed Waste. (10 sheets)

Date accepted	Pin number	Manifest number	SWSDR number	Hazardous constituents	Waste codes*	Weight (kg)/%
10/31/90	RHZ-220-A21302	09025	300372	Ba, Cd, Pb, $PbCrO_2$, Hg	D008, WT01, D007, WC02, D005, D006, D009	Ba 0.01, Cd 0.01, Pb 47.85, CrO_2 0.1, Hg 0.01
10/31/90	RHZ-212-A21207	09025	900370	Pb, $PbCrO_2$	D008, D007, WT01, WC02	Pb 68.17 CrO_2 0.69
12/10/90	RHZ-212-A21303	PFP09026	900445	Lead	D008, WT01	24.38/40
12/10/90	RHZ-220-A21295	PFP09026	900444	Ba, Cd, Pb, Hg, $PbCrO_2$, Lead acid	D002, D005, D006, D007, D008, WT01, WC02	Ba 0.01 Cd 0.01 Hg 0.01 Pb 66.94 Acid 0.01 CrO_2 0.06
12/10/90	RHZ-220-A21343	PFP09026	900447	Pb, $PbCrO_2$,	D007, D008, WT01, WC02	Pb 38.17 CrO_2 0.01
12/10/90	RHZ-212-A21410	PFP09026	900446	Lead, lead acid, $PbCrO_2$	D002, D007, D008, WT01, WC01	Pb 33.57 Acid 0.03 CrO_2 0.05
02/04/91	RHZ-213-A21545	09101	910003	Pb, $PbCrO_2$, lead acid	D008, WT01, D002, D009, D007, WC02	Pb 50.5, CrO_2 1.5, Acid 1.5
02/04/91	RHZ-212-A21462	09101	910001	Pb, $PbCrO_2$, Hg, Ba, Cd	D008, WT01, D006, D009, WC02, D007	Pb 7.5, CrO_2 0.04, Ba 0.01, Cd 0.01, Hg 0.01
02/04/91	RHZ-212-A21603	09101	910002	Pb, $PbCrO_2$	D008, WT01, D007, WC02	Pb 25.5, CrO_2 0.04

Table 5-41. *Summary of Information from Solid Waste Storage Disposal Records for Containers of TRU Mixed Waste.* (10 sheets)

Date accepted	Pin number	Manifest number	SWSDR number	Hazardous constituents	Waste codes*	Weight (kg)/%
28 03/21/91	RHZ-212-A21606	91037	910040	Ba, Cd, Pb, $PbCrO_2$, Hg	D006, D007, D008, D009, WC02, WT01	Ba 0.01, Cd 0.01, Pb 6.49, CrO_2 0.08, Hg 0.01
05/20/91	RHZ-212-A21763	10487	910042	Pb, $PbCrO_2$, Hg, Ba, Cd	D008, WT01, D006, D009, WC02, D007	Pb 7.84, CrO_2 0.13, Hg 0.01, Ba 0.01, Cd 0.01
05/20/91	RHZ-212-A21799	10487	910044	Lead gloves	D008, WT01	34.32/25
05/20/91	RHZ-213-A21803	10487	910045	Lead, $PbCrO_2$, Pb acid, Hg, Cd, Ba	D008, D007, WC02, WT01, D009, D006	Pb 32.31, CrO_2 2.7, Acid 0.01, Ba 0.01, Hg 0.01, Cd 0.01
05/20/91	RHZ-213-A21768	10487	910043	Lead, $PbCrO_2$, lead acid	D007, D008, WC02, WT01, D009	Pb 8.43, CrO_2 0.025, Acid 8.0
05/20/91	RHZ-213-A21306	10487	910041	Pb, Hg, Ba, Cd, $PbCrO_2$,	D008, WT01, D006, D009, WC02, D007	Pb 34.32, CrO_2 0.01, Ba 0.01, Cd 0.01, Hg 0.01
07/25/91	RHZ-213-A21899	10760	910234	Pb, $PbCrO_2$, Hg, PbOH, Ba, Cd	D008, WT01, D006, D009, WC02, D002	Pb, 44.47, CrO_2 0.2, PbOH 0.07, Hg 0.02, Ba 0.02, Cd 0.02
07/25/91	RHZ-212-A21860	10760	910231	Lead (glove, paint)	ABOVE -D008	37.1/35
07/25/91	RHZ-212-A21910	10760	910232	Lead chromate, lead Hg, Ba, Cd	D008, WT01, D007, WC01, WC02, D009, D006	Pb 21.25 CrO_2, Hg 0.01, Ba 0.01, Cd 0.01

Table 5-41. Summary of Information from Solid Waste Storage Disposal Records for Containers of TRU Mixed Waste. (10 sheets)

Date accepted	Pin number	Manifest number	SWSDR number	Hazardous constituents	Waste codes*	Weight (kg)/%
07/25/91	RHZ-213-A21869	10760	910233	KOH, Hg, Ba, Cd, Pb, $PbCrO_2$	D002, D009, WT01, D006, WC01, D008, WC02, D007	KOH 0.11, Hg 0.01, Ba.01, Cd 0.01, Pb 37, CrO_2.1
07/25/92	RHZ-212-A19730	PFP08903	890497	CCl_4: TBP absorbed	WT01, WC01, WP01	10.5/28
07/25/92	RHZ-212-A19845	PFP08914	890474	Lead gloves	D008, WT01	24.0/29
07/25/92	RHZ-212-A19729	PFP08903	890496	CCl_4: TBP absorbed	WT01, WC01, WP01	CCl_4: 6.5 TBP: 4.0
07/25/92	RHZ-212-A19731	PFP08903	890498	CCl_4: TBP absorbed	WT01, WC01, WP01	CCl_4: 6.5 TBP: 4.0

[1]Amercoat is a trademark of the American Paint Association.
[2]Waste Codes are from the *Washington Administrative Code* 173-303.
PCB = Polychlorinated byphenyl.
TBP = Tributyl Phospate.

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APPENDIX A

PFP FLOWSHEETS

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PLUTONIUM FINISHING PLANT FLOWSHEETS

6.1.2 Flowsheets

This section provides flow diagrams showing flow of materials and material balances for the plutonium handling and storage, plutonium recovery, and plutonium conversion operations. Most of the processes are "batch" operations; consequently, material balances are based on normal "batch" size.

No heat balances are provided since the amount of heat varies depending on the amount and type of materials being processed. The number of processes where heat is input is relatively small. The heat input is controlled by automatic temperature controllers. Most of the heat generated is dissipated to the ventilation system, primarily to the E-4 (offgas) system and thence discharged to the atmosphere via the 200-ft stack. Cooling water is provided to the following pieces of process equipment:

1. Reflux condensers in MT-5 in the PRF. The amount of heat generated by the heating plates varies over a wide range depending on the time a particular batch of recoverable material is heated. These operations are temperature controlled (~105 °C) and sufficient cooling water is supplied to condense all the water vapor and other condensibles.

2. The concentrator condensers (two) in the PRF are supplied with cooling water sufficient to condense the water vapors from the solutions being concentrated. The concentrators are steam heated and controlled to a temperature (~110 °C); the amount of heat input varies over a wide range depending on plutonium concentration in the feed and the plutonium concentration desired in the product.

3. The MT vacuum pump has a closed-loop cooling system. A fixed flow (20% of full scale) is set and then is not changed during operation. The heat is dissipated to the protected process water (PPW) system which discharges to the Z-20 Crib.

4. Most of the process cell organic tanks' recirculating lines are equipped with tube-in-tube cooling water jackets. These jackets are used to remove heat added by recirculating pumps and radiolysis. Recirculation is used to prevent precipitation and minimize concentration gradient (plutonium polymer can form at low acid concentration or high temperatures). The amount of heat generated varies depending on circulation rates, time of operation, and concentration of plutonium. Water flow is set at a constant rate, sufficiently high to remove the generated heat.

5. The copper induction coils for the reduction furnaces in glovebox HC-15 are provided with cooling water flowing at a fixed rate. The total amount of heat input to this stream also varies between batches depending on batch size and how much heat is dissipated by the offgas ventilation system.

6. The FLUR KOH scrubber solution is cooled by a closed-loop cooling system. A secondary cooling loop dissipates the heat to the plant cooling water which discharges to the Z-20 Crib. The amount of heat generated varies depending on the amount of HF reacting with the KOH. This also varies depending on the feedrate of PuO_2 to the FLUR and the amount of downtime of the FLUR while HF is flowing. Adequate cooling is provided to assure that KOH scrubber solution is maintained below 79 °C.

Flowsheets are seldom required in the PPSL. Most of the projects are small chemistry demonstrations done in batch steps. Many of the processing steps cannot be decided until the results of the previous step are determined. Larger continuous experiments frequently demonstrate process flowsheets planned for use in production facilities. These planned flowsheets are demonstrated either full sized or scaled down to pilot plant size, where the principles of the operations can be demonstrated at a smaller scale. Flowsheets are incorporated into test plan documents unless the flowsheet is so complex that a separate document is required.

6.1.2.1 Fissile Material Receiving, Handling, Shipping, and Storage. Fissile material is received at the PFP at Building 2736-ZC, the loading dock at the 2736-Z Support Facility. The single exception is the PUREX plutonium nitrate received in PR cans at 234-ZC, the loading dock at the west side of Building 234-5Z.

The overall schematic flow diagram for dry fissile material handling at PFP is shown in Figure 6.1-6.

The schematic flow diagram for receipt and LI/LO of plutonium nitrate solution from PUREX and PRF is shown in Figure 6.1-7.

6.1.2.2 Plutonium Recovery Flowsheet. The PRF uses a continuous SX process to convert plutonium-bearing materials to a concentrated plutonium nitrate product suitable for conversion to plutonium metal. Feed to the SX process is obtained from the dissolution plutonium-recoverable materials, filtrate from the RMC Line, and other aqueous solutions. This section describes the process flowsheets and material balances for each process.[6.7,6.8]

Figures 6.1-8 and 6.1-9 show the overall flow of plutonium-recoverable material to provide feed for SX. Precise material balances vary depending on the feed material. Figures 6.1-10, 6.1-11, and 6.1-12 show typical flowsheets for hydrolysis (glovebox HC-60), scrap dissolution (MT-5), and solution preparation clarification (MT-6), respectively. A flowsheet for ash calcining (glovebox HA-40F) is not shown since it is normally not required and both it and glovebox HA-46F are not operational. Glovebox HC-60 also is currently not operational due to a hot plate temperature controller problem but a fix may be relatively simple. Both HC-60 and MT-5 rely on hot plate control systems to limit solution temperature. The solution temperature is measured and the power to the hot plate is shut off on high temperature or low deviation on heat-up rate.

Figure 6.1-13 shows the flowsheet for dissolution of a typical lot of S&C material in the S&C dissolvers. Note there are two reaction rates, a fast dissolution rate of the calcium and iron components followed by a slow dissolution rate of the materials in the crucible and sand.

Each S&C dissolver has two interlock circuits. One is on the differential pressure (DP) between the protected process cooling water (PPCW) and the dissolver process. On low DP, the PPCW pump is shut off and valves shut to isolate the cooling jacket. The other is on the charging ball valves. Both valves cannot be opened simultaneously without bypassing this interlock circuit. In that case, the S&C bypass interlock drains the dissolver to assure the S&C system, including the S&C glovebox, cannot be pressurized by inadvertently charging a can with both valves open and acid in the dissolver.

Figure 6.1-14 shows a schematic diagram of the feed preparation tankage for plutonium reclamation. The crude feed composition will vary over a wide range but generally will not exceed those shown in Figure 6.1-15. The composition is adjusted by adding appropriate amounts of HNO_3, ANN, and an anti-emulsifying agent to the feed to optimize CA column operation. Safety instrumentation of importance include the CCl_4 detector in the chemical makeup room 40 and tankage liquid volume detectors (WF).

A typical SX flowsheet (currently in use) for the entire process system is shown in Figure 6.1-15. Included are the subsystems for chemical makeup, feed preparation, plutonium extraction and stripping, plutonium product concentration solvent cleanup, and waste handling (including filtrate and miscellaneous recycle stream concentration). The actual composition and flowrates of the various streams will vary from those shown, depending on the feed composition and the actual operation of the various columns. Part of the CCP (product) stream from the top of the CC column is recycled as CAIS to the CA column and part of the stream is bled off as feed to the product concentrator. This recycling operation increases the concentration of plutonium in the product stream up to about 60 g/L, thereby reducing the load on the product concentrator.

Figure 6.1-6. 2736-Z Support Facility Solid Fissile Material Handling Flow Diagram.

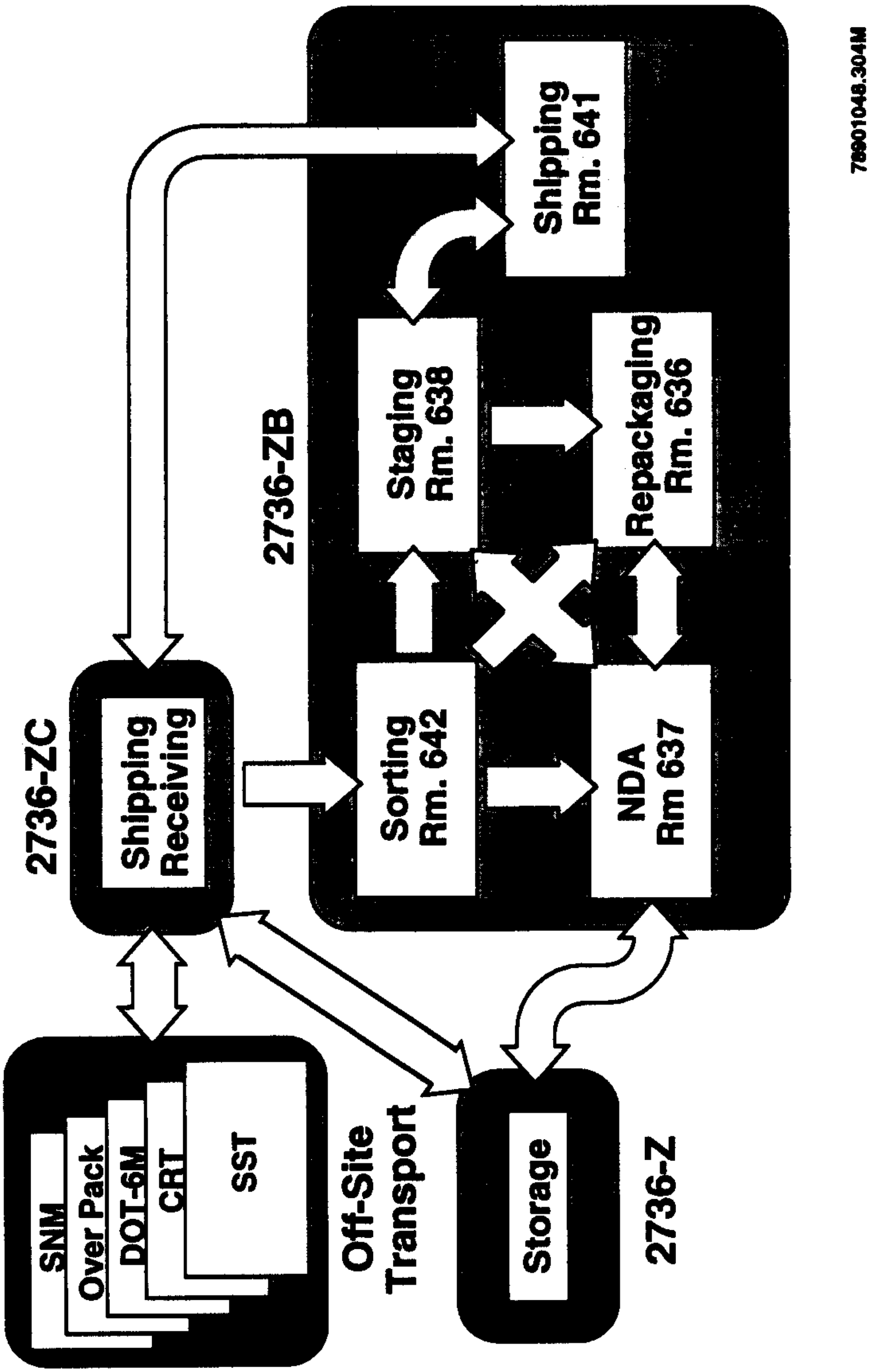


Figure 6.1-7. Load-In/Load-Out Operations Flow Diagram.

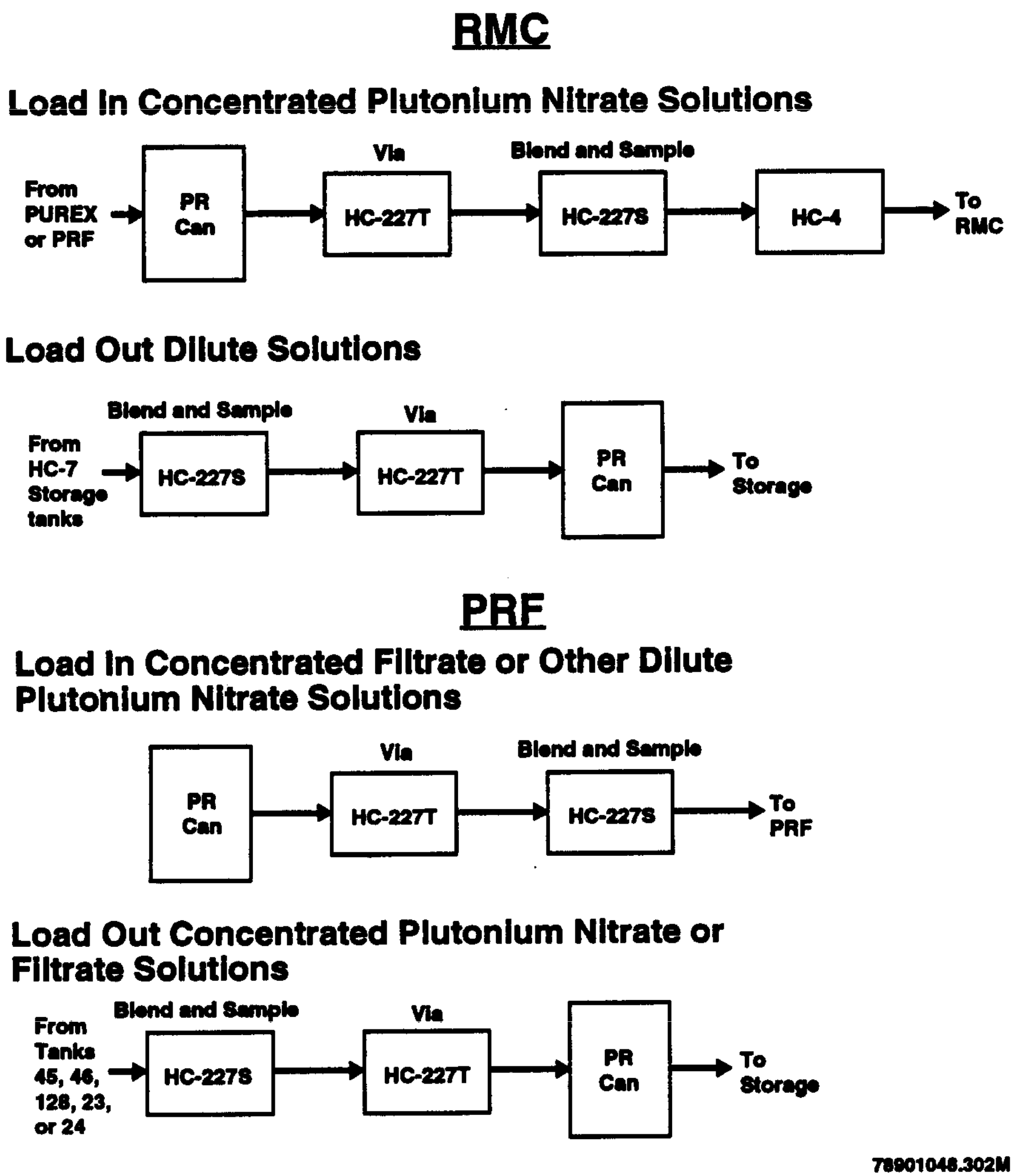


Figure 6.1-8. Recoverable Material Dissolution Flowsheet.

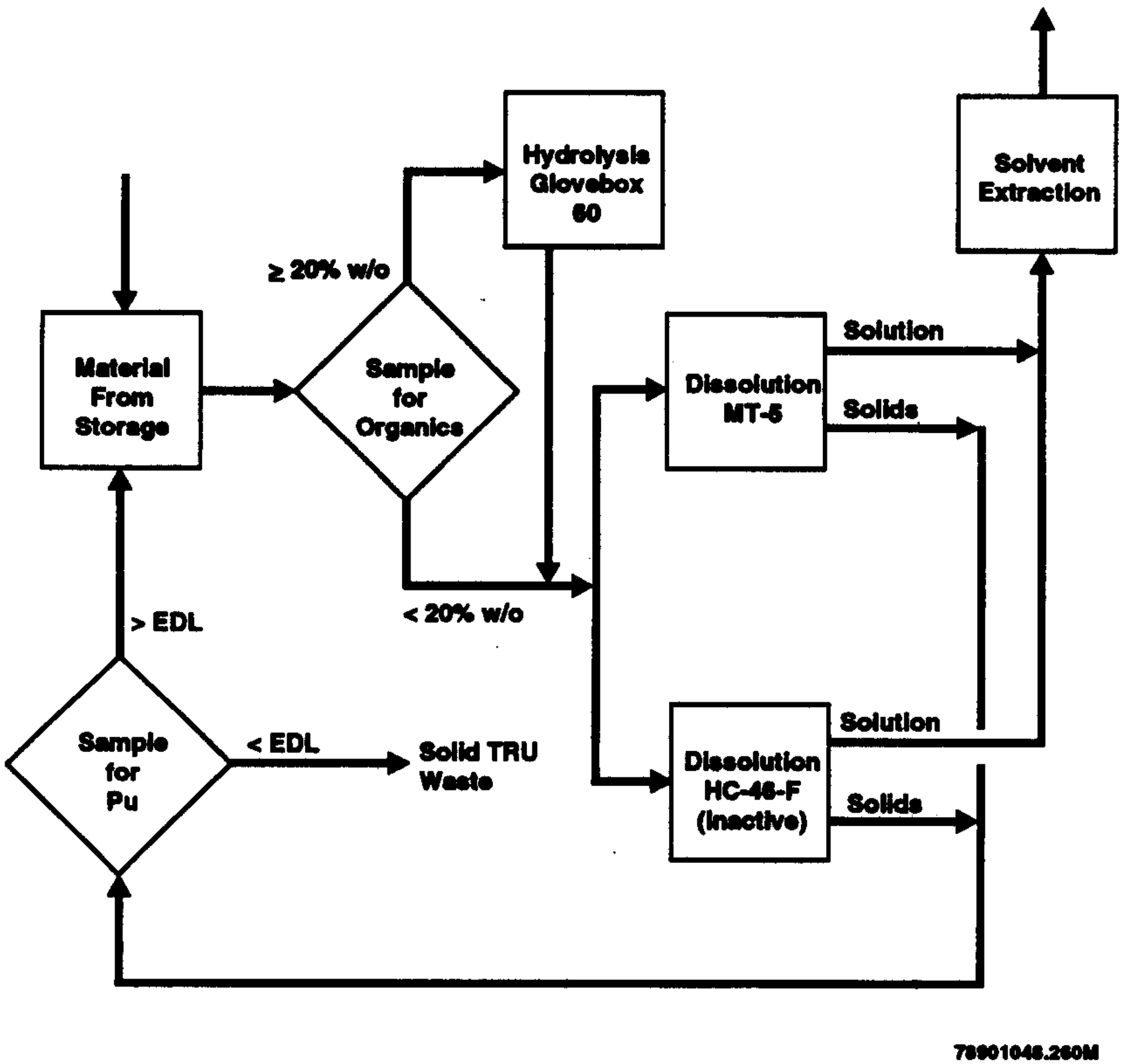
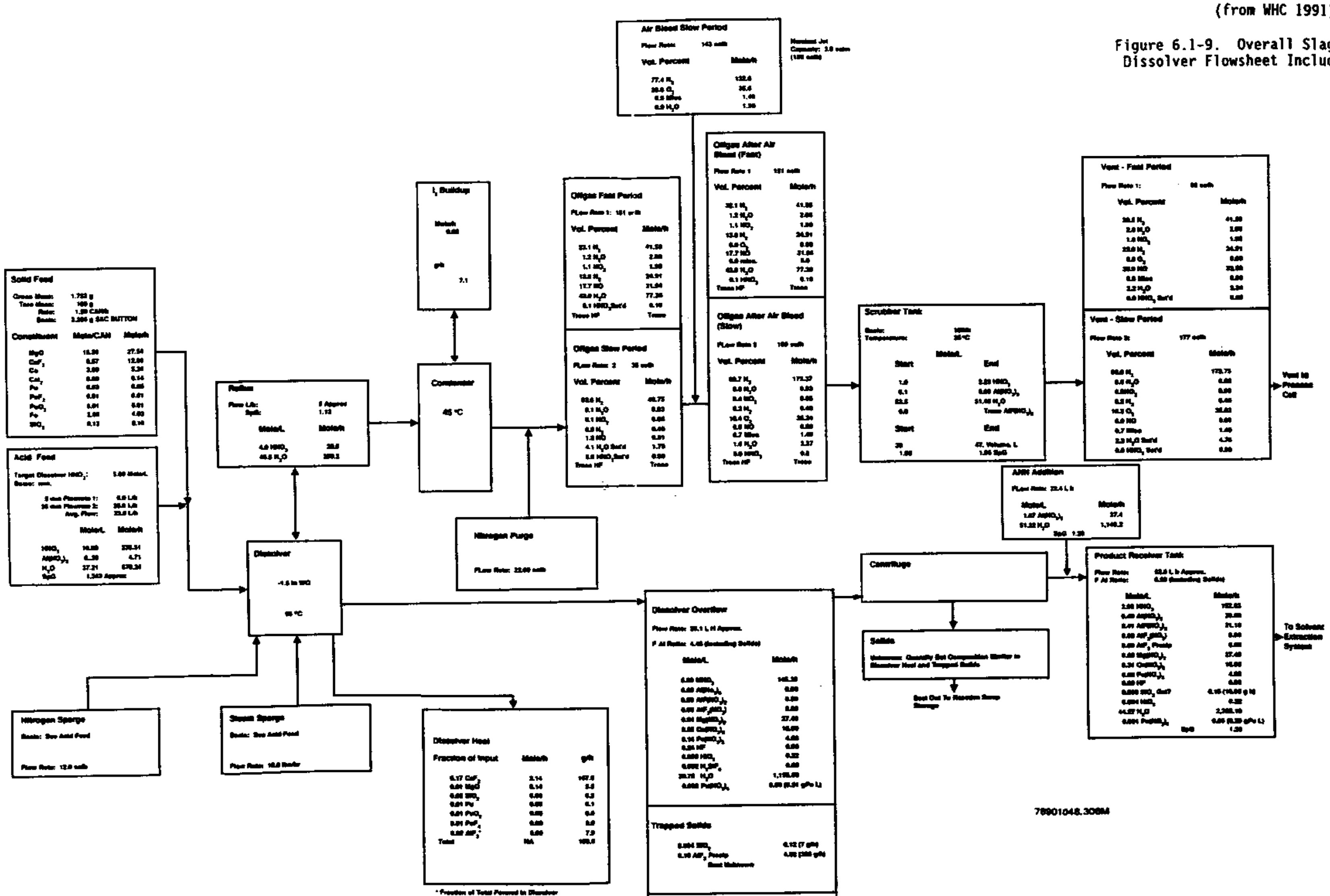


Figure 6.1-9. Overall Slag and Crucible Dissolver Flowsheet Including Flushes.



January 31, 1991

Figure 6.1-10. Glovebox 60 Flowsheet.

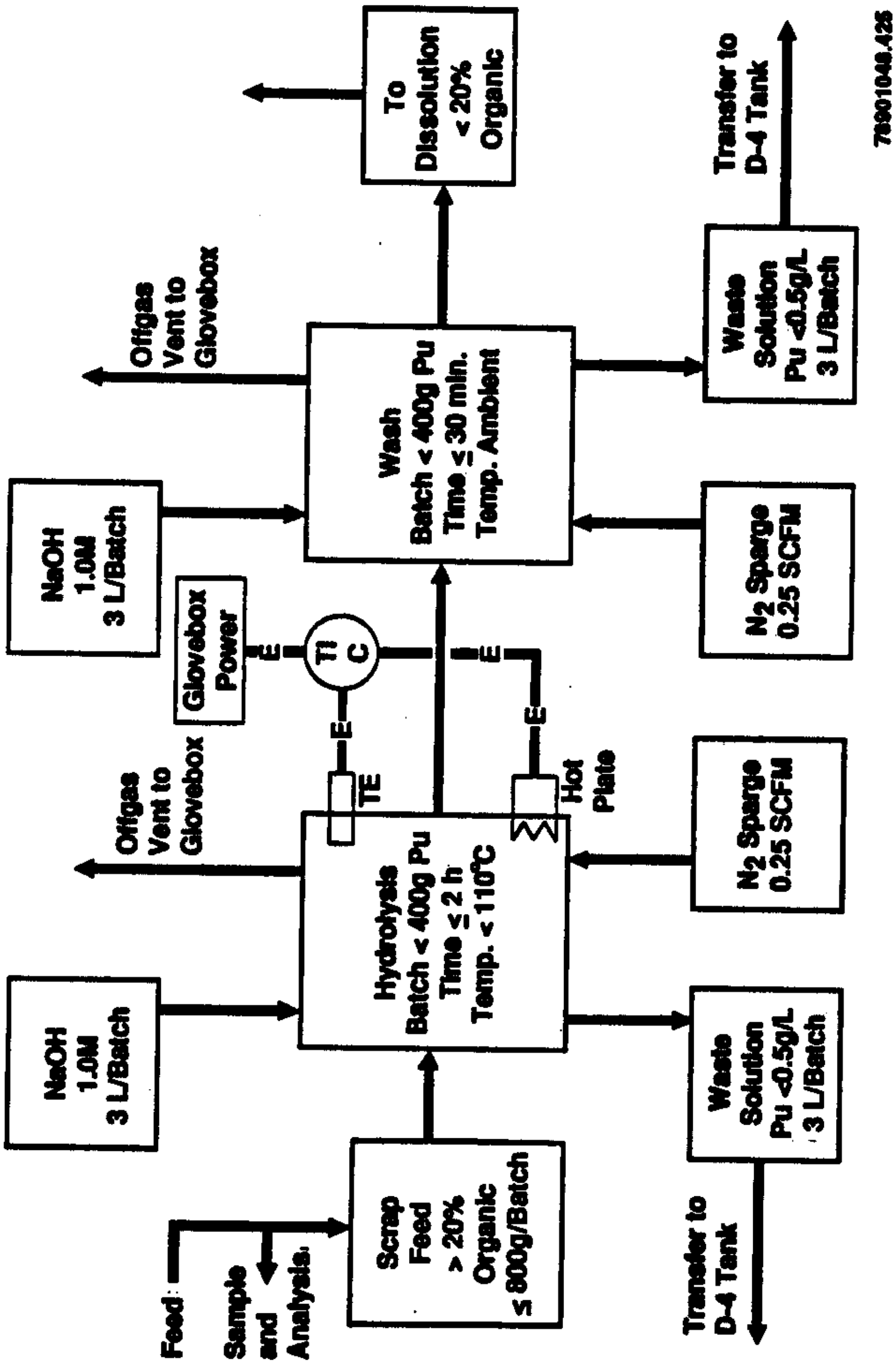


Figure 6.1-11. Miscellaneous Treatment Glovebox 5 Flowsheet.

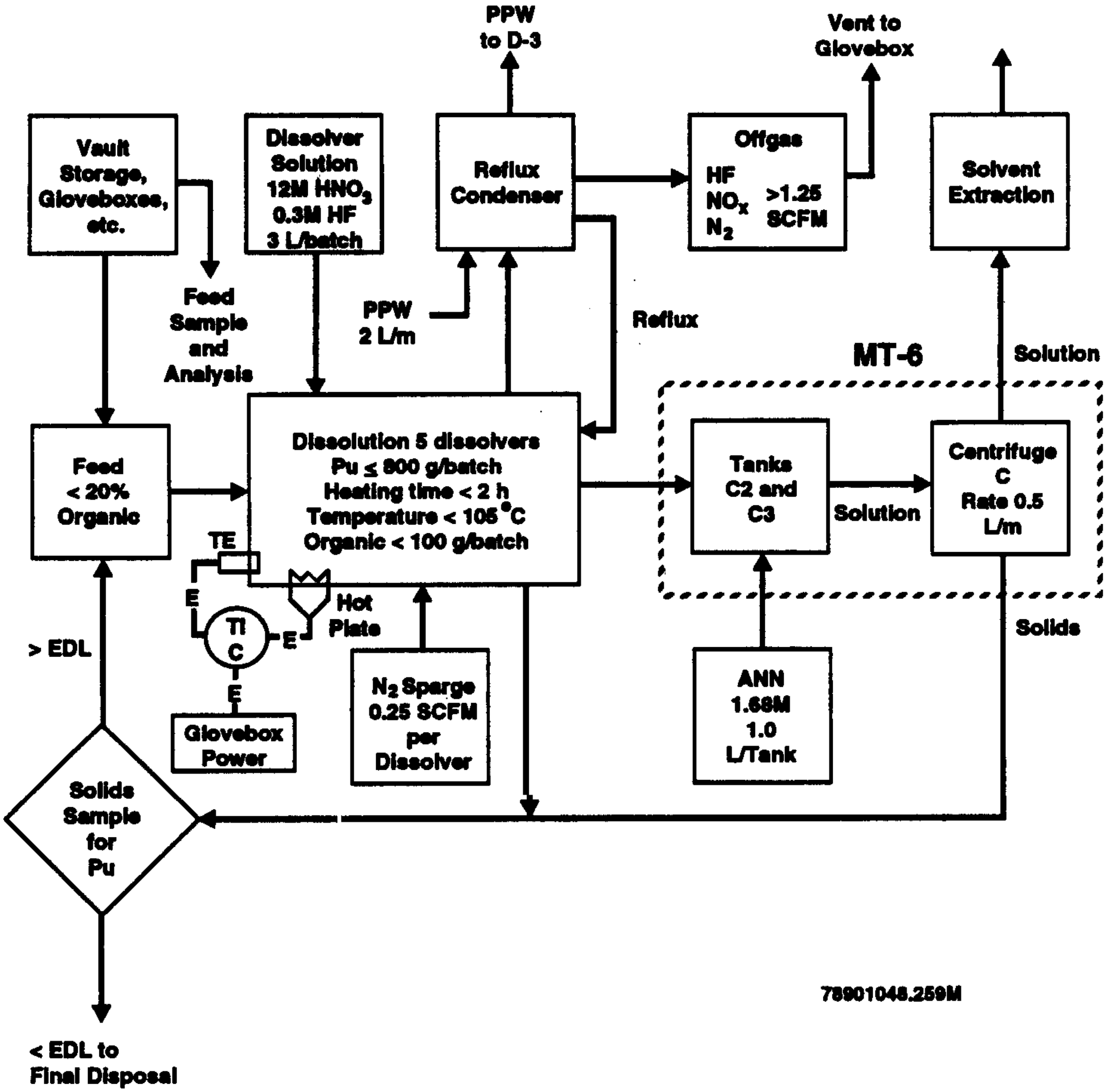


Figure 6.1-12. Miscellaneous Treatment Glovebox 6.

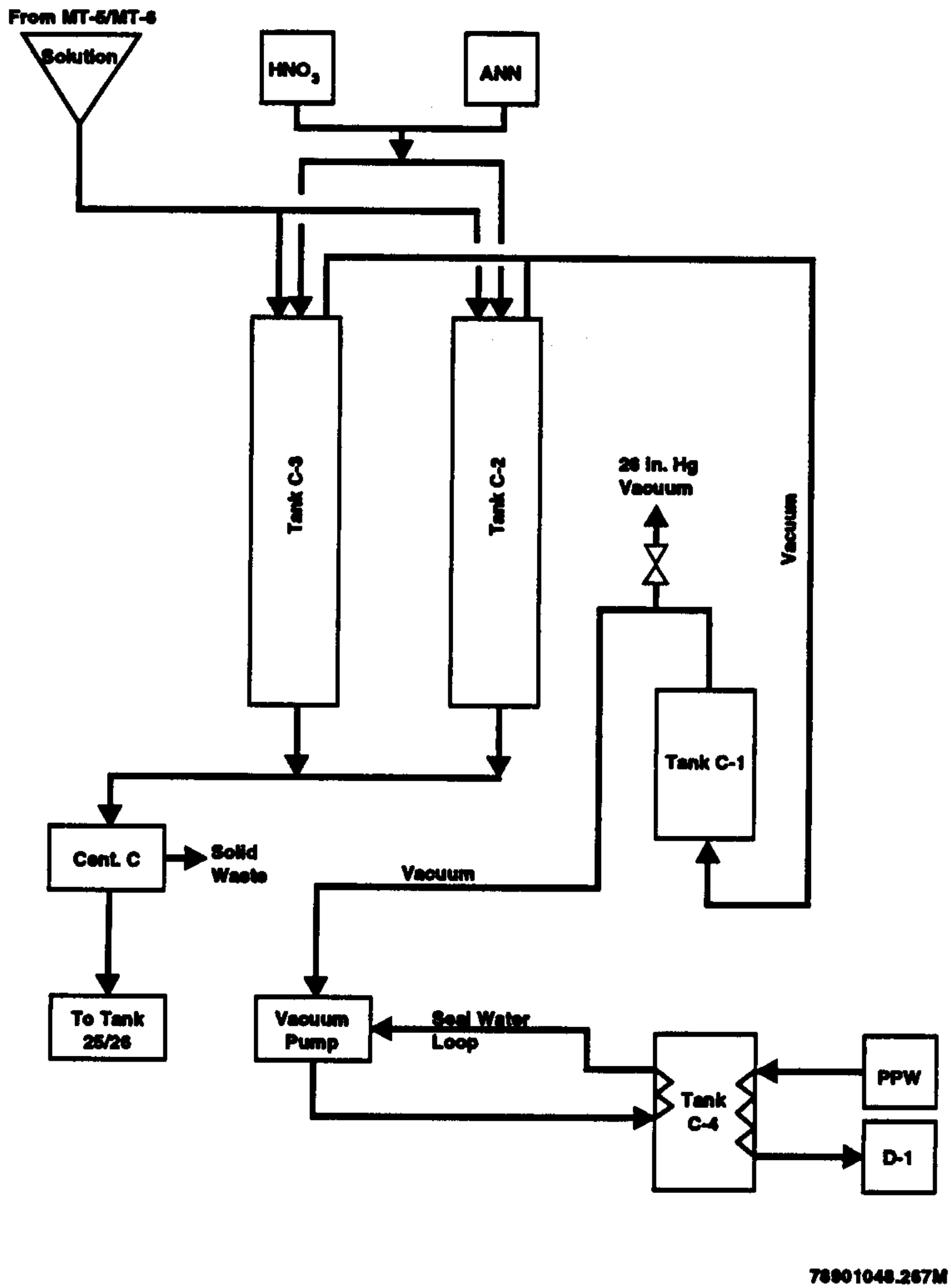


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Figure 6.1-13. Slag and Crucible Material Dissolution Flowsheet.

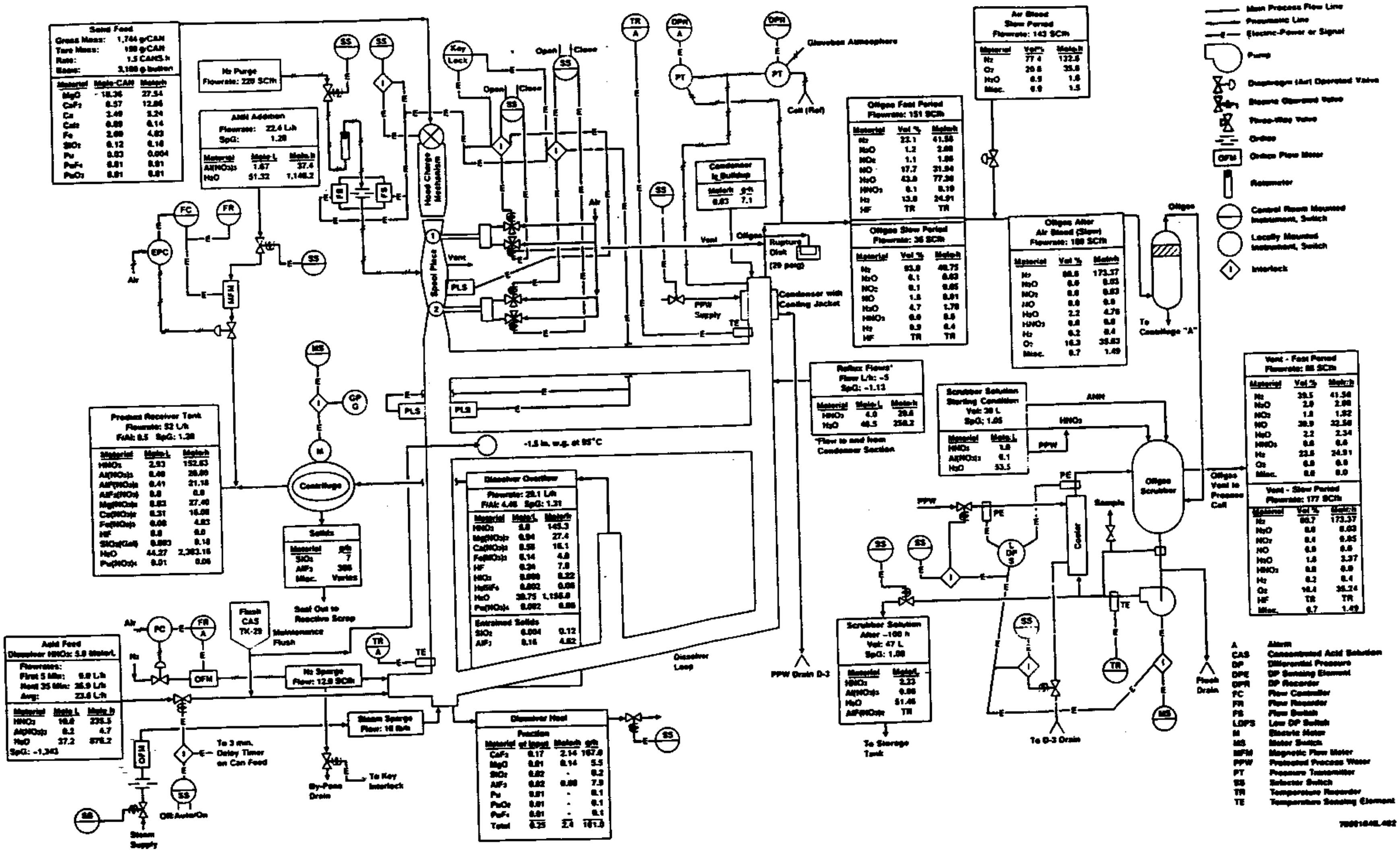

Figure 6.1-14. Flow Sketch Feed Preparation Process.

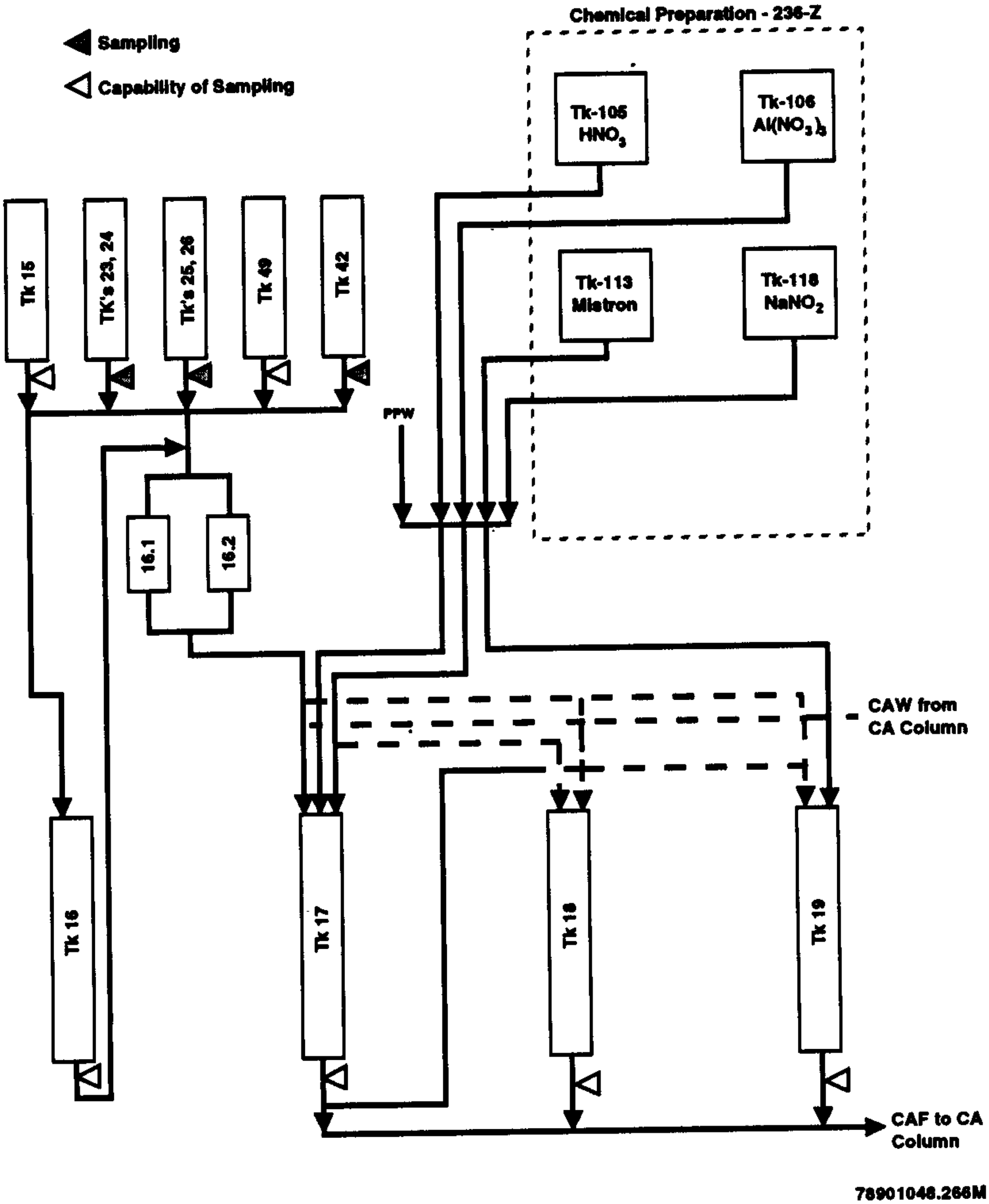

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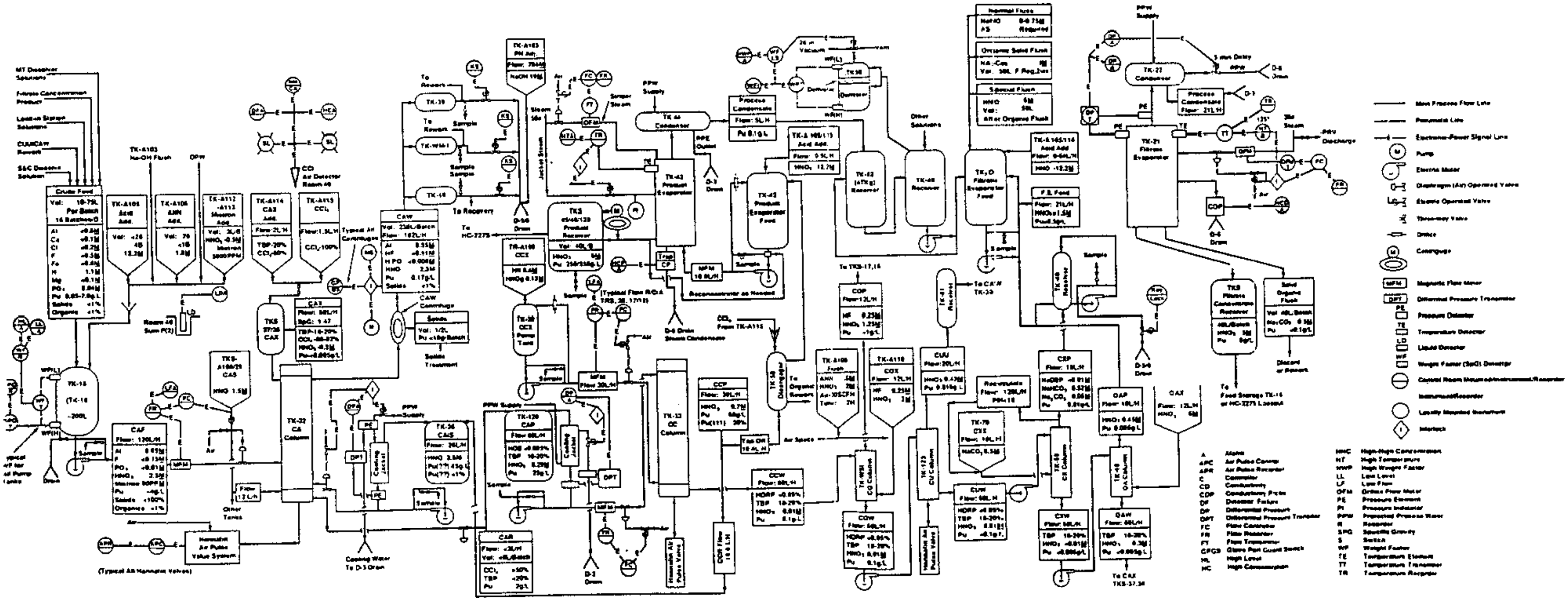
Figure 6.1-15. Typical Solvent Extraction Flowsheet.



Important safety systems are shown in Table 6.1-1 and are illustrated in Figure 6.1-15. Table 6.5-2 provides a listing of safety class instrumentation for PRF. Table 6.1-2 lists primary PRF systems important to product quality.

An alternate flowsheet, shown in Figure 6.1-16 and in PFD-Z-180-00002, was used in the recent past for coextraction of uranium and plutonium in the CA column.[6.2] The plutonium and uranium were separated by preferentially stripping the plutonium from the TBP in the CC column, with the uranium remaining in the organic phase to be stripped later and discarded. The separation is accomplished by reducing the plutonium from its normal tetravalent state to the trivalent state by the use of HN. The trivalent plutonium is easily stripped into a dilute HNO_3-NH_2NH_2 solution.

At present, tankage is not available to operate with the alternate flowsheet. However, if needed, tankage can be realigned or replaced as needed for this alternate flowsheet or other possible flowsheets.

The plutonium product from the CC column is concentrated by evaporation. The flowsheet for product concentration is included in Figure 6.1-17. To reduce the possibility of nitrated organic-plutonium compounds from being formed during product concentration, the CCP stream is first contacted with clean CCl_4.

Table 6.1-3 shows a listing of the drawing numbers of the piping and instrumentation diagrams (P&ID) for the in-cell tanks. Table 6.1-4 shows the list for the associated out-of-cell tanks, and Table 6.1-5 shows the list for the chemical preparation tanks.

The P&IDs for MT tanks in the PRF are shown in Drawings H-2-28013 and H-2-27984.

Typical plutonium inventories at various locations are in Table 6.1-6.

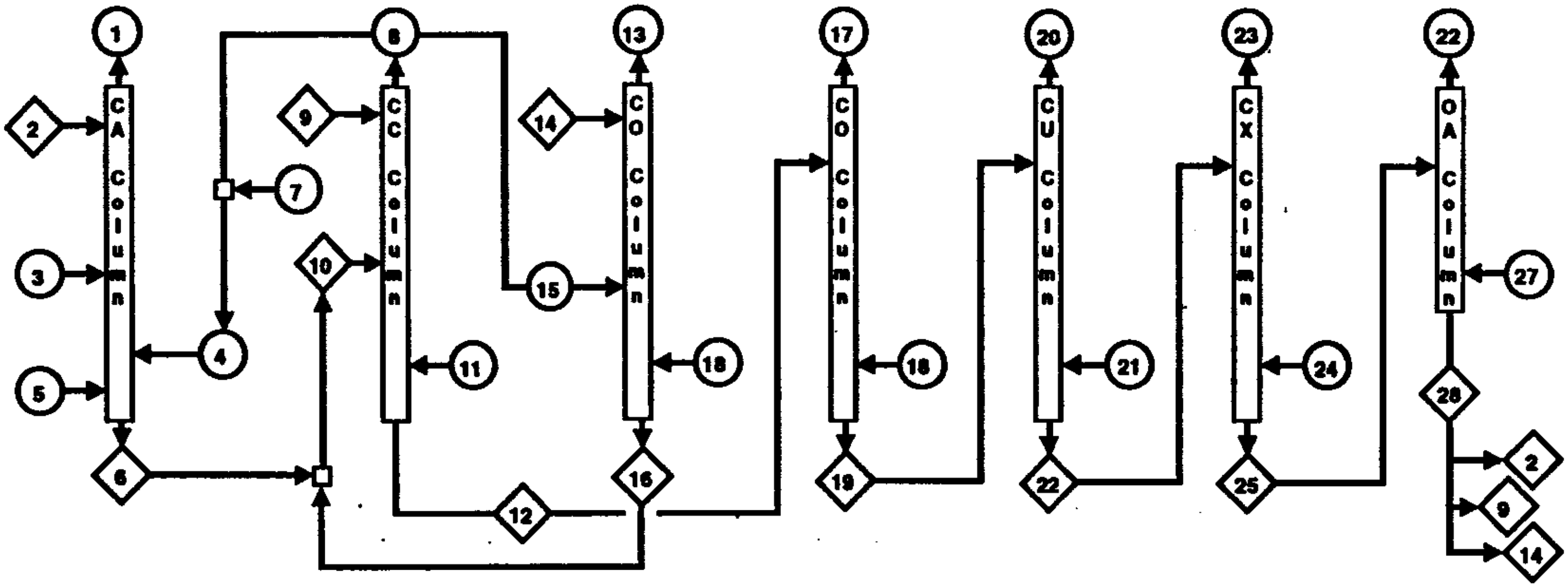
Table 6.1-1. Primary Plutonium Reclamation Facility Safety Systems.

System	Sample point	Control point
TK-50 Hi WF interlock	Level instrument - 50 WFT A	Vacuum/vent valve-EMV 50 D
TK-36 Cooling water jacket DP interlock	DP Cell on cooling jacket - 36 DPT	Relay to shut off 36 pump
TK-120 Cooling water jacket DP interlock	DP Cell on cooling jacket - 120 DPT	Relay to shut off 120 pump
TK-43 Hi temperature interlock	Temperature probe in TK-43-43 T	Steam supply valve DOV 43 C
TK-43 Steam jacket conductivity alarm	Conductivity probe in condensate line-C 43 E	Alarm in control room
TK-21 Hi temperature interlock	Temperature probe in TK-21-TE 21 C	Steam supply valve DOV 21 E
TK-21 Steam jacket conductivity alarm	Conductivity probe in condensate line-C 21 E	Alarm in control room
TK-21 Process condensate diversion	Demister DP cell-21 DPT D	EMV on Process condensate line - EMV 21 D
Chemical preparation CCl_4 monitor	By TK-A115	Alarm/light in chemical preparation and control room
CAW Discharge to TK-D5	CAW Tank sample valves -251, -275, and -291	Key operated discharge valves-EMVs WM-1 A, -19 A, and -39 G

Table 6.1-2. Plutonium Reclamation Facility Product Quality Systems.

System	Sample point	Control point
CCX Makeup	CCX Tank sample valve	Makeup Plant Operating Procedure and D butting instructions
Feed tank salting strength	Tank 17 SpG monitor	Feed DOV
Feed tank acid	Tank conductivity probe	Acid addition EMV
Recycle tank acid concentration	Flowrate charts	Tank 36 acid addition controller
All process stream flow controller	Flow element	Flow control valve

Figure 6.1-16. Plutonium-Uranium Coextraction Partitioning.



Stream No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Stream	CAW	CAX	CAF	CAIS	CAS	CAP	[illegible]	CCP	CCS	CCF	CCX	CCW	CPP	CPS
Phase	AQ	ORG	AQ	AQ	AQ	ORG	AQ	AQ	ORG	ORG	AQ	ORG	AQ	ORG
Flow Rate	101.1	85.4	120	28.6	13.4	88.3	6.9	36.2	10.4	73.2	35.2	90.6	14.6	8.9
Uranium	Neg.		7.9	0.1		12.7				11.6		0.3	0.0027	
Plutonium IV	4(10)[illegible]		4.9	27		18.9		2.1		17.26		0.0001	1.9	
Plutonium III								33.1		0.06		0.001	33.2	
Nitric Acid	2.3	0.2	2.3	3.5	1.5	0.18	12.2	0.98	0.2	0.17	0.2	0.006	0.96	0.2
HN								0.25			0.4		0.25	
HF	0.08		0.15											
HZ											0.05			
Carbonate														

Stream No.	15	16	17	18	19	20	21	22	23	24	25	26	27	28	Units
Stream	CPF	CPW	COP	COX	COW	CUU	CUX	CUW	CXP	CXX	CXW	CAP	OAX	OAW	
Phase	AQ	ORG	AQ	AQ	ORG	AQ	AQ	ORG	AQ	AQ	ORG	AQ	AQ	ORG	
Flow Rate	14.6	8.9	18.12	18.12	90.6	52.5	52.5	90.6	101.2	101.2	90.6	0	0	90.6	Liters/Hours
Uranium	0.23	0.40	5.51		0.3	13.9		0.00	0.045		3(10)[illegible]			3(10)[illegible]	Grams/Liter
Plutonium IV	2.1	1.5	0.001												Grams/Liter
Plutonium III	33.1	0.7	0.006		5(10)[illegible]	8(10)[illegible]									Grams/Liter
Nitric Acid	0.88	0.003	1.5	2.0	0.06	0.11		4(10)[illegible]		0.2		2.7	0	0.2	M
HN	0.25														M
HF			0.25	0.25											M
HZ															M
Carbonate									0.4	0.4					M

79001046.222M

Figure 6.1-17. Product Concentration Flowsheet.

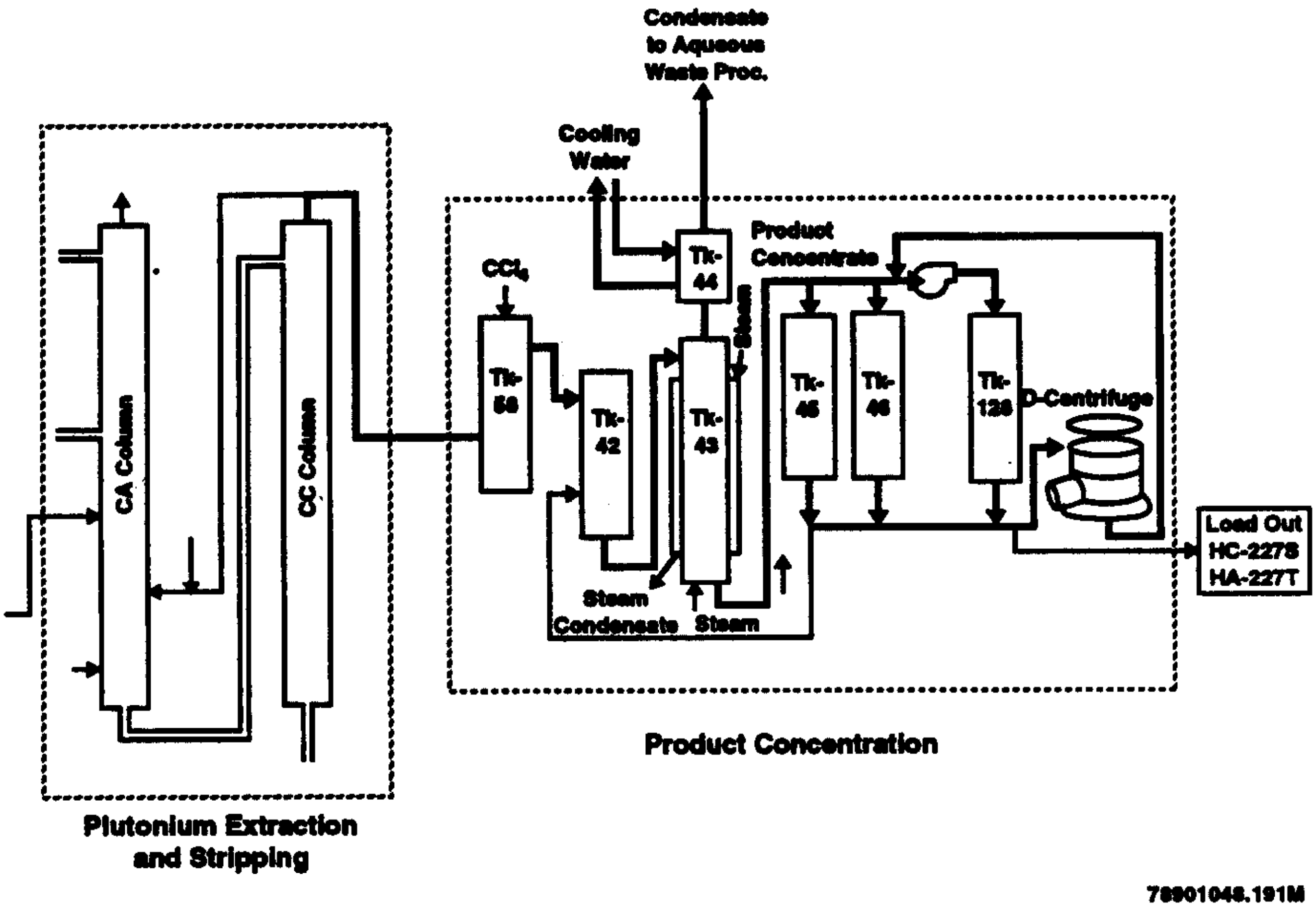


Table 6.1-3. Drawing List of Plutonium Reclamation Facility In-Cell Tanks Piping and Instrumentation Diagrams. (2 sheets)

Tank	Position	Designation	System PEFS
TK-08	EC	Dissolver	H-2-93533
TK-09	EC	Condenser	H-2-93533
TK-10	EG	Dissolver offgas scrubber	H-2-93496
TK-12	EH	Dissolver offgas scrubber	H-2-93496
TK-15	EJ	Dissolver receiver, filtrate receiver	H-2-28022
TK-16	EK	Storage vessel	H-2-28022
TK-17	WG	CAF Make-up	H-2-28021
TK-18	WH	CAF	H-2-28021
TK-19	WJ	Waste receiver	H-2-28041
TK-20	ES	Filtrate evaporator feed	H-2-28026
TK-21	ET	Filtrate evaporator	H-2-28026
TK-22	ET	Condenser	H-2-28026
TK-23	ER	Filtrate concentrator receiver	H-2-28026
TK-24	EP	Filtrate concentrator receiver	H-2-28026
TK-25	EN	Miscellaneous storage	H-2-28023
TK-26	EM	Miscellaneous storage	H-2-28023
TK-27	EL	Organic recycle	H-2-28018
TK-29	WD	CAS Pump	H-2-28015
TK-30	WC	CCX Pump	H-2-28019
TK-32	WD	CA Column	H-2-28019
TK-33	WC	CC Column	H-2-28019
TK-36	WT	CAIS Pump	H-2-28019
TK-37	WM	Organic pump	H-2-20817
TK-38	WN	Organic pump	H-2-20817
TK-39	WL	Wash receiver	H-2-28040
TK-40	WP	Wash receiver	H-2-28036
TK-41	WK	Wash receiver	H-2-28036
TK-42	WS	CCP Evaporator feed	H-2-28027
TK-43	WR	CCP Stripper evaporator	H-2-28027

Table 6.1-3. Drawing List of Plutonium Reclamation Facility In-Cell Tanks Piping and Instrumentation Diagrams. (2 sheets)

Tank	Position	Designation	System PEFS
TK-44	WR	Condenser	H-2-28027
TK-45	WS	CCP PR	H-2-28027
TK-46	WT	CCP PR	H-2-28027
TK-49	WV	Miscellaneous solution receiver	H-2-28016
TK-50	WZ	Vacuum receiver	H-2-28016
TK-69	WU	CX Column	H-2-28020
TK-70	WU	Wash receiver	H-2-28036
TK-120	WF	CAP Pump tank	H-2-28019
TK-123	WF	CU Column	H-2-28020
TK-124	ED	Dissolver (spare)	H-2-93533
TK-125	ED	Condenser (spare)	H-2-93533
WM-1	WE	Receiver	H-2-28041
TK-126	EF	Storage vessel	H-2-28022
TK-127	EE	Storage vessel	H-2-28022
TK-128	WV	CCP PR	H-2-28027

Table 6.1-4. Drawing List of Plutonium Reclamation Facility Out-of-Cell Tanks Piping and Instrumentation Diagrams.

Tank	Position	Floor	Designation	System PEFS
TK-48	WJ	2	OA Column tank	H-2-28020
TK-52.1	EW	1	Overflow tank	H-2-28032
TK-52.2	EW	1	Overflow tank	H-2-28032
TK-52.3	WW	1	Overflow tank	H-2-28032
TK-52.4	WW	1	Overflow tank	H-2-28032
TK-54	EW	1	Spare	H-2-28028
TK-57	W Gallery	3	Chemical addition tank	
TK-58		5	Disengager tank	H-2-28027
TK-82	WX	2	Organic LO tank	H-2-28017
TK-DWE-1	EU	2	Disengager tank	H-2-28024
TK-WM-2		2	Static mixer	H-2-28025
84	EE	1	Organic removal tank	H-2-28037
85	EC	1	Organic removal tank	H-2-28037
85A	EE	2	Organic removal tank and "A" centrifuge	H-2-28027 H-2-93533

Table 6.1-5. Drawing List of Plutonium Reclamation Facility Chemical Preparation Tanks Piping and Instrumentation Diagrams.

Tank	Stream designation	Function	System PEFS
A-101	---	Dissolver feed	H-2-28014
A-102	---	Dissolver feed	H-2-28014
A-103	---	1M NaOH	H-2-28014
A-104	---	Miscellaneous	H-2-28014
A-105	---	57% HNO_3	H-2-28014
A-106	---	50% ANN	H-2-28014
A-107	CXX	CX Column extractant	H-2-28014
A-108	CAS	1.5M HNO_3	H-2-28014
A-109	CCX	CC Column extractant	H-2-28014
A-110	COX	CO Column extractant	H-2-28014
A-112	---	S&C Dissolver flush	H-2-28014
A-113	ELS	Mistron™	H-2-28014
A-114	CAX	20 v/o TBP and 80 v/o CCl_4	H-2-28014
A-115	CCl_4	CCl_4	H-2-28014
A-116	---	Antifoam	H-2-28014
A-117	---	B-acid	H-2-28014
A-118	---	$NaNO_2$	H-2-28014
A-119	---	72% HNO_3	H-2-28014

Table 6.1-6. Plutonium Inventories--Plutonium Recovery System. (4 sheets)

Equipment number	Location	Function	Description	Working volume (L)	Nominal inventory (g Pu)		Chemical form	Criticality specification limit (g/L)
					Normal	Range		
TK-32 (CA Column)	Process cell	Extracts plutonium from aqueous feed	4-in. x 45-ft Stainless steel and Pyrex™	144	1,400	900 - 1,800	$Pu(NO_3)_4$ and[a]	450
TK-33 (CC Column)	Process cell	Strips plutonium from organic feed	4-in. x 45-ft Stainless steel and Purex™	144	5,100	3,400 - 6,800	$Pu(NO_3)_4$ and[a]	450
TK-WS-1 (CO Column)	Process cell	Plutonium scrubbing	6-in. x 19-ft 10-in. Stainless steel, Teflon™-lined	90	9	5 - 1,200	$Pu(NO_3)_4$ and[a]	450
TK-123 (CU Column)	Process cell	Uranium stripping	4-in. x 23-ft Stainless steel	65	1	0 - 7	$Pu(NO_3)_4$ and[a]	450
TK-69 (CX Column)	Process cell	DBP Scrubbing	6-in. x 12-ft 7-in. Stainless steel, Teflon™-lined	70	1	0 - 35	Trace plutonium and[a]	450
TK-48 (OA Column)	2nd Floor west section	Organic reacidification	5-in. x 4-ft 6-in. Stainless steel, Teflon™-lined	18	0	0 - 2	Trace plutonium	450
TK-15	Process cell	S&C Product receiver	5-in. x 3-ft 9-in. Stainless steel[b]	45	10	0 - 1,700	$Pu(NO_3)_4$	450
TK-16	Process cell	Miscellaneous storage	5-in. x 15-ft 4-in. Stainless steel[b]	185	2,700	1 - 20,000	$Pu(NO_3)_4$ and[a]	450
TK-17	Process cell	Feed makeup tank	5-in. x 15-ft 4-in. Stainless steel[b]	185	500	5 - 5,000	$Pu(NO_3)_4$	450
TK-18	Process cell	Feed transfer to CA column	5-in. x 15-ft 4-in. Stainless steel[b]	185	500	5 - 5,000	$Pu(NO_3)_4$	450
TK-19	Process cell	CAW Receiver cell	5-in. x 15-ft 4-in. Stainless steel[b]	185	3	0 - 140	$Pu(NO_3)_4$	450
TK-127	Process cell	Miscellaneous storage	5-in. x 15-ft 4-in. Stainless steel[b]	185	2,700	0 - 20,000	$Pu(NO_3)_4$	450
TK-126	Process cell	Miscellaneous storage	5-in. x 15-ft 4-in. Stainless steel[b]	185	2,700	0 - 20,000	$Pu(NO_3)_4$ and[a]	450
TK-36	Process cell	CAIS Pump tank to CA column	5-in. x 45-in. Stainless steel[b]	45	1,700	100 - 4,000	$Pu(NO_3)_4$	450
TK-37	Process cell	CAX Pump tank	5-in. x 15-ft 4-in. Stainless steel[b]	185	0	0 - 30	TBP and CCl_4[a]	450
TK-38	Process cell	CAX Pump tank	5-in. x 48-in. Stainless steel[b]	185	0	0 - 30	TBP and CCl_4[a]	450

Table 6.1-6. Plutonium Inventories--Plutonium Recovery System. (4 sheets)

Equipment number	Location	Function	Description	Working volume (L)	Nominal inventory (g Pu)		Chemical form	Criticality specification limit (g/L)
					Normal	Range		
TK-39	Process cell	CAW Receiver tank (waste)	5-in. x 15-ft 4-in. Stainless steel[b]	185	3	0 - 140	$Pu(NO_3)_4$	450
TK-40	Process cell	CXP Receiver tank (waste)	5-in. x 13-ft 8-in. Stainless steel[b]	185	7	0 - 500	$Pu(NO_3)_4$	450
TK-41	Process cell	CUU Receiver tank (waste)	5-in. x 45-in. Stainless steel[b]	45	0	0 - 30	$Pu(NO_3)_4$	450
TK-42	Process cell	Concentrator feed tank	5-in. x 45-in. Stainless steel[b]	45	1,700	100 - 14,000	$Pu(NO_3)_4$	450
TK-43	Process cell	Product concentrator	4-in. x 10-ft 9-in. Stainless steel with an annular steam jacket	5	1,000	1,000 - 3,500	$Pu(NO_3)_4$	450
TK-44	Process cell	Condenser	6-in. x 3-ft 8-in. Stainless steel	N/A	100	100 - 200	N/A	450
TK-45	Process cell	PR Tank	5-in. x 45-in. Stainless steel[b]	45	9,000	200 - 20,000	$Pu(NO_3)_4$	450
TK-46	Process cell	PR Tank	5-in. x 45-in. Stainless steel[b]	45	9,000	200 - 20,000	$Pu(NO_3)_4$	450
TK-20	Process cell	Evaporator feed	5-in. x 45-in. Stainless steel[b]	45	3	0 - 15	$Pu(NO_3)_4$	450
TK-21	Process cell	Evaporator	6-in. x 72-in. Stainless steel with shell and tube heat exchanger	25	200	1 - 2,000	$Pu(NO_3)_4$	450
TK-22	Process cell	Condenser for evaporator TK-21	6-in. x 44-in. Stainless steel	N/A	5	0 - 10	N/A	450
TK-23	Process cell	Evaporator receiver for TK-21	5-in. x 45-in. Stainless steel[b]	45	300	0 - 4,000	$Pu(NO_3)_4$	450
TK-24	Process cell	Evaporator receiver for TK-21	5-in. x 45-in. Stainless steel[b]	45	300	0 - 4,000	$Pu(NO_3)_4$	450
TK-25	Process cell	MT Receiver tank	5-in. x 45-in. Stainless steel[b]	45	2,800	0 - 16,000	$Pu(NO_3)_4$	450
TK-26	Process cell	MT Receiver tank	5-in. x 45-in. Stainless steel[b]	45	2,600	0 - 16,000	$Pu(NO_3)_4$	450
TK-27	Process cell	CAR Supply to CA column	5-in. x 45-in. Stainless steel[b]	45	70	0 - 700	$Pu(NO_3)_4$	450

Table 6.1-6. Plutonium Inventories--Plutonium Recovery System. (4 sheets)

Equipment number	Location	Function	Description	Working volume (L)	Nominal inventory (g Pu)		Chemical form	Criticality specification limit (g/L)
					Normal	Range		
TK-29	Process cell	CAS Pump tank to CA column	5-in. x 45-in. Stainless steel[b]	45	0	0	N/A	450
TK-30	Process cell	CCX Pump tank to CC Column	5-in. x 45-in. Stainless steel[b]	45	0	0	N/A	450
TK-128	Process cell	PR Tank	5-in. x 45-in. Stainless steel[b]	45	9,000	20 - 20,000	$Pu(NO_3)_4$	450
TK-49	Process cell	Miscellaneous transfer tank	5-in. x 45-in. Stainless steel[b]	45	100	1 - 20,000	$Pu(NO_3)_4$	450
TK-52.1 and TK-52.2	East glovebox	East drain header receiver tanks	6-in. x 2-ft 6-in. Glass pipe	20	50	10 - 7,000	$Pu(NO_3)_4$	450
TK-52.3 and TK-52.4	West glovebox	West drain header receiver tanks	6-in. x 2-ft 6-in. Glass pipe	20	50	10 - 7,000	$Pu(NO_3)_4$ and[a]	450
TK-70	Process cell	CXX Pump tank	5-in. x 45-in. Stainless steel[b]	45	0	0 - 1	$Pu(NO_3)_4$	450
TK-58	Room 50 glovebox	Organic deentrainment	4-in. x 2-ft 6-in. Glass pipe	10	240	100 - 300	$Pu(NO_3)_4$	450
TK-120	Process cell	CAP Pump tank	5-in. x 7-ft 5-in. Stainless steel[b]	45	800	100 - 2,000	a	450
TK-WM-1	Process cell	CAW Receiver	5-6-in. x 14-ft 4-in. Stainless steel, 3 tubes	185	3	0 - 140	$Pu(NO_3)_4$	450
D Centrifuge	West glovebox	Solids removal from product	Stainless steel	2.7	500	100 - 1,000	$Pu(NO_3)_4$	3,000 g[c]
B1 and B2 Centrifuges	NT-6 glovebox	Solids removal from waste steam (CAW)	Stainless steel	2.7	15	1 - 50	$Pu(NO_3)_4$ and[a]	3,000 g[c]
Filter 16.1	East glovebox	Solids removal from feed solution	N/A	N/A	10	5 - 50	$Pu(NO_3)_4$	450
Filter 16.2	East glovebox	Solids removal from feed solution	N/A	N/A	10	5 - 50	$Pu(NO_3)_4$	450
Filter 5.1	West glovebox	Filter for solids removal	4-in. x 1-ft 6-in. Stainless steel		1	1	$Pu(NO_3)_4$	450
TK-C1	NT-6 glovebox	Vacuum catch tank for TK-C2 and TK-C3	Glass	5.6	5	5 - 20	$Pu(NO_3)_4$	450

Table 6.1-6. Plutonium Inventories--Plutonium Recovery System. (4 sheets)

Equipment number	Location	Function	Description	Working volume (L)	Nominal inventory (g Pu)		Chemical form	Criticality specification limit (g/L)
					Normal	Range		
TK-C2	MT-6 glovebox	Receiver tank for MT solutions	Glass	13.9	200	5 - 400	$Pu(NO_3)_4$	450
TK-C3	MT-6 glovebox	Receiver tank for MT solutions	Glass	14.4	200	5 - 400	$Pu(NO_3)_4$	450
C Centrifuge	MT-6 glovebox	Solids removal from liquid feed for solvent extraction	Stainless steel	2.7	100	5 - 200	$Pu(NO_3)_4$	3,000 g[c]

[a]$Pu^{++} \cdot 2TBP \cdot 4NO_3^-$.
[b]Equals 4 tubes per tank.
[c]Solid.

6.1.2.3 Plutonium Conversion Flowsheets. The plutonium conversion to metal process is semi-continuous.[6.9] A lot of plutonium nitrate solution is prepared in the HC-227S bank tanks and staged in the HC-4 tanks. Batches of solution are transferred to the PRT in glovebox HC-7 for acid and plutonium valence adjustment. The solution is drained to the THT as needed for continuous pumping to the RCTR vessel in glovebox HC-9B. The operations in HC-9B where the plutonium nitrate solution is converted to PuF_4 powder are continuous. Thereafter, the operation is conducted on a batch basis, with lag storage of powder pans and metal buttons between unit operations.

Figure 6.1-18 provides a flow diagram of the process through PuF_4 production. Table 6.1-7 provides the material balances for this part of the operation.

Figure 6.1-19 shows a flow diagram of the remainder of the process through producing a plutonium metal button. Table 6.1-8 shows the corresponding material balances. A small sample of the button is taken after the last step shown, but it amounts to about a 10-g quantity which is well within the variance of net metal production among individual buttons.

The flow diagrams also show all Process Safety Class 2 and most of Safety Class 3 instrumentation and controls (I&C). Not shown are the two HF detectors (Safety Class 2) at the 9AB filterbox. The exhaust from the middle of glovebox HC-9B leads to the 9B and 9AB filters (in series) and bypasses the E-4 offgas system, thus providing added assurance of E-4 filter integrity. Table 6.1-9 list the significant RMC Line safety systems.[6.10] Table 6.1-10 lists the Safety Class 2 and 3 RMC Line process instruments. Table 6.1-11 lists the safety-related interlocks. Table 6.1-12 lists the piping and instrumentation (P&I) drawing numbers which show schematics of the process and instrumentation. A detailed discussion of the safety class instruments is provided in Section 6.5. Table 6.1-13 provides the maximum expected inventories of plutonium (and its form) at various points in the process.

6.1.2.4 PPSL Flowsheets. Flowsheets are seldom required in the PPSL. Most of the projects are small chemistry demonstrations done in batch steps. Many of the processing steps cannot be decided until the results of the previous step are determined. Larger continuous experiments (i.e., pilot plants) frequently demonstrate process flowsheets planned for use in production facilities. These planned flowsheets are either used full-scale for the PPSL demonstration or scaled down to fit the sometimes smaller nature of the demonstration. Flowsheets are incorporated into test plan documents except where the flowsheet is so large or complex that a separate flowsheet document is required. Two flow diagrams used for the TRUEX process demonstration are shown for illustrative purposes (Figures 6.1-20 and 6.1-21). The associated flowsheet document for TRUEX is SD-WM-ER-040, Rev. 0, *Conceptual PFP TRUEX Flowsheet*.[6.11] Procedures, where needed, are also usually incorporated into the flowsheet document. Separate procedures may be provided if they are lengthy.

Figure 6.1-18. Remote Mechanical C Line Flow Diagram Nitrate Solution Through PuF_4 Production.

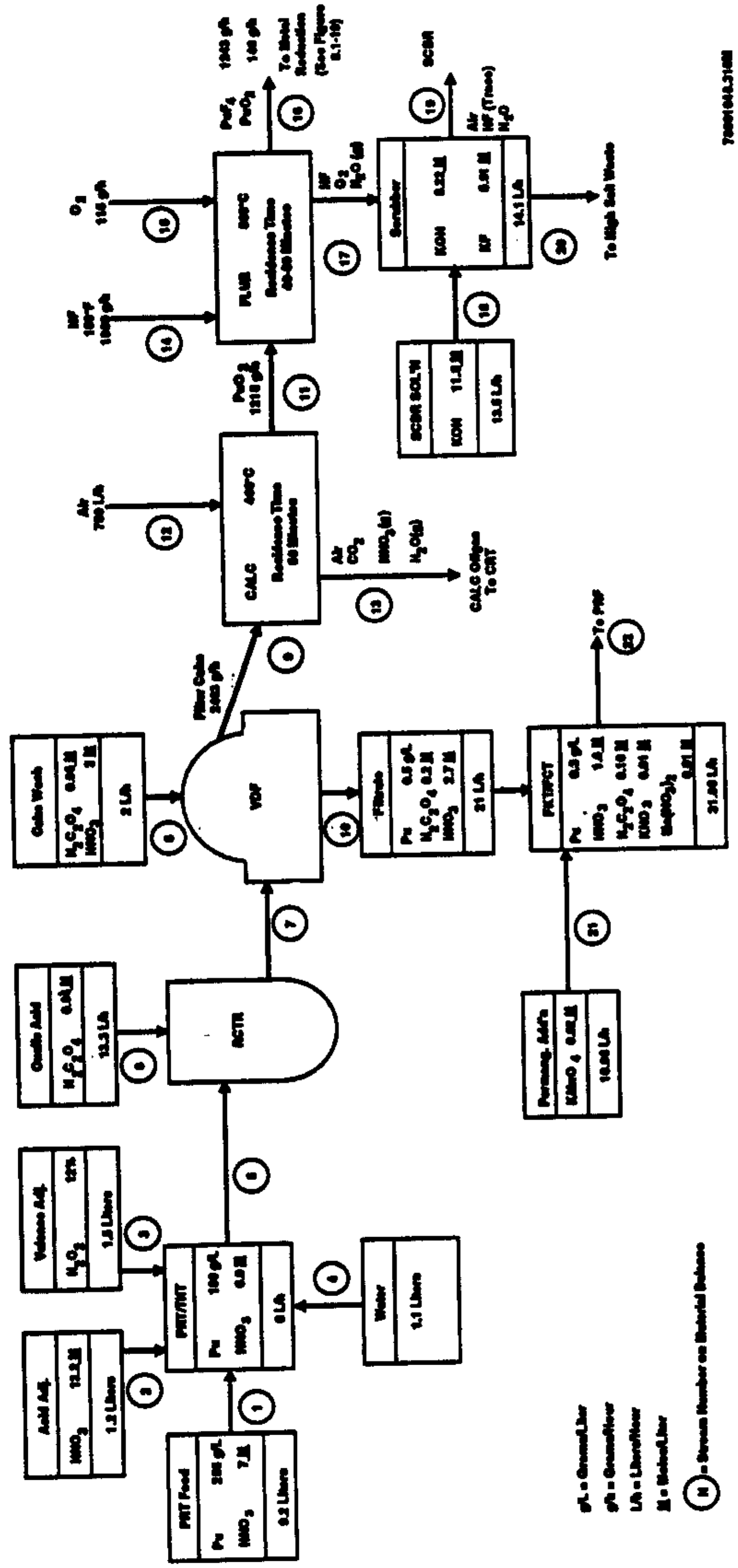


Table 6.1-7. Remote Mechanical C Line Material Balance Nitrate Solution Through PuF_4 Production. (2 sheets)

Stream	1	2	3	4	5	6	7	8	9	10	11
Description	PRT Feed	Acid adjust	Valence adjust	Water adjust	RCTR Feed	$C_2H_2O_4$	RCTR Product	Cake wash	CALC Feed	Filtrate	FLUR Feed
Phase	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid	Slurry	Liquid	Solid	Liquid	Solid
L	9.20	1.20	1.50	1.10	---	---	---	---	---	---	---
L/h	---	---	---	---	6.00	13.34	19.34	2.00	---	20.87	---
g Pu/L	255.00	---	---	---	180.46	---	55.99	---	---	0.52	---
SpG	1.64	1.35	1.04	1.00	---	1.03	---	1.06	---	1.09	---
Components <-------------------Grams/batch-----------------------------------											
Plutonium	(2,346)	---	---	---	(1,083)	---	(1,083)	---	(1,072)	(11)	(1,072)
$PuO_2(NO_3)_2$	581	---	---	---	---	---	---	---	---	---	---
$Pu(NO_3)_4$	4.063	---	---	---	2,206	---	22	---	---	22	---
$Pu(C_2O_4)_2 6H_2O$	---	---	---	---	---	---	2,345	---	2,345	---	---
PuO_2	---	---	---	---	---	---	---	---	---	---	1,215
PuF_4	---	---	---	---	---	---	---	---	---	---	---
HNO_3	4,151	923	---	---	2,256	---	3,386	239	23	3,603	---
H_2O_2	---	---	187	---	---	---	---	---	---	---	---
$H_2C_2O_4$	---	---	---	---	---	1,129	322	9	1	330	---
$KMnO_4$	---	---	---	---	---	---	---	---	---	---	---
KOH	---	---	---	---	---	---	---	---	---	---	---
KF	---	---	---	---	---	---	---	---	---	---	---
HF	---	---	---	---	---	---	---	---	---	---	---
O_2	---	---	---	---	---	---	---	---	---	---	---
N_2	---	---	---	---	---	---	---	---	---	---	---
CO_2	---	---	---	---	---	---	---	---	---	---	---
KNO_3	---	---	---	---	---	---	---	---	---	---	---
$Mn(NO_3)_2$	---	---	---	---	---	---	---	---	---	---	---
H_2O	6,293	697	1,373	1,100	4,392	12,609	16,517	1,872	94	18,295	---
Total	15,088	1,620	1,560	1,100	8,854	13,738	22,592	2,120	2,463	22,250	1,215

Table 6.1-7. Remote Mechanical C Line Material Balance Nitrate Solution Through PuF_4 Production. (2 sheets)

Stream	12	13	14	15	16	17	18	19	20	21	22
Description	Air to CALC	CALC Offgas	HF to FLUR	O_2 to FLUR	FLUR Product	FLUR Offgas	Scrubber solution	Scrubber effluent	Scrubber exhaust	Permang. addition	Filtrate to PRF
Phase	Gas	Gas	Gas	Gas	Solid	Gas	Liquid	Gas	Liquid	Liquid	Liquid
L	---	---	---	---	---	---	---	---	---	---	---
L/h	750.00	---	---	---	---	---	13.50	---	14.07	10.98	31.85
g Pu/L	---	---	---	---	---	---	---	---	---	---	0.03
SpG	---	---	---	---	---	---	1.42	---	1.42	---	1.06
--------------->Grams/hour<---------------											
Plutonium	---	---	---	---	(1,072)	---	---	---	---	---	(11)
$PuO_2(NO_3)_2$	---	---	---	---	---	---	---	---	---	---	---
$Pu(NO_3)_4$	---	---	---	---	---	---	---	---	---	---	22
$Pu(C_2O_4)_2 6H_2O$	---	---	---	---	---	---	---	---	---	---	---
PuO_2	---	---	---	---	146	---	---	---	---	---	---
PuF_4	---	---	---	---	1,243	---	---	---	---	---	---
HNO_3	---	23	---	---	---	---	---	---	---	---	3,561
H_2O_2	---	---	---	---	---	---	---	---	---	---	---
$H_2C_2O_4$	---	---	---	---	---	---	---	---	---	---	280
$KMnO_4$	---	---	---	---	---	---	---	---	---	35	---
KOH	---	---	---	---	---	---	8,786	---	4,119	---	---
KF	---	---	---	---	---	---	---	---	4,833	---	---
HF	---	---	1,980	---	---	1,664	---	---	---	---	---
O_2	185	41	---	115	---	115	---	115	---	---	---
N_2	716	716	---	---	---	---	---	---	---	---	---
CO_2	---	789	---	---	---	---	---	---	---	---	48
KNO_3	---	---	---	---	---	---	---	---	---	---	22
$Mn(NO_3)_2$	---	---	---	---	---	---	---	---	---	---	39
H_2O	---	578	---	---	---	142	10,384	1,000	11,025	10,946	29,257
Total	901	2,147	1,980	115	1,389	1,921	19,170	1,115	19,977	10,981	33,229

Figure 6.1-19. Remote Mechanical C Line Flow Diagram PuF_4 Through Plutonium Button Production.

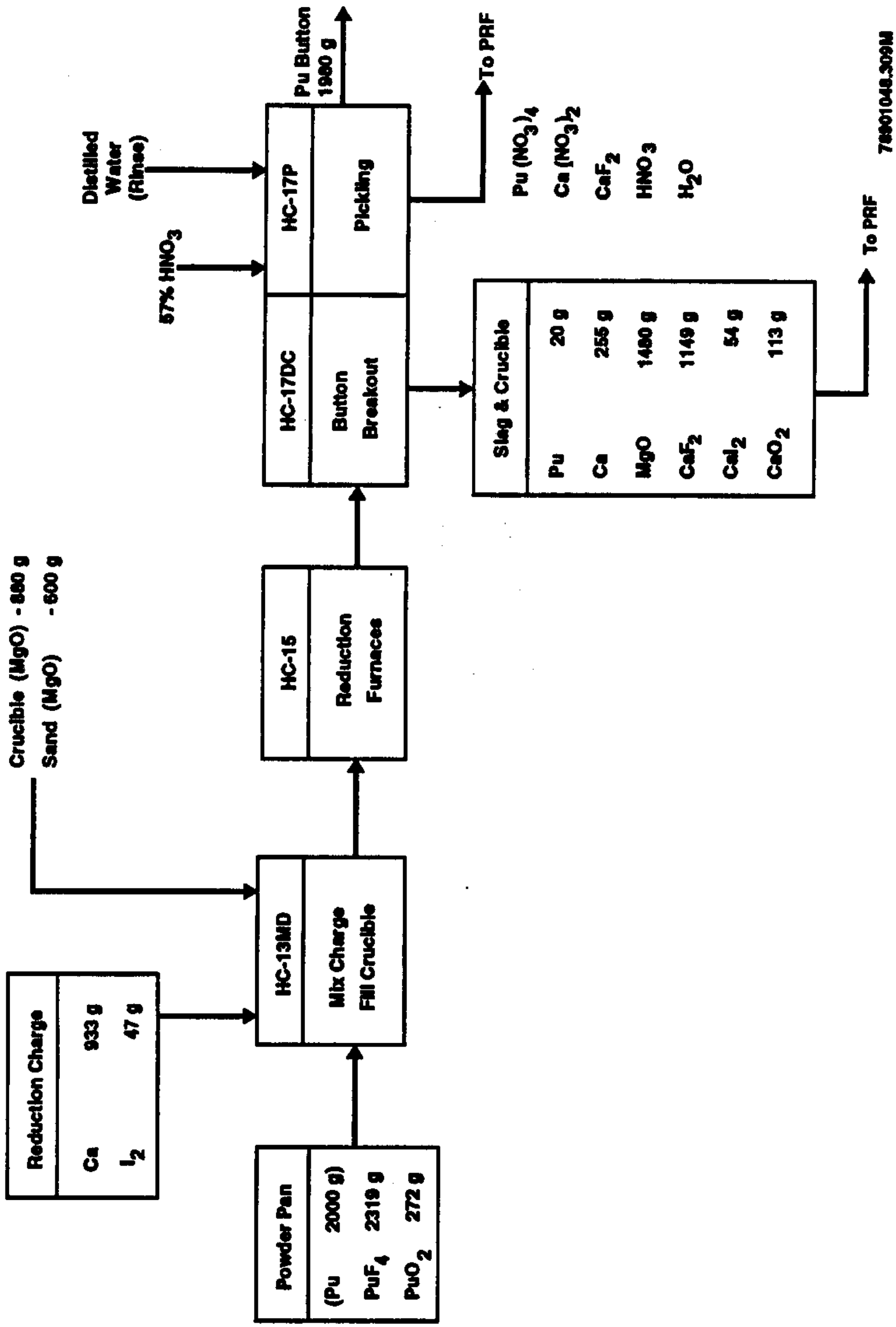


Table 6.1-8. Remote Mechanical C Line Material Balance PuF_4 Through Metal Button Production.

Stream	1	2	3	4	5	6
Description	Powder pan	Reduction charge	Crucible	Sand	Metal button	S&C
Components<------------------------>Grams/batch<------------------>						
Plutonium	(2,000)	---	---	---	(1,980)	(20)
Plutonium metal	---	---	---	---	1,980	20
PuF_4	2,319	---	---	---	---	---
PuO_2	272	---	---	---	---	---
Calcium	---	933	---	---	---	225
I_2	---	47	---	---	---	---
MgO	---	---	880	600	---	1,480
CaF_2	---	---	---	---	---	1,149
CaI_2	---	---	---	---	---	54
CaO	---	---	---	---	---	113
Total	2,591	980	880	600	1,980	3,071

Table 6.1-9. Remote Mechanical C Line Safety Systems. (2 sheets)

I. **FLUR Temperature** **Detection and Control:** Three independently measured and controlled temperature zones exist within the FLUR; feedback temperature control is provided by the PM-550 programmable controller. Low temperature alarms are set at 450 °C on the manual controllers and annunciator board, LTAL-9B-2. Record of temperatures is on R-9B-1, channels D, E, and F.
II. **FLUR Vacuum** **Detection and Control:** An automatic control system maintains the desired vacuum in the FLUR. A set point deviation alarm, LVAL-9B-10, alerts operations personnel if the desired vacuum is deviated from. Record of vacuum is on R-9-2, channel A.
III. **HF Line High Temperature** **Detection and Control:** The HF facility room temperature is monitored on a readout at the HF facility at least once every 6 h and recorded on the HF Facility Surveillance Data Sheet, TI-HF.
V. **HF Facility AHU High Temperature Shutdown** **Detection and Control:** The AHU high temperature shutdown setting is set every 6 mo per a Preventive Maintenance Procedure. Instruments are labeled SCR-HF-A and SCR-HF-B.
VI. **Seismic Vibration Shutoff of the HF Line** **Detection and Control:** Seismic vibration detection on VE-HF-1, VE-HF-3, and VE-HF-4 will close AOBV-HF-1, AOBV-HF-2. The shutoff alarms in the RMC Line control room HVAL-HF-1.
VII. **HF Gas Detection, HF Facility** **Detection and Control:** The detector is in the Facility; it has a local alarm; and it alarms in the RMC Line control room.
VIII. **HF Gas Detection, RMC Line Process Room 228-A** **Detection and Control:** Two detectors are located next to the HF flow control valve and the HF rotameter and they both alarm in the RMC Line control room, HFA-9B-1.
IX. **HF Gas Detection in Glovebox HC-9B Midsection Exhaust** **Detection and Control:** The HF concentration in the exhaust from the midlevel of glovebox HC-9B is continuously monitored by two separate HF detectors which read out in the control room and alarm at HF levels of 5 ppm and 10 ppm. The HF concentration reads out on instruments C-HF-9B-1 and C-HF-9B-2.

Table 6.1-9. Remote Mechanical C Line Safety Systems. (2 sheets)

X.	**HF Gas Detection, HF Scrubber Offgas to E-4 Ventilation** **Detection and Control:** The detector is after the HA-46, F-HF6 demister and it alarms in room 232, HFA-HA46-1.
XI.	**Humidity Exposure in Dry Air Gloveboxes** **Detection and Control:** The frost point monitor (hygrometer) samples four separate gloveboxes (not simultaneously) and has a high frost point alarm in the RMC Line control room. Record of humidity is on R-9B2, channel E.

Table 6.1-10. Remote Mechanical C Line Safety Instruments. (3 sheets)

Location	PISCES Loop	Safety class	Description
HA-46	B0057	3	Low secondary-process-cooling-water pressure to stop pump P-HF4-1
HA-46 Canyon	B0199	3	Moisture separator (F-HF6) high liquid level
HC-1	B0336	3	HC-1 Conveyor Key interlock switches
HC-1	B0392	3	HC-1 Low vacuum, dry air supply, shutoff valve
HC-1	B0393	3	HC-1 Emergency E-4 vacuum regulator valve
HC-1	B0394	3	HC-1 Emergency E-4 vacuum regulator valve
HC-10	B0060	3	HC-10 Balance, SNM weigh scale
HC-10 HVAC		3	Low hood DP, shut off dry air to hood
HC-12S Sand	B0094	3	Sand heater temperature control
HC-15	B0043	3	HC-15A, -B, -C Argon pressure indicators
HC-15A	B0032	3	HC-15A Cooling water pressure
HC-15A	B0035	3	HC-15A Hydraulic booster pressure
HC-15B	B0033	3	HC-15B Cooling water pressure
HC-15B	B0036	3	HC-15B Hydraulic booster pressure
HC-15C	B0034	3	HC-15C Cooling water pressure
HC-15C	B0037	3	HC-15C Hydraulic booster pressure
HC-17P	B0346	3	Metering tank water addition controls
HC-17P	B0347	3	Metering tank nitric addition controls
HC-17P	B0348	3	Metering tank solution drop control
HC-17SBB HVAC		3	Low hood DP, shut off dry air to hood
HC-2	B0030	3	HC-2 Conveyor high pressure alarm
HC-2	B0349	3	HC-2 Conveyor power desk control
HC-2	B0350	3	HC-2 Conveyor key interlock switches
HC-227S		3	HC-227S Sump probe
HC-227S	B0091	3	HC-227S Vacuum trap liquid detector
HC-4		3	HC-4 Sump probe
HC-4	B0089	3	HC-4 Vacuum trap liquid detector

Table 6.1-10. Remote Mechanical C Line Safety Instruments. (3 sheets)

Location	PISCES Loop	Safety class	Description
HC-6		3	HC-6 Sump probe
HC-7	B0090	3	HC-7 Vacuum trap liquid detector
HC-7	B0059	3	HC-7 Sump alarm
HC-7 PRT	B0369	3	PRT Agitator/peroxide interlock
HC-7 PRT	B0022	3	Peroxide to PRT flow control
HC-9B	B0020	3	Overflow tank high level alarm
HC-9B	B0058	3	HC-9B Sump alarm
HC-9B CALC	B0026	3	CALC Purge low flow alarm
HC-9B CALC	B0188	3	CALC High temperature heater shutdown
HC-9B CALC		3	CALC Inlet CCTV
HC-9B FLUR		3	FLUR Tube CCTV
HC-9B FLUR	B0001	3	FLUR Inlet heater control
HC-9B FLUR	B0002	3	FLUR Center heater control
HC-9B FLUR	B0003	3	FLUR Outlet heater control
HC-9B FLUR	B0007	2	FLUR Vacuum control, low vacuum/HF flow interlock
HF	B0023	3	HF Supply line, low temperature alarm
HF		3	HF Supply line, heat trace, and control system
HF	B0013	2	HF Supply line pressure, high and low pressure/HF flow interlock
HF	B0017	3	HF Supply line temperature, high alarm
HF	B0087	3	HF Detector, room 228-A
HF	B0088	3	HF Detector, HF facility
HF	B0162	3	HF Detector, glovebox HA-46
HF	B0163	2	HF Detector 1, 9B filterbox
HF	B0200	2	HF Detector 2, 9B filterbox
HF-Facility	B0092	2	HF Bank A heater control
HF-Facility	B0093	2	HF Bank B heater control
HF-Facility	B0096	3	HF Room temperature indicator

Table 6.1-10. Remote Mechanical C Line Safety Instruments. (3 sheets)

Location	PISCES Loop	Safety class	Description
HF-Facility	B0198	2	Earthquake vibration, HF flow interlock
RMC EMER	B0168	3	RMC EMER Shutdown of $KMnO_4$ in HC-7
RMC EMER	B0338	3	RMC EMER Shutdown controls
RMC Calcium	B0196	3	Calcium overpack PRV
RMC Dry Air	B0042	3	RMC Line dry air monitor-hygrometer
RMC Dry Air	B0095	3	Dry air header pressure control
RMC Dry Air	B0395	3	Hygrometer for HC-21C, HA-20MB, and HA-211
RMC HVAC	B0370 through B0388	3	RMC Glovebox DPs

Table 6.1-11. Remote Mechanical C Line Emergency Shutdown Button Interlocks.

Location	PISCES Loop	Safety class	Description
HC-7	B0338	3	RMC Emergency shutdown pumps MP-7C-2A and MP-7C-2B, EV-7C-26 (DOV-7C-26), from relay K-ES-3.
HC-9B	B0338	3	RMC Emergency shutdown CALC heaters, FLUR heaters, EV-9B-21 for VDF oxalic wash from relay K-ES-5.
Electrical Panel 120-A	B0338	3	RMC Emergency shutdown electrical power panel 120-A for HC-7, HC-9B, HC-10, and HC-11S activities. The electrical power supplies the electric valves and motors. For entire list, see electric valve list and monitor list below: Glovebox: • HC-7 • FKT Agitator • EV-7C-1, 2, 3, 4, 6, 7, 8, 9, 10, 21, 22A, 23, 24, 30 • (DOV-7C-1, 2, 3, 4, 6, 7, 8, 9, 10, 21) - Air actuated • (BV-7C-24) - Air actuated (Reactor feed pump, P-7C-3) - air actuated. Glovebox: • HC-9B • Reactor agitator, VDF drive, VDF agitator, FLUR vibrator, BANJO valve, and CALC screw • EV-9B-1, 2, 3, 9, 11, 15, 19, 20, 21, 22, 30 • (DOV-9B-3, 4, 5, 12) - Air actuated • (BV-9B-1, 24) - Air actuated • (Metering pumps, P-9B-1, P-9B-2) - air actuated • (FLUR Discharge ball valve) - air actuated • (Powered pan vibrator and lift) - air actuated.
Electrical panel 120-B	B0338	3	RMC Emergency shutdown electrical power panel 120-B for HC-13MD through HC-18 activities.

Table 6.1-12. Piping and Instrumentation Diagram Numbers Remote Mechanical C Line.

Operation	Glovebox	P&I Drawing number
Solution staging	HC-4	H-2-93504 Sheet 1
Valence adjustment	HC-7	H-2-93504 Sheet 3
$C_2H_2O_4$ Kill	HC-7	H-2-93504 Sheet 3
Precipitation	HC-9B	H-2-93504 Sheet 4
Calcination	HC-9B	H-2-93504 Sheet 4
Fluorination	HC-9B	H-2-93504 Sheet 4
Powder weighing	HC-10	H-2-93504 Sheet 5
Powder storage	HC-11	H-2-93504 Sheet 5
Vessel sanding	HC-12S	H-2-93504 Sheet 5
Mixing and dumping	HC-13MD	H-2-93504 Sheet 5
Reduction furnace	HC-15ABC	H-2-93504 Sheet 5
Crucible cutter	HC-16CC	H-2-93504 Sheet 6
Dump and can	HC-17DC	H-2-93504 Sheet 6
Pickling	HC-17P	H-2-93504 Sheet 6
Sampling, weighing	HC-27SBB	H-2-93504 Sheet 6
Button storage	HC-18BS	H-2-93504 Sheet 6
Cold chemical pump	---	H-2-93504 Sheet 7

Table 6.1-13. Remote Mechanical C Line Maximum Plutonium Inventories. (2 sheets)

Equipment (vessel)	Location	Function	Description	Working volume (L)	Nominal inventory		Chemical form	Criticality specification limit
					Liquid (g/L)	Solid (kg)		
FST	HC-7	Sampling and transfer of filtrate solution to PRF	6-in. x 6-ft Glass tank	33 - 36	0.3	N/A	$Pu(NO_3)_4$	450 g/L
VDF and Pan	HC-9B	Plutonium oxalate solids are separated from the filtrate	5-in. x 11-in.-dia. 8-in. x 7-in. R 8.25 in. x 10 in. x 0.5 in.	2 2 2.2	N/A N/A N/A	0.24 - 0.27 0.24 - 0.27 0.76	$Pu(NO_3)_4$	13 kg
Calciner	HC-9B	Discomposes plutonium oxalate solids to PuO_2	6-ft 9-in. Stainless steel trough x 4-in.-dia. screw	N/A	N/A	2.27	PuO_2	17 kg
Fluorinator	HC-9B	Conversion of PuO_2 to PuF_4	5-ft 6-in. Long x 4-in. high made of Inconel[a] with platinum-iridium liner	N/A	N/A	0.66	PuF_4	17 kg
Powder pans	HC-1 HC-11	Interim storage and transport of PuF_4 powder	7-in. x 6-in. High pans	1.7	N/A	0 - 2.2	PuF_4	5.1 kg* 5.1 kg*
Mixer/dumper	HC-13MD	Mixing calcium metal, iodine crystals with PuF_4 powder	10-in.-dia.[a] x 3-in. High Lexan[a] mixer that tapers conically to 7 in.	6.5	N/A	0 - 2.2	PuF_4	5.1 kg*
Induction furnaces (3)	HC-15	Firing of reduction charge	3/8-in.-OD, 0.035-in. Wall thickness copper tubing coiled around a heat resistant tube with an 8-in.-OD and 1/8-in. wall thickness	N/A	N/A	0 - 2.2	PuF_4	5.1 kg*
PV	HC-1 CH-12S CH-13MD HC-15 HC-16CC HC-17DC	Contains PuF_4 charge along with chemicals for reduction, crucible and MgO sand	7-in. x 12.7-in. Hastelloy[a]-X	4.3	N/A	0 - 2.2	PuF_4 Plutonium metal Plutonium S&C	5.6 kg*
Dumper hammer mill	HC-17DC	Separate the plutonium metal and grind up the sand, S&C	N/A	N/A	N/A	2.5 ±10%	Plutonium metal Plutonium S&C	4 kg
B Valve	HC-9B	Transfer PuO_2 from calciner to fluorinator	N/A	N/A	N/A	0.1	PuO_2	N/A

Table 6.1-13. Remote Mechanical C Line Maximum Plutonium Inventories. (2 sheets)

Equipment (vessel)	Location	Function	Description	Working volume (L)	Nominal inventory		Chemical form	Criticality specification limit
					Liquid (g/L)	Solid (kg)		
ACT	HC-7	Receiver tank for miscellaneous solutions	6-in. x 4-ft Glass tank	22	50 ±10%	N/A	$Pu(NO_3)_4$	450 g/L
Vacuum trap and E-3 vent trap	HC-7	Prevent solutions from entering 26-in. vacuum system	6-in. x 1-ft Glass tank	5.5	70 ±10%	N/A	$Pu(NO_3)_4$	450 g/L
Reactor	HC-9B	Formation of oxalate slurry	6-in. Schedule-10 stainless steel	2.7	N/A	0.16 (slurry)	$Pu(NO_3)_4$	450 g/L
VRT	HC-9B	Supplies vacuum to the VDF	6-in. x 2-ft Glass tank	11	0.05	N/A	$Pu(NO_3)_4$	450 g/L
CRT	HC-9B	Receives offgases from the calciner	6-in. x 1-ft Glass tank	5.5	<0.03	N/A	$Pu(NO_3)_4$	450 g/L
OT	HC-9B	Catch tank for overflow of VDF pan	6-in. x 1-ft Glass tank	5.5	100	N/A	$Pu(NO_3)_4$	450 g/L
Batch tanks	227-S	Blending and sampling	6-in. x 8-ft Glass tank (3)	44.5	200 - 300	N/A	$Pu(NO_3)_4$	450 g/L
Vacuum trap	227-S	Prevent solutions from entering 26-in. vacuum system	6-in. x 1-ft 5-in. Glass tank	8.3	70	N/A	$Pu(NO_3)_4$	450 g/L
Load-out tank	227-S	Product staged for load-out	6-in. x 2-ft Glass tank	11	250 - 350	N/A	$Pu(NO_3)_4$	450 g/L
Storage tanks	HC-4	Interim product storage	6-in. x 4-ft Glass tank	22	200 - 300	N/A	$Pu(NO_3)_4$	450 g/L
Vacuum tank	HC-7	Prevent solutions from entering 26-in. vacuum system	6-in. x 1-ft Glass tank	5.5	200	N/A	$Pu(NO_3)_4$	450 g/L
PMT	HC-7	Meter H_2O_2	3-in. x 1-ft 10-in. Stainless steel tank	1.4	N/A	N/A	H_2O_2	450 g/L
PRT	HC-7	Plutonium valence adjustment	6-in. x 3-ft Glass tank	16.7	200 - 300	N/A	$Pu(NO_3)_4$ H_2O_2	450 g/L
THT	HC-7	Feed tank	6-in. x 3-ft Glass tank	16	200 - 300	N/A	$Pu(NO_3)_4$	450 g/L
FKT/FCT	HC-7	$KMnO_4$ Used to kill off $C_2H_2O_4$	5-in. Interconnected glass tank	32	<1	N/A	$Pu(NO_3)_4$	450 g/L

*Not criticality limit but accident analysis limit.

Figure 6.1-20. Transuranic Extraction Solvent Extraction Flow Diagram.

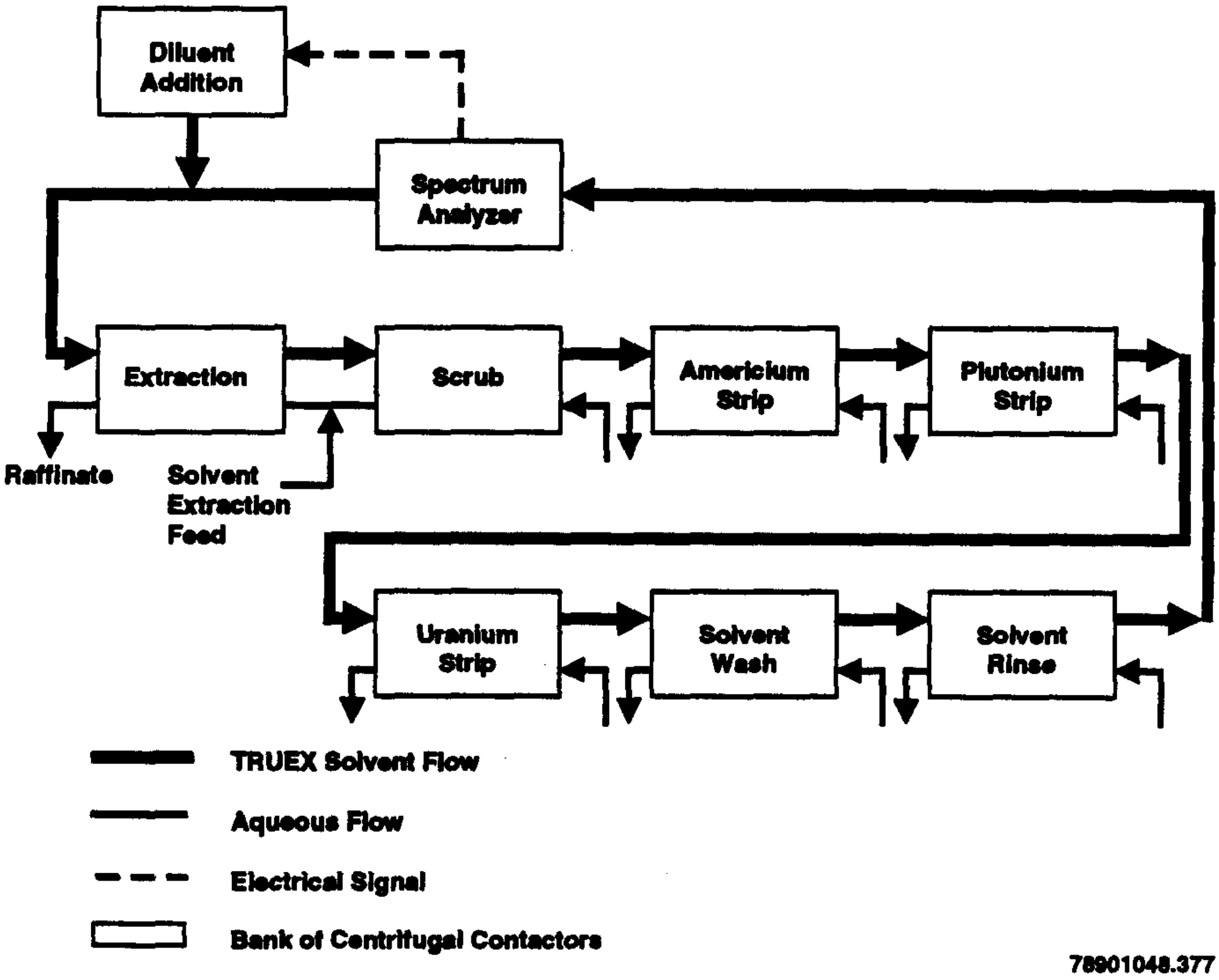
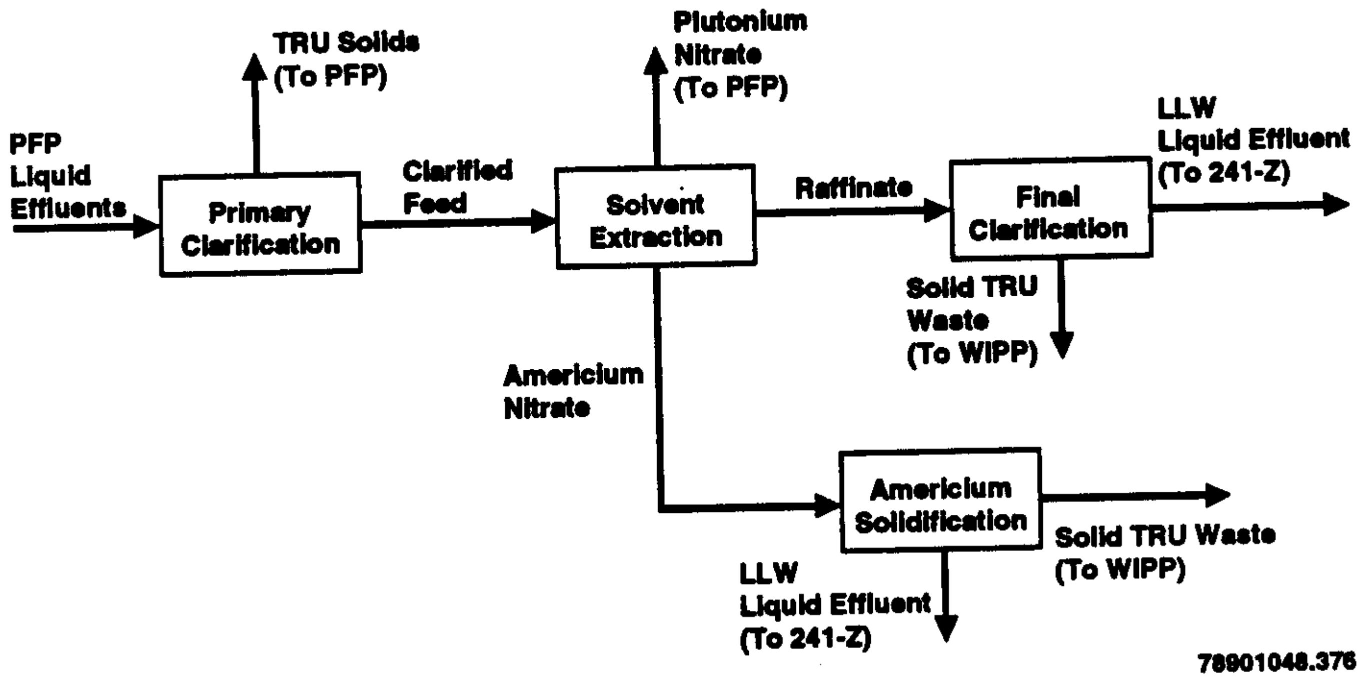


Figure 6.1-21. Overall Transuranic Extraction Process Flow Diagram.



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WHC, 1988, *Conceptual Plutonium Finishing Plant TRUEX Flowsheet*, WHC-SD-WM-ER-040, Westinghouse Hanford Company, Richland, Washington.

WHC, 1991, *Plutonium Finishing Plant Final Safety Analysis Report*, Vol. 3, WHC-SD-CP-SAR-021, Westinghouse Hanford Company, Richland, Washington.

APPENDIX B

DATA ON 234-5Z WASTE GENERATION FROM THE SOLID WASTE INFORMATION TRACKING SYSTEM

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DATA ON 234-5Z WASTE GENERATION FROM THE SOLID WASTE INFORMATION TRACKING SYSTEM

The information found in this appendix is from the Solid Waste Information and Tracking System (SWITS) database. The older Richland Solid Waste Information Management System (R-SWIMS) database was incorporated into SWITS. SWITS is used to track information on radioactive and other wastes stored or disposed of at the Hanford Site.

Each SWITS data run in this appendix is preceded by the query used to generate the data. A brief explanation of the run and any additional information needed to understand the data presented is also included.

The bulk of the data provided is limited to information about transuranic (TRU) waste generated at the Plutonium Finishing Plant (PFP); however, some general information on the non-TRU waste is included for completeness. The term non-TRU is used in lieu of low-level waste (LLW) because a small percentage of the waste has been designated only as "not TRU." It is believed that most, if not all, of the non-TRU waste is LLW.

The data runs in this appendix are further segregated by waste container type. Because initial retrieval efforts and Waste Receiving and Processing Facility (WRAP) 1 will focus on 55-gal drums, these container types are considered separately.

Some general information about the SWITS database and the codes used follows. A disclaimer also follows.

Disclaimer for Solid Waste Information and Tracking System Data

Requests for information from the Solid Waste Information and Tracking System (SWITS) are normally relatively limited in scope. The requests are for specific data fields or summary data. The responses to these requests undergo review during data collection, summary, and response preparation.

The responses to these requests represent a simple reproduction of the SWITS database. Transmittal of information is made with the following disclaimers.

- The information contained in this transmittal is raw data, and represents information provided to Solid Waste Engineering (SWE) on burial records or other documents. These data have not been validated.
- The information contained in this transmittal is subject to change without notice. Continual updates of SWITS information and improvement of the software system make it impossible to ensure these data correspond with the database after transmittal.
- This information is current as of May 15, 1992.
- The U.S. Department of Energy (DOE) and Westinghouse Hanford Company (WHC) are not responsible for the accuracy, completeness, or any other representation of this information.

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Primary Waste Type Code Table

Primary Waste Type Code	Primary Waste Type Description	Ship Time	Rad
AH	HAZ, ADMIN HOLD	89	N
CM	MORATORIUM CONTROLLD	89	N
H	HAZARDOUS	89	N
HP	HAZARDOUS WASTE PCB	29	N
M	MIXED	89	Y
MP	MIXED PCB	29	Y
N	NON-REGULATED		N
P	PCB	29	N
R	RADIOACTIVE		Y
RP	RADIOACTIVE PCB	29	Y
U	UNKNOWN		N

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Secondary Waste Type Code Table

Secondary Waste Type Code	Secondary Waste Group	Secondary Waste Type Description
1A	TRU	TRANSURANIC (NOT PROCESSED THROUGH TRUSAF)
1B	TRU	TRANSURANIC CLASSIFIED
1C	TRU	TRANSURANIC WIPP CERTIFIED
1D	TRU	TRANSURANIC WIPP UNCERTIFIED
1E	TRU	TRANSURANIC SPECIAL CASE
1F	TRU	TRANSURANIC CAISSONS
2A	LLW	LOW-LEVEL NON-INDUSTRIAL
2B	LLW	LOW-LEVEL NON-INDUSTRIAL CLASSIFIED
2F	LLW	LOW-LEVEL CAISSONS
2L	LLW	LOW-LEVEL NON-INDUSTRIAL (ASSAYED FROM TRU)
3A	LLW	LOW-LEVEL INDUSTRIAL
3L	LLW	LOW-LEVEL INDUSTRIAL (ASSAYED FROM TRU)
4A	HLW	HIGH LEVEL WASTE (SPENT FUEL)
UA	USG	UNSEGREGATED NON-TRANSURANIC DRY WASTE
UB	USG	UNSEGREGATED NON-TRANSURANIC INDUSTRIAL
UC	USG	UNSEGREGATED CAISSONS (REMOTE HANDLED)
UF	USG	UNSEGREGATED TRANSURANIC/LOW-LEVEL (TUNNELS PUREX)
UG	USG	UNSEGREGATED TRANSURANIC DRY WASTE
UJ	USG	UNSEGREGATED TRANSURANIC INDUSTRIAL

APPENDIX B.1

CONTAINER NUMBER AND WEIGHT OF TRU WASTE IN 55-GALLON DRUMS — SORTED BY WASTE TYPE

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CONTAINER NUMBER AND WEIGHT OF TRU WASTE IN 55-GALLON DRUMS — SORTED BY WASTE TYPE

This data run provides an overall look at the waste types, container numbers and total weight (in kilograms) of the radioactive wastes generated annually at the Plutonium Finishing Plant (PFP). These data are for wastes stored in 55-gal drums only. The meanings of primary and secondary waste codes can be found in the introductory materials of this appendix.

The data in the average weight column should be studied cautiously, especially for low-level waste (LLW) codes. Concern is warranted because LLW records are still done on a batch basis. This means that one weight datum may be the composite weight for a group of drums. The computer program that was used simply divided the sum of all weight values by the number of values used to compute the total weight not the actual number of containers that value represents.

From 1970 until 1978 individual container weights were not required to be recorded for drums of transuranic (TRU) waste. During the data re-entry program in the mid-1980's standard weights were assigned for all container types; 55-gal drums were given a standard weight of 68 kg. This is why the average weight per drum of TRU waste is so consistent during this period.

```
set linesize 160
set pagesize 55
set newpage 0
spool judy.srep
ttitle off
break on dt skip 1
compute sum of sum(con_gross_wgt) on dt
compute sum of sum(rdet_rswims_count) on dt
col dt                          format a4       heading "Date"
col con_pwtyp_cd                format a4       heading "Pri|Wast|Type"
col rdet_swtyp_cd                       format a4       heading "Sec|Wast|Type"
col sum(con_gross_wgt)          format 99999999.99  heading "Weight"
col sum(rdet_rswims_count)              format 999999   heading "Count"
col avg(con_gross_wgt)          format 99999.99 heading "Avg|Weight"
select
        substr (to_char(con_tsd_accept_dt, 'YYYY'), 1, 4) dt,
        con_pwtyp_cd,
        rdet_swtyp_cd,
        sum(con_gross_wgt),
        sum(rdet_rswims_count),
        avg(con_gross_wgt)
from radwaste
where con_tsd_accept_dt between '01-JAN-70' and '17-JUN-92' and
con_size_descr like ('%55%') and con_srce_facil_id like ('%2345%')
group by substr (to_char(con_tsd_accept_dt, 'YYYY'), 1, 4),
        con_pwtyp_cd,
        rdet_swtyp_cd
;
spool off
```

Date	Pri Wast Type	Sec Wast Type	Weight	Count	Avg. Weight
1970	R	1A	75660.48	1112	68.04
	R	UA	204.12	3	204.12
	R	UG	748.42	11	249.47
****			------------	-------	
sum			76613.02	1126	
1971	R	1A	91357.31	1343	68.02
****			------------	-------	
sum			91357.31	1343	
1972	R	1A	88860.24	1306	68.04
****			------------	-------	
sum			88860.24	1306	
1973	R	1A	86070.60	1264	68.09
****			------------	-------	
sum			86070.60	1264	
1974	R	1A	64093.68	942	68.04
****			------------	-------	
sum			64093.68	942	
1975	R	1A	83144.88	1222	68.04
****			------------	-------	
sum			83144.88	1222	
1976	R	1A	69657.08	1025	68.02
	R	2A	4037.40	43	1345.80
****			------------	-------	
sum			73694.48	1068	
1977	R	1A	81443.88	1199	68.04
	R	2A	12741.34	355	2548.27
****			------------	-------	
sum			94185.22	1554	
1978	R	1A	61236.00	900	68.04
****			------------	-------	
sum			61236.00	900	
1979	R	1A	106745.68	1569	68.03
	R	2A	3511.71	60	585.29
****			------------	-------	
sum			110257.39	1629	
1980	R	1A	112896.50	1658	68.09
	R	2A	7573.59	92	445.51
****			------------	-------	
sum			120470.09	1750	
1981	R	1A	55818.64	819	68.15

Date	Pri Wast Type	Sec Wast Type	Weight	Count	Avg Weight
1981	R	2A	16437.66	182	1174.12
	R	3A	10899.77	73	2724.94
****			------------	-------	
sum			83156.07	1074	
1982	M	1A	68.04	1	68.04
	MP	1A	482.62	6	80.44
	R	1A	45099.39	665	67.82
	R	2A	1172.53	25	390.84
****			------------	-------	
sum			46822.58	697	
1983	M	1A	909.00	12	75.75
	M	1D	297.56	4	74.39
	MP	1A	319.32	4	79.83
	R	1A	45858.69	713	64.23
	R	1D	15389.84	216	71.25
	R	2A	7437.52	51	1239.59
****			------------	-------	
sum			70211.93	1000	
1984	M	1A	197.31	3	65.77
	R	1A	15023.40	172	87.35
	R	1B	56.70	1	56.70
	R	1D	106113.78	1679	63.24
****			------------	-------	
sum			121391.19	1855	
1985	M	1D	1023.07	13	78.70
	MP	1A	1319.74	14	94.27
	R	1A	438.18	6	73.03
	R	1D	113112.98	1749	64.67
	R	2A	892.21	8	892.21
	R	2L	266.98	5	53.40
	R	3A	3612.39	27	1204.13
	R	3L	3513.15	66	53.23
****			------------	-------	
sum			124178.70	1888	
1986	R	1C	3076.94	59	52.15
	R	1D	30424.55	505	60.25
	R	2A	7597.63	128	1085.38
	R	2L	6420.95	117	54.88
	R	3A	1627.93	20	1627.93
	R	3L	43551.91	813	53.57
****			------------	-------	
sum			92699.91	1642	
1987	M	2A	40.82	1	40.82
	M	3A	86.00	2	86.00
	R	1C	21820.00	339	64.37

Date	Pri Wast Type	Sec Wast Type	Weight	Count	Avg Weight
1987	R	1D	6829.98	83	82.29
	R	2A	7323.65	193	665.79
	R	3L	71215.62	1263	56.39
****			------------	-------	
sum			107316.07	1881	
1988	M	2A	1214.98	10	121.50
	MP	1D	699.99	10	70.00
	MP	2A	12437.25	177	70.27
	R	1C	8279.32	133	62.25
	R	1D	3369.61	47	71.69
	R	2A	7567.24	110	1261.21
	R	2L	994.03	17	58.47
	R	3A	9778.96	146	1222.37
	R	3L	41260.60	705	58.53
****			------------	-------	
sum			85601.98	1355	
1989	M	1C	67.00	1	67.00
	M	1D	3186.87	36	88.52
	M	2A	2911.17	38	76.61
	MP	1D	438.63	6	73.11
	MP	2A	1621.62	27	60.06
	R	1C	3393.84	51	66.55
	R	1D	998.62	15	66.57
	R	2L	63.50	1	63.50
	R	3A	1220.16	21	58.10
	R	3L	28386.15	488	58.17
****			------------	-------	
sum			42287.56	684	
1990	M	1D	2469.03	20	123.45
	M	2A	3051.02	21	145.29
	MP	1D	45.99	1	45.99
	MP	2A	530.07	8	66.26
	R	1C	1643.08	24	68.46
	R	1D	7193.07	116	63.10
	R	2A	2658.57	43	61.83
	R	2L	2175.01	35	62.14
	R	3A	8804.85	166	53.04
	R	3L	28428.27	498	58.98
****			------------	-------	
sum			56998.96	932	
1991	M	1A	386.00	4	96.50
	M	1D	1325.99	14	94.71
	M	2A	1815.03	28	64.82
	MP	2A	662.01	10	66.20
	R	1A	1386.00	21	66.00
	R	1C	905.97	14	64.71
	R	1D	4676.05	69	67.77

Date	Pri Wast Type	Sec Wast Type	Weight	Count	Avg Weight
1991	R	2A	73.98	1	73.98
	R	2L	823.00	16	51.44
	R	3A	30718.19	690	44.52
	R	3L	17353.17	290	59.84
****			------------	-------	
sum			60125.39	1157	
1992	M	1A	403.00	4	100.75
	M	2A	1237.06	16	82.47
	R	1A	4604.00	64	71.94
	R	1C		16	
	R	2A	898.00	94	39.04
	R	3A	14930.00	292	51.13
	RP	2A	196.00	4	49.00
****			------------	-------	
sum			22268.06	490	

101 rows selected.

APPENDIX B.2

TRU WASTE IN CONTAINERS OTHER THAN 55-GALLON DRUMS — SORTED BY WASTE TYPE

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TRU WASTE IN CONTAINERS OTHER THAN 55-GALLON DRUMS — SORTED BY WASTE TYPE

The data included in this subappendix are waste type container numbers and total weight (in kilograms) of radioactive wastes packaged in containers other than 55-gal drums. The primary and secondary waste type codes are explained in the introduction to Appendix B.

The data in the average weight column should be studied cautiously, especially for low-level waste (LLW). Records for LLW are still done for batches. This means that one recorded weight on a single Solid Waste Information and Tracking System (SWITS) record may be the composite weight for a group of containers. The computer program used simply divided the sum of all weights by the number of values used to compute the sum, not by the actual number of containers those values represent.

Also, it should be remembered that individual container weights for transuranic (TRU) waste packages were not required before 1978. The weight values for containers generated between 1970 and 1978 represent standard values assigned during the Richland Solid Waste Information Management System (R-SWIMS) data re-entry program in the mid-1980's.

```
set linesize 160
set pagesize 55
set newpage 0
spool judy.srep
ttitle off
break on cntyp_descr skip 1
compute sum of sum(con_gross_wgt) on cntyp_descr
compute sum of sum(rdet_rswims_count) on cntyp_descr
col dt                          format a4       heading "Date"
col con_pwtyp_cd                format a4       heading "Pri|Wast|Type"
col rdet_swtyp_cd                       format a4       heading "Sec|Wast|Type"
col sum(con_gross_wgt)          format 99999999.99 heading "Weight"
col sum(rdet_rswims_count)              format 999999   heading "Count"
col avg(con_gross_wgt)          format 99999.99 heading "Avg|Weight"
col cntyp_descr                 format a30      heading "Container Discription"
col con_size_descr              format a20      heading "Container Size"
select
        cntyp_descr,
        con_size_descr,
        substr (to_char(con_tsd_accept_dt, 'YYYY'), 1, 4) dt,
        con_pwtyp_cd,
        rdet_swtyp_cd,
        sum(con_gross_wgt),
        sum(rdet_rswims_count),
        avg(con_gross_wgt)
from radwaste, contype
where con_tsd_accept_dt between '01-JAN-70' and '17-JUN-92' and
con_srce_facil_id like ('%2345%') and
con_size_descr not like ('%55%') and con_cntyp_cd = cntyp_cd
group by cntyp_descr,
        con_size_descr,
        substr (to_char(con_tsd_accept_dt, 'YYYY'), 1, 4),
        con_pwtyp_cd,
        rdet_swtyp_cd
;
spool off
```

Container Discription	Container Size	Date	Pri Wast Type	Sec Wast Type	Weight	Count	Av Weigh
BURLAP, CLOTH, PAPER OR PLASTI C BAGS	UNKNOWN	1970	R	UA	1638.36	13	327.6
	UNKNOWN	1970	R	UG	129.72	6	32.4
	UNKNOWN	1976	R	2A	57.15	1	57.1
	UNKNOWN	1979	R	2A	254.01	12	254.0
	UNKNOWN	1980	R	2A	18168.55	706	6056.1
	UNKNOWN	1981	R	2A	226.80	2	226.8
	UNKNOWN	1982	R	2A	181.44	4	181.4
	UNKNOWN	1983	R	2A	791.06	2	395.5
	UNKNOWN	1985	R	2A	907.18	2	907.1
	UNKNOWN	1986	R	2A	2721.54	2	1360.7
	UNKNOWN	1987	R	2A	4082.31	3	1360.7
	UNKNOWN	1988	R	2A	1905.08	5	952.5
	UNKNOWN	1989	R	2A	2721.54	2	1360.7
	UNKNOWN	1990	R	2A	810.00	18	45.0
*********************************					------------	-------	
sum					34594.74	778	
CONCRETE BOXES	UNKNOWN	1970	R	1A	20638.35	1	20638.3
	UNKNOWN	1970	R	UA	331.12	10	331.1
*********************************					------------	-------	
sum					20969.47	11	
DUMP TRUCK	UNKNOWN	1981	R	2A	2721.54	2	1360.7
	UNKNOWN	1985	R	2A	3235.91	3	1078.6
	UNKNOWN	1986	R	2A	4082.31	3	1360.7
	UNKNOWN	1987	R	2A	3628.72	3	1209.5
	UNKNOWN	1988	R	2A	14968.47	7	2138.3
	UNKNOWN	1989	R	2A	2177.23	5	435.4
	UNKNOWN	1990	R	2A	680.84	1	680.8
*********************************					------------	-------	
sum					31495.02	24	
FIBERBOARD/PLASTIC BOXES, CART ONS, CASES	2 CU FT	1970	R	UA	76.20	14	25.4
	2 CU FT	1970	R	UG	21.77	4	7.2
	2 CU FT	1980	R	2A	10.89	2	10.8
	3 CU FT	1981	R	3A	1387.99	153	694.0
	UNKNOWN	1970	R	UA	9449.19	744	497.3
	UNKNOWN	1970	R	UG	6641.47	523	415.0
	UNKNOWN	1973	R	2A	38.10	3	38.1
	UNKNOWN	1979	R	2A	546.12	11	546.1
	UNKNOWN	1980	R	2A	3195.10	218	290.4
	UNKNOWN	1981	R	2A	615.97	45	123.1
	UNKNOWN	1981	R	3A	283.49	25	283.4
	UNKNOWN	1982	R	2A	152.41	12	152.4
	UNKNOWN	1983	R	2A	101.60	8	101.6
*********************************					------------	-------	
sum					22520.30	1762	

Container Discription	Container Size	Date	Pri Wast Type	Sec Wast Type	Weight	Count	Av Weigh
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	10.5*10.7*12	1975	R	1A	17068.59	1	17068.5
	4*4*7	1975	R	1A	8540.19	6	1423.3
	4*4*7	1976	R	1A	7264.70	5	1452.9
	4*4*7	1978	R	1A	3628.72	9	403.1
	4*4*7	1980	R	1A	2342.79	2	1171.4
	4.83*5*8	1975	R	1A	4923.27	2	2461.6
	6.3*8*14.7	1975	R	1A	9652.40	1	9652.4
	6.5*8*14.6	1978	R	1A	73109.66	9	8123.3
	6.5*8*18.5	1978	R	1A	25772.98	3	8590.9
	8*10*16	1976	R	1A	17490.43	1	17490.4
	8*10*16	1977	R	1A	27215.40	2	13607.7
	8*8*10.7	1978	R	1A	6917.25	2	3458.6
	9*10.67*16	1975	R	1A	56050.13	4	14012.5
	9*10.67*16	1980	R	1A	25809.28	4	6452.3
	9*10.67*16	1981	R	1A	30254.46	5	6050.8
	9*10.67*20	1975	R	1A	200704.54	10	20070.4
	9*10.67*20	1976	R	1A	170790.27	7	24398.6
	9*10.7*12	1975	R	1A	154946.31	11	14086.0
	9*10.7*12	1976	R	1A	43898.43	3	14632.8
	9*10.7*12	1977	R	1A	12419.29	1	12419.2
	9*10.7*12	1980	R	1A	4422.50	1	4422.5
	9*11.6*20	1975	R	1A	134407.79	6	22401.3
	9*11.6*20	1976	R	1A	16002.66	1	16002.6
	9.5*9.9*12	1978	R	1A	4422.50	1	4422.5
********************************					------------	-------	
sum					1058054.54	97	
GLOVE BOXES	UNKNOWN	1971	R	1A	4877.00	2	2438.5
	UNKNOWN	1972	R	1A	6096.24	4	1524.0
	UNKNOWN	1976	R	2A	1809.82	1	1809.8
	UNKNOWN	1981	R	2A	816.46	2	816.4
********************************					------------	-------	
sum					13599.52	9	
HEPA FILTERS	UNKNOWN	1970	R	UA	381.02	18	127.0
	UNKNOWN	1978	R	2A	508.02	28	508.0
	UNKNOWN	1979	R	2A	204.12	13	204.1
	UNKNOWN	1980	R	2A	1833.41	28	366.6
	UNKNOWN	1981	R	2A	725.74	50	362.8
	UNKNOWN	1983	R	2A	1104.49	22	552.2
	UNKNOWN	1984	R	2A	530.70	31	530.7
	UNKNOWN	1985	R	2A	381.02	12	381.0
	UNKNOWN	1986	R	2A	1133.98	44	1133.9
	UNKNOWN	1987	R	2A	2873.94	85	1436.9
	UNKNOWN	1990	R	2A	1530.00	34	45.0
********************************					------------	-------	
sum					11206.44	365	

Container Discription	Container Size	Date	Pri Wast Type	Sec Wast Type	Weight	Count	Av Weigh
METAL BOXES, CARTONS, CASES	115 CU FT	1972	R	1A	1460.56	1	1460.5
	149 CU FT	1972	R	1A	1892.38	1	1892.3
	149 CU FT	1989	M	1D	1360.77	1	1360.7
	156 CU FT	1972	R	1A	3962.56	2	1981.2
	197 CU FT	1972	R	1A	2502.00	1	2502.0
	197 CU FT	1973	R	1A	2502.00	1	2502.0
	197 CU FT	1983	R	2A	1247.37	1	1247.3
	2*3*15	1974	R	1A	1143.05	1	1143.0
	252 CU FT	1972	R	1A	3200.53	1	3200.5
	269 CU. FT.	1972	R	1A	3416.44	1	3416.4
	3*3*4	1971	R	1A	1371.66	3	457.2
	3*4*10	1972	R	1A	1524.06	1	1524.0
	3*4*10	1974	R	1A	152.41	1	152.4
	3*5*8	1971	R	1A	1524.06	1	1524.0
	3.7*6.5*13.2	1975	R	1A	3937.16	1	3937.1
	4*4*5	1971	R	1A	1016.04	1	1016.0
	4*4*7	1978	R	1A	1431.53	1	1431.5
	4*4*7	1985	R	1D	1470.99	2	735.5
	4*4*7	1989	M	1D	1043.26	1	1043.2
	4*4*7	1989	MP	1D	1723.64	1	1723.6
	4*4*8	1989	M	2A	1315.41	1	1315.4
	4*5.5*16	1972	R	1A	4470.58	1	4470.5
	4*6*10	1973	R	1A	6096.24	2	3048.1
	4*6*10	1974	R	1A	6096.24	2	3048.1
	4*6*10	1983	R	1D	3703.56	1	3703.5
	4*6*15	1978	R	1A	9144.38	2	4572.1
	4*6*16.5	1971	R	1A	5030.31	1	5030.3
	4*6*16.5	1984	R	2A	2041.16	2	2041.1
	4*8*10	1974	R	1A	4064.17	1	4064.1
	4*8*16	1974	R	1A	6504.48	1	6504.4
	4.5*4.5*7.3	1989	MP	1D	9343.96	5	1868.7
	4.5*6*10	1972	R	1A	3429.14	1	3429.1
	5*10*13	1974	R	1A	8255.34	1	8255.3
	5*7*17	1971	R	1A	7556.81	1	7556.8
	5.2*7.1*10.5	1974	R	1A	9879.20	2	4939.6
	5.2*7.1*10.5	1975	M	1A	4939.60	1	4939.6
	5.2*7.1*10.5	1975	R	1A	24698.00	5	4939.6
	5.2*7.1*10.5	1977	R	1A	6350.26	1	6350.2
	5.2*7.1*16.5	1974	R	1A	7779.07	1	7779.0
	5.2*7.1*16.5	1975	R	1A	23305.44	3	7768.4
	5.6*6.5*9.3	1989	MP	1D	11884.06	4	2971.0
	5.6*6.5*9.3	1989	MP	2A	2630.82	1	2630.8
	6*6*7	1985	R	1D	2907.06	2	1453.5
	6*6*7	1989	M	1D	2177.23	1	2177.2
	6*6*7	1989	MP	1D	2449.39	1	2449.3
	80.8 CU FT	1972	R	1A	1026.02	1	1026.0
	UNKNOWN	1971	R	1A	3048.12	1	3048.1
	UNKNOWN	1971	R	2A	453.59	20	453.5
	UNKNOWN	1981	R	2A	957.98	3	478.9
	UNKNOWN	1983	R	2A	469.92	51	469.9
	UNKNOWN	1985	R	1A	6261.81	3	2087.2

Container Discription	Container Size	Date	Pri Wast Type	Sec Wast Type	Weight	Count	Av Weigh
METAL BOXES, CARTONS, CASES	UNKNOWN	1985	R	1D	99189.28	35	2833.9
	UNKNOWN	1985	R	2A	2199.92	2	1099.9
	UNKNOWN	1985	R	3A	11720.77	6	2930.1
********************************					------------	-------	
sum					339261.79	190	
METAL DRUMS, BARRELS, KEGS	1 GALLON	1970	R	UA	4.54	1	4.5
	10 GALLON	1980	R	2A	272.15	15	272.1
	10 GALLON	1989	M	2A	60.78	3	20.2
	10 GALLON	1990	M	2A	19.70	2	9.8
	10 GALLON	1991	RP	2A	12.00	1	12.0
	110 GALLON	1972	R	1A	136.08	1	136.0
	110 GALLON	1973	R	1A	408.24	3	136.0
	110 GALLON	1974	R	1A	1224.72	9	136.0
	110 GALLON	1976	R	1A	1905.12	14	136.0
	110 GALLON	1980	R	2A	2682.53	28	1341.2
	110 GALLON	1982	R	1A	2041.20	15	136.0
	15 GALLON	1991	MP	2A	9.50	1	9.5
	30 GALLON	1970	R	1A	326.56	8	40.8
	30 GALLON	1970	R	UA	81.64	2	40.8
	30 GALLON	1971	R	1A	204.10	5	40.8
	30 GALLON	1979	R	2A	1814.36	40	1814.3
	30 GALLON	1981	R	2A	1665.59	5	832.8
	30 GALLON	1982	R	1A	793.80	4	198.4
	30 GALLON	1982	R	2A	5511.58	33	1377.9
	30 GALLON	1983	R	2A	1156.65	51	1156.6
	30 GALLON	1989	MP	2A	31.75	1	31.7
	30 GALLON	1990	M	2A	85.00	3	28.3
	30 GALLON	1990	MP	2A	47.00	2	23.5
	30 GALLON	1990	R	3A	875.76	12	72.9
	5 GALLON	1970	R	UA	1564.92	69	86.9
	5 GALLON	1970	R	UG	1247.40	55	77.9
	5 GALLON	1990	R	2A	1363.95	1	1363.9
	8 GALLON	1990	M	2A	18.00	1	18.0
	8 GALLON	1991	M	2A	56.00	3	18.6
	85 GALLON	1989	M	1D	117.93	1	117.9
	85 GALLON	1989	M	2A	120.20	1	120.2
	UNKNOWN	1970	R	UA	114.30	9	114.3
	UNKNOWN	1980	R	1A	2063.88	13	158.7
	UNKNOWN	1980	R	2A	5443.09	54	1360.7
	UNKNOWN	1981	M	1A	1575.80	7	225.1
	UNKNOWN	1981	R	1A	13081.66	74	176.7
	UNKNOWN	1981	R	2A	16624.10	129	1847.1
	UNKNOWN	1982	M	1A	544.32	3	181.4
	UNKNOWN	1982	R	1A	1381.17	7	197.3
	UNKNOWN	1983	R	1D	9824.00	79	124.3
	UNKNOWN	1989	R	3A	4263.84	47	90.7
********************************					------------	-------	
sum					80774.91	812	
MISCELLANEOUS SCRAP	UNKNOWN	1970	R	UA	50.80	1	50.8

Container Discription	Container Size	Date	Pri Wast Type	Sec Wast Type	Weight	Count	Av Weigh
MISCELLANEOUS SCRAP	UNKNOWN	1970	R	UG	25.40	1	25.4
	UNKNOWN	1971	R	2A	381.02	3	381.0
	UNKNOWN	1975	R	2A	2540.10	1	2540.1
	UNKNOWN	1977	R	2A	5250.30	2	2625.1
	UNKNOWN	1978	R	2A	7783.61	6	1297.2
	UNKNOWN	1979	R	2A	333.39	21	333.3
	UNKNOWN	1980	R	2A	4272.82	26	854.5
	UNKNOWN	1981	R	2A	1461.46	26	730.7
	UNKNOWN	1981	R	3A	435.45	20	435.4
	UNKNOWN	1982	R	2A	113.40	14	113.4
	UNKNOWN	1983	R	2A	1977.66	2	988.8
	UNKNOWN	1984	R	1A	86.18	1	86.1
**********************************					------------	-------	
sum					24711.59	124	
SELF CONTAINED, EQUIPMENT	UNKNOWN	1970	R	2A	254.01	1	254.0
	UNKNOWN	1970	R	UA	190.51	3	95.2
	UNKNOWN	1970	R	UG	920.34	26	102.2
	UNKNOWN	1971	R	1A	3657.74	2	1828.8
	UNKNOWN	1976	R	2A	4368.98	6	2184.4
	UNKNOWN	1978	R	2A	748.43	9	374.2
	UNKNOWN	1979	R	2A	1519.53	69	506.5
	UNKNOWN	1980	R	2A	1655.61	56	551.8
	UNKNOWN	1981	R	2A	20028.74	423	2503.5
	UNKNOWN	1981	R	3A	5007.63	2	5007.6
	UNKNOWN	1982	R	2A	1315.42	21	438.4
	UNKNOWN	1983	R	2A	2755.56	16	1377.7
	UNKNOWN	1984	R	2A	1292.73	1	1292.7
	UNKNOWN	1985	R	2A	898.12	34	299.3
	UNKNOWN	1987	R	2A	907.18	1	907.1
	UNKNOWN	1988	R	2A	646.37	57	646.3
	UNKNOWN	1988	R	3A	7112.30	98	1185.3
	UNKNOWN	1989	R	2A	5964.71	12	497.0
	UNKNOWN	1990	R	2A	4353.93	8	544.2
**********************************					------------	-------	
sum					63597.84	845	
TANKS, PORTABLE	UNKNOWN	1985	R	2A	734.82	4	734.8
**********************************					------------	-------	
sum					734.82	4	
TRUCKS, FLATBEDS, COMPACTOR, LOADLUGGER	UNKNOWN	1970	R	UG	45.36	1	45.3
	UNKNOWN	1972	R	2A	6782.08	3	3391.0
	UNKNOWN	1973	R	2A	13067.92	4	4355.9
	UNKNOWN	1974	R	2A	4343.58	2	4343.5
	UNKNOWN	1975	R	2A	8686.25	2	4343.1
	UNKNOWN	1976	R	2A	24820.44	5	8273.4
	UNKNOWN	1977	R	2A	17336.22	6	2889.3
	UNKNOWN	1978	R	2A	12383.01	6	2063.8

Container Discription	Container Size	Date	Pri Wast Type	Sec Wast Type	Weight	Count	Av Weigh
TRUCKS, FLATBEDS, COMPACTOR, L OADLUGGER	UNKNOWN	1979	R	2A	6191.51	8	773.9
	UNKNOWN	1980	R	2A	37826.70	18	2101.4
	UNKNOWN	1981	M	2A	4535.90	1	4535.9
	UNKNOWN	1981	R	2A	48557.72	16	3468.4
	UNKNOWN	1982	R	2A	2478.87	38	619.7
	UNKNOWN	1983	R	2A	2494.75	3	831.5
	UNKNOWN	1984	M	2A	1587.57	1	1587.5
	UNKNOWN	1984	R	2A	20320.83	8	2540.1
	UNKNOWN	1984	R	3A	4535.90	1	4535.9
	UNKNOWN	1985	R	2A	37359.97	28	1334.2
	UNKNOWN	1986	M	2A	8391.43	4	2097.8
	UNKNOWN	1986	R	2A	18143.61	11	1649.4
	UNKNOWN	1987	R	2A	17690.01	10	1965.5
	UNKNOWN	1988	R	2A	12246.93	6	2041.1
	UNKNOWN	1989	R	2A	1534.04	6	255.6
	UNKNOWN	1990	R	2A	8847.78	8	1105.9
	UNKNOWN	1990	R	3A	1362.12	3	454.0
	UNKNOWN	1991	R	2A	4999.93	3	1666.6
********************************					------------	-------	
sum					326570.43	202	
WOODEN BOXES, CARTONS, CASES	3*3*11	1970	R	UA	1257.35	1	1257.3
	4*4*8	1990	R	3A	4871.56	8	608.9
	4*4*8	1991	R	3A	39288.01	35	1122.5
	4*4*8	1992	R	2A	909.00	1	909.0
	4*4*8	1992	R	3A	20083.00	17	1181.3
	4*5*6	1971	R	1A	10160.42	1	10160.4
	4*8*12	1987	R	2A	1360.77	1	1360.7
	UNKNOWN	1970	R	UA	203.21	4	203.2
	UNKNOWN	1971	R	2A	1033.73	2	1033.7
	UNKNOWN	1985	M	3A	150.00	2	150.0
********************************					------------	-------	
sum					79317.05	72	

239 rows selected.

APPENDIX B.3

ANNUAL VOLUME OF TRU AND NON-TRU WASTE IN 55-GALLON DRUMS — SORTED BY WASTE TYPE

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ANNUAL VOLUME OF TRU AND NON-TRU WASTE IN 55-GALLON DRUMS — SORTED BY WASTE TYPE

The data included in this subappendix are the waste types, total volume (in cubic meters), and total number of 55-gal drums generated annually at the Plutonium Finishing Plant (PFP). The primary and secondary waste type codes are explained in the introduction to Appendix B.

The data in the average volume column should be studied cautiously, especially for low-level waste (LLW). Records for LLW containers are still batched. This means that the volume recorded in a single Solid Waste Information Tracking System (SWITS) record may be a composite volume for a group of drums. The computer program used simply divided the sum of all volumes recorded by the number of values present, not by the actual number of containers those values represent.

```
set linesize 160
set pagesize 55
set newpage 0
spool judy.srep
ttitle off
break on dt skip 1
compute sum of sum(con_gross_wgt) on dt
compute sum of sum(rdet_rswims_count) on dt
col dt                          format a4       heading "Date"
col con_pwtyp_cd                format a4       heading "Pri|Wast|Type"
col rdet_swtyp_cd               format a4       heading "Sec|Wast|Type"
col sum(con_cntr_vol)           format 99999999.99  heading "Volume"
col sum(rdet_rswims_count)      format 999999   heading "Count"
col avg(con_cntr_vol)           format 99999.99 heading "Avg|Volume"
select
        substr (to_char(con_tsd_accept_dt, 'YYYY'), 1, 4) dt,
        con_pwtyp_cd,
        rdet_swtyp_cd,
        sum(con_cntr_vol),
        sum(rdet_rswims_count),
        avg(con_cntr_vol)
from radwaste
where con_tsd_accept_dt between '01-JAN-70' and '17-JUN-92' and
con_size_descr like ('%55%') and con_srce_facil_id like ('%2345%')
group by substr (to_char(con_tsd_accept_dt, 'YYYY'), 1, 4),
        con_pwtyp_cd,
        rdet_swtyp_cd
;
spool off
```

Date	Pri Wast Type	Sec Wast Type	Volume	Count	Avg Volume
1970	R	1A	233.52	1112	.21
	R	UA	.63	3	.63
	R	UG	2.31	11	.77
****				-------	
sum				1126	
1971	R	1A	282.03	1343	.21
****				-------	
sum				1343	
1972	R	1A	274.26	1306	.21
****				-------	
sum				1306	
1973	R	1A	265.65	1264	.21
****				-------	
sum				1264	
1974	R	1A	197.82	942	.21
****				-------	
sum				942	
1975	R	1A	256.62	1222	.21
****				-------	
sum				1222	
1976	R	1A	215.25	1025	.21
	R	2A	9.09	43	3.03
****				-------	
sum				1068	
1977	R	1A	252.08	1199	.21
	R	2A	74.40	355	14.88
****				-------	
sum				1554	
1978	R	1A	189.00	900	.21
****				-------	
sum				900	
1979	R	1A	329.49	1569	.21
	R	2A	12.59	60	2.10
****				-------	
sum				1629	
1980	R	1A	348.39	1658	.21
	R	2A	20.08	92	1.18
****				-------	
sum				1750	
1981	R	1A	172.05	819	.21

Date	Pri Wast Type	Sec Wast Type	Volume	Count	Avg Volume
1981	R	2A	38.22	182	2.73
	R	3A	15.30	73	3.82
****				-------	
sum				1074	
1982	M	1A	.21	1	.21
	MP	1A	1.26	6	.21
	R	1A	139.71	665	.21
	R	2A	5.24	25	1.75
****				-------	
sum				697	
1983	M	1A	2.52	12	.21
	M	1D	.84	4	.21
	MP	1A	.84	4	.21
	R	1A	149.94	713	.21
	R	1D	45.36	216	.21
	R	2A	10.69	51	1.78
****				-------	
sum				1000	
1984	M	1A	.63	3	.21
	R	1A	36.12	172	.21
	R	1B	.21	1	.21
	R	1D	352.58	1679	.21
****				-------	
sum				1855	
1985	M	1D	2.73	13	.21
	MP	1A	2.94	14	.21
	R	1A	1.26	6	.21
	R	1D	367.29	1749	.21
	R	2A	1.68	8	1.68
	R	2L	1.05	5	.21
	R	3A	5.66	27	1.89
	R	3L	13.86	66	.21
****				-------	
sum				1888	
1986	R	1C	12.39	59	.21
	R	1D	106.05	505	.21
	R	2A	26.84	128	3.83
	R	2L	24.57	117	.21
	R	3A	4.20	20	4.20
	R	3L	170.73	813	.21
****				-------	
sum				1642	
1987	M	2A	.21	1	.21
	M	3A	.43	2	.43
	R	1C	71.19	339	.21

Date	Pri Wast Type	Sec Wast Type	Volume	Count	Avg Volume
1987	R	1D	17.43	83	.21
	R	2A	40.78	193	3.71
	R	3L	265.23	1263	.21
****				-------	
sum				1881	
1988	M	2A	2.12	10	.21
	MP	1D	2.10	10	.21
	MP	2A	37.17	177	.21
	R	1C	27.93	133	.21
	R	1D	9.87	47	.21
	R	2A	24.17	110	4.03
	R	2L	3.57	17	.21
	R	3A	30.80	146	3.85
	R	3L	148.05	705	.21
****				-------	
sum				1355	
1989	M	1C	.21	1	.21
	M	1D	7.56	36	.21
	M	2A	7.98	38	.21
	MP	1D	1.26	6	.21
	MP	2A	5.67	27	.21
	R	1C	10.71	51	.21
	R	1D	3.15	15	.21
	R	2L	.21	1	.21
	R	3A	4.41	21	.21
	R	3L	102.48	488	.21
****				-------	
sum				684	
1990	M	1D	4.20	20	.21
	M	2A	4.41	21	.21
	MP	1D	.21	1	.21
	MP	2A	1.68	8	.21
	R	1C	5.04	24	.21
	R	1D	18.48	88	.21
	R	2A	13.93	43	.32
	R	2L	13.23	63	.21
	R	3A	34.86	166	.21
	R	3L	104.58	498	.21
****				-------	
sum				932	
1991	M	1A	.83	4	.21
	M	1D	2.94	14	.21
	M	2A	5.82	28	.21
	MP	2A	2.10	10	.21
	R	1A	1.25	6	.21
	R	1C	2.92	14	.21
	R	1D	14.28	68	.21

Date	Pri Wast Type	Sec Wast Type	Volume	Count	Avg Volume
1991	R	2A	.21	1	.21
	R	2L	6.69	32	.21
	R	3A	144.82	690	.21
	R	3L	60.86	290	.21
****				-------	
sum				1157	
1992	M	1A	.82	4	.21
	M	2A	3.64	18	.20
	R	1A	13.31	64	.21
	R	1C	3.71	18	.21
	R	2A	13.52	65	.21
	R	3A	66.59	321	.21
	RP	2A	.81	4	.20
****				-------	
sum				494	

101 rows selected.

APPENDIX B.4

ANNUAL VOLUME OF TRU WASTE IN CONTAINERS OTHER THAN 55-GALLON DRUMS — SORTED BY WASTE TYPE

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ANNUAL VOLUME OF TRU WASTE IN CONTAINERS OTHER THAN 55-GALLON DRUMS — SORTED BY WASTE TYPE

The data contained in this subappendix are the waste types, total volume (in cubic meters) and total number of transuranic (TRU) waste containers other than 55-gal drums generated annually at the Plutonium Finishing Plant (PFP). The primary and secondary waste type codes are explained in the introduction to Appendix B.

The secondary waste codes used to generate the data in this subappendix included only those codes beginning with a "1." This excluded a small number of TRU waste containers with secondary waste codes that did not begin with the number 1. These containers were picked up on the data run which is in Appendix B.6.

```
set linesize 160
set pagesize 55
set newpage 0
spool judyl.srep
ttitle off
break on cntyp_descr skip 1
compute sum of sum(con_gross_wgt) on cntyp_descr
compute sum of sum(rdet_rswims_count) on cntyp_descr
col dt                          format a4       heading "Date"
col con_pwtyp_cd                format a4       heading "Pri|Wast|Type"
col rdet_swtyp_cd               format a4       heading "Sec|Wast|Type"
col sum(con_cntr_vol)           format 99999999.99  heading "Volume"
col sum(rdet_rswims_count)      format 999999   heading "Count"
col avg(con_cntr_vol)           format 99999.99 heading "Avg|Volume"
col cntyp_descr                 format a30      heading "Container Discription"
col con_size_descr              format a20      heading "Container Size"
select
        cntyp_descr,
        con_size_descr,
        substr (to_char(con_tsd_accept_dt, 'YYYY'), 1, 4) dt,
        con_pwtyp_cd,
        rdet_swtyp_cd,
        sum(con_cntr_vol),
        sum(rdet_rswims_count),
        avg(con_cntr_vol)
from radwaste, contype
where con_tsd_accept_dt between '01-JAN-70' and '17-JUN-92' and
con_srce_facil_id like ('%2345%') and rdet_swtyp_cd < '2A' and
con_size_descr not like ('%55%') and con_cntyp_cd = cntyp_cd
group by cntyp_descr,
        con_size_descr,
        substr (to_char(con_tsd_accept_dt, 'YYYY'), 1, 4),
        con_pwtyp_cd,
        rdet_swtyp_cd
;
spool off
```

Container Discription	Container Size	Date	Pri Wast Type	Sec Wast Type	Volume	Count	Avg Volume
CONCRETE BOXES	UNKNOWN	1970	R	1A	46.02	1	46.02
******************************						-------	
sum						1	
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	10.5*10.7*12	1975	R	1A	38.06	1	38.06
	4*4*7	1975	R	1A	19.03	6	3.17
	4*4*7	1976	R	1A	16.20	5	3.24
	4*4*7	1978	R	1A	28.55	9	3.17
	4*4*7	1980	R	1A	6.34	2	3.17
	4.83*5*8	1975	R	1A	10.93	2	5.47
	6.3*8*14.7	1975	R	1A	21.52	1	21.52
	6.5*8*14.6	1978	R	1A	193.69	9	21.52
	6.5*8*18.5	1978	R	1A	81.38	3	27.13
	8*10*16	1976	R	1A	38.99	1	38.99
	8*10*16	1977	R	1A	72.49	2	36.25
	8*8*10.7	1978	R	1A	39.36	2	19.68
	9*10.67*16	1975	R	1A	173.98	4	43.50
	9*10.67*16	1980	R	1A	173.87	4	43.47
	9*10.67*16	1981	R	1A	217.34	5	43.47
	9*10.67*20	1975	R	1A	543.91	10	54.39
	9*10.67*20	1976	R	1A	380.78	7	54.40
	9*10.7*12	1975	R	1A	358.83	11	32.62
	9*10.7*12	1976	R	1A	97.86	3	32.62
	9*10.7*12	1977	R	1A	32.62	1	32.62
	9*10.7*12	1980	R	1A	32.59	1	32.59
	9*11.6*20	1975	R	1A	356.96	6	59.49
	9*11.6*20	1976	R	1A	35.68	1	35.68
	9.5*9.9*12	1978	R	1A	32.08	1	32.08
******************************						-------	
sum						97	
GLOVE BOXES	UNKNOWN	1971	R	1A	10.87	2	5.44
	UNKNOWN	1972	R	1A	13.59	4	3.40
******************************						-------	
sum						6	
METAL BOXES, CARTONS, CASES	115 CU FT	1972	R	1A	3.26	1	3.26
	149 CU FT	1972	R	1A	4.22	1	4.22
	149 CU FT	1989	M	1D	4.21	1	4.21
	156 CU FT	1972	R	1A	8.83	2	4.42
	197 CU FT	1972	R	1A	5.58	1	5.58
	197 CU FT	1973	R	1A	5.58	1	5.58
	2*3*15	1974	R	1A	2.55	1	2.55
	252 CU FT	1972	R	1A	7.14	1	7.14
	269 CU. FT.	1972	R	1A	7.62	1	7.62
	3*3*4	1971	R	1A	3.06	3	1.02
	3*4*10	1972	R	1A	3.40	1	3.40
	3*4*10	1974	R	1A	3.40	1	3.40
	3*5*8	1971	R	1A	3.40	1	3.40

Container Discription	Container Size	Date	Pri Wast Type	Sec Wast Type	Volume	Count	Avg Volume
METAL BOXES, CARTONS, CASES	3.7*6.5*13.2	1975	R	1A	8.78	1	8.78
	4*4*5	1971	R	1A	2.27	1	2.27
	4*4*7	1978	R	1A	3.17	1	3.17
	4*4*7	1985	R	1D	5.60	2	2.80
	4*4*7	1989	M	1D	3.17	1	3.17
	4*4*7	1989	MP	1D	3.17	1	3.17
	4*5.5*16	1972	R	1A	9.97	1	9.97
	4*6*10	1973	R	1A	13.59	2	6.80
	4*6*10	1974	R	1A	13.59	2	6.80
	4*6*10	1983	R	1D	6.99	1	6.99
	4*6*15	1978	R	1A	20.39	2	10.19
	4*6*16.5	1971	R	1A	11.21	1	11.21
	4*8*10	1974	R	1A	9.06	1	9.06
	4*8*16	1974	R	1A	14.50	1	14.50
	4.5*4.5*7.3	1989	MP	1D	21.03	5	4.21
	4.5*6*10	1972	R	1A	7.65	1	7.65
	5*10*13	1974	R	1A	18.41	1	18.41
	5*7*17	1971	R	1A	16.85	1	16.85
	5.2*7.1*10.5	1974	R	1A	22.03	2	11.02
	5.2*7.1*10.5	1975	M	1A	11.02	1	11.02
	5.2*7.1*10.5	1975	R	1A	55.08	5	11.02
	5.2*7.1*10.5	1977	R	1A	11.02	1	11.02
	5.2*7.1*16.5	1974	R	1A	17.34	1	17.34
	5.2*7.1*16.5	1975	R	1A	51.96	3	17.32
	5.6*6.5*9.3	1989	MP	1D	38.44	4	9.61
	6*6*7	1985	R	1D	15.00	2	7.50
	6*6*7	1989	M	1D	7.14	1	7.14
	6*6*7	1989	MP	1D	7.14	1	7.14
	80.8 CU FT	1972	R	1A	2.29	1	2.29
	UNKNOWN	1971	R	1A	6.80	1	6.80
	UNKNOWN	1985	R	1A	22.50	3	7.50
	UNKNOWN	1985	R	1D	289.81	35	8.28
********************************						-------	
sum						103	
METAL DRUMS, BARRELS, KEGS	110 GALLON	1972	R	1A	.42	1	.42
	110 GALLON	1973	R	1A	1.26	3	.42
	110 GALLON	1974	R	1A	3.77	9	.42
	110 GALLON	1976	R	1A	5.87	14	.42
	110 GALLON	1982	R	1A	6.29	15	.42
	30 GALLON	1970	R	1A	.93	8	.12
	30 GALLON	1971	R	1A	.58	5	.12
	30 GALLON	1982	R	1A	.53	4	.13
	85 GALLON	1989	M	1D	.28	1	.28
	UNKNOWN	1980	R	1A	5.45	13	.42
	UNKNOWN	1981	M	1A	.89	7	.13
	UNKNOWN	1981	R	1A	31.01	74	.42
	UNKNOWN	1982	M	1A	.38	3	.13
	UNKNOWN	1982	R	1A	2.93	7	.42
	UNKNOWN	1983	R	1D	13.09	79	.17
********************************						-------	

Container Discription	Container Size	Date	Pri Wast Type	Sec Wast Type	Volume	Count	Avg Volume
sum						243	
MISCELLANEOUS SCRAP	UNKNOWN	1984	R	1A	.21	1	.21
*******************************						-------	
sum						1	
SELF CONTAINED, EQUIPMENT	UNKNOWN	1971	R	1A	8.16	2	4.08
*******************************						-------	
sum						2	
WOODEN BOXES, CARTONS, CASES	4*5*6	1971	R	1A	22.65	1	22.65
*******************************						-------	
sum						1	

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APPENDIX B.5

ANNUAL VOLUMES OF NON-TRU WASTE IN CONTAINERS OTHER THAN 55-GALLON DRUMS

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ANNUAL VOLUMES OF NON-TRU WASTE IN CONTAINERS OTHER THAN 55-GALLON DRUMS

The data contained in this subappendix include the total volume (in cubic meters) and total number of low-level waste (LLW) (secondary waste code = 2A) containers other than 55-gal drums generated at the Plutonium Finishing Plant (PFP) between 1970 and 1991.

Please note that not all waste that has been categorized as LLW has the "2A" secondary waste code. Data for packages with the "UA" and "3A" codes, which also contain LLW, are given in Appendix B.6.

```
set linesize 160
set pagesize 55
set newpage 0
spool judyl.srep
ttitle off
break on cntyp_descr skip 1
compute sum of sum(con_gross_wgt) on cntyp_descr
compute sum of sum(rdet_rswims_count) on cntyp_descr
col dt                          format a4       heading "Date"
col con_pwtyp_cd                format a4       heading "Pri|Wast|Type"
col rdet_swtyp_cd               format a4       heading "Sec|Wast|Type"
col sum(con_cntr_vol)           format 99999999.99 heading "Volume"
col sum(rdet_rswims_count)      format 999999   heading "Count"
col avg(con_cntr_vol)           format 99999.99 heading "Avg|Volume"
col cntyp_descr                 format a30      heading "Container Discription"
col con_size_descr              format a20      heading "Container Size"
select
        cntyp_descr,
        con_size_descr,
        substr (to_char(con_tsd_accept_dt, 'YYYY'), 1, 4) dt,
        con_pwtyp_cd,
        rdet_swtyp_cd,
        sum(con_cntr_vol),
        sum(rdet_rswims_count),
        avg(con_cntr_vol)
from radwaste, contype
where con_tsd_accept_dt between '01-JAN-70' and '17-JUN-92' and
con_srce_facil_id like ('%2345%') and rdet_swtyp_cd = '2A' and
con_size_descr not like ('%55%') and con_cntyp_cd = cntyp_cd
group by cntyp_descr,
        con_size_descr,
        substr (to_char(con_tsd_accept_dt, 'YYYY'), 1, 4),
        con_pwtyp_cd,
        rdet_swtyp_cd
;
spool off
```

Container Discription	Container Size	Date	Pri Wast Type	Sec Wast Type	Volume	Count	Avg Volume
BURLAP, CLOTH, PAPER OR PLASTIC BAGS	UNKNOWN	1976	R	2A	.13	1	.13
	UNKNOWN	1979	R	2A	1.59	12	1.59
	UNKNOWN	1980	R	2A	11.36	706	3.79
	UNKNOWN	1981	R	2A	4.25	2	4.25
	UNKNOWN	1982	R	2A	1.13	4	1.13
	UNKNOWN	1983	R	2A	15.31	2	7.65
	UNKNOWN	1985	R	2A	12.69	2	12.69
	UNKNOWN	1986	R	2A	21.75	2	10.87
	UNKNOWN	1987	R	2A	32.62	3	10.87
	UNKNOWN	1988	R	2A	12.02	5	6.01
	UNKNOWN	1989	R	2A	21.75	2	10.87
	UNKNOWN	1990	R	2A	4.86	18	.27
sum						759	
DUMP TRUCK	UNKNOWN	1981	R	2A	25.49	2	12.74
	UNKNOWN	1985	R	2A	32.62	3	10.87
	UNKNOWN	1986	R	2A	32.62	3	10.87
	UNKNOWN	1987	R	2A	32.62	3	10.87
	UNKNOWN	1988	R	2A	112.48	7	16.07
	UNKNOWN	1989	R	2A	42.48	5	8.50
	UNKNOWN	1990	R	2A	5.10	1	5.10
sum						24	
FIBERBOARD/PLASTIC BOXES, CARTONS, CASES	2 CU FT	1980	R	2A	.11	2	.11
	UNKNOWN	1973	R	2A	.38	3	.38
	UNKNOWN	1979	R	2A	1.22	11	1.22
	UNKNOWN	1980	R	2A	27.61	218	2.51
	UNKNOWN	1981	R	2A	5.74	45	1.15
	UNKNOWN	1982	R	2A	1.53	12	1.53
	UNKNOWN	1983	R	2A	1.02	8	1.02
sum						299	
GLOVE BOXES	UNKNOWN	1976	R	2A	4.04	1	4.04
	UNKNOWN	1981	R	2A	7.65	2	7.65
sum						3	
HEPA FILTERS	UNKNOWN	1978	R	2A	5.04	28	5.04
	UNKNOWN	1979	R	2A	1.47	13	1.47
	UNKNOWN	1980	R	2A	7.26	28	1.45
	UNKNOWN	1981	R	2A	15.29	50	7.65
	UNKNOWN	1983	R	2A	2.30	22	1.15
	UNKNOWN	1984	R	2A	3.12	31	3.12
	UNKNOWN	1985	R	2A	3.40	12	3.40

Container Discription	Container Size	Date	Pri Wast Type	Sec Wast Type	Volume	Count	Avg Volume
HEPA FILTERS	UNKNOWN	1986	R	2A	7.60	44	7.60
	UNKNOWN	1987	R	2A	25.63	85	12.81
	UNKNOWN	1990	R	2A	9.18	34	.27
********************************						-------	
sum						347	
METAL BOXES, CARTONS, CASES	197 CU FT	1983	R	2A	5.61	1	5.61
	4*4*8	1989	M	2A	3.40	1	3.40
	4*6*16.5	1984	R	2A	22.43	2	22.43
	5.6*6.5*9.3	1989	MP	2A	9.61	1	9.61
	UNKNOWN	1971	R	2A	4.19	20	4.19
	UNKNOWN	1981	R	2A	5.55	3	2.78
	UNKNOWN	1983	R	2A	1.69	51	1.69
	UNKNOWN	1985	R	2A	6.34	2	3.17
********************************						-------	
sum						81	
METAL DRUMS, BARRELS, KEGS	10 GALLON	1980	R	2A	1.27	15	1.27
	10 GALLON	1989	M	2A	.14	3	.05
	10 GALLON	1990	M	2A	.10	2	.05
	10 GALLON	1991	RP	2A	.03	1	.03
	110 GALLON	1980	R	2A	11.89	28	5.95
	15 GALLON	1991	MP	2A	.04	1	.04
	30 GALLON	1979	R	2A	3.40	40	3.40
	30 GALLON	1981	R	2A	.64	5	.32
	30 GALLON	1982	R	2A	4.53	33	1.13
	30 GALLON	1983	R	2A	6.51	51	6.51
	30 GALLON	1989	MP	2A	.15	1	.15
	30 GALLON	1990	M	2A	.45	3	.15
	30 GALLON	1990	MP	2A	.30	2	.15
	5 GALLON	1990	R	2A	10.75	1	10.75
	8 GALLON	1990	M	2A	.03	1	.03
	8 GALLON	1991	M	2A	.09	3	.03
	85 GALLON	1989	M	2A	.28	1	.28
	UNKNOWN	1980	R	2A	22.06	54	5.51
	UNKNOWN	1981	R	2A	53.68	129	5.96
********************************						-------	
sum						374	
MISCELLANEOUS SCRAP	UNKNOWN	1971	R	2A	.85	3	.85
	UNKNOWN	1975	R	2A	5.66	1	5.66
	UNKNOWN	1977	R	2A	11.71	2	5.85
	UNKNOWN	1978	R	2A	29.34	6	4.89
	UNKNOWN	1979	R	2A	2.97	21	2.97
	UNKNOWN	1980	R	2A	71.50	26	14.30
	UNKNOWN	1981	R	2A	6.45	26	3.23
	UNKNOWN	1982	R	2A	.28	14	.28
	UNKNOWN	1983	R	2A	9.01	2	4.50
********************************						-------	
sum						101	

Container Discription	Container Size	Date	Pri Wast Type	Sec Wast Type	Volume	Count	Avg Volume
SELF CONTAINED, EQUIPMENT	UNKNOWN	1970	R	2A	.57	1	.57
	UNKNOWN	1976	R	2A	9.74	6	4.87
	UNKNOWN	1978	R	2A	1.70	9	.85
	UNKNOWN	1979	R	2A	7.40	69	2.47
	UNKNOWN	1980	R	2A	42.90	56	14.30
	UNKNOWN	1981	R	2A	32.88	423	4.11
	UNKNOWN	1982	R	2A	15.97	21	5.32
	UNKNOWN	1983	R	2A	9.95	16	4.97
	UNKNOWN	1984	R	2A	5.69	1	5.69
	UNKNOWN	1985	R	2A	7.51	34	2.50
	UNKNOWN	1987	R	2A	10.87	1	10.87
	UNKNOWN	1988	R	2A	5.04	57	5.04
	UNKNOWN	1989	R	2A	86.08	12	7.17
	UNKNOWN	1990	R	2A	50.89	8	6.36
******************************						-------	
sum						714	
TANKS, PORTABLE	UNKNOWN	1985	R	2A	2.29	4	2.29
******************************						-------	
sum						4	
TRUCKS, FLATBEDS, COMPACTOR, LOADLUGGER	UNKNOWN	1972	R	2A	15.12	3	7.56
	UNKNOWN	1973	R	2A	29.14	4	9.71
	UNKNOWN	1974	R	2A	9.68	2	9.68
	UNKNOWN	1975	R	2A	19.37	2	9.68
	UNKNOWN	1976	R	2A	55.33	5	18.44
	UNKNOWN	1977	R	2A	38.65	6	6.44
	UNKNOWN	1978	R	2A	25.03	6	4.17
	UNKNOWN	1979	R	2A	36.62	8	4.58
	UNKNOWN	1980	R	2A	141.66	18	7.87
	UNKNOWN	1981	M	2A	2.83	1	2.83
	UNKNOWN	1981	R	2A	164.84	16	11.77
	UNKNOWN	1982	R	2A	72.07	38	18.02
	UNKNOWN	1983	R	2A	32.45	3	10.82
	UNKNOWN	1984	M	2A	24.47	1	24.47
	UNKNOWN	1984	R	2A	125.84	8	15.73
	UNKNOWN	1985	R	2A	281.47	28	10.05
	UNKNOWN	1986	M	2A	21.64	4	5.41
	UNKNOWN	1986	R	2A	116.10	11	10.55
	UNKNOWN	1987	R	2A	83.99	10	9.33
	UNKNOWN	1988	R	2A	58.11	6	9.68
	UNKNOWN	1989	R	2A	31.43	6	5.24
	UNKNOWN	1990	R	2A	82.95	8	10.37
	UNKNOWN	1991	R	2A	42.90	3	14.30
******************************						-------	
sum						197	
WOODEN BOXES, CARTONS, CASES	4*4*8	1992	R	2A	4.11	1	4.11
	4*8*12	1987	R	2A	10.87	1	10.87

Container Discription	Container Size	Date	Pri Wast Type	Sec Wast Type	Volume	Count	Avg Volume
WOODEN BOXES, CARTONS, CASES	UNKNOWN	1971	R	2A	2.31	2	2.31
******************************						-------	
sum						4	

115 rows selected.

APPENDIX B.6

ANNUAL VOLUMES OF WASTE WITH SECONDARY WASTE CODES GREATER THAN 2A STORED IN WASTE CONTAINERS OTHER THAN 55-GALLON DRUMS

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ANNUAL VOLUMES OF WASTE WITH SECONDARY WASTE CODES GREATER THAN 2A STORED IN WASTE CONTAINERS OTHER THAN 55-GALLON DRUMS

The data contained in this subappendix include the total volume (in cubic meters) and total number of containers other than 55-gal drums with secondary waste codes greater than 2A. This group includes the following waste categories:

- UA, unsegregated nontransuranic (non-TRU) dry waste
- UG, unsegregated transuranic (TRU) dry waste
- 3A, low-level industrial waste.

This computer run was made to address oversights in the queries in subappendixes B.4 and B.5.

```
set linesize 160
set pagesize 55
set newpage 0
spool judyl.srep
ttitle off
break on cntyp_descr skip 1
compute sum of sum(con_gross_wgt) on cntyp_descr
compute sum of sum(rdet_rswims_count) on cntyp_descr
col dt                          format a4       heading "Date"
col con_pwtyp_cd                format a4       heading "Pri|Wast|Type"
col rdet_swtyp_cd               format a4       heading "Sec|Wast|Type"
col sum(con_cntr_vol)           format 99999999.99  heading "Volume"
col sum(rdet_rswims_count)      format 999999   heading "Count"
col avg(con_cntr_vol)           format 99999.99 heading "Avg|Volume"
col cntyp_descr                 format a30      heading "Container Discription"
col con_size_descr              format a20      heading "Container Size"
select
        cntyp_descr,
        con_size_descr,
        substr (to_char(con_tsd_accept_dt, 'YYYY'), 1, 4) dt,
        con_pwtyp_cd,
        rdet_swtyp_cd,
        sum(con_cntr_vol),
        sum(rdet_rswims_count),
        avg(con_cntr_vol)
from radwaste, contype
where con_tsd_accept_dt between '01-JAN-70' and '17-JUN-92' and
con_srce_facil_id like ('%2345%') and rdet_swtyp_cd > '2A' and
con_size_descr not like ('%55%') and con_cntyp_cd = cntyp_cd
group by cntyp_descr,
        con_size_descr,
        substr (to_char(con_tsd_accept_dt, 'YYYY'), 1, 4),
        con_pwtyp_cd,
        rdet_swtyp_cd
;
spool off
```

Container Discription	Container Size	Date	Pri Wast Type	Sec Wast Type	Volume	Count	Avg Volume
BURLAP, CLOTH, PAPER OR PLASTI C BAGS	UNKNOWN	1970	R	UA	3.65	13	.73
	UNKNOWN	1970	R	UG	.28	6	.07
********************************						-------	
sum						19	
CONCRETE BOXES	UNKNOWN	1970	R	UA	.28	10	.28
********************************						-------	
sum						10	
FIBERBOARD/PLASTIC BOXES, CART ONS, CASES	2 CU FT	1970	R	UA	.87	14	.29
	2 CU FT	1970	R	UG	.16	4	.05
	3 CU FT	1981	R	3A	13.00	153	4.33
	UNKNOWN	1970	R	UA	94.81	744	4.99
	UNKNOWN	1970	R	UG	66.93	523	4.18
	UNKNOWN	1981	R	3A	3.19	25	3.19
********************************						-------	
sum						1463	
HEPA FILTERS	UNKNOWN	1970	R	UA	.82	18	.27
********************************						-------	
sum						18	
METAL BOXES, CARTONS, CASES	UNKNOWN	1985	R	3A	37.68	6	9.42
********************************						-------	
sum						6	
METAL DRUMS, BARRELS, KEGS	1 GALLON	1970	R	UA	.01	1	.01
	30 GALLON	1970	R	UA	.23	2	.12
	30 GALLON	1990	R	3A	1.80	12	.15
	5 GALLON	1970	R	UA	1.96	69	.11
	5 GALLON	1970	R	UG	1.56	55	.10
	UNKNOWN	1970	R	UA	.26	9	.26
	UNKNOWN	1989	R	3A	7.99	47	.17
********************************						-------	
sum						195	
MISCELLANEOUS SCRAP	UNKNOWN	1970	R	UA	.11	1	.11
	UNKNOWN	1970	R	UG	.06	1	.06
	UNKNOWN	1981	R	3A	.57	20	.57
********************************						-------	
sum						22	
SELF CONTAINED, EQUIPMENT	UNKNOWN	1970	R	UA	.42	3	.21
	UNKNOWN	1970	R	UG	2.08	26	.23
	UNKNOWN	1981	R	3A	6.51	2	6.51
	UNKNOWN	1988	R	3A	22.20	98	3.70
********************************						-------	

Container Discription	Container Size	Date	Pri Wast Type	Sec Wast Type	Volume	Count	Avg Volume
sum						129	
TRUCKS, FLATBEDS, COMPACTOR, LOADLUGGER	UNKNOWN	1970	R	UG	.28	1	.28
	UNKNOWN	1984	R	3A	29.73	1	29.73
	UNKNOWN	1990	R	3A	14.14	3	4.71
********************************						-------	
sum						5	
WOODEN BOXES, CARTONS, CASES	3*3*11	1970	R	UA	2.80	1	2.80
	4*4*8	1990	R	3A	32.87	8	4.11
	4*4*8	1991	R	3A	143.82	35	4.11
	4*4*8	1992	R	3A	69.87	17	4.11
	UNKNOWN	1970	R	UA	.45	4	.45
	UNKNOWN	1985	M	3A	1.36	2	1.36
********************************						-------	
sum						67	

34 rows selected.

APPENDIX B.7

TRU WASTE STORAGE FACILITIES — SORTED BY PRIMARY WASTE TYPE, CONTAINER TYPE, AND YEAR

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TRU WASTE STORAGE FACILITIES — SORTED BY PRIMARY WASTE TYPE, CONTAINER TYPE AND YEAR

This subappendix provides information on the type, weight, and primary waste type of transuranic (TRU) waste containers stored at the various TRU waste storage facilities on the Hanford Site. The data are sorted by the primary waste type (mixed waste [M] is listed first followed by PCB contaminated mixed waste [MP] and radioactive [R] waste).

```
set linesize 120
set pagesize 55
set newpage 0
spool judy.srep
ttitle center 'TRU WASTE' -
right 'Page:' format 999 sql.pno skip 1 -
center 'Sorted by Primary Waste Type' skip 1
break on dt skip 1
compute sum of sum(con_gross_wgt) on dt
compute sum of sum(rdet_rswims_count) on dt
col cntyp_descr                 format a45      heading "Container Discription"
col con_size_descr              format a15      heading "Container Size"
col con_locn_facil_id           format a8       heading "Storage|Facility"
col dt                          format a4       heading "Date"
col con_pwtyp_cd                format a4       heading "Pri|Wast|Type"
col sum(con_gross_wgt)          format 99999999.99  heading "Weight (kg)"
col sum(rdet_rswims_count)              format 999999   heading "Count"
col avg(con_gross_wgt)          format 999999.99        heading "Avg|Weight"
select
        cntyp_descr,
        con_size_descr,
        substr (to_char(con_tsd_accept_dt, 'YYYY'), 1, 4) dt,
        con_pwtyp_cd,
        con_locn_facil_id,
        sum(rdet_rswims_count),
        sum(con_gross_wgt),
        avg(con_gross_wgt)
from radwaste, contype
where con_tsd_accept_dt between '01-JAN-70' and '17-JUN-92' and
con_srce_facil_id like ('%2345%')
and rdet_swtyp_cd between '1A' and '1E' and con_cntyp_cd = cntyp_cd
group by con_pwtyp_cd,
substr (to_char(con_tsd_accept_dt, 'YYYY'), 1, 4),
        cntyp_descr,
        con_size_descr,
        con_locn_facil_id
;
spool off
```

TRU WASTE
Sorted by Primary Waste Type

Page: 1

Container Discription	Container Size	Date	Pri Wast Type	Storage Facility	Count	Weight (kg)	Avg Weight
METAL BOXES, CARTONS, CASES	5.2*7.1*10.5	1975	M	218W3A	1	4939.60	4939.60
		****			-------	-----------	
		sum			1	4939.60	
METAL DRUMS, BARRELS, KEGS	UNKNOWN	1981	M	218W4C	7	1575.80	225.11
		****			-------	-----------	
		sum			7	1575.80	
METAL DRUMS, BARRELS, KEGS	55 GALLON	1982	M	218W4C	1	68.04	68.04
METAL DRUMS, BARRELS, KEGS	UNKNOWN		M	218W4C	3	544.32	181.44
		****			-------	-----------	
		sum			4	612.36	
METAL DRUMS, BARRELS, KEGS	55 GALLON	1983	M	218W4C	16	1206.56	75.41
		****			-------	-----------	
		sum			16	1206.56	
METAL DRUMS, BARRELS, KEGS	55 GALLON	1984	M	218W4C	3	197.31	65.77
		****			-------	-----------	
		sum			3	197.31	
METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	M	218W4C	13	1023.07	78.70
		****			-------	-----------	
		sum			13	1023.07	
METAL BOXES, CARTONS, CASES	149 CU FT	1989	M	2402W	1	1360.77	1360.77
METAL BOXES, CARTONS, CASES	4*4*7		M	2402WB	1	1043.26	1043.26
METAL BOXES, CARTONS, CASES	6*6*7		M	2402W	1	2177.23	2177.23
METAL DRUMS, BARRELS, KEGS	55 GALLON		M	224T	34	2955.86	86.94
METAL DRUMS, BARRELS, KEGS	55 GALLON		M	2401W	2	218.63	109.32
METAL DRUMS, BARRELS, KEGS	55 GALLON		M	2402WB	1	79.38	79.38
METAL DRUMS, BARRELS, KEGS	85 GALLON		M	FS8	1	117.93	117.93
		****			-------	-----------	
		sum			41	7953.06	
METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	M	224T	20	2469.03	123.45
		****			-------	-----------	
		sum			20	2469.03	
METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	M	224T	18	1711.99	95.11
		****			-------	-----------	
		sum			18	1711.99	
METAL DRUMS, BARRELS, KEGS	55 GALLON	1992	M	224T	4	403.00	100.75
		****			-------	-----------	
		sum			4	403.00	
METAL DRUMS, BARRELS, KEGS	55 GALLON	1982	MP	2401W	6	482.62	80.44
		****			-------	-----------	

TRU WASTE

Sorted by Primary Waste Type

Container Discription	Container Size	Date	Pri Wast Type	Storage Facility	Count	Weight (kg)	Avg Weight
		sum			6	482.62	
METAL DRUMS, BARRELS, KEGS	55 GALLON	1983	MP	2401W	4	319.32	79.83
		****			-------	-----------	
		sum			4	319.32	
METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	MP	2401W	14	1319.74	94.27
		****			-------	-----------	
		sum			14	1319.74	
METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	MP	2401W	10	699.99	70.00
		****			-------	-----------	
		sum			10	699.99	
METAL BOXES, CARTONS, CASES	4*4*7	1989	MP	2401W	1	1723.64	1723.64
METAL BOXES, CARTONS, CASES	4.5*4.5*7.3		MP	2401W	5	9343.96	1868.79
METAL BOXES, CARTONS, CASES	5.6*6.5*9.3		MP	2401W	4	11884.06	2971.02
METAL BOXES, CARTONS, CASES	6*6*7		MP	2401W	1	2449.39	2449.39
METAL DRUMS, BARRELS, KEGS	55 GALLON		MP	2401W	6	438.63	73.11
		****			-------	-----------	
		sum			17	25839.68	
METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	MP	2401W	1	45.99	45.99
		****			-------	-----------	
		sum			1	45.99	
CONCRETE BOXES	UNKNOWN	1970	R	218W4B	1	20638.35	20638.35
METAL DRUMS, BARRELS, KEGS	30 GALLON		R	218W3A	8	326.56	40.82
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W3A	1112	75660.48	68.04
		****			-------	-----------	
		sum			1121	96625.39	
GLOVE BOXES	UNKNOWN	1971	R	218W4B	2	4877.00	2438.50
METAL BOXES, CARTONS, CASES	3*3*4		R	218W4B	3	1371.66	457.22
METAL BOXES, CARTONS, CASES	3*5*8		R	218W4B	1	1524.06	1524.06
METAL BOXES, CARTONS, CASES	4*4*5		R	218W4B	1	1016.04	1016.04
METAL BOXES, CARTONS, CASES	4*6*16.5		R	218W4B	1	5030.31	5030.31
METAL BOXES, CARTONS, CASES	5*7*17		R	218W4B	1	7556.81	7556.81
METAL BOXES, CARTONS, CASES	UNKNOWN		R	218W3A	1	3048.12	3048.12
METAL DRUMS, BARRELS, KEGS	30 GALLON		R	218W4B	5	204.10	40.82
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W3A	537	36537.48	68.04
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W4B	806	54819.83	68.01
SELF CONTAINED, EQUIPMENT	UNKNOWN		R	218W4B	2	3657.74	1828.87
WOODEN BOXES, CARTONS, CASES	4*5*6		R	218W4B	1	10160.42	10160.42
		****			-------	-----------	
		sum			1361	129803.57	
GLOVE BOXES	UNKNOWN	1972	R	218W4B	4	6096.24	1524.06
METAL BOXES, CARTONS, CASES	115 CU FT		R	218W4B	1	1460.56	1460.56

TRU WASTE
Sorted by Primary Waste Type

Container Discription	Container Size	Date	Pri Wast Type	Storage Facility	Count	Weight (kg)	Avg Weight
METAL BOXES, CARTONS, CASES	149 CU FT	1972	R	218W4B	1	1892.38	1892.38
METAL BOXES, CARTONS, CASES	156 CU FT		R	218W4B	2	3962.56	1981.28
METAL BOXES, CARTONS, CASES	197 CU FT		R	218W4B	1	2502.00	2502.00
METAL BOXES, CARTONS, CASES	252 CU FT		R	218W4B	1	3200.53	3200.53
METAL BOXES, CARTONS, CASES	269 CU. FT.		R	218W4B	1	3416.44	3416.44
METAL BOXES, CARTONS, CASES	3*4*10		R	218W4B	1	1524.06	1524.06
METAL BOXES, CARTONS, CASES	4*5.5*16		R	218W4B	1	4470.58	4470.58
METAL BOXES, CARTONS, CASES	4.5*6*10		R	218W4B	1	3429.14	3429.14
METAL BOXES, CARTONS, CASES	80.8 CU FT		R	218W4B	1	1026.02	1026.02
METAL DRUMS, BARRELS, KEGS	110 GALLON		R	218W4B	1	136.08	136.08
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W4B	1306	88860.24	68.04
		****			-------	-----------	
		sum			1322	121976.83	
METAL BOXES, CARTONS, CASES	197 CU FT	1973	R	218W4B	1	2502.00	2502.00
METAL BOXES, CARTONS, CASES	4*6*10		R	218W4B	2	6096.24	3048.12
METAL DRUMS, BARRELS, KEGS	110 GALLON		R	218W4B	3	408.24	136.08
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W4B	1264	86070.60	68.09
		****			-------	-----------	
		sum			1270	95077.08	
METAL BOXES, CARTONS, CASES	2*3*15	1974	R	218W4B	1	1143.05	1143.05
METAL BOXES, CARTONS, CASES	3*4*10		R	218W4B	1	152.41	152.41
METAL BOXES, CARTONS, CASES	4*6*10		R	218W4B	2	6096.24	3048.12
METAL BOXES, CARTONS, CASES	4*8*10		R	218W4B	1	4064.17	4064.17
METAL BOXES, CARTONS, CASES	4*8*16		R	218W4B	1	6504.48	6504.48
METAL BOXES, CARTONS, CASES	5*10*13		R	218W3A	1	8255.34	8255.34
METAL BOXES, CARTONS, CASES	5.2*7.1*10.5		R	218W4B	2	9879.20	4939.60
METAL BOXES, CARTONS, CASES	5.2*7.1*16.5		R	218W4B	1	7779.07	7779.07
METAL DRUMS, BARRELS, KEGS	110 GALLON		R	218W4B	9	1224.72	136.08
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W4B	942	64093.68	68.04
		****			-------	-----------	
		sum			961	109192.36	
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	10.5*10.7*12	1975	R	218W3A	1	17068.59	17068.59
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	4*4*7		R	218W3A	6	8540.19	1423.37
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	4.83*5*8		R	218W3A	2	4923.27	2461.64
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	6.3*8*14.7		R	218W3A	1	9652.40	9652.40
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.67*16		R	218W3A	4	56050.13	14012.53
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.67*20		R	218W3A	10	200704.54	20070.45
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.7*12		R	218W3A	11	154946.31	14086.03
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*11.6*20		R	218W3A	6	134407.79	22401.30
METAL BOXES, CARTONS, CASES	3.7*6.5*13.2		R	218W4B	1	3937.16	3937.16
METAL BOXES, CARTONS, CASES	5.2*7.1*10.5		R	218W3A	3	14818.80	4939.60
METAL BOXES, CARTONS, CASES	5.2*7.1*10.5		R	218W4B	2	9879.20	4939.60
METAL BOXES, CARTONS, CASES	5.2*7.1*16.5		R	218W3A	1	7760.92	7760.92
METAL BOXES, CARTONS, CASES	5.2*7.1*16.5		R	218W4B	2	15544.52	7772.26
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W4B	1222	83144.88	68.04
		****			-------	-----------	

TRU WASTE

Sorted by Primary Waste Type

Page: 4

Container Discription	Container Size	Date	Pri Wast Type	Storage Facility	Count	Weight (kg)	Avg Weight
		sum			1272	721378.70	
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	4*4*7	1976	R	218W3A	2	2844.92	1422.46
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	4*4*7		R	218W4B	3	4419.78	1473.26
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	8*10*16		R	218W3A	1	17490.43	17490.43
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.67*20		R	218W3A	7	170790.27	24398.61
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.7*12		R	218W3A	3	43898.43	14632.81
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*11.6*20		R	218W3A	1	16002.66	16002.66
METAL DRUMS, BARRELS, KEGS	110 GALLON		R	218W4B	14	1905.12	136.08
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W4B	1025	69657.08	68.02
		****			-------	-----------	
		sum			1056	327008.69	
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	8*10*16	1977	R	218W3A	2	27215.40	13607.70
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.7*12		R	218W3A	1	12419.29	12419.29
METAL BOXES, CARTONS, CASES	5.2*7.1*10.5		R	218W3A	1	6350.26	6350.26
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W4B	1199	81443.88	68.04
		****			-------	-----------	
		sum			1203	127428.83	
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	4*4*7	1978	R	218W3A	9	3628.72	403.19
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	6.5*8*14.6		R	218W3A	9	73109.66	8123.30
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	6.5*8*18.5		R	218W3A	3	25772.98	8590.99
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	8*8*10.7		R	218W3A	2	6917.25	3458.63
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9.5*9.9*12		R	218W3A	1	4422.50	4422.50
METAL BOXES, CARTONS, CASES	4*4*7		R	218W4B	1	1431.53	1431.53
METAL BOXES, CARTONS, CASES	4*6*15		R	218W4B	2	9144.38	4572.19
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W4C	900	61236.00	68.04
		****			-------	-----------	
		sum			927	185663.02	
METAL DRUMS, BARRELS, KEGS	55 GALLON	1979	R	218W4C	1569	106745.68	68.03
		****			-------	-----------	
		sum			1569	106745.68	
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	4*4*7	1980	R	218W4C	2	2342.79	1171.40
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.67*16		R	218W4C	4	25809.28	6452.32
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.7*12		R	218W4C	1	4422.50	4422.50
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W4C	1658	112896.50	68.09
METAL DRUMS, BARRELS, KEGS	UNKNOWN		R	218W4C	13	2063.88	158.76
		****			-------	-----------	
		sum			1678	147534.95	
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.67*16	1981	R	218W4C	5	30254.46	6050.89
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W4C	819	55818.64	68.15
METAL DRUMS, BARRELS, KEGS	UNKNOWN		R	218W4C	74	13081.66	176.78
		****			-------	-----------	
		sum			898	99154.76	

TRU WASTE

Sorted by Primary Waste Type

Container Discription	Container Size	Date	Pri Wast Type	Storage Facility	Count	Weight (kg)	Avg Weight
METAL DRUMS, BARRELS, KEGS	110 GALLON	1982	R	218W4C	15	2041.20	136.08
METAL DRUMS, BARRELS, KEGS	30 GALLON		R	218W4C	4	793.80	198.45
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W4C	665	45099.39	67.82
METAL DRUMS, BARRELS, KEGS	UNKNOWN		R	218W4C	7	1381.17	197.31
		****			-------	-----------	
		sum			691	49315.56	
METAL BOXES, CARTONS, CASES	4*6*10	1983	R	218W4C	1	3703.56	3703.56
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W4C	929	61248.53	65.86
METAL DRUMS, BARRELS, KEGS	UNKNOWN		R	218W4C	79	9824.00	124.35
		****			-------	-----------	
		sum			1009	74776.09	
METAL DRUMS, BARRELS, KEGS	55 GALLON	1984	R	218W3A	1	56.70	56.70
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W4C	1851	121137.18	65.48
MISCELLANEOUS SCRAP	UNKNOWN		R	218W4C	1	86.18	86.18
		****			-------	-----------	
		sum			1853	121280.06	
METAL BOXES, CARTONS, CASES	4*4*7	1985	R	218W4C	2	1470.99	735.50
METAL BOXES, CARTONS, CASES	6*6*7		R	218W4C	2	2907.06	1453.53
METAL BOXES, CARTONS, CASES	UNKNOWN		R	218W4C	38	105451.09	2775.03
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W4C	1755	113551.16	64.70
		****			-------	-----------	
		sum			1797	223380.30	
METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R	218W4C	445	25680.72	57.71
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	224T	119	7820.77	65.72
		****			-------	-----------	
		sum			564	33501.49	
METAL DRUMS, BARRELS, KEGS	55 GALLON	1987	R	218W4C	10	582.03	58.20
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	224T	412	28067.95	68.13
		****			-------	-----------	
		sum			422	28649.98	
METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	R	218W4C	11	681.94	61.99
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	224T	169	10966.99	64.89
		****			-------	-----------	
		sum			180	11648.93	
METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	R	224T	66	4392.46	66.55
		****			-------	-----------	
		sum			66	4392.46	
METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R	218W4C	53	3094.25	58.38
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W5	1	54.02	54.02
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	224T	86	5687.88	67.71
		****			-------	-----------	

TRU WASTE
Sorted by Primary Waste Type

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Container Discription	Container Size	Date	Pri Wast Type	Storage Facility	Count	Weight (kg)	Avg Weight
		sum			140	8836.15	
METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	R	218W4C	18	1181.01	65.61
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	224T	86	5787.01	67.29
		****			-------	-----------	
		sum			104	6968.02	
METAL DRUMS, BARRELS, KEGS	55 GALLON	1992	R	224T	82	4604.00	71.94
		****			-------	-----------	
		sum			82	4604.00	

139 rows selected.

APPENDIX B.8

RADIOLOGICAL DATA ON TRU WASTE CONTAINERS — SORTED BY DATE, PRIMARY WASTE TYPE, AND STORAGE FACILITY

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RADIOLOGICAL DATA ON TRU WASTE CONTAINERS — SORTED BY DATE, PRIMARY WASTE TYPE, AND STORAGE FACILITY

Subappendix B.8 summarizes the radiological data for all transuranic (TRU) waste containers generated at the Plutonium Finishing Plant (PFP) between 1970 and 1991. Specifically, this computer run provides the total grams of TRU elements in a given container type in a given year. In addition, the average gram loading for a given container type in a given year has been calculated.

In 1991 and 1992 the number of curies of alpha radiation was included on the solid waste burial records (SWBRs). These data are included in this run.

The "Max Dose" column contains the highest value recorded for a given container in a given year.

This computer run is sorted according to primary waste type (mixed [M], mixed with PCB contamination [MP] and radioactive [R]), year, and the facility where the given containers are stored pending retrieval.

Additional information about the isotopes present in containers can be found in subappendixes B.13 and B.14.

```
set linesize 165
set pagesize 45
set newpage 0
spool judy.srep
ttitle center 'TRU WASTE' -
right 'Page:' format 999 sql.pno skip 1 -
center 'Sorted by Date and Primary Waste Type' skip 1
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compute sum of sum(rdet_rswims_count) on dt
compute sum of sum(rad_qty) on dt
compute sum of avg(rad_qty) on dt
compute sum of sum(rdet_alpha_ci) on dt
compute sum of avg(rdet_alpha_ci) on dt
compute sum of max(rdet_alpha_ci) on dt
compute sum of sum(rdet_bg_dose_rate) on dt
compute sum of max(rdet_bg_dose_rate) on dt
compute sum of sum(rdet_rswims_count) on dt
col cntyp_descr                  format a45      heading "Container Discription"
col con_size_descr               format a15      heading "Container Size"
col con_locn_facil_id            format a8       heading "Storage|Facility"
col dt                           format a4       heading "Date"
col con_pwtyp_cd                 format a4       heading "Pri|Wast|Type"
col sum(rdet_rswims_count)               format 999999   heading "Count"
col sum(rad_qty)                 format 999999.99        heading "Total|TRU (g)"
col avg(rad_qty)                 format 99999.99         heading "Avg|TRU (g)"
col sum(rad_alpha_ci)            format 99999.9999       heading "Total|Alpha ci"
col avg(rad_alpha_ci)            format 999999.9999      heading "Avg|Alpha ci"
col max(rad_alpha_ci)            format 99999.9999       heading "Max|Alpha ci"
col sum(rdet_bg_dose_rate)       format 9999.99          heading "Total|Dose"
col max(rdet_bg_dose_rate)       format 9999.99          heading "Max|Dose"
select cntyp_descr,
        con_size_descr,
        substr (to_char(con_tsd_accept_dt, 'YYYY'), 1, 4) dt,
        con_pwtyp_cd,
        con_locn_facil_id,
        sum(rdet_rswims_count),
        sum(rad_qty),
        avg(rad_qty),
        sum(rad_alpha_ci),
        avg(rad_alpha_ci),
        max(rad_alpha_ci),
        sum(rdet_bg_dose_rate),
        max(rdet_bg_dose_rate)
from radwaste, contype, isoqty
where con_srce_facil_id like ('%2345%') and
rad_iso_num in (1,21,22,26,41,52,57,87,
97,98,100,104,105,111,146,147)
and rdet_swtyp_cd between '1A' and '1E' and con_cntyp_cd = cntyp_cd and
con_pkg_id = rad_pkg_id
group by con_pwtyp_cd,
substr (to_char(con_tsd_accept_dt, 'YYYY'), 1, 4),
        cntyp_descr,
        con_size_descr,
        con_locn_facil_id
;
spool off
```

TRU WASTE

Sorted by Date and Primary Waste Type

Container Discription	Container Size	Date	Pri Wast Type	Storage Facility	Count	Total TRU (g)	Avg TRU (g)	Total Alpha ci	Avg Alpha ci	Max Alpha ci	Max Dose
METAL BOXES, CARTONS, CASES	5.2*7.1*10.5	1975	M	218W3A	1	1.00	1.00				1.00
		****									
		sum			1	1.00	1.00	.0000	.0000	.0000	1.00
METAL DRUMS, BARRELS, KEGS	UNKNOWN	1981	M	218W4C	7	710.00	101.43				70.00
		****									
		sum			7	710.00	101.43	.0000	.0000	.0000	70.00
METAL DRUMS, BARRELS, KEGS	55 GALLON	1982	M	218W4C	1	.00	.00				1.00
METAL DRUMS, BARRELS, KEGS	UNKNOWN		M	218W4C	3	267.00	89.00				10.00
		****									
		sum			4	267.00	89.00	.0000	.0000	.0000	11.00
METAL DRUMS, BARRELS, KEGS	55 GALLON	1983	M	218W4C	16	22.00	1.38				1.00
		****									
		sum			16	22.00	1.38	.0000	.0000	.0000	1.00
METAL DRUMS, BARRELS, KEGS	55 GALLON	1984	M	218W4C	3	100.00	33.33				22.00
		****									
		sum			3	100.00	33.33	.0000	.0000	.0000	22.00
METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	M	218W4C	13	168.00	12.92				10.00
		****									
		sum			13	168.00	12.92	.0000	.0000	.0000	10.00
METAL BOXES, CARTONS, CASES	149 CU FT	1989	M	2402W	1	77.00	77.00				.50
METAL BOXES, CARTONS, CASES	4*4*7		M	2402WB	1	11.00	11.00				.50
METAL BOXES, CARTONS, CASES	6*6*7		M	2402W	1	76.00	76.00				.50
METAL DRUMS, BARRELS, KEGS	55 GALLON		M	224T	34	1038.13	30.53				5.00
METAL DRUMS, BARRELS, KEGS	55 GALLON		M	2401W	2	10.00	5.00				1.00
METAL DRUMS, BARRELS, KEGS	55 GALLON		M	2402WB	1	1.00	1.00				.50
METAL DRUMS, BARRELS, KEGS	85 GALLON		M	FS8	1	.31	.31				1.00
		****									
		sum			41	1213.44	200.85	.0000	.0000	.0000	9.00
METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	M	224T	21	633.50	30.17				4.00
		****									
		sum			21	633.50	30.17	.0000	.0000	.0000	4.00

TRU WASTE
Sorted by Date and Primary Waste Type

Container Discription	Container Size	Date	Pri Wast Type	Storage Facility	Count	Total TRU (g)	Avg TRU (g)	Total Alpha ci	Avg Alpha ci	Max Alpha ci	Max Dose
METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	M	224T	18	166.44	9.25	5.7417	1.4354	3.0666	7.00
		****									
		sum			18	166.44	9.25	5.7417	1.4354	3.0666	7.00
METAL DRUMS, BARRELS, KEGS	55 GALLON	1992	M	224T	4	194.00	48.50	15.2828	3.8207	7.3982	2.70
		****									
		sum			4	194.00	48.50	15.2828	3.8207	7.3982	2.70
METAL DRUMS, BARRELS, KEGS	55 GALLON	1982	MP	2401W	6	8.00	1.33				1.00
		****									
		sum			6	8.00	1.33	.0000	.0000	.0000	1.00
METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	MP	2401W	14	1.55	.11				1.00
		****									
		sum			14	1.55	.11	.0000	.0000	.0000	1.00
METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	MP	2401W	10	2.81	.28				1.00
		****									
		sum			10	2.81	.28	.0000	.0000	.0000	1.00
METAL BOXES, CARTONS, CASES	4*4*7	1989	MP	2401W	1	72.00	72.00				.50
METAL BOXES, CARTONS, CASES	4.5*4.5*7.3		MP	2401W	5	128.00	25.60				.50
METAL BOXES, CARTONS, CASES	5.6*6.5*9.3		MP	2401W	4	448.00	112.00				.50
METAL BOXES, CARTONS, CASES	6*6*7		MP	2401W	1	316.30	316.30				.50
METAL DRUMS, BARRELS, KEGS	55 GALLON		MP	2401W	6	.55	.09				1.00
		****									
		sum			17	964.85	525.99	.0000	.0000	.0000	3.00
METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	MP	2401W	1	.05	.05				.50
		****									
		sum			1	.05	.05	.0000	.0000	.0000	.50
CONCRETE BOXES	UNKNOWN	1970	R	218W4B	1	20.00	20.00				
METAL DRUMS, BARRELS, KEGS	30 GALLON		R	218W3A	8	15.62	1.95				1.00
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W3A	1112	2188.83	1.97				1.00
		****									
		sum			1121	2224.45	23.92	.0000	.0000	.0000	2.00
GLOVE BOXES	UNKNOWN	1971	R	218W4B	2	520.00	260.00				1.00

TRU WASTE
Sorted by Date and Primary Waste Type

Container Discription	Container Size	Date	Pri Wast Type	Storage Facility	Count	Total TRU (g)	Avg TRU (g)	Total Alpha ci	Avg Alpha ci	Max Alpha ci	Max Dose
METAL BOXES, CARTONS, CASES	3*3*4	1971	R	218W4B	3	5.02	1.67				1.00
METAL BOXES, CARTONS, CASES	3*5*8		R	218W4B	1	1.67	1.67				1.00
METAL BOXES, CARTONS, CASES	4*4*5		R	218W4B	1	2.05	2.05				1.00
METAL BOXES, CARTONS, CASES	4*6*16.5		R	218W4B	1	.00	.00				1.00
METAL BOXES, CARTONS, CASES	5*7*17		R	218W4B	1	1.67	1.67				1.00
METAL BOXES, CARTONS, CASES	UNKNOWN		R	218W3A	1	.01	.01				1.00
METAL DRUMS, BARRELS, KEGS	30 GALLON		R	218W4B	5	10.24	2.05				1.00
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W3A	537	1067.27	1.99				1.00
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W4B	806	1581.33	1.96				15.00
SELF CONTAINED, EQUIPMENT	UNKNOWN		R	218W4B	2	.00	.00				1.00
WOODEN BOXES, CARTONS, CASES	4*5*6		R	218W4B	1	2.05	2.05				1.00
		****									
		sum			1361	3191.32	275.13	.0000	.0000	.0000	26.00
GLOVE BOXES	UNKNOWN	1972	R	218W4B	4	199.90	49.98				1.00
METAL BOXES, CARTONS, CASES	115 CU FT		R	218W4B	1	25.00	25.00				4.00
METAL BOXES, CARTONS, CASES	149 CU FT		R	218W4B	1	8.75	8.75				1.00
METAL BOXES, CARTONS, CASES	156 CU FT		R	218W4B	2	300.00	150.00				4.00
METAL BOXES, CARTONS, CASES	197 CU FT		R	218W4B	1	8.75	8.75				1.00
METAL BOXES, CARTONS, CASES	252 CU FT		R	218W4B	1	8.75	8.75				1.00
METAL BOXES, CARTONS, CASES	269 CU. FT.		R	218W4B	1	8.75	8.75				1.00
METAL BOXES, CARTONS, CASES	3*4*10		R	218W4B	1	.00	.00				1.00
METAL BOXES, CARTONS, CASES	4*5.5*16		R	218W4B	1	.00	.00				1.00
METAL BOXES, CARTONS, CASES	4.5*6*10		R	218W4B	2	3.49	1.74				1.00
METAL BOXES, CARTONS, CASES	80.8 CU FT		R	218W4B	1	20.00	20.00				4.00
METAL DRUMS, BARRELS, KEGS	110 GALLON		R	218W4B	1	2.70	2.70				1.00
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W4B	1527	3208.91	2.10				70.00
		****									
		sum			1544	3794.99	286.52	.0000	.0000	.0000	91.00
METAL BOXES, CARTONS, CASES	197 CU FT	1973	R	218W4B	1	200.00	200.00				
METAL BOXES, CARTONS, CASES	4*6*10		R	218W4B	2	54.00	27.00				1.00
METAL DRUMS, BARRELS, KEGS	110 GALLON		R	218W4B	3	19.50	6.50				30.00
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W4B	1264	3070.10	2.43				120.00
		****									
		sum			1270	3343.60	235.93	.0000	.0000	.0000	151.00
METAL BOXES, CARTONS, CASES	2*3*15	1974	R	218W4B	1	10.00	10.00				1.00
METAL BOXES, CARTONS, CASES	3*4*10		R	218W4B	1	10.00	10.00				

Container Discription	Container Size	Date	Pri Wast Type	Storage Facility	Count	Total TRU (g)	Avg TRU (g)	Total Alpha ci	Avg Alpha ci	Max Alpha ci	Max Dose
METAL BOXES, CARTONS, CASES	4*6*10	1974	R	218W4B	2	23.70	11.85				6.00
METAL BOXES, CARTONS, CASES	4*8*10		R	218W4B	1	5.00	5.00				1.00
METAL BOXES, CARTONS, CASES	4*8*16		R	218W4B	1	.00	.00				
METAL BOXES, CARTONS, CASES	5*10*13		R	218W3A	1	240.00	240.00				1.00
METAL BOXES, CARTONS, CASES	5.2*7.1*10.5		R	218W4B	2	11.60	5.80				5.00
METAL BOXES, CARTONS, CASES	5.2*7.1*16.5		R	218W4B	1	.00	.00				1.00
METAL DRUMS, BARRELS, KEGS	110 GALLON		R	218W4B	9	23.80	2.64				9.00
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W4B	942	1396.08	1.48				6.00
		****									
		sum			961	1720.18	286.78	.0000	.0000	.0000	30.00
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	10.5*10.7*12	1975	R	218W3A	1	5.00	5.00				1.00
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	4*4*7		R	218W3A	6	14.00	2.33				1.00
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	4.83*5*8		R	218W3A	2	25.00	12.50				
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	6.3*8*14.7		R	218W3A	1	253.00	253.00				
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.67*16		R	218W3A	4	280.00	70.00				1.00
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.67*20		R	218W3A	10	970.00	97.00				10.00
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.7*12		R	218W3A	11	1329.00	120.82				1.00
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*11.6*20		R	218W3A	6	1604.00	267.33				1.00
METAL BOXES, CARTONS, CASES	3.7*6.5*13.2		R	218W4B	1	494.00	494.00				
METAL BOXES, CARTONS, CASES	5.2*7.1*10.5		R	218W3A	3	138.00	46.00				1.00
METAL BOXES, CARTONS, CASES	5.2*7.1*10.5		R	218W4B	2	10.00	5.00				
METAL BOXES, CARTONS, CASES	5.2*7.1*16.5		R	218W3A	1	.00	.00				
METAL BOXES, CARTONS, CASES	5.2*7.1*16.5		R	218W4B	2	47.00	23.50				5.00
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W4B	1222	14941.27	12.23				1.00
		****									
		sum			1272	20110.27	1408.71	.0000	.0000	.0000	22.00
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	4*4*7	1976	R	218W3A	2	3.00	1.50				5.00
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	4*4*7		R	218W4B	3	2.00	.67				1.00
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	8*10*16		R	218W3A	1	1.00	1.00				5.00
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.67*20		R	218W3A	7	464.00	66.29				1.00
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.7*12		R	218W3A	3	566.00	188.67				5.00
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*11.6*20		R	218W3A	1	137.00	137.00				5.00
METAL DRUMS, BARRELS, KEGS	110 GALLON		R	218W4B	14	1.00	.07				1.00
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W4B	1025	7332.74	7.15				5.00
		****									
		sum			1056	8506.74	402.34	.0000	.0000	.0000	28.00

TRU WASTE

Sorted by Date and Primary Waste Type

Container Discription	Container Size	Date	Pri Wast Type	Storage Facility	Count	Total TRU (g)	Avg TRU (g)	Total Alpha ci	Avg Alpha ci	Max Alpha ci	Max Dose
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	8*10*16	1977	R	218W3A	2	101.00	50.50				1.00
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.7*12		R	218W3A	1	30.00	30.00				1.00
METAL BOXES, CARTONS, CASES	5.2*7.1*10.5		R	218W3A	1	143.00	143.00				6.00
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W4B	1199	3619.69	3.02				1.00
		****									
		sum			1203	3893.69	226.52	.0000	.0000	.0000	9.00
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	4*4*7	1978	R	218W3A	9	74.00	8.22				
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	6.5*8*14.6		R	218W3A	9	567.00	63.00				70.00
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	6.5*8*18.5		R	218W3A	3	146.00	48.67				5.00
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	8*8*10.7		R	218W3A	2	22.00	11.00				5.00
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9.5*9.9*12		R	218W3A	1	20.00	20.00				5.00
METAL BOXES, CARTONS, CASES	4*4*7		R	218W4B	1	20.00	20.00				1.00
METAL BOXES, CARTONS, CASES	4*6*15		R	218W4B	2	1.00	.50				1.00
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W4C	900	1897.09	2.11				1.00
		****									
		sum			927	2747.09	173.50	.0000	.0000	.0000	88.00
METAL DRUMS, BARRELS, KEGS	55 GALLON	1979	R	218W4C	1569	23471.86	14.96				1.00
		****									
		sum			1569	23471.86	14.96	.0000	.0000	.0000	1.00
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	4*4*7	1980	R	218W4C	2	5.00	2.50				1.00
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.67*16		R	218W4C	4	374.00	93.50				1.00
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.7*12		R	218W4C	1	98.00	98.00				1.00
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W4C	1670	61908.86	37.07				1.00
METAL DRUMS, BARRELS, KEGS	UNKNOWN		R	218W4C	13	3074.00	236.46				1.00
		****									
		sum			1690	65459.86	467.53	.0000	.0000	.0000	5.00
FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.67*16	1981	R	218W4C	5	139.00	27.80				1.00
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W4C	819	21582.12	26.35				150.00
METAL DRUMS, BARRELS, KEGS	UNKNOWN		R	218W4C	74	512.00	6.92				36.00
		****									
		sum			898	22233.13	61.07	.0000	.0000	.0000	187.00
METAL DRUMS, BARRELS, KEGS	110 GALLON	1982	R	218W4C	15	6287.00	419.13				1.00
METAL DRUMS, BARRELS, KEGS	30 GALLON		R	218W4C	4	190.00	47.50				35.00
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W4C	663	13901.04	20.97				10.00

TRU WASTE
Sorted by Date and Primary Waste Type

Container Discription	Container Size	Date	Pri Wast Type	Storage Facility	Count	Total TRU (g)	Avg TRU (g)	Total Alpha ci	Avg Alpha ci	Max Alpha ci	Max Dose
METAL DRUMS, BARRELS, KEGS	UNKNOWN	1982	R	218W4C	7	4588.00	655.43				2.00
		****									
		sum			689	24966.04	1143.03	.0000	.0000	.0000	48.00
METAL BOXES, CARTONS, CASES	4*6*10	1983	R	218W4C	1	14.00	14.00				10.00
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W4C	928	5961.47	6.42				25.00
METAL DRUMS, BARRELS, KEGS	UNKNOWN		R	218W4C	5	22.00	4.40				1.00
		****									
		sum			934	5997.47	24.82	.0000	.0000	.0000	36.00
METAL DRUMS, BARRELS, KEGS	55 GALLON	1984	R	218W3A	1	26.00	26.00				11.00
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W4C	1852	11860.03	6.40				34.00
MISCELLANEOUS SCRAP	UNKNOWN		R	218W4C	1	5.00	5.00				1.00
		****									
		sum			1854	11891.03	37.40	.0000	.0000	.0000	46.00
METAL BOXES, CARTONS, CASES	4*4*7	1985	R	218W4C	2	314.00	157.00				1.00
METAL BOXES, CARTONS, CASES	6*6*7		R	218W4C	2	441.00	220.50				1.00
METAL BOXES, CARTONS, CASES	UNKNOWN		R	218W4C	38	7598.00	199.95				3.00
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	218W4C	1755	23760.00	13.54				59.00
		****									
		sum			1797	32113.00	590.99	.0000	.0000	.0000	64.00
METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R	218W4C	445	8769.80	19.71				25.00
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	224T	116	5486.50	47.30				8.00
		****									
		sum			561	14256.30	67.00	.0000	.0000	.0000	33.00
METAL DRUMS, BARRELS, KEGS	55 GALLON	1987	R	218W4C	10	395.00	39.50				10.00
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	224T	404	14290.01	35.37				10.00
		****									
		sum			414	14685.01	74.87	.0000	.0000	.0000	20.00
METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	R	218W4C	11	215.00	19.55				17.00
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	224T	156	3480.00	22.31				10.00
		****									
		sum			167	3695.00	41.85	.0000	.0000	.0000	27.00
METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	R	224T	14	343.00	24.50				1.00

Container Discription	Container Size	Date	Pri Wast Type	Storage Facility	Count	Total TRU (g)	Avg TRU (g)	Total Alpha ci	Avg Alpha ci	Max Alpha ci	Max Dose
		****									
		sum			14	343.00	24.50	.0000	.0000	.0000	1.00
METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R	224T	36	927.20	25.76				1.00
		****									
		sum			36	927.20	25.76	.0000	.0000	.0000	1.00
METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	R	218W4C	18	16.00	.89	7.9311	.4957	.5230	.50
METAL DRUMS, BARRELS, KEGS	55 GALLON		R	224T	124	923.08	7.44	5.0999	.0911	1.0865	7.00
		****									
		sum			142	939.08	8.33	13.0310	.5868	1.6095	7.50
METAL DRUMS, BARRELS, KEGS	55 GALLON	1992	R	224T	64	64.00	1.00	33.4720	.5230	.5230	5.00
		****									
		sum			64	64.00	1.00	33.4720	.5230	.5230	5.00

136 rows selected.

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APPENDIX B.9

PHYSICAL CONTENTS DESCRIPTION FOR 55-GALLON DRUMS CONTAINING TRU WASTE — SORTED BY DATE, PRIMARY WASTE TYPE, AND STORAGE FACILITY

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PHYSICAL CONTENTS DESCRIPTION FOR 55-GALLON DRUMS CONTAINING TRU WASTE — SORTED BY DATE, PRIMARY WASTE TYPE, AND STORAGE FACILITY

This subappendix describes the physical contents of the 55-gal drums of transuranic (TRU) waste generated at the Plutonium Finishing Plant (PFP). Before 1978 physical contents were not required to be listed on the burial records, so a great many of the early records list the contents of the drum as "Miscellaneous."

The printout for this computer run sorts the contents data by storage facility, date, and primary waste type. The introduction to Appendix B contains a table of waste codes and their meanings.

```
set linesize 165
set pagesize 45
set newpage 0
spool judy.srep
ttitle center 'TRU WASTE' -
right 'Page:' format 999 sql.pno skip 1 -
center 'Sorted by Storage Facility and Physical Description' skip 1
break on con_locn_facil_id skip 1
compute sum of sum(rdet_rswims_count) on con_locn_facil_id
col cntyp_descr                format a45     heading "Container Discription"
col con_size_descr             format a15     heading "Container Size"
col con_locn_facil_id          format a8      heading "Storage|Facility"
col dt                         format a4      heading "Date"
col con_pwtyp_cd               format a4      heading "Pri|Wast|Type"
col sum(rdet_rswims_count)             format 999999   heading "Count"
col phys_comp_descr            format a30     heading "Physical Description"
select  phys_comp_descr,
        cntyp_descr,
        con_size_descr,
        substr (to_char(con_tsd_accept_dt, 'YYYY'), 1, 4) dt,
        con_pwtyp_cd,
        con_locn_facil_id,
        sum(rdet_rswims_count)
from radwaste, contype, physcomp, isoqty
where con_tsd_accept_dt between '01-JAN-69' and '31-DEC-92' and
con_srce_facil_id like ('%2345%')
and con_size_descr like ('%55%')
and rdet_swtyp_cd between '1A' and '1E' and con_cntyp_cd = cntyp_cd and
con_pkg_id = phys_pkg_id  and con_pkg_id = rad_pkg_id
group by con_locn_facil_id,
phys_comp_descr,
con_pwtyp_cd,
substr (to_char(con_tsd_accept_dt, 'YYYY'), 1, 4),
        cntyp_descr,
        con_size_descr
;
spool off
```

Physical Description	Container Discription	Container Size	Date	Pri Wast Type	Storage Facility	Count
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	55 GALLON	1984	R	218W3A	3
MISCELLANEOUS/UNKNOWN/OTHER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1970	R		2224
MISCELLANEOUS/UNKNOWN/OTHER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1971	R		1074
					********	-------
					sum	3301
MISCELLANEOUS/UNKNOWN/OTHER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1971	R	218W4B	1612
MISCELLANEOUS/UNKNOWN/OTHER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1972	R		1668
MISCELLANEOUS/UNKNOWN/OTHER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1973	R		28
MISCELLANEOUS/UNKNOWN/OTHER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1974	R		176
MISCELLANEOUS/UNKNOWN/OTHER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1975	R		3
MISCELLANEOUS/UNKNOWN/OTHER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1976	R		5
MISCELLANEOUS/UNKNOWN/OTHER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1977	R		16
					********	-------
					sum	3508
ABSORBANT/KITY LTR/VERMICULITE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1981	R	218W4C	118
ABSORBANT/KITY LTR/VERMICULITE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1982	R		70
ABSORBANT/KITY LTR/VERMICULITE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	R		22
ABSORBANT/KITY LTR/VERMICULITE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		32
ABSORBENT/KITY LTR/VERMICULITE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	R		2
AIR	METAL DRUMS, BARRELS, KEGS	55 GALLON	1982	R		32
ALUMINUM	METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	R		2
ASBESTOS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	R		20
ASBESTOS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		10
ASBESTOS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1987	R		2
ASHES	METAL DRUMS, BARRELS, KEGS	55 GALLON	1981	R		52
ASHES	METAL DRUMS, BARRELS, KEGS	55 GALLON	1982	R		74
ASHES	METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	R		6
CEMENT	METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	R		24
CERAMICS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	R		8
CLOTH/RAGS/NYLON	METAL DRUMS, BARRELS, KEGS	55 GALLON	1978	R		6
CLOTH/RAGS/NYLON	METAL DRUMS, BARRELS, KEGS	55 GALLON	1979	R		24
CLOTH/RAGS/NYLON	METAL DRUMS, BARRELS, KEGS	55 GALLON	1980	R		2230
CLOTH/RAGS/NYLON	METAL DRUMS, BARRELS, KEGS	55 GALLON	1981	R		646
CLOTH/RAGS/NYLON	METAL DRUMS, BARRELS, KEGS	55 GALLON	1982	R		197
CLOTH/RAGS/NYLON	METAL DRUMS, BARRELS, KEGS	55 GALLON	1983	R		50
CLOTH/RAGS/NYLON	METAL DRUMS, BARRELS, KEGS	55 GALLON	1984	R		1943
CLOTH/RAGS/NYLON	METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	R		2449

TRU WASTE
Sorted by Storage Facility and Physical Description

Physical Description	Container Discription	Container Size	Date	Pri Wast Type	Storage Facility	Count
CLOTH/RAGS/NYLON	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R	218W4C	620
CLOTH/RAGS/NYLON	METAL DRUMS, BARRELS, KEGS	55 GALLON	1987	R		17
CLOTH/RAGS/NYLON	METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	R		5
CLOTH/RAGS/NYLON	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R		135
CLOTH/RAGS/NYLON	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	R		38
CONCRETE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1980	R		14
CONCRETE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1981	R		44
CONCRETE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1982	R		4
CONCRETE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1984	R		20
CONCRETE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	R		28
CONCRETE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		4
CONWEB PADS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	M		18
CONWEB PADS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		4
CONWEB PADS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R		3
COPPER METAL	METAL DRUMS, BARRELS, KEGS	55 GALLON	1983	M		8
COPPER METAL	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		4
COPPER METAL	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R		3
CORK	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		59
DIRT/SOIL/DIATOMACEOUS EARTH	METAL DRUMS, BARRELS, KEGS	55 GALLON	1981	R		18
DIRT/SOIL/DIATOMACEOUS EARTH	METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	R		30
DIRT/SOIL/DIATOMACEOUS EARTH	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		100
DIRT/SOIL/DIATOMACEOUS EARTH	METAL DRUMS, BARRELS, KEGS	55 GALLON	1987	R		12
DIRT/SOIL/DIATOMACEOUS EARTH	METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	R		34
DIRT/SOIL/DIATOMACEOUS EARTH	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R		145
DIRT/SOIL/DIATOMACEOUS EARTH	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	R		40
FIBERGLASS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1981	R		14
FIBERGLASS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		2
FILTERS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1980	R		4
FILTERS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1981	R		14
FILTERS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1982	R		8
FLOOR SWEEPS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1981	R		14
FLOOR TILE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		4
FOAM/STYROFOAM	METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	R		4
GLASS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1979	R		117
GLASS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1980	R		506
GLASS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1981	R		276
GLASS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1982	R		156
GLASS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1983	R		197
GLASS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1984	R		759

Physical Description	Container Discription	Container Size	Date	Pri Wast Type	Storage Facility	Count
GLASS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	R	218W4C	590
GLASS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		324
GLASS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	R		5
GLASS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R		3
GLASS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	R		8
LEATHER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	R		8
LEATHER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		2
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	55 GALLON	1982	M		2
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	55 GALLON	1983	M		32
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	55 GALLON	1979	R		133
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	55 GALLON	1980	R		923
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS.	55 GALLON	1981	R		706
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	55 GALLON	1982	R		504
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	55 GALLON	1983	R		354
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	55 GALLON	1984	R		1118
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	R		748
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		489
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	55 GALLON	1987	R		34
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	R		22
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R		47
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	R		28
MISCELLANEOUS/UNKNOWN/OTHER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1978	R		62
MISCELLANEOUS/UNKNOWN/OTHER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1979	R		64
MISCELLANEOUS/UNKNOWN/OTHER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1980	R		16
OILS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	M		18
ORGANICS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1982	M		2
ORGANICS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1983	M		24
ORGANICS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	M		8
PAINTS/LUCITE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1981	R		2
PAINTS/LUCITE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	R		2
PAPER/CARDBOARD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1984	M		6
PAPER/CARDBOARD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	M		8
PAPER/CARDBOARD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1978	R		6
PAPER/CARDBOARD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1979	R		24
PAPER/CARDBOARD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1980	R		2321
PAPER/CARDBOARD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1981	R		822
PAPER/CARDBOARD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1982	R		830
PAPER/CARDBOARD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1983	R		1482
PAPER/CARDBOARD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1984	R		3217

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Sorted by Storage Facility and Physical Description

Physical Description	Container Discription	Container Size	Date	Pri Wast Type	Storage Facility	Count
PAPER/CARDBOARD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	R	218W4C	3013
PAPER/CARDBOARD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		866
PAPER/CARDBOARD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1987	R		41
PAPER/CARDBOARD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	R		46
PAPER/CARDBOARD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R		142
PAPER/CARDBOARD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	R		34
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1984	M		6
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	M		26
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1978	R		6
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1979	R		24
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1980	R		2315
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1981	R		1320
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1982	R		949
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1983	R		1771
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1984	R		3634
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	R		3463
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		919
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1987	R		41
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	R		46
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R		142
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	R		40
RESINS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		2
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1984	M		6
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1978	R		6
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1979	R		24
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1980	R		2132
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1981	R		940
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1982	R		804
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1983	R		1444
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1984	R		2993
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	R		3029
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		831
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1987	R		26
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	R		14
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R		141
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	R		38
SAND	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		10
SILICA SEL	METAL DRUMS, BARRELS, KEGS	55 GALLON	1982	R		39
SLUDGES	METAL DRUMS, BARRELS, KEGS	55 GALLON	1981	R		52

TRU WASTE

Sorted by Storage Facility and Physical Description

Physical Description	Container Discription	Container Size	Date	Pri Wast Type	Storage Facility	Count
STAINLESS STEEL	METAL DRUMS, BARRELS, KEGS	55 GALLON	1984	R	218W4C	2
STAINLESS STEEL	METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	R		26
STAINLESS STEEL	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		82
WOOD/LUMBER/PLYWOOD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	M		20
WOOD/LUMBER/PLYWOOD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1980	R		40
WOOD/LUMBER/PLYWOOD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1981	R		22
WOOD/LUMBER/PLYWOOD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1982	R		12
WOOD/LUMBER/PLYWOOD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1984	R		40
WOOD/LUMBER/PLYWOOD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	R		52
WOOD/LUMBER/PLYWOOD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		36
WOOD/LUMBER/PLYWOOD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1987	R		39
WOOD/LUMBER/PLYWOOD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	R		42
WOOD/LUMBER/PLYWOOD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R		18
	METAL DRUMS, BARRELS, KEGS	55 GALLON	1981	R		2
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					sum	58303
CLOTH/RAGS/NYLON	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R	218W5	3
DIRT/SOIL/DIATOMACEOUS EARTH	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R		3
PAPER/CARDBOARD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R		3
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R		3
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R		3
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					sum	15
ABSORBANT/KITY LTR/VERMICULITE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	M	224T	20
ABSORBANT/KITY LTR/VERMICULITE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1987	R		10
ABSORBANT/KITY LTR/VERMICULITE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R		1
ALUMINUM	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	R		5
ASBESTOS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	M		5
BATTERIES	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	M		5
BRICK/FIREBRICK	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		1
CARBORUNDUM	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	R		5
CEMENT	METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	R		2
CEMENT	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	R		4
CERAMICS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		2
CERAMICS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	R		2
CLOTH/RAGS/NYLON	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	M		30
CLOTH/RAGS/NYLON	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	M		52

TRU WASTE
Sorted by Storage Facility and Physical Description

Physical Description	Container Discription	Container Size	Date	Pri Wast Type	Storage Facility	Count
CLOTH/RAGS/NYLON	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	M	224T	59
CLOTH/RAGS/NYLON	METAL DRUMS, BARRELS, KEGS	55 GALLON	1992	M		4
CLOTH/RAGS/NYLON	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		222
CLOTH/RAGS/NYLON	METAL DRUMS, BARRELS, KEGS	55 GALLON	1987	R		1061
CLOTH/RAGS/NYLON	METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	R		467
CLOTH/RAGS/NYLON	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	R		170
CLOTH/RAGS/NYLON	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R		203
CLOTH/RAGS/NYLON	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	R		349
CLOTH/RAGS/NYLON	METAL DRUMS, BARRELS, KEGS	55 GALLON	1992	R		104
CONCRETE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1987	R		19
CONWEB PADS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	M		50
CONWEB PADS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	M		4
CONWEB PADS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R		3
CORK	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		61
CORK	METAL DRUMS, BARRELS, KEGS	55 GALLON	1987	R		41
CORK	METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	R		15
CORK	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	R		5
CORK	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R		5
CORK	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	R		44
DIRT/SOIL/DIATOMACEOUS EARTH	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	M		90
DIRT/SOIL/DIATOMACEOUS EARTH	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	M		84
DIRT/SOIL/DIATOMACEOUS EARTH	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	M		78
DIRT/SOIL/DIATOMACEOUS EARTH	METAL DRUMS, BARRELS, KEGS	55 GALLON	1992	M		8
DIRT/SOIL/DIATOMACEOUS EARTH	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		238
DIRT/SOIL/DIATOMACEOUS EARTH	METAL DRUMS, BARRELS, KEGS	55 GALLON	1987	R		1304
DIRT/SOIL/DIATOMACEOUS EARTH	METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	R		582
DIRT/SOIL/DIATOMACEOUS EARTH	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	R		194
DIRT/SOIL/DIATOMACEOUS EARTH	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R		258
DIRT/SOIL/DIATOMACEOUS EARTH	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	R		414
DIRT/SOIL/DIATOMACEOUS EARTH	METAL DRUMS, BARRELS, KEGS	55 GALLON	1992	R		128
FIBERGLASS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R		3
GLASS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	M		25
GLASS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	M		44
GLASS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	M		61
GLASS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1992	M		6
GLASS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		198
GLASS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1987	R		778
GLASS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	R		395
GLASS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	R		75

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Sorted by Storage Facility and Physical Description

Physical Description	Container Discription	Container Size	Date	Pri Wast Type	Storage Facility	Count
GLASS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R	224T	33
GLASS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	R		201
GRAPHITE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1987	R		1
GROUT	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	M		2
HAZARDOUS CONSTITUENTS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	M		35
HAZARDOUS CONSTITUENTS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	M		61
HAZARDOUS CONSTITUENTS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1992	M		8
INSULATION NON-ASBESTOS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1987	R		1
INSULATION NON-ASBESTOS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	R		5
LEAD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	M		105
LEAD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	M		67
LEAD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	M		14
LEAD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1992	M		2
LEAD SHIELDING	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	M		15
LEATHER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	M		5
LEATHER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	M		10
LEATHER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		10
LEATHER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1987	R		10
LEATHER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	R		4
MERCURY	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	M		5
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	M		65
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	M		59
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	M		76
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	55 GALLON	1992	M		8
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		280
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	55 GALLON	1987	R		1246
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	R		533
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	R		142
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R		167
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	R		350
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	55 GALLON	1992	R		66
MISCELLANEOUS/UNKNOWN/OTHER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1987	R		5
MISCELLANEOUS/UNKNOWN/OTHER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	R		16
ORGANICS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	M		30
PAINTS/LUCITE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	R		20
PAINTS/LUCITE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1992	R		2
PAPER/CARDBOARD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	M		65
PAPER/CARDBOARD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	M		45
PAPER/CARDBOARD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	M		37

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Sorted by Storage Facility and Physical Description

Physical Description	Container Discription	Container Size	Date	Pri Wast Type	Storage Facility	Count
PAPER/CARDBOARD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1992	M	224T	6
PAPER/CARDBOARD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		309
PAPER/CARDBOARD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1987	R		1278
PAPER/CARDBOARD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	R		599
PAPER/CARDBOARD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	R		188
PAPER/CARDBOARD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R		243
PAPER/CARDBOARD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	R		397
PAPER/CARDBOARD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1992	R		74
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	M		170
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	M		89
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	M		78
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1992	M		8
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		328
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1987	R		1513
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	R		614
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	R		200
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R		258
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	R		411
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1992	R		126
RESINS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	R		5
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	M		120
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	M		84
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	M		74
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1992	M		8
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		315
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1987	R		1339
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	R		581
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	R		190
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R		230
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	R		376
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1992	R		84
SAND	METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	R		5
SAND	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R		2
STAINLESS STEEL	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	M		5
STAINLESS STEEL	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	M		5
STAINLESS STEEL	METAL DRUMS, BARRELS, KEGS	55 GALLON	1987	R		39
STAINLESS STEEL	METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	R		15
STAINLESS STEEL	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	R		13
STAINLESS STEEL	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R		22

Physical Description	Container Discription	Container Size	Date	Pri Wast Type	Storage Facility	Count
WOOD/LUMBER/PLYWOOD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	M	224T	50
WOOD/LUMBER/PLYWOOD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	M		18
WOOD/LUMBER/PLYWOOD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	M		39
WOOD/LUMBER/PLYWOOD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1992	M		8
WOOD/LUMBER/PLYWOOD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1986	R		5
WOOD/LUMBER/PLYWOOD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1987	R		24
WOOD/LUMBER/PLYWOOD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	R		24
WOOD/LUMBER/PLYWOOD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	R		5
WOOD/LUMBER/PLYWOOD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	R		39
WOOD/LUMBER/PLYWOOD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1991	R		35
WOOD/LUMBER/PLYWOOD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1992	R		8
	METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	R		5
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					sum	22460
ABSORBANT/KITY LTR/VERMICULITE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1982	MP	2401W	8
ABSORBANT/KITY LTR/VERMICULITE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	MP		15
CLOTH/RAGS/NYLON	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	M		5
CLOTH/RAGS/NYLON	METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	MP		25
CLOTH/RAGS/NYLON	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	MP		10
CONWEB PADS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1983	MP		4
CONWEB PADS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	MP		30
CONWEB PADS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	MP		5
DIRT/SOIL/DIATOMACEOUS EARTH	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	M		5
DIRT/SOIL/DIATOMACEOUS EARTH	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	MP		10
LEAD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	M		5
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	M		10
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	MP		5
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	MP		5
OILS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1982	MP		8
OILS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	MP		70
OILS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	MP		10
OILS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	MP		5
ORGANICS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	MP		50
PAPER/CARDBOARD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	M		5
PAPER/CARDBOARD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1982	MP		4
PAPER/CARDBOARD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	MP		70
PCB	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	MP		5
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	M		10

TRU WASTE

Sorted by Storage Facility and Physical Description

Physical Description	Container Discription	Container Size	Date	Pri Wast Type	Storage Facility	Count
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1982	MP	2401W	4
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1985	MP		70
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	MP		50
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	MP		30
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1990	MP		5
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	M		10
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1982	MP		4
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1988	MP		15
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	MP		10
WOOD/LUMBER/PLYWOOD	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	M		5
					*********	-------
					sum	582
CHEMICALS	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	M	2402WB	5
CLOTH/RAGS/NYLON	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	M		5
DIRT/SOIL/DIATOMACEOUS EARTH	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	M		5
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	M		5
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	M		5
RUBBER	METAL DRUMS, BARRELS, KEGS	55 GALLON	1989	M		5
					*********	-------
					sum	30

352 rows selected.

APPENDIX B.10

PHYSICAL CONTENTS DESCRIPTION FOR TRU WASTE CONTAINERS OTHER THAN 55-GALLON DRUMS — SORTED BY DATE, PRIMARY WASTE TYPE, AND STORAGE FACILITY

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PHYSICAL CONTENTS DESCRIPTION FOR TRU WASTE CONTAINERS OTHER THAN 55-GALLON DRUMS — SORTED BY DATE, PRIMARY WASTE TYPE, AND STORAGE FACILITY

This subappendix describes the physical contents of transuranic (TRU) waste containers other than 55-gal drums. Note that, before 1978, physical contents were not required to be on the burial records, so a great many of the early records list the physical contents for a container as "Miscellaneous."

This computer run is sorted by the waste container's storage facility, type of container, and year.

```
set linesize 165
set pagesize 45
set newpage 0
spool judy.srep
ttitle center 'TRU WASTE' -
right 'Page:' format 999 sql.pno skip 1 -
center 'Sorted by Storage Facility and Physical Description' skip 1
break on con_locn_facil_id skip 1
compute sum of sum(rdet_rswims_count) on con_locn_facil_id
col cntyp_descr                 format a45     heading "Container Discription"
col con_size_descr              format a15     heading "Container Size"
col con_locn_facil_id           format a8      heading "Storage|Facility"
col dt                          format a4      heading "Date"
col con_pwtyp_cd                format a4      heading "Pri|Wast|Type"
col sum(rdet_rswims_count)             format 999999   heading "Count"
col phys_comp_descr             format a30     heading "Physical Description"
select  phys_comp_descr,
        cntyp_descr,
        con_size_descr,
        substr (to_char(con_tsd_accept_dt, 'YYYY'), 1, 4) dt,
        con_pwtyp_cd,
        con_locn_facil_id,
        sum(rdet_rswims_count)
from radwaste, contype, physcomp, isoqty
where con_tsd_accept_dt between '01-JAN-69' and '31-DEC-92' and
con_srce_facil_id like ('%2345%')
and con_size_descr not like ('%55%')
and rdet_swtyp_cd between '1A' and '1E' and con_cntyp_cd = cntyp_cd and
con_pkg_id = phys_pkg_id  and con_pkg_id = rad_pkg_id
group by con_locn_facil_id,
phys_comp_descr,
con_pwtyp_cd,
substr (to_char(con_tsd_accept_dt, 'YYYY'), 1, 4),
        cntyp_descr,
        con_size_descr
;
spool off
```

Physical Description	Container Discription	Container Size	Date	Pri Wast Type	Storage Facility	Count
MISCELLANEOUS/UNKNOWN/OTHER	METAL DRUMS, BARRELS, KEGS	30 GALLON	1970	R	218W3A	16
MISCELLANEOUS/UNKNOWN/OTHER	METAL BOXES, CARTONS, CASES	UNKNOWN	1971	R		2
					********	-------
					sum	18
MISCELLANEOUS/UNKNOWN/OTHER	GLOVE BOXES	UNKNOWN	1971	R	218W4B	4
MISCELLANEOUS/UNKNOWN/OTHER	METAL BOXES, CARTONS, CASES	3*3*4	1971	R		6
MISCELLANEOUS/UNKNOWN/OTHER	METAL BOXES, CARTONS, CASES	3*5*8	1971	R		2
MISCELLANEOUS/UNKNOWN/OTHER	METAL BOXES, CARTONS, CASES	4*4*5	1971	R		2
MISCELLANEOUS/UNKNOWN/OTHER	METAL BOXES, CARTONS, CASES	4*6*16.5	1971	R		2
MISCELLANEOUS/UNKNOWN/OTHER	METAL BOXES, CARTONS, CASES	5*7*17	1971	R		2
MISCELLANEOUS/UNKNOWN/OTHER	METAL DRUMS, BARRELS, KEGS	30 GALLON	1971	R		10
MISCELLANEOUS/UNKNOWN/OTHER	SELF CONTAINED, EQUIPMENT	UNKNOWN	1971	R		4
MISCELLANEOUS/UNKNOWN/OTHER	WOODEN BOXES, CARTONS, CASES	4*5*6	1971	R		2
MISCELLANEOUS/UNKNOWN/OTHER	GLOVE BOXES	UNKNOWN	1972	R		7
MISCELLANEOUS/UNKNOWN/OTHER	METAL BOXES, CARTONS, CASES	149 CU FT	1972	R		2
MISCELLANEOUS/UNKNOWN/OTHER	METAL BOXES, CARTONS, CASES	197 CU FT	1972	R		2
MISCELLANEOUS/UNKNOWN/OTHER	METAL BOXES, CARTONS, CASES	252 CU FT	1972	R		2
MISCELLANEOUS/UNKNOWN/OTHER	METAL BOXES, CARTONS, CASES	269 CU. FT.	1972	R		2
MISCELLANEOUS/UNKNOWN/OTHER	METAL BOXES, CARTONS, CASES	4*5.5*16	1972	R		2
MISCELLANEOUS/UNKNOWN/OTHER	METAL BOXES, CARTONS, CASES	4.5*6*10	1972	R		3
MISCELLANEOUS/UNKNOWN/OTHER	METAL DRUMS, BARRELS, KEGS	110 GALLON	1972	R		2
MISCELLANEOUS/UNKNOWN/OTHER	METAL BOXES, CARTONS, CASES	3.7*6.5*13.2	1975	R		1
MISCELLANEOUS/UNKNOWN/OTHER	METAL BOXES, CARTONS, CASES	4*4*7	1978	R		2
MISCELLANEOUS/UNKNOWN/OTHER	METAL BOXES, CARTONS, CASES	4*6*15	1978	R		4
					********	-------
					sum	63
ABSORBANT/KITY LTR/VERMICULITE	METAL BOXES, CARTONS, CASES	UNKNOWN	1985	R	218W4C	4
ALUMINUM	METAL BOXES, CARTONS, CASES	4*4*7	1985	R		2
CEMENT	METAL BOXES, CARTONS, CASES	UNKNOWN	1985	R		2
CLOTH/RAGS/NYLON	METAL BOXES, CARTONS, CASES	4*4*7	1985	R		2
CLOTH/RAGS/NYLON	METAL BOXES, CARTONS, CASES	UNKNOWN	1985	R		2
CONCRETE	METAL DRUMS, BARRELS, KEGS	30 GALLON	1982	R		2
FILTERS	METAL BOXES, CARTONS, CASES	4*4*7	1985	R		2
FILTERS	METAL BOXES, CARTONS, CASES	6*6*7	1985	R		2
FILTERS	METAL BOXES, CARTONS, CASES	UNKNOWN	1985	R		4
GLASS	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.67*16	1980	R		2
GLASS	METAL BOXES, CARTONS, CASES	UNKNOWN	1985	R		10

TRU WASTE

Sorted by Storage Facility and Physical Description

Physical Description	Container Discription	Container Size	Date	Pri Wast Type	Storage Facility	Count
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	UNKNOWN	1981	M	218W4C	12
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	UNKNOWN	1982	M		6
METAL/IRON/GALVANIZED/SHEET	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	4*4*7	1980	R		4
METAL/IRON/GALVANIZED/SHEET	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.67*16	1980	R		8
METAL/IRON/GALVANIZED/SHEET	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.7*12	1980	R		2
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	UNKNOWN	1980	R		33
METAL/IRON/GALVANIZED/SHEET	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.67*16	1981	R		8
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	UNKNOWN	1981	R		84
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	110 GALLON	1982	R		60
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	UNKNOWN	1982	R		21
METAL/IRON/GALVANIZED/SHEET	METAL BOXES, CARTONS, CASES	4*6*10	1983	R		2
METAL/IRON/GALVANIZED/SHEET	METAL DRUMS, BARRELS, KEGS	UNKNOWN	1983	R		5
METAL/IRON/GALVANIZED/SHEET	MISCELLANEOUS SCRAP	UNKNOWN	1984	R		2
METAL/IRON/GALVANIZED/SHEET	METAL BOXES, CARTONS, CASES	4*4*7	1985	R		4
METAL/IRON/GALVANIZED/SHEET	METAL BOXES, CARTONS, CASES	6*6*7	1985	R		2
METAL/IRON/GALVANIZED/SHEET	METAL BOXES, CARTONS, CASES	UNKNOWN	1985	R		54
PAPER/CARDBOARD	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.67*16	1980	R		4
PAPER/CARDBOARD	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.67*16	1981	R		6
PAPER/CARDBOARD	METAL BOXES, CARTONS, CASES	4*4*7	1985	R		2
PAPER/CARDBOARD	METAL BOXES, CARTONS, CASES	UNKNOWN	1985	R		14
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	UNKNOWN	1981	M		10
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	UNKNOWN	1982	M		4
PLASTIC/POLYURATHANE	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	4*4*7	1980	R		4
PLASTIC/POLYURATHANE	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.67*16	1980	R		6
PLASTIC/POLYURATHANE	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.7*12	1980	R		2
PLASTIC/POLYURATHANE	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.67*16	1981	R		6
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	UNKNOWN	1981	R		114
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	30 GALLON	1982	R		6
PLASTIC/POLYURATHANE	MISCELLANEOUS SCRAP	UNKNOWN	1984	R		2
PLASTIC/POLYURATHANE	METAL BOXES, CARTONS, CASES	4*4*7	1985	R		4
PLASTIC/POLYURATHANE	METAL BOXES, CARTONS, CASES	6*6*7	1985	R		2
PLASTIC/POLYURATHANE	METAL BOXES, CARTONS, CASES	UNKNOWN	1985	R		66
PLEXIGLASS	METAL BOXES, CARTONS, CASES	4*6*10	1983	R		2
PLEXIGLASS	METAL BOXES, CARTONS, CASES	UNKNOWN	1985	R		16
RUBBER	METAL BOXES, CARTONS, CASES	4*6*10	1983	R		2
RUBBER	METAL BOXES, CARTONS, CASES	UNKNOWN	1985	R		2
SAND	METAL BOXES, CARTONS, CASES	UNKNOWN	1985	R		2
SILICA SEL	METAL DRUMS, BARRELS, KEGS	UNKNOWN	1981	M		10
SILICA SEL	METAL DRUMS, BARRELS, KEGS	UNKNOWN	1982	M		4

Physical Description	Container Discription	Container Size	Date	Pri Wast Type	Storage Facility	Count
STAINLESS STEEL	METAL BOXES, CARTONS, CASES	6*6*7	1985	R	218W4C	2
STAINLESS STEEL	METAL BOXES, CARTONS, CASES	UNKNOWN	1985	R		46
TEFLON	METAL DRUMS, BARRELS, KEGS	30 GALLON	1982	R		8
WOOD/LUMBER/PLYWOOD	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	4*4*7	1980	R		4
WOOD/LUMBER/PLYWOOD	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.67*16	1980	R		4
WOOD/LUMBER/PLYWOOD	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.67*16	1981	R		6
WOOD/LUMBER/PLYWOOD	METAL BOXES, CARTONS, CASES	UNKNOWN	1985	R		20
					********	-------
					sum	721
CLOTH/RAGS/NYLON	METAL BOXES, CARTONS, CASES	4.5*4.5*7.3	1989	MP	2401W	10
CLOTH/RAGS/NYLON	METAL BOXES, CARTONS, CASES	6*6*7	1989	MP		5
CONCRETE	METAL BOXES, CARTONS, CASES	5.6*6.5*9.3	1989	MP		5
GLASS	METAL BOXES, CARTONS, CASES	4*4*7	1989	MP		5
GLASS	METAL BOXES, CARTONS, CASES	4.5*4.5*7.3	1989	MP		20
GLASS	METAL BOXES, CARTONS, CASES	5.6*6.5*9.3	1989	MP		5
GLASS	METAL BOXES, CARTONS, CASES	6*6*7	1989	MP		5
LEAD	METAL BOXES, CARTONS, CASES	4*4*7	1989	MP		5
LEAD	METAL BOXES, CARTONS, CASES	4.5*4.5*7.3	1989	MP		5
LEAD	METAL BOXES, CARTONS, CASES	5.6*6.5*9.3	1989	MP		10
METAL/IRON/GALVANIZED/SHEET	METAL BOXES, CARTONS, CASES	4*4*7	1989	MP		5
METAL/IRON/GALVANIZED/SHEET	METAL BOXES, CARTONS, CASES	4.5*4.5*7.3	1989	MP		25
METAL/IRON/GALVANIZED/SHEET	METAL BOXES, CARTONS, CASES	5.6*6.5*9.3	1989	MP		20
METAL/IRON/GALVANIZED/SHEET	METAL BOXES, CARTONS, CASES	6*6*7	1989	MP		5
OILS	METAL BOXES, CARTONS, CASES	4.5*4.5*7.3	1989	MP		15
PAPER/CARDBOARD	METAL BOXES, CARTONS, CASES	4.5*4.5*7.3	1989	MP		5
PLASTIC/POLYURATHANE	METAL BOXES, CARTONS, CASES	4*4*7	1989	MP		5
PLASTIC/POLYURATHANE	METAL BOXES, CARTONS, CASES	4.5*4.5*7.3	1989	MP		25
PLASTIC/POLYURATHANE	METAL BOXES, CARTONS, CASES	5.6*6.5*9.3	1989	MP		20
PLASTIC/POLYURATHANE	METAL BOXES, CARTONS, CASES	6*6*7	1989	MP		5
WOOD/LUMBER/PLYWOOD	METAL BOXES, CARTONS, CASES	4.5*4.5*7.3	1989	MP		20
WOOD/LUMBER/PLYWOOD	METAL BOXES, CARTONS, CASES	5.6*6.5*9.3	1989	MP		15
WOOD/LUMBER/PLYWOOD	METAL BOXES, CARTONS, CASES	6*6*7	1989	MP		5
					********	-------
					sum	245
CLOTH/RAGS/NYLON	METAL BOXES, CARTONS, CASES	6*6*7	1989	M	2402W	5
DIRT/SOIL/DIATOMACEOUS EARTH	METAL BOXES, CARTONS, CASES	149 CU FT	1989	M		5
LEAD	METAL BOXES, CARTONS, CASES	149 CU FT	1989	M		5

TRU WASTE
Sorted by Storage Facility and Physical Description

Physical Description	Container Discription	Container Size	Date	Pri Wast Type	Storage Facility	Count
METAL/IRON/GALVANIZED/SHEET	METAL BOXES, CARTONS, CASES	149 CU FT	1989	M	2402W	5
METAL/IRON/GALVANIZED/SHEET	METAL BOXES, CARTONS, CASES	6*6*7	1989	M		5
PAPER/CARDBOARD	METAL BOXES, CARTONS, CASES	149 CU FT	1989	M		5
PLASTIC/POLYURATHANE	METAL BOXES, CARTONS, CASES	149 CU FT	1989	M		5
PLASTIC/POLYURATHANE	METAL BOXES, CARTONS, CASES	6*6*7	1989	M		5
WOOD/LUMBER/PLYWOOD	METAL BOXES, CARTONS, CASES	149 CU FT	1989	M		5
WOOD/LUMBER/PLYWOOD	METAL BOXES, CARTONS, CASES	6*6*7	1989	M		5
					********	-------
					sum	50
CLOTH/RAGS/NYLON	METAL BOXES, CARTONS, CASES	4*4*7	1989	M	2402WB	5
METAL/IRON/GALVANIZED/SHEET	METAL BOXES, CARTONS, CASES	4*4*7	1989	M		5
PAPER/CARDBOARD	METAL BOXES, CARTONS, CASES	4*4*7	1989	M		5
PLASTIC/POLYURATHANE	METAL BOXES, CARTONS, CASES	4*4*7	1989	M		5
RUBBER	METAL BOXES, CARTONS, CASES	4*4*7	1989	M		5
					********	-------
					sum	25
CONWEB PADS	METAL DRUMS, BARRELS, KEGS	85 GALLON	1989	M	FS8	5
DIRT/SOIL/DIATOMACEOUS EARTH	METAL DRUMS, BARRELS, KEGS	85 GALLON	1989	M		5
ORGANICS	METAL DRUMS, BARRELS, KEGS	85 GALLON	1989	M		5
PLASTIC/POLYURATHANE	METAL DRUMS, BARRELS, KEGS	85 GALLON	1989	M		5
WOOD/LUMBER/PLYWOOD	METAL DRUMS, BARRELS, KEGS	85 GALLON	1989	M		5
					********	-------
					sum	25

122 rows selected.

APPENDIX B.11

HAZARDOUS CONSTITUENTS LISTED FOR 55-GALLON DRUMS CONTAINING TRU WASTE

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HAZARDOUS CONSTITUENTS LISTED FOR 55-GALLON DRUMS CONTAINING TRU WASTE

The presence of hazardous constituents in a radioactive waste drum designates the waste as "Mixed" (primary waste code "M"). In this subappendix the hazardous contents of 55-gal drums generated at the Plutonium Finishing Plant (PFP) are sorted by storage facility.

Information concerning the hazardous constituents of waste containers was not required before 1986. During the Richland Solid Waste Information Management System (R-SWIMS) data re-entry program in the mid-1980's an attempt was made to add any available information on the hazardous materials present, however, this information was limited.

```
set linesize 165
set pagesize 45
set newpage 0
spool judy.srep
ttitle center 'TRU WASTE' -
right 'Page:' format 999 sql.pno skip 1 -
center 'Sorted by Storage Facility and Hazardous Constituents' skip 1
break on con_locn_facil_id skip 1
compute sum of sum(rdet_rswims_count) on con_locn_facil_id
col haz_comp_text                format a30     heading "Hazardous Constituents"
col cntyp_descr                  format a45     heading "Container Discription"
col con_size_descr               format a15     heading "Container Size"
col con_locn_facil_id            format a8      heading "Storage|Facility"
col dt                           format a4      heading "Date"
col con_pwtyp_cd                 format a4      heading "Pri|Wast|Type"
col sum(rdet_rswims_count)               format 999999   heading "Count"
select haz_comp_text,
        substr (to_char(con_tsd_accept_dt, 'YYYY'), 1, 4) dt,
        cntyp_descr,
        con_size_descr,
        con_pwtyp_cd,
        con_locn_facil_id,
        sum(rdet_rswims_count)
from radwaste, contype, chemcomp
where con_tsd_accept_dt between '01-JAN-69' and '31-DEC-92' and
con_srce_facil_id like ('%2345%')
and con_size_descr like ('%55%')
and rdet_swtyp_cd between '1A' and '1E' and con_cntyp_cd = cntyp_cd and
con_pkg_id =  haz_pkg_id
group by con_locn_facil_id,
haz_comp_text,
con_pwtyp_cd,
substr (to_char(con_tsd_accept_dt, 'YYYY'), 1, 4),
        cntyp_descr,
        con_size_descr
;
spool off
```

TRU WASTE

Sorted by Storage Facility and Hazardous Constituents

Hazardous Constituents	Date	Container Discription	Container Size	Pri Wast Type	Storage Facility	Count
ASBESTOS	1984	METAL DRUMS, BARRELS, KEGS	55 GALLON	R	218W4C	14
ASBESTOS	1985	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		10
ASBESTOS	1986	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		5
ASBESTOS	1987	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		1
COPPER	1983	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		4
CORROSIVE	1984	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		3
OIL	1983	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		12
OIL	1985	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		9
ORGANIC	1982	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		1
ORGANIC	1985	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		4
					********	-------
					sum	63
ACID	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	M	224T	1
ALUMINUM NITRATE MONOHYDRATE	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		1
ASBESTOS	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		1
BARIUM	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		9
BARIUM	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		11
BARIUM	1992	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		3
CADMIUM	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		9
CADMIUM	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		11
CADMIUM	1992	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		3
CALCIUM CHLOROFLUOROPHOSPHATE	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		1
CALCIUM CHLOROFLUOROPHOSPHATE	1992	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		1
CARBONTETRACHLORIDE	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		10
CHROMIUM	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		2
LEAD	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		24
LEAD	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		20
LEAD	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		17
LEAD	1992	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		4
LEAD ACID	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		3
LEAD ACID	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		2
LEAD CHROMATE	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		8
LEAD CHROMATE	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		15
LEAD CHROMATE	1992	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		1
LEAD CHROMATE OXIDE	1992	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		2
LEAD CHROMATE,CHLORIN.PARAFFIN	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		4
LEAD CHROMATES	1992	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		1
MERCURY	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		9

TRU WASTE

Sorted by Storage Facility and Hazardous Constituents

Hazardous Constituents	Date	Container Discription	Container Size	Pri Wast Type	Storage Facility	Count
MERCURY	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	M	224T	11
MERCURY	1992	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		4
POTASSIUM HYDROXIDE	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		2
POTASSIUM HYDROXIDE	1992	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		4
SELENIUM	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		1
SULFURIC ACID	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		1
SULFURIC ACID	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		2
TRI BUTYL PHOSPHATE	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		9
	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		1
					sum	208
AMERCOAT 234	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	M	2401W	1
HYDRAULIC FLUID	1988	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		10
HYDRAULIC FLUID	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		5
HYDRAULIC FLUID	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		1
LEAD	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		2
PCB	1988	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		1
PCB	1982	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		6
PCB	1983	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		4
PCB	1985	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		14
PCB	1988	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		9
PCB	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		6
PCB	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		1
					sum	60
POTASSIUM HYDROXIDE	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	M	2402WB	1
SODIUM HYDROXIDE	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		1
					sum	2

59 rows selected.

APPENDIX B.12

HAZARDOUS CONSTITUENTS LISTED FOR TRU WASTE CONTAINERS OTHER THAN 55-GALLON DRUMS

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HAZARDOUS CONSTITUENTS LISTED FOR TRU WASTE CONTAINERS OTHER THAN 55-GALLON DRUMS

In this subappendix, the hazardous constituents of transuranic (TRU) waste containers other than 55-gal drums are relisted by storage facility. Because the presence of hazardous materials in a radioactive waste drums designates the waste as "Mixed," most of the containers have a primary wake code of "M" for mixed waste or "MP" for mixed waste containing polychlorinated biphenyls (PCBs).

Information concerning the hazardous constituents of waste containers was not required before 1986. During the Richland Solid Waste Information Management System (R-SWIMS) data re-entry program in the mid-1980's, an attempt was made to add all available information on the hazardous materials present in TRU waste containers. This information is limited.

```
set linesize 165
set pagesize 45
set newpage 0
spool judy.srep
ttitle center 'TRU WASTE' -
right 'Page:' format 999 sql.pno skip 1 -
center 'Sorted by Storage Facility and Hazardous Constituents' skip 1
break on con_locn_facil_id skip 1
compute sum of sum(rdet_rswims_count) on con_locn_facil_id
col haz_comp_text               format a30      heading "Hazardous Constituents"
col cntyp_descr                 format a45      heading "Container Discription"
col con_size_descr              format a15      heading "Container Size"
col con_locn_facil_id           format a8       heading "Storage|Facility"
col dt                          format a4       heading "Date"
col con_pwtyp_cd                format a4       heading "Pri|Wast|Type"
col sum(rdet_rswims_count)              format 999999   heading "Count"
select haz_comp_text,
        substr (to_char(con_tsd_accept_dt, 'YYYY'), 1, 4) dt,
        cntyp_descr,
        con_size_descr,
        con_pwtyp_cd,
        con_locn_facil_id,
        sum(rdet_rswims_count)
from radwaste, contype, chemcomp
where con_tsd_accept_dt between '01-JAN-69' and '31-DEC-92' and
con_srce_facil_id like ('%2345%')
and con_size_descr not like ('%55%')
and rdet_swtyp_cd between '1A' and '1E' and con_cntyp_cd = cntyp_cd and
con_pkg_id =  haz_pkg_id
group by con_locn_facil_id,
haz_comp_text,
con_pwtyp_cd,
substr (to_char(con_tsd_accept_dt, 'YYYY'), 1, 4),
        cntyp_descr,
        con_size_descr
;
spool off
```

TRU WASTE
Sorted by Storage Facility and Hazardous Constituents

Hazardous Constituents	Date	Container Discription	Container Size	Pri Wast Type	Storage Facility	Count
LEAD	1975	METAL BOXES, CARTONS, CASES	5.2*7.1*10.5	M	218W3A	1
					********	-------
					sum	1
ASBESTOS	1985	METAL BOXES, CARTONS, CASES	UNKNOWN	R	218W4C	1
BERYLLIUM	1981	METAL DRUMS, BARRELS, KEGS	UNKNOWN	M		7
BERYLLIUM	1982	METAL DRUMS, BARRELS, KEGS	UNKNOWN	M		3
					********	-------
					sum	11
BARIUM	1989	METAL BOXES, CARTONS, CASES	4*4*7	MP	2401W	1
BARIUM	1989	METAL BOXES, CARTONS, CASES	4.5*4.5*7.3	MP		5
BARIUM	1989	METAL BOXES, CARTONS, CASES	5.6*6.5*9.3	MP		4
BARIUM	1989	METAL BOXES, CARTONS, CASES	6*6*7	MP		1
CADMIUM	1989	METAL BOXES, CARTONS, CASES	4*4*7	MP		1
CADMIUM	1989	METAL BOXES, CARTONS, CASES	4.5*4.5*7.3	MP		4
CADMIUM	1989	METAL BOXES, CARTONS, CASES	5.6*6.5*9.3	MP		4
CADMIUM	1989	METAL BOXES, CARTONS, CASES	6*6*7	MP		1
CALCIUM CHLOROFLUOROPHOSPHATE	1989	METAL BOXES, CARTONS, CASES	4*4*7	MP		1
CALCIUM CHLOROFLUOROPHOSPHATE	1989	METAL BOXES, CARTONS, CASES	4.5*4.5*7.3	MP		5
CALCIUM CHLOROFLUOROPHOSPHATE	1989	METAL BOXES, CARTONS, CASES	5.6*6.5*9.3	MP		4
CALCIUM CHLOROFLUOROPHOSPHATE	1989	METAL BOXES, CARTONS, CASES	6*6*7	MP		1
LEAD	1989	METAL BOXES, CARTONS, CASES	4*4*7	MP		1
LEAD	1989	METAL BOXES, CARTONS, CASES	4.5*4.5*7.3	MP		1
LEAD	1989	METAL BOXES, CARTONS, CASES	5.6*6.5*9.3	MP		2
MERCURY	1989	METAL BOXES, CARTONS, CASES	4*4*7	MP		1
MERCURY	1989	METAL BOXES, CARTONS, CASES	4.5*4.5*7.3	MP		5
MERCURY	1989	METAL BOXES, CARTONS, CASES	5.6*6.5*9.3	MP		4
MERCURY	1989	METAL BOXES, CARTONS, CASES	6*6*7	MP		1
PCB	1989	METAL BOXES, CARTONS, CASES	4*4*7	MP		1
PCB	1989	METAL BOXES, CARTONS, CASES	4.5*4.5*7.3	MP		5
PCB	1989	METAL BOXES, CARTONS, CASES	5.6*6.5*9.3	MP		4
PCB	1989	METAL BOXES, CARTONS, CASES	6*6*7	MP		1
					********	-------
					sum	58
BARIUM	1989	METAL BOXES, CARTONS, CASES	6*6*7	M	2402W	1
CADMIUM	1989	METAL BOXES, CARTONS, CASES	6*6*7	M		1
CALCIUM CHLOROFLUOROPHOSPHATE	1989	METAL BOXES, CARTONS, CASES	6*6*7	M		1

TRU WASTE
Sorted by Storage Facility and Hazardous Constituents

Hazardous Constituents	Date	Container Discription	Container Size	Pri Wast Type	Storage Facility	Count
LEAD	1989	METAL BOXES, CARTONS, CASES	149 CU FT	M	2402W	1
MERCURY	1989	METAL BOXES, CARTONS, CASES	6*6*7	M		1
					********	-------
					sum	5
2-BUTOXYETHANOL	1989	METAL BOXES, CARTONS, CASES	4*4*7	M	2402WB	1
PHOSPHORIC ACID	1989	METAL BOXES, CARTONS, CASES	4*4*7	M		1
					********	-------
					sum	2
TRIBUTYLPHOSPHATE	1989	METAL DRUMS, BARRELS, KEGS	85 GALLON	M	FS8	1
TRIMETHYLBENZENE	1989	METAL DRUMS, BARRELS, KEGS	85 GALLON	M		1
XYLENE	1989	METAL DRUMS, BARRELS, KEGS	85 GALLON	M		1
	1989	METAL DRUMS, BARRELS, KEGS	85 GALLON	M		1
					********	-------
					sum	4

38 rows selected.

APPENDIX B.13

ISOTOPES IN 55-GALLON DRUMS THAT CONTAIN TRU WASTES

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**ISOTOPES IN 55-GALLON DRUMS
CONTAIN TRU WASTES**

This subappendix contains a listing of the Solid Waste Information Management System's (SWITS's) isotope information for transuranic (TRU) waste from the Plutonium Finishing Plant (PFP) stored in 55-gal drums. The isotope field in SWITS contains the following types of information:

- Specific isotope (e.g., ^{241}Am, ^{237}Np, ^{233}U, or ^{238}Pu)
- Generic isotope listings (e.g., plutonium, uranium-enriched, or uranium-depleted)
- Plutonium-239 fissile gram equivalents (Pu239 FSL GR equiv)
- Total alpha
- Total beta/gamma.

A SWITS record for a single container may list one or all of the above in the isotope field.

This computer run contains the isotope field listing along with the number of TRU waste drums with that listing. The run is sorted by storage facility and year.

```
set linesize 165
set pagesize 45
set newpage 0
spool judy.srep
ttitle center 'TRU WASTE' -
right 'Page:' format 999 sql.pno skip 1 -
center 'Sorted by Storage Facility and Isotopes' skip 1
break on con_locn_facil_id skip 1
compute sum of sum(rdet_rswims_count) on con_locn_facil_id
col iso_name             format a30      heading "Isotope"
col cntyp_descr                  format a45      heading "Container Discription"
col con_size_descr               format a15      heading "Container Size"
col con_locn_facil_id            format a8       heading "Storage|Facility"
col dt                           format a4       heading "Date"
col con_pwtyp_cd                 format a4       heading "Pri|Wast|Type"
col sum(rdet_rswims_count)               format 999999   heading "Count"
select iso_name,
        substr (to_char(con_tsd_accept_dt, 'YYYY'), 1, 4) dt,
        cntyp_descr,
        con_size_descr,
        con_pwtyp_cd,
        con_locn_facil_id,
        sum(rdet_rswims_count)
from radwaste, contype, isotope, isoqty
where con_tsd_accept_dt between '01-JAN-69' and '31-DEC-92' and
con_srce_facil_id like ('%2345%')
and con_size_descr like ('%55%')
and rdet_swtyp_cd between '1A' and '1E' and con_cntyp_cd = cntyp_cd and
rad_iso_num = iso_num and con_pkg_id = rad_pkg_id
group by con_locn_facil_id,
iso_name,
con_pwtyp_cd,
substr (to_char(con_tsd_accept_dt, 'YYYY'), 1, 4),
        cntyp_descr,
        con_size_descr
;
spool off
```

TRU WASTE
Sorted by Storage Facility and Isotopes

Isotope	Date	Container Discription	Container Size	Pri Wast Type	Storage Facility	Count
PU	1970	METAL DRUMS, BARRELS, KEGS	55 GALLON	R	218W3A	1112
PU	1971	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		537
PU	1984	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		1
TOTAL BETA/GAMMA	1970	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		1112
TOTAL BETA/GAMMA	1971	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		537
TOTAL BETA/GAMMA	1984	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		1
URANIUM-ENRICHED	1984	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		1
					********	-------
					sum	3301
AM-241	1972	METAL DRUMS, BARRELS, KEGS	55 GALLON	R	218W4B	7
NP-237	1972	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		69
PU	1971	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		806
PU	1972	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		1301
PU	1973	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		1264
PU	1974	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		942
PU	1975	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		1222
PU	1976	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		1025
PU	1977	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		1199
TOTAL BETA/GAMMA	1971	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		806
TOTAL BETA/GAMMA	1972	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		1285
TOTAL BETA/GAMMA	1973	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		1264
TOTAL BETA/GAMMA	1974	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		909
TOTAL BETA/GAMMA	1975	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		708
TOTAL BETA/GAMMA	1976	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		1009
TOTAL BETA/GAMMA	1977	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		1198
U-233	1972	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		150
					********	-------
					sum	15164
AM-241	1984	METAL DRUMS, BARRELS, KEGS	55 GALLON	R	218W4C	1
NP-237	1984	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		2
PE-CI	1986	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		11
PE-CI	1987	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		7
PE-CI	1988	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		8
PE-CI	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		46
PE-CI	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		2
PU	1982	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		1
PU	1983	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		16

TRU WASTE

Sorted by Storage Facility and Isotopes

Isotope	Date	Container Discription	Container Size	Pri Wast Type	Storage Facility	Count
PU	1984	METAL DRUMS, BARRELS, KEGS	55 GALLON	M	218W4C	3
PU	1985	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		13
PU	1978	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		900
PU	1979	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		1569
PU	1980	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		1658
PU	1981	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		819
PU	1982	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		663
PU	1983	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		928
PU	1984	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		1849
PU	1985	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		1755
PU	1986	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		445
PU	1987	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		10
PU	1988	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		11
PU	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		18
PU-238	1980	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		12
PU239 FSL GR EQUIV	1986	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		11
PU239 FSL GR EQUIV	1987	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		7
PU239 FSL GR EQUIV	1988	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		8
TH-232	1980	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		1
TOTAL BETA/GAMMA	1982	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		1
TOTAL BETA/GAMMA	1983	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		16
TOTAL BETA/GAMMA	1984	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		3
TOTAL BETA/GAMMA	1985	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		13
TOTAL BETA/GAMMA	1978	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		900
TOTAL BETA/GAMMA	1979	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		1569
TOTAL BETA/GAMMA	1980	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		1658
TOTAL BETA/GAMMA	1981	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		819
TOTAL BETA/GAMMA	1982	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		665
TOTAL BETA/GAMMA	1983	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		929
TOTAL BETA/GAMMA	1984	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		1849
TOTAL BETA/GAMMA	1985	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		1754
TOTAL BETA/GAMMA	1986	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		445
TOTAL BETA/GAMMA	1987	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		10
TOTAL BETA/GAMMA	1988	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		11
TOTAL BETA/GAMMA	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		53
TOTAL BETA/GAMMA	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		18
TOTAL-ALPHA	1986	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		11
TOTAL-ALPHA	1987	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		7
TOTAL-ALPHA	1988	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		8

TRU WASTE
Sorted by Storage Facility and Isotopes

Isotope	Date	Container Discription	Container Size	Pri Wast Type	Storage Facility	Count
TOTAL-ALPHA	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	R	218W4C	46
TOTAL-ALPHA	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		2
URANIUM-DEPLETED	1979	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		10
URANIUM-DEPLETED	1980	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		9
URANIUM-DEPLETED	1982	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		13
URANIUM-ENRICHED	1980	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		2
URANIUM-ENRICHED	1982	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		2
URANIUM-ENRICHED	1983	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		1
URANIUM-ENRICHED	1984	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		1
URANIUM-NATURAL	1980	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		26
URANIUM-NATURAL	1982	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		1
					*********	-------
					sum	21626
PE-CI	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	R	218W5	1
TOTAL BETA/GAMMA	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		1
TOTAL-ALPHA	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		1
					*********	-------
					sum	3
AM-241	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	M	224T	1
AM-241	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		10
PE-CI	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		34
PE-CI	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		16
PE-CI	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		14
PE-CI	1986	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		50
PE-CI	1987	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		260
PE-CI	1988	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		98
PE-CI	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		42
PE-CI	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		57
PE-CI	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		70
PU	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		34
PU	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		20
PU	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		18
PU	1992	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		4
PU	1986	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		116
PU	1987	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		404
PU	1988	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		156
PU	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		14

TRU WASTE
Sorted by Storage Facility and Isotopes

Isotope	Date	Container Discription	Container Size	Pri Wast Type	Storage Facility	Count
PU	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	R	224T	36
PU	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		74
PU	1992	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		64
PU-238	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		10
PU-239	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		10
PU-240	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		10
PU-241	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		10
PU-242	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		10
PU239 FSL GR EQUIV	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		34
PU239 FSL GR EQUIV	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		16
PU239 FSL GR EQUIV	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		14
PU239 FSL GR EQUIV	1986	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		51
PU239 FSL GR EQUIV	1987	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		260
PU239 FSL GR EQUIV	1988	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		99
PU239 FSL GR EQUIV	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		42
PU239 FSL GR EQUIV	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		24
PU239 FSL GR EQUIV	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		54
TOTAL BETA/GAMMA	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		34
TOTAL BETA/GAMMA	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		20
TOTAL BETA/GAMMA	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		18
TOTAL BETA/GAMMA	1992	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		4
TOTAL BETA/GAMMA	1986	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		61
TOTAL BETA/GAMMA	1987	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		339
TOTAL BETA/GAMMA	1988	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		169
TOTAL BETA/GAMMA	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		60
TOTAL BETA/GAMMA	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		86
TOTAL BETA/GAMMA	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		86
TOTAL BETA/GAMMA	1992	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		64
TOTAL-ALPHA	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		34
TOTAL-ALPHA	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		16
TOTAL-ALPHA	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		14
TOTAL-ALPHA	1986	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		50
TOTAL-ALPHA	1987	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		260
TOTAL-ALPHA	1988	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		98
TOTAL-ALPHA	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		42
TOTAL-ALPHA	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		57
TOTAL-ALPHA	1991	METAL DRUMS, BARRELS, KEGS	55 GALLON	R		70
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					sum	3818

TRU WASTE
Sorted by Storage Facility and Isotopes

Isotope	Date	Container Discription	Container Size	Pri Wast Type	Storage Facility	Count
PE-CI	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	M	2401W	2
PE-CI	1985	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		14
PE-CI	1988	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		10
PE-CI	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		6
PE-CI	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		1
PU	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		2
PU	1982	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		6
PU	1985	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		14
PU	1988	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		10
PU	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		6
PU	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		1
PU239 FSL GR EQUIV	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		2
PU239 FSL GR EQUIV	1985	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		14
PU239 FSL GR EQUIV	1988	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		10
PU239 FSL GR EQUIV	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		6
PU239 FSL GR EQUIV	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		1
TOTAL BETA/GAMMA	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		2
TOTAL BETA/GAMMA	1982	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		6
TOTAL BETA/GAMMA	1983	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		4
TOTAL BETA/GAMMA	1985	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		14
TOTAL BETA/GAMMA	1988	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		10
TOTAL BETA/GAMMA	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		6
TOTAL BETA/GAMMA	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		1
TOTAL-ALPHA	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		2
TOTAL-ALPHA	1985	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		14
TOTAL-ALPHA	1988	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		10
TOTAL-ALPHA	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		6
TOTAL-ALPHA	1990	METAL DRUMS, BARRELS, KEGS	55 GALLON	MP		1
					********	-------
					sum	181
PE-CI	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	M	2402WB	1
PU	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		1
PU239 FSL GR EQUIV	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		1
TOTAL BETA/GAMMA	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		1
TOTAL-ALPHA	1989	METAL DRUMS, BARRELS, KEGS	55 GALLON	M		1
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					sum	5

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APPENDIX B.14

ISOTOPES IN TRU WASTE CONTAINERS OTHER THAN 55-GALLON DRUMS

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ISOTOPES IN TRU WASTE CONTAINERS OTHER THAN 55-GALLON DRUMS

This subappendix contains a listing of the Solid Waste Information Tracking System's (SWITS's) isotope information for transuranic (TRU) waste from the Plutonium Finishing Plant (PFP) which is stored in containers other than 55-gal drums. The isotope field in SWITS contains the following types of information:

- Specific isotope (e.g., ^{241}Am, ^{237}Np, or ^{233}U)
- Generic isotope (e.g., plutonium, uranium-enriched, or uranium-depleted)
- Plutonium-239 equivalent curies (PE-CI)
- Total alpha
- Total beta/gamma.

A SWITS record for a single container may list one or all of the above in the isotope field.

This computer run contains the isotope field listing along with the number of TRU waste containers with that listing. The run is sorted by storage facility and year.

```
set linesize 165
set pagesize 45
set newpage 0
spool judy.srep
ttitle center 'TRU WASTE' -
right 'Page:' format 999 sql.pno skip 1 -
center 'Sorted by Storage Facility and Isotopes' skip 1
break on con_locn_facil_id skip 1
compute sum of sum(rdet_rswims_count) on con_locn_facil_id
col iso_name            format a30      heading "Isotope"
col cntyp_descr                 format a45      heading "Container Discription"
col con_size_descr              format a15      heading "Container Size"
col con_locn_facil_id           format a8       heading "Storage|Facility"
col dt                          format a4       heading "Date"
col con_pwtyp_cd                format a4       heading "Pri|Wast|Type"
col sum(rdet_rswims_count)              format 999999   heading "Count"
select iso_name,
        substr (to_char(con_tsd_accept_dt, 'YYYY'), 1, 4) dt,
        cntyp_descr,
        con_size_descr,
        con_pwtyp_cd,
        con_locn_facil_id,
        sum(rdet_rswims_count)
from radwaste, contype, isotope, isoqty
where con_tsd_accept_dt between '01-JAN-69' and '31-DEC-92' and
con_srce_facil_id like ('%2345%')
and con_size_descr not like ('%55%')
and rdet_swtyp_cd between '1A' and '1E' and con_cntyp_cd = cntyp_cd and
rad_iso_num = iso_num and con_pkg_id = rad_pkg_id
group by con_locn_facil_id,
iso_name,
con_pwtyp_cd,
substr (to_char(con_tsd_accept_dt, 'YYYY'), 1, 4),
        cntyp_descr,
        con_size_descr
;
spool off
```

TRU WASTE

Sorted by Storage Facility and Isotopes

Isotope	Date	Container Discription	Container Size	Pri Wast Type	Storage Facility	Count
PU	1975	METAL BOXES, CARTONS, CASES	5.2*7.1*10.5	M	218W3A	1
PU	1970	METAL DRUMS, BARRELS, KEGS	30 GALLON	R		8
PU	1971	METAL BOXES, CARTONS, CASES	UNKNOWN	R		1
PU	1974	METAL BOXES, CARTONS, CASES	5*10*13	R		1
PU	1975	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	10.5*10.7*12	R		1
PU	1975	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	4*4*7	R		6
PU	1975	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	4.83*5*8	R		2
PU	1975	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	6.3*8*14.7	R		1
PU	1975	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.67*16	R		4
PU	1975	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.67*20	R		10
PU	1975	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.7*12	R		11
PU	1975	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*11.6*20	R		6
PU	1975	METAL BOXES, CARTONS, CASES	5.2*7.1*10.5	R		3
PU	1975	METAL BOXES, CARTONS, CASES	5.2*7.1*16.5	R		1
PU	1976	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	4*4*7	R		2
PU	1976	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	8*10*16	R		1
PU	1976	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.67*20	R		7
PU	1976	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.7*12	R		3
PU	1976	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*11.6*20	R		1
PU	1977	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	8*10*16	R		2
PU	1977	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.7*12	R		1
PU	1977	METAL BOXES, CARTONS, CASES	5.2*7.1*10.5	R		1
PU	1978	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	4*4*7	R		9
PU	1978	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	6.5*8*14.6	R		9
PU	1978	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	6.5*8*18.5	R		3
PU	1978	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	8*8*10.7	R		2
PU	1978	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9.5*9.9*12	R		1
TOTAL BETA/GAMMA	1975	METAL BOXES, CARTONS, CASES	5.2*7.1*10.5	M		1
TOTAL BETA/GAMMA	1970	METAL DRUMS, BARRELS, KEGS	30 GALLON	R		8
TOTAL BETA/GAMMA	1971	METAL BOXES, CARTONS, CASES	UNKNOWN	R		1
TOTAL BETA/GAMMA	1975	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	10.5*10.7*12	R		1
TOTAL BETA/GAMMA	1975	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	4*4*7	R		1
TOTAL BETA/GAMMA	1975	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.67*16	R		1
TOTAL BETA/GAMMA	1975	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.67*20	R		4
TOTAL BETA/GAMMA	1975	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.7*12	R		5
TOTAL BETA/GAMMA	1975	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*11.6*20	R		1
TOTAL BETA/GAMMA	1975	METAL BOXES, CARTONS, CASES	5.2*7.1*10.5	R		2
TOTAL BETA/GAMMA	1976	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	4*4*7	R		2
TOTAL BETA/GAMMA	1976	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	8*10*16	R		1

TRU WASTE
Sorted by Storage Facility and Isotopes

Isotope	Date	Container Discription	Container Size	Pri Wast Type	Storage Facility	Count
TOTAL BETA/GAMMA	1976	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.67*20	R	218W3A	7
TOTAL BETA/GAMMA	1976	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.7*12	R		3
TOTAL BETA/GAMMA	1976	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*11.6*20	R		1
TOTAL BETA/GAMMA	1977	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	8*10*16	R		2
TOTAL BETA/GAMMA	1977	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.7*12	R		1
TOTAL BETA/GAMMA	1977	METAL BOXES, CARTONS, CASES	5.2*7.1*10.5	R		1
TOTAL BETA/GAMMA	1978	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	6.5*8*14.6	R		9
TOTAL BETA/GAMMA	1978	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	6.5*8*18.5	R		3
TOTAL BETA/GAMMA	1978	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	8*8*10.7	R		2
TOTAL BETA/GAMMA	1978	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9.5*9.9*12	R		1
					********	-------
					sum	156
PU	1970	CONCRETE BOXES	UNKNOWN	R	218W4B	1
PU	1971	GLOVE BOXES	UNKNOWN	R		2
PU	1971	METAL BOXES, CARTONS, CASES	3*3*4	R		3
PU	1971	METAL BOXES, CARTONS, CASES	3*5*8	R		1
PU	1971	METAL BOXES, CARTONS, CASES	4*4*5	R		1
PU	1971	METAL BOXES, CARTONS, CASES	4*6*16.5	R		1
PU	1971	METAL BOXES, CARTONS, CASES	5*7*17	R		1
PU	1971	METAL DRUMS, BARRELS, KEGS	30 GALLON	R		5
PU	1971	SELF CONTAINED, EQUIPMENT	UNKNOWN	R		2
PU	1971	WOODEN BOXES, CARTONS, CASES	4*5*6	R		1
PU	1972	GLOVE BOXES	UNKNOWN	R		4
PU	1972	METAL BOXES, CARTONS, CASES	115 CU FT	R		1
PU	1972	METAL BOXES, CARTONS, CASES	149 CU FT	R		1
PU	1972	METAL BOXES, CARTONS, CASES	156 CU FT	R		2
PU	1972	METAL BOXES, CARTONS, CASES	197 CU FT	R		1
PU	1972	METAL BOXES, CARTONS, CASES	252 CU FT	R		1
PU	1972	METAL BOXES, CARTONS, CASES	269 CU. FT.	R		1
PU	1972	METAL BOXES, CARTONS, CASES	3*4*10	R		1
PU	1972	METAL BOXES, CARTONS, CASES	4*5.5*16	R		1
PU	1972	METAL BOXES, CARTONS, CASES	4.5*6*10	R		1
PU	1972	METAL BOXES, CARTONS, CASES	80.8 CU FT	R		1
PU	1972	METAL DRUMS, BARRELS, KEGS	110 GALLON	R		1
PU	1973	METAL BOXES, CARTONS, CASES	197 CU FT	R		1
PU	1973	METAL BOXES, CARTONS, CASES	4*6*10	R		2
PU	1973	METAL DRUMS, BARRELS, KEGS	110 GALLON	R		3
PU	1974	METAL BOXES, CARTONS, CASES	2*3*15	R		1

TRU WASTE
Sorted by Storage Facility and Isotopes

Isotope	Date	Container Discription	Container Size	Pri Wast Type	Storage Facility	Count
PU	1974	METAL BOXES, CARTONS, CASES	3*4*10	R	218W4B	1
PU	1974	METAL BOXES, CARTONS, CASES	4*6*10	R		2
PU	1974	METAL BOXES, CARTONS, CASES	4*8*10	R		1
PU	1974	METAL BOXES, CARTONS, CASES	4*8*16	R		1
PU	1974	METAL BOXES, CARTONS, CASES	5.2*7.1*10.5	R		2
PU	1974	METAL BOXES, CARTONS, CASES	5.2*7.1*16.5	R		1
PU	1974	METAL DRUMS, BARRELS, KEGS	110 GALLON	R		9
PU	1975	METAL BOXES, CARTONS, CASES	3.7*6.5*13.2	R		1
PU	1975	METAL BOXES, CARTONS, CASES	5.2*7.1*10.5	R		2
PU	1975	METAL BOXES, CARTONS, CASES	5.2*7.1*16.5	R		2
PU	1976	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	4*4*7	R		3
PU	1976	METAL DRUMS, BARRELS, KEGS	110 GALLON	R		14
PU	1978	METAL BOXES, CARTONS, CASES	4*4*7	R		1
PU	1978	METAL BOXES, CARTONS, CASES	4*6*15	R		2
TOTAL BETA/GAMMA	1971	GLOVE BOXES	UNKNOWN	R		2
TOTAL BETA/GAMMA	1971	METAL BOXES, CARTONS, CASES	3*3*4	R		3
TOTAL BETA/GAMMA	1971	METAL BOXES, CARTONS, CASES	3*5*8	R		1
TOTAL BETA/GAMMA	1971	METAL BOXES, CARTONS, CASES	4*4*5	R		1
TOTAL BETA/GAMMA	1971	METAL BOXES, CARTONS, CASES	4*6*16.5	R		1
TOTAL BETA/GAMMA	1971	METAL BOXES, CARTONS, CASES	5*7*17	R		1
TOTAL BETA/GAMMA	1971	METAL DRUMS, BARRELS, KEGS	30 GALLON	R		5
TOTAL BETA/GAMMA	1971	SELF CONTAINED, EQUIPMENT	UNKNOWN	R		2
TOTAL BETA/GAMMA	1971	WOODEN BOXES, CARTONS, CASES	4*5*6	R		1
TOTAL BETA/GAMMA	1972	GLOVE BOXES	UNKNOWN	R		3
TOTAL BETA/GAMMA	1972	METAL BOXES, CARTONS, CASES	115 CU FT	R		1
TOTAL BETA/GAMMA	1972	METAL BOXES, CARTONS, CASES	149 CU FT	R		1
TOTAL BETA/GAMMA	1972	METAL BOXES, CARTONS, CASES	156 CU FT	R		2
TOTAL BETA/GAMMA	1972	METAL BOXES, CARTONS, CASES	197 CU FT	R		1
TOTAL BETA/GAMMA	1972	METAL BOXES, CARTONS, CASES	252 CU FT	R		1
TOTAL BETA/GAMMA	1972	METAL BOXES, CARTONS, CASES	269 CU. FT.	R		1
TOTAL BETA/GAMMA	1972	METAL BOXES, CARTONS, CASES	3*4*10	R		1
TOTAL BETA/GAMMA	1972	METAL BOXES, CARTONS, CASES	4*5.5*16	R		1
TOTAL BETA/GAMMA	1972	METAL BOXES, CARTONS, CASES	4.5*6*10	R		1
TOTAL BETA/GAMMA	1972	METAL BOXES, CARTONS, CASES	80.8 CU FT	R		1
TOTAL BETA/GAMMA	1972	METAL DRUMS, BARRELS, KEGS	110 GALLON	R		1
TOTAL BETA/GAMMA	1973	METAL BOXES, CARTONS, CASES	4*6*10	R		2
TOTAL BETA/GAMMA	1973	METAL DRUMS, BARRELS, KEGS	110 GALLON	R		3
TOTAL BETA/GAMMA	1974	METAL BOXES, CARTONS, CASES	2*3*15	R		1
TOTAL BETA/GAMMA	1974	METAL BOXES, CARTONS, CASES	4*6*10	R		2

TRU WASTE
Sorted by Storage Facility and Isotopes

Isotope	Date	Container Discription	Container Size	Pri Wast Type	Storage Facility	Count
TOTAL BETA/GAMMA	1974	METAL BOXES, CARTONS, CASES	4*8*10	R	218W4B	1
TOTAL BETA/GAMMA	1974	METAL BOXES, CARTONS, CASES	5.2*7.1*10.5	R		2
TOTAL BETA/GAMMA	1974	METAL BOXES, CARTONS, CASES	5.2*7.1*16.5	R		1
TOTAL BETA/GAMMA	1974	METAL DRUMS, BARRELS, KEGS	110 GALLON	R		8
TOTAL BETA/GAMMA	1975	METAL BOXES, CARTONS, CASES	5.2*7.1*16.5	R		1
TOTAL BETA/GAMMA	1976	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	4*4*7	R		3
TOTAL BETA/GAMMA	1976	METAL DRUMS, BARRELS, KEGS	110 GALLON	R		14
TOTAL BETA/GAMMA	1978	METAL BOXES, CARTONS, CASES	4*4*7	R		1
TOTAL BETA/GAMMA	1978	METAL BOXES, CARTONS, CASES	4*6*15	R		2
U-233	1972	METAL BOXES, CARTONS, CASES	4.5*6*10	R		1
					********	-------
					sum	157
CF-252	1982	METAL DRUMS, BARRELS, KEGS	30 GALLON	R	218W4C	1
PU	1981	METAL DRUMS, BARRELS, KEGS	UNKNOWN	M		7
PU	1982	METAL DRUMS, BARRELS, KEGS	UNKNOWN	M		3
PU	1980	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	4*4*7	R		2
PU	1980	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.67*16	R		4
PU	1980	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.7*12	R		1
PU	1980	METAL DRUMS, BARRELS, KEGS	UNKNOWN	R		13
PU	1981	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.67*16	R		5
PU	1981	METAL DRUMS, BARRELS, KEGS	UNKNOWN	R		74
PU	1982	METAL DRUMS, BARRELS, KEGS	110 GALLON	R		15
PU	1982	METAL DRUMS, BARRELS, KEGS	30 GALLON	R		3
PU	1982	METAL DRUMS, BARRELS, KEGS	UNKNOWN	R		7
PU	1983	METAL BOXES, CARTONS, CASES	4*6*10	R		1
PU	1983	METAL DRUMS, BARRELS, KEGS	UNKNOWN	R		5
PU	1984	MISCELLANEOUS SCRAP	UNKNOWN	R		1
PU	1985	METAL BOXES, CARTONS, CASES	4*4*7	R		2
PU	1985	METAL BOXES, CARTONS, CASES	6*6*7	R		2
PU	1985	METAL BOXES, CARTONS, CASES	UNKNOWN	R		38
TOTAL BETA/GAMMA	1981	METAL DRUMS, BARRELS, KEGS	UNKNOWN	M		7
TOTAL BETA/GAMMA	1982	METAL DRUMS, BARRELS, KEGS	UNKNOWN	M		3
TOTAL BETA/GAMMA	1980	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	4*4*7	R		2
TOTAL BETA/GAMMA	1980	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.67*16	R		4
TOTAL BETA/GAMMA	1980	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.7*12	R		1
TOTAL BETA/GAMMA	1980	METAL DRUMS, BARRELS, KEGS	UNKNOWN	R		13
TOTAL BETA/GAMMA	1981	FIBERGLASS REINFORCED PLYWOOD (FRP) BOXES	9*10.67*16	R		5
TOTAL BETA/GAMMA	1981	METAL DRUMS, BARRELS, KEGS	UNKNOWN	R		74

Isotope	Date	Container Discription	Container Size	Pri Wast Type	Storage Facility	Count
TOTAL BETA/GAMMA	1982	METAL DRUMS, BARRELS, KEGS	110 GALLON	R	218W4C	15
TOTAL BETA/GAMMA	1982	METAL DRUMS, BARRELS, KEGS	30 GALLON	R		4
TOTAL BETA/GAMMA	1982	METAL DRUMS, BARRELS, KEGS	UNKNOWN	R		7
TOTAL BETA/GAMMA	1983	METAL BOXES, CARTONS, CASES	4*6*10	R		1
TOTAL BETA/GAMMA	1984	MISCELLANEOUS SCRAP	UNKNOWN	R		1
TOTAL BETA/GAMMA	1985	METAL BOXES, CARTONS, CASES	4*4*7	R		2
TOTAL BETA/GAMMA	1985	METAL BOXES, CARTONS, CASES	6*6*7	R		2
TOTAL BETA/GAMMA	1985	METAL BOXES, CARTONS, CASES	UNKNOWN	R		38
URANIUM-DEPLETED	1982	METAL DRUMS, BARRELS, KEGS	110 GALLON	R		15
URANIUM-NATURAL	1980	METAL DRUMS, BARRELS, KEGS	UNKNOWN	R		7
URANIUM-NATURAL	1982	METAL DRUMS, BARRELS, KEGS	110 GALLON	R		15
URANIUM-NATURAL	1982	METAL DRUMS, BARRELS, KEGS	UNKNOWN	R		7
					*********	-------
					sum	407
PE-CI	1989	METAL BOXES, CARTONS, CASES	4*4*7	MP	2401W	1
PE-CI	1989	METAL BOXES, CARTONS, CASES	4.5*4.5*7.3	MP		5
PE-CI	1989	METAL BOXES, CARTONS, CASES	5.6*6.5*9.3	MP		4
PE-CI	1989	METAL BOXES, CARTONS, CASES	6*6*7	MP		1
PU	1989	METAL BOXES, CARTONS, CASES	4*4*7	MP		1
PU	1989	METAL BOXES, CARTONS, CASES	4.5*4.5*7.3	MP		5
PU	1989	METAL BOXES, CARTONS, CASES	5.6*6.5*9.3	MP		4
PU	1989	METAL BOXES, CARTONS, CASES	6*6*7	MP		1
PU239 FSL GR EQUIV	1989	METAL BOXES, CARTONS, CASES	4*4*7	MP		1
PU239 FSL GR EQUIV	1989	METAL BOXES, CARTONS, CASES	4.5*4.5*7.3	MP		5
PU239 FSL GR EQUIV	1989	METAL BOXES, CARTONS, CASES	5.6*6.5*9.3	MP		4
PU239 FSL GR EQUIV	1989	METAL BOXES, CARTONS, CASES	6*6*7	MP		1
TOTAL BETA/GAMMA	1989	METAL BOXES, CARTONS, CASES	4*4*7	MP		1
TOTAL BETA/GAMMA	1989	METAL BOXES, CARTONS, CASES	4.5*4.5*7.3	MP		5
TOTAL BETA/GAMMA	1989	METAL BOXES, CARTONS, CASES	5.6*6.5*9.3	MP		4
TOTAL BETA/GAMMA	1989	METAL BOXES, CARTONS, CASES	6*6*7	MP		1
TOTAL-ALPHA	1989	METAL BOXES, CARTONS, CASES	4*4*7	MP		1
TOTAL-ALPHA	1989	METAL BOXES, CARTONS, CASES	4.5*4.5*7.3	MP		5
TOTAL-ALPHA	1989	METAL BOXES, CARTONS, CASES	5.6*6.5*9.3	MP		4
TOTAL-ALPHA	1989	METAL BOXES, CARTONS, CASES	6*6*7	MP		1
					*********	-------
					sum	55
PE-CI	1989	METAL BOXES, CARTONS, CASES	149 CU FT	M	2402W	1

TRU WASTE
Sorted by Storage Facility and Isotopes

Isotope	Date	Container Discription	Container Size	Pri Wast Type	Storage Facility	Count
PE-CI	1989	METAL BOXES, CARTONS, CASES	6*6*7	M	2402W	1
PU	1989	METAL BOXES, CARTONS, CASES	149 CU FT	M		1
PU	1989	METAL BOXES, CARTONS, CASES	6*6*7	M		1
PU239 FSL GR EQUIV	1989	METAL BOXES, CARTONS, CASES	149 CU FT	M		1
PU239 FSL GR EQUIV	1989	METAL BOXES, CARTONS, CASES	6*6*7	M		1
TOTAL BETA/GAMMA	1989	METAL BOXES, CARTONS, CASES	149 CU FT	M		1
TOTAL BETA/GAMMA	1989	METAL BOXES, CARTONS, CASES	6*6*7	M		1
TOTAL-ALPHA	1989	METAL BOXES, CARTONS, CASES	149 CU FT	M		1
TOTAL-ALPHA	1989	METAL BOXES, CARTONS, CASES	6*6*7	M		1
					********	-------
					sum	10
PE-CI	1989	METAL BOXES, CARTONS, CASES	4*4*7	M	2402WB	1
PU	1989	METAL BOXES, CARTONS, CASES	4*4*7	M		1
PU239 FSL GR EQUIV	1989	METAL BOXES, CARTONS, CASES	4*4*7	M		1
TOTAL BETA/GAMMA	1989	METAL BOXES, CARTONS, CASES	4*4*7	M		1
TOTAL-ALPHA	1989	METAL BOXES, CARTONS, CASES	4*4*7	M		1
					********	-------
					sum	5
PE-CI	1989	METAL DRUMS, BARRELS, KEGS	85 GALLON	M	FSB	1
PU	1989	METAL DRUMS, BARRELS, KEGS	85 GALLON	M		1
PU239 FSL GR EQUIV	1989	METAL DRUMS, BARRELS, KEGS	85 GALLON	M		1
TOTAL BETA/GAMMA	1989	METAL DRUMS, BARRELS, KEGS	85 GALLON	M		1
TOTAL-ALPHA	1989	METAL DRUMS, BARRELS, KEGS	85 GALLON	M		1
					********	-------
					sum	5

32 rows selected.

APPENDIX C

ORIGINAL SOLID WASTE INFORMATION AND TRACKING SYSTEM RECORDS FOR ALL 55-GALLON WASTE DRUMS WITH WEIGHTS ≥ 150 KILOGRAMS

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ORIGINAL SOLID WASTE INFORMATION AND TRACKING SYSTEM RECORDS FOR ALL 55-GALLON WASTE DRUMS WITH WEIGHTS $\geq$ 150 KILOGRAMS

This appendix contains complete Solid Waste Information and Tracking System (SWITS) records for the twenty six 55-gal drums weighing $\geq$ 150 kg each. Table 5-2 is based on the data in this appendix.

```
set pagesize 55
set linesize 90
set newpage 0
spool judy.srep
select con_pkg_id,
        rad_qty,
        con_size_descr
from radwaste, isoqty
where rdet_swtyp_cd between '1A' and '1E' and con_size_descr = '55 GALLON' and
con_srce_facil_id = '2345Z' and con_gross_wgt >= ?
;
spool off
```

Container Listing for Container ID: A11392
FROM: 01/01/55 THRU: 01/01/93
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: A11392

Location Beginning Coordinates: N N40190 W W77708 Location Ending Coordinates: N N40190 W W77684
Content Analysis Return Date: Packaged Date: TSD Accept Date: 11/08/84
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.210 Gross Wt: 162.02
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.: 139.00
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1D
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 850055
Container Empty Tare Wt.: 27.00 Container Thermal Power: 1.000E-01 Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 5.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				1.000E+00	GM
19	TOTAL BETA/GAMMA				5.000E-02	CI

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
CLOTH/RAGS/NYLON	5	
GLASS	6	
METAL/IRON/GALVANIZED/SHEET	70	
PAPER/CARDBOARD	10	
PLASTIC/POLYURATHANE	4	
RUBBER	5	

Relocation History:

Shipment Information:

Container Listing for Container ID: A11478
FROM: 01/01/55 THRU: 01/01/93
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: A11478

Location Beginning Coordinates: N N39050 W W77500 Location Ending Coordinates: N N39050 W W77476
Content Analysis Return Date: Packaged Date: TSD Accept Date: 10/25/84
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.210 Gross Wt: 189.01
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T29
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1D
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 840232
Container Empty Tare Wt.: 27.00 Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 5.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				6.000E+00	GM
19	TOTAL BETA/GAMMA				5.000E-02	CI

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	79	
PLASTIC/POLYURATHANE	21	

Relocation History:

Shipment Information:

Container Listing for Container ID: A11608
FROM: 01/01/55 THRU: 01/01/93
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: A11608

Location Beginning Coordinates: N N39050 W W77548 Location Ending Coordinates: N N39050 W W77524
Content Analysis Return Date: Packaged Date: TSD Accept Date: 01/22/85
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+01 Neutron Dose Rate: Container Volume: 0.210 Gross Wt: 177.99
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.: 78.00
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T29
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1D
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 850277
Container Empty Tare Wt.: 27.00 Container Thermal Power: 1.000E-01 Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 5.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				1.790E+02	GM
19	TOTAL BETA/GAMMA				5.000E-02	CI

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
CONCRETE	12	
METAL/IRON/GALVANIZED/SHEET	38	
PLASTIC/POLYURATHANE	38	
RUBBER	12	

Relocation History:

Shipment Information:

Container Listing for Container ID: A11778
FROM: 01/01/55 THRU: 01/01/93
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: A11778

Location Beginning Coordinates: N N39050 W W77500 Location Ending Coordinates: N N39050 W W77476
Content Analysis Return Date: Packaged Date: TSD Accept Date: 12/26/84
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.210 Gross Wt: 158.98
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T29
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1D
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 850054
Container Empty Tare Wt.: 27.00 Container Thermal Power: 1.000E-01 Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 5.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				1.000E+00	GM
19	TOTAL BETA/GAMMA				5.000E-02	CI

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	80	
PLASTIC/POLYURATHANE	20	

Relocation History:

Shipment Information:

Container Listing for Container ID: A11787
FROM: 01/01/55 THRU: 01/01/93
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: A11787

Location Beginning Coordinates: N N40190 W W77708 Location Ending Coordinates: N N40190 W W77684
Content Analysis Return Date: Packaged Date: TSD Accept Date: 12/03/84
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.210 Gross Wt: 179.98
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.: 157.00
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1D
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 850069
Container Empty Tare Wt.: 27.00 Container Thermal Power: 1.000E-01 Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 5.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				1.000E+00	GM
19	TOTAL BETA/GAMMA				5.000E-02	CI

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	80	
PLASTIC/POLYURATHANE	20	

Relocation History:

Shipment Information:

Container Listing for Container ID: A12236
FROM: 01/01/55 THRU: 01/01/93
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: A12236

Location Beginning Coordinates: N N39050 W W77524 Location Ending Coordinates: N N39050 W W77500
Content Analysis Return Date: Packaged Date: TSD Accept Date: 02/11/85
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 6.000E+00 Neutron Dose Rate: Container Volume: 0.210 Gross Wt: 150.00
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.: 21.00
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T29
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1D
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 850154
Container Empty Tare Wt.: 27.00 Container Thermal Power: 1.000E-01 Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 5.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				1.250E+02	GM
19	TOTAL BETA/GAMMA				5.000E-02	CI

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
CLOTH/RAGS/NYLON	10	
METAL/IRON/GALVANIZED/SHEET	21	
PLASTIC/POLYURATHANE	42	
RUBBER	27	

Relocation History:

Shipment Information:

Container Listing for Container ID: A12615
FROM: 01/01/55 THRU: 01/01/93
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: A12615

Location Beginning Coordinates: N N40190 W W77780 Location Ending Coordinates: N N40190 W W77756
Content Analysis Return Date: Packaged Date: TSD Accept Date: 04/04/85
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.210 Gross Wt: 192.00
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.: 79.00
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1D
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 850618
Container Empty Tare Wt.: 27.00 Container Thermal Power: 1.000E-01 Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 5.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				1.000E+00	GM
19	TOTAL BETA/GAMMA				5.000E-02	CI

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
CLOTH/RAGS/NYLON	15	
PAPER/CARDBOARD	40	
PLASTIC/POLYURATHANE	30	
RUBBER	15	

Relocation History:

Shipment Information:

Container Listing for Container ID: A12764
FROM: 01/01/55 THRU: 01/01/93
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: A12764

Location Beginning Coordinates: N N40190 W W77780 Location Ending Coordinates: N N40190 W W77756
Content Analysis Return Date: Packaged Date: TSD Accept Date: 04/30/85
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.210 Gross Wt: 150.00
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.: 0.00
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1D
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 850746
Container Empty Tare Wt.: 27.00 Container Thermal Power: 1.000E-01 Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 5.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				1.000E+00	GM
19	TOTAL BETA/GAMMA				5.000E-02	CI

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
GLASS	30	
METAL/IRON/GALVANIZED/SHEET	70	

Relocation History:

Shipment Information:

Container Listing for Container ID: A13135
FROM: 01/01/55 THRU: 01/01/93
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: A13135

Location Beginning Coordinates: N N39050 W W77548 Location Ending Coordinates: N N39050 W W77524
Content Analysis Return Date: Packaged Date: TSD Accept Date: 08/08/85
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 4.000E+00 Neutron Dose Rate: Container Volume: 0.210 Gross Wt: 165.02
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.: 97.00
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T29
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1D
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 850329
Container Empty Tare Wt.: 27.00 Container Thermal Power: 1.000E-01 Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 5.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				8.200E+01	GM
19	TOTAL BETA/GAMMA				5.000E-02	CI

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
CLOTH/RAGS/NYLON	1	
METAL/IRON/GALVANIZED/SHEET	32	
PAPER/CARDBOARD	3	
PLASTIC/POLYURATHANE	47	
RUBBER	18	

Relocation History:

Shipment Information:

Container Listing for Container ID: A13200
FROM: 01/01/55 THRU: 01/01/93
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: A13200

Location Beginning Coordinates: N N39050 W W77548 Location Ending Coordinates: N N39050 W W77524
Content Analysis Return Date: Packaged Date: TSD Accept Date: 07/31/85
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.210 Gross Wt: 176.99
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.: 5.00
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T29
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1D
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 850358
Container Empty Tare Wt.: 27.00 Container Thermal Power: 1.000E-01 Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 5.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				1.000E+00	GM
19	TOTAL BETA/GAMMA				5.000E-02	CI

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
DIRT/SOIL/DIATOMACEOUS EARTH	97	
PLASTIC/POLYURATHANE	3	

Relocation History:

Shipment Information:

Container Listing for Container ID: A13201
FROM: 01/01/55 THRU: 01/01/93
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: A13201

Location Beginning Coordinates: N N39050 W W77548 Location Ending Coordinates: N N39050 W W77524
Content Analysis Return Date: Packaged Date: TSD Accept Date: 07/31/85
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.210 Gross Wt: 153.99
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.: 4.00
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T29
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1D
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 850359
Container Empty Tare Wt.: 27.00 Container Thermal Power: 1.000E-01 Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 5.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				2.000E+00	GM
19	TOTAL BETA/GAMMA				5.000E-02	CI

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
DIRT/SOIL/DIATOMACEOUS EARTH	97	
PLASTIC/POLYURATHANE	3	

Relocation History:

Shipment Information:

Container Listing for Container ID: A13203
FROM: 01/01/55 THRU: 01/01/93
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: A13203

Location Beginning Coordinates: N N39050 W W77548 Location Ending Coordinates: N N39050 W W77524
Content Analysis Return Date: Packaged Date: TSD Accept Date: 07/31/85
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.210 Gross Wt: 153.99
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.: 4.00
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T29
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1D
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 850361
Container Empty Tare Wt.: 27.00 Container Thermal Power: 1.000E-01 Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 5.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				1.000E+00	GM
19	TOTAL BETA/GAMMA				5.000E-02	CI

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
DIRT/SOIL/DIATOMACEOUS EARTH	97	
PLASTIC/POLYURATHANE	3	

Relocation History:

Shipment Information:

Container Listing for Container ID: A13205
FROM: 01/01/55 THRU: 01/01/93
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: A13205

Location Beginning Coordinates: N N39050 W W77548 Location Ending Coordinates: N N39050 W W77524
Content Analysis Return Date: Packaged Date: TSD Accept Date: 07/31/85
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.210 Gross Wt: 181.98
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.: 5.00
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T29
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1D
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 850363
Container Empty Tare Wt.: 27.00 Container Thermal Power: 1.000E-01 Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 5.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				1.000E+00	GM
19	TOTAL BETA/GAMMA				5.000E-02	CI

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
DIRT/SOIL/DIATOMACEOUS EARTH	97	
PLASTIC/POLYURATHANE	3	

Relocation History:

Shipment Information:

Container Listing for Container ID: A13209
FROM: 01/01/55 THRU: 01/01/93
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: A13209

Location Beginning Coordinates: N N39050 W W77548 Location Ending Coordinates: N N39050 W W77524
Content Analysis Return Date: Packaged Date: TSD Accept Date: 07/31/85
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.210 Gross Wt: 158.98
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.: 4.00
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T29
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1D
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 850328
Container Empty Tare Wt.: 27.00 Container Thermal Power: 1.000E-01 Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 5.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				3.000E+00	GM
19	TOTAL BETA/GAMMA				5.000E-02	CI

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
DIRT/SOIL/DIATOMACEOUS EARTH	97	
PLASTIC/POLYURATHANE	3	

Relocation History:

Shipment Information:

Container Listing for Container ID: A13220
FROM: 01/01/55 THRU: 01/01/93
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: A13220

Location Beginning Coordinates: N N40190 W W77804 Location Ending Coordinates: N N40190 W W77780
Content Analysis Return Date: Packaged Date: TSD Accept Date: 08/01/85
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.210 Gross Wt: 176.99
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.: 77.00
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1D
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 851087
Container Empty Tare Wt.: 27.00 Container Thermal Power: 1.000E-01 Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 5.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				1.000E+00	GM
19	TOTAL BETA/GAMMA				5.000E-02	CI

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
CLOTH/RAGS/NYLON	5	
DIRT/SOIL/DIATOMACEOUS EARTH	50	
PAPER/CARDBOARD	15	
PLASTIC/POLYURATHANE	30	

Relocation History:

Shipment Information:

Container Listing for Container ID: A13237
FROM: 01/01/55 THRU: 01/01/93
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: A13237

Location Beginning Coordinates: N N40190 W W77804 Location Ending Coordinates: N N40190 W W77780
Content Analysis Return Date: Packaged Date: TSD Accept Date: 08/08/85
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.210 Gross Wt: 216.00
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.: 10.00
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1D
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 851094
Container Empty Tare Wt.: 27.00 Container Thermal Power: 1.000E-01 Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 5.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				1.000E+00	GM
19	TOTAL BETA/GAMMA				5.000E-02	CI

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	95	
PLASTIC/POLYURATHANE	5	

Relocation History:

Shipment Information:

Container Listing for Container ID: A14053
FROM: 01/01/55 THRU: 01/01/93
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: A14053

Location Beginning Coordinates: N W Location Ending Coordinates: N W
Content Analysis Return Date: Packaged Date: TSD Accept Date: 12/15/86
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 2.000E+00 Neutron Dose Rate: 1 Container Volume: 0.210 Gross Wt: 153.00
Previous Container ID:
Current Container ID: Organic Volume: 45 Organic Wt.: 46.00
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code:
Location Information:
Area Name: 200W Facility ID: 224T Module: Surface Area:
Tier Level: Tier Position: Unit: L01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1D
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 860132
Container Empty Tare Wt.: 27.00 Container Thermal Power: 1.000E-01 Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci):
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				1.230E+02	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
CLOTH/RAGS/NYLON	2	
METAL/IRON/GALVANIZED/SHEET	55	
PAPER/CARDBOARD	6	
PLASTIC/POLYURATHANE	25	
RUBBER	12	

Relocation History:

Shipment Information:

Container Listing for Container ID: A15015
FROM: 01/01/55 THRU: 01/01/93
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: A15015

Location Beginning Coordinates: N W Location Ending Coordinates: N W
Content Analysis Return Date: Packaged Date: TSD Accept Date: 12/15/86
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 3.000E+00 Neutron Dose Rate: 1 Container Volume: 0.210 Gross Wt: 154.99
Previous Container ID:
Current Container ID: Organic Volume: 60 Organic Wt.: 23.72
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code:
Location Information:
Area Name: 200W Facility ID: 224T Module: Surface Area:
Tier Level: Tier Position: Unit: L01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1D
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 860139
Container Empty Tare Wt.: 27.00 Container Thermal Power: 1.000E-01 Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci):
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				1.450E+02	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
CLOTH/RAGS/NYLON	15	
METAL/IRON/GALVANIZED/SHEET	40	
PAPER/CARDBOARD	10	
PLASTIC/POLYURATHANE	15	
RUBBER	20	

Relocation History:

Shipment Information:

Container Listing for Container ID: A15107
FROM: 01/01/55 THRU: 01/01/93
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: A15107

Location Beginning Coordinates: N W Location Ending Coordinates: N W
Content Analysis Return Date: Packaged Date: TSD Accept Date: 12/08/86
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 2.000E+00 Neutron Dose Rate: 1 Container Volume: 0.210 Gross Wt: 153.99
Previous Container ID:
Current Container ID: Organic Volume: 66 Organic Wt.: 13.95
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code:
Location Information:
Area Name: 200W Facility ID: 224T Module: Surface Area:
Tier Level: Tier Position: Unit: L01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1D
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 860114
Container Empty Tare Wt.: 27.00 Container Thermal Power: 1.000E-01 Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci):
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				1.030E+02	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
CLOTH/RAGS/NYLON	3	
METAL/IRON/GALVANIZED/SHEET	34	
PAPER/CARDBOARD	13	
PLASTIC/POLYURATHANE	30	
RUBBER	20	

Relocation History:

Shipment Information:

Container Listing for Container ID: A17826
FROM: 01/01/55 THRU: 01/01/93
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: A17826

Location Beginning Coordinates: N W Location Ending Coordinates: N W
Content Analysis Return Date: Packaged Date: TSD Accept Date: 12/11/87
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 2.000E+00 Neutron Dose Rate: 1 Container Volume: 0.210 Gross Wt: 193.00
Previous Container ID:
Current Container ID: Organic Volume: 57 Organic Wt.: 162.00
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K310B
Location Information:
Area Name: 200W Facility ID: 224T Module: Surface Area:
Tier Level: Tier Position: Unit: L01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1D
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 870231
Container Empty Tare Wt.: 27.00 Container Thermal Power: 1.000E-01 Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci):
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				2.400E+01	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
CLOTH/RAGS/NYLON	3	
DIRT/SOIL/DIATOMACEOUS EARTH	2	
METAL/IRON/GALVANIZED/SHEET	41	
MISCELLANEOUS/UNKNOWN/OTHER	5	
PAPER/CARDBOARD	8	
PLASTIC/POLYURATHANE	14	
RUBBER	27	

Relocation History:

Shipment Information:

Container Listing for Container ID: 220-A20220
FROM: 01/01/55 THRU: 01/01/93
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: 220-A20220

Location Beginning Coordinates: N W Location Ending Coordinates: N W
Content Analysis Return Date: Packaged Date: TSD Accept Date: 01/17/90
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.210 Gross Wt: 208.02
Previous Container ID:
Current Container ID: Organic Volume: 22 Organic Wt.: 45.30
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: RE DW Waste #: D002 D008 WT01
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K61AW
Location Information:
Area Name: 200W Facility ID: 224T Module: Surface Area:
Tier Level: Tier Position: Unit: L01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: M Secondary Waste Type Code: 1D
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 900001
Container Empty Tare Wt.: 27.00 Container Thermal Power: 1.000E-01 Container Total Wt.:
Content Wrap Category: DM SDAR Approval #: 1-1B-1AM-0
Radioactive Information:
Total Alpha (Ci): 1.940E+00 Total Beta-Gamma (Ci): 1.000E-03
Total Pu Equivalent (Ci): 2.098E+00 Total Pu Fissile Gram Equivalent: 2.366E+01
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				2.600E+01	GM
19	TOTAL BETA/GAMMA				1.000E-03	CI
44	TOTAL-ALPHA	1.940E+00			.000E+00	CI
45	PU239 FSL GR EQUIV			2.366E+01	.000E+00	GM
46	PE-CI		2.098E+00		.000E+00	CI

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%
ACID		0.1400	
LEAD		123.3765	

Physical Components:

Content Description	Volume %	Weight (kg)
DIRT/SOIL/DIATOMACEOUS EARTH	17	7.90
LEAD	60	123.40
LEATHER	1	0.25
METAL/IRON/GALVANIZED/SHEET	1	0.14
PAPER/CARDBOARD	2	3.95
PLASTIC/POLYURATHANE	8	18.70
RUBBER	10	22.40
STAINLESS STEEL	1	0.30

Relocation History:

Shipment Information:
DOE/NRC 741 #: Profile #: RSR #:
Item #: 1 Manifest #: 09002 CWDR Number:
NMIT #: TSD Process: S01C

Container Listing for Container ID: 212-A21207
FROM: 01/01/55 THRU: 01/01/93
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: 212-A21207

Location Beginning Coordinates: N W Location Ending Coordinates: N W
Content Analysis Return Date: Packaged Date: TSD Accept Date: 10/31/90
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 2.000E+00 Neutron Dose Rate: Container Volume: 0.210 Gross Wt: 152.00
Previous Container ID:
Current Container ID: Organic Volume: 58 Organic Wt.: 46.41
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: RE DW Waste #: D007 D008 WT01 WC02
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6EWA
Location Information:
Area Name: 200W Facility ID: 224T Module: Surface Area:
Tier Level: Tier Position: Unit: L01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: M Secondary Waste Type Code: 1D
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 900370
Container Empty Tare Wt.: 27.00 Container Thermal Power: 1.000E-01 Container Total Wt.:
Content Wrap Category: DM SDAR Approval #: 1-1B-1AM-0
Radioactive Information:
Total Alpha (Ci): 3.034E+00 Total Beta-Gamma (Ci): 2.000E-03
Total Pu Equivalent (Ci): 3.426E+00 Total Pu Fissile Gram Equivalent: 3.707E+01
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				3.900E+01	GM
19	TOTAL BETA/GAMMA				2.000E-03	CI
44	TOTAL-ALPHA	3.034E+00			.000E+00	CI
45	PU239 FSL GR EQUIV			3.707E+01	.000E+00	GM
46	PE-CI		3.426E+00		.000E+00	CI

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%
LEAD		68.1746	
LEAD CHROMATE		0.6999	

Physical Components:

Content Description	Volume %	Weight (kg)
DIRT/SOIL/DIATOMACEOUS EARTH	3	5.00
LEAD SHIELDING	38	68.88
METAL/IRON/GALVANIZED/SHEET	1	0.71
PAPER/CARDBOARD	1	0.02
PLASTIC/POLYURATHANE	25	11.98
RUBBER	32	34.41

Relocation History:

Shipment Information:

DOE/NRC 741 #: Profile #: RSR #:

Item #: 1 Manifest #: 09025 CWDR Number:

NMIT #: TSD Process: S01C

Container Listing for Container ID: 220-A21295
FROM: 01/01/55 THRU: 01/01/93
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: 220-A21295

Location Beginning Coordinates: N W Location Ending Coordinates: N W
Content Analysis Return Date: Packaged Date: TSD Accept Date: 12/10/90
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 4.000E+00 Neutron Dose Rate: Container Volume: 0.210 Gross Wt: 150.00
Previous Container ID:
Current Container ID: Organic Volume: 50 Organic Wt.: 33.59
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: RE DW Waste #: D002 D005 D006 D007 D008 D009 WT01 WC02
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6EWA
Location Information:
Area Name: 200W Facility ID: 224T Module: Surface Area:
Tier Level: Tier Position: Unit: L01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: M Secondary Waste Type Code: 1D
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 900444
Container Empty Tare Wt.: 27.00 Container Thermal Power: 1.000E-01 Container Total Wt.:
Content Wrap Category: DM SDAR Approval #: 1-1B-1AM-0
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 4.000E-03
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				4.400E+01	GM
19	TOTAL BETA/GAMMA				4.000E-03	CI

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%
BARIUM		0.0100	
CADMIUM		0.0100	
LEAD		66.9499	
LEAD ACID		0.0100	
LEAD CHROMATE		0.0600	
MERCURY		0.0100	

Physical Components:

Content Description	Volume %	Weight (kg)
CLOTH/RAGS/NYLON	5	0.60
DIRT/SOIL/DIATOMACEOUS EARTH	16	16.62
GLASS	3	1.20
LEAD	30	67.06
METAL/IRON/GALVANIZED/SHEET	1	0.53
PLASTIC/POLYURATHANE	10	4.70
RUBBER	35	28.29

Relocation History:

Shipment Information:
DOE/NRC 741 #: Profile #: RSR #:
Item #: 1 Manifest #: (PFP)09026 CWDR Number:
NMIT #: TSD Process: S01C

Container Listing for Container ID: RHZ-213-A22311
FROM: 01/01/55 THRU: 01/01/93
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: RHZ-213-A22311

Location Beginning Coordinates: N W Location Ending Coordinates: N W
Content Analysis Return Date: Packaged Date: 05/07/92 TSD Accept Date: 07/15/92
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 5.000E-01 Neutron Dose Rate: Container Volume: 0.208 Gross Wt: 173.00
Previous Container ID:
Current Container ID: Organic Volume: 53 Organic Wt.: 33.71
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: RE DW Waste #: D005 D006 D007 D008 D009 WC01 WT02
Generator Information:
Name: JL ARANDA ID: WHC Facility ID: 2345Z Charge Code: K6BEA
Location Information:
Area Name: 200W Facility ID: 224T Module: Surface Area:
Tier Level: Tier Position: Unit: L01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: I Primary Waste Type Code: M Secondary Waste Type Code: 1A
Container Size Description: 55 GALLON
Container Storage Category Code: OMW SWIMS Waste Description Code: DS SWSDR #:
Container Empty Tare Wt.: 31.00 Container Thermal Power: 1.000E-01 Container Total Wt.: 142.00
Content Wrap Category: DM SDAR Approval #: 14-1D-1AM-0301
Radioactive Information:
Total Alpha (Ci): .000E+00 Total Beta-Gamma (Ci): .000E+00
Total Pu Equivalent (Ci): .000E+00 Total Pu Fissile Gram Equivalent: .000E+00
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU	9.899E-01	1.111E+00	1.235E+01	1.291E+01	GM
19	TOTAL BETA/GAMMA				5.000E-04	CI
26	AM-241	3.820E-02	3.820E-02	2.000E-04	8.585E-02	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%
BARIUM		0.5000	0
CADMIUM		0.3000	0
LEAD		70.0000	49
LEAD CHROMATE		7.1000	5
MERCURY		0.5000	0

Physical Components:

Content Description	Volume %	Weight (kg)
CLOTH/RAGS/NYLON	1	0.01
DIRT/SOIL/DIATOMACEOUS EARTH	20	27.99
GLASS	1	0.60
HAZARDOUS CONSTITUENTS	25	78.40
METAL/IRON/GALVANIZED/SHEET	1	1.30
PAPER/CARDBOARD	1	0.20
PLASTIC/POLYURATHANE	8	5.50
RUBBER	40	26.50
WOOD/LUMBER/PLYWOOD	3	1.50

Relocation History:

Shipment Information:

DOE/NRC 741 #: Profile #: RSR #: 02972
Item #: 1 Manifest #: 02972 CWDR Number:
NMIT #: TSD Process:
DOE/NRC 741 #: HUD-VUC-394 Profile #: RSR #: 02972
Item #: 1A Manifest #: 20811 CWDR Number:
NMIT #: 31926 TSD Process: S01C

Container Listing for Container ID: RHZ-218-A22350
FROM: 01/01/55 THRU: 01/01/93
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: RHZ-218-A22350

Location Beginning Coordinates: N W Location Ending Coordinates: N W
Content Analysis Return Date: Packaged Date: 11/04/91 TSD Accept Date: 11/06/92
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 2.700E-01 Neutron Dose Rate: Container Volume: 0.208 Gross Wt: 150.00
Previous Container ID:
Current Container ID: Organic Volume: 65 Organic Wt.: 25.00
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: JL ARANDA ID: WHC Facility ID: 2345Z Charge Code: K6BEA
Location Information:
Area Name: 200W Facility ID: 224T Module: Surface Area:
Tier Level: Tier Position: Unit: L01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: I Primary Waste Type Code: R Secondary Waste Type Code: 1C
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #:
Container Empty Tare Wt.: 31.00 Container Thermal Power: 1.000E-01 Container Total Wt.: 37.00
Content Wrap Category: DM SDAR Approval #: 14-1D-1B-0301
Radioactive Information:
Total Alpha (Ci): 1.583E+00 Total Beta-Gamma (Ci): .000E+00
Total Pu Equivalent (Ci): 1.768E+00 Total Pu Fissile Gram Equivalent: 1.900E+01
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU	1.583E+00	1.768E+00	1.900E+01	2.000E+01	GM
19	TOTAL BETA/GAMMA				2.700E-04	CI

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
CLOTH/RAGS/NYLON	15	5.00
DIRT/SOIL/DIATOMACEOUS EARTH	10	4.00
METAL/IRON/GALVANIZED/SHEET	20	8.00
PAPER/CARDBOARD	20	7.00
PLASTIC/POLYURATHANE	30	11.00
RUBBER	5	2.00

Relocation History:

Shipment Information:
DOE/NRC 741 #: Profile #: RSR #: 02935
Item #: 1 Manifest #: 02935 CWDR Number:
NMIT #: TSD Process:

Container Listing for Container ID: RHZ-213-A22515
FROM: 01/01/55 THRU: 01/01/93
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: RHZ-213-A22515

Location Beginning Coordinates: N W Location Ending Coordinates: N W
Content Analysis Return Date: Packaged Date: 08/27/92 TSD Accept Date: 11/12/92
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 5.000E-01 Neutron Dose Rate: Container Volume: 0.208 Gross Wt: 154.00
Previous Container ID:
Current Container ID: Organic Volume: 44 Organic Wt.: 29.05
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description: RADIOACTIVE MATERIAL,FISSILE,N.O.S.UN2918 (RQ=D008,LEAD;PU 238 >.01 CI.)
Designation Code: RD DW Waste #: WC01 D007 D005 D008 D006 D009
Generator Information:
Name: JL ARANDA ID: WHC Facility ID: 2345Z Charge Code: K6BEA
Location Information:
Area Name: 200W Facility ID: 224T Module: Surface Area:
Tier Level: Tier Position: Unit: L01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: I Primary Waste Type Code: M Secondary Waste Type Code: 1C
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #:
Container Empty Tare Wt.: 31.00 Container Thermal Power: 1.000E-01 Container Total Wt.: 123.00
Content Wrap Category: DM SDAR Approval #: 14-1D-1AM-0301
Radioactive Information:
Total Alpha (Ci): 5.947E+00 Total Beta-Gamma (Ci): .000E+00
Total Pu Equivalent (Ci): 6.635E+00 Total Pu Fissile Gram Equivalent: 7.124E+01
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU	5.712E+00	6.400E+00	7.124E+01	7.493E+01	GM
19	TOTAL BETA/GAMMA				5.000E-04	CI
26	AM-241	2.352E-01	2.352E-01	1.300E-03	6.880E-02	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%
BARIUM		0.1000	0
CADMIUM		0.1000	0
LEAD		83.0000	67
LEAD CHROMATE		7.9700	6
MERCURY		0.1000	0

Physical Components:

Content Description	Volume %	Weight (kg)
DIRT/SOIL/DIATOMACEOUS EARTH	2	2.48
GLASS	2	0.20
HAZARDOUS CONSTITUENTS	52	91.27
PAPER/CARDBOARD	3	0.50
PLASTIC/POLYURATHANE	15	8.85
RUBBER	23	19.50
WOOD/LUMBER/PLYWOOD	3	0.20

Relocation History:

Shipment Information:

DOE/NRC 741 #: Profile #: RSR #: 02942
Item #: 1 Manifest #: 02942 CWDR Number:
NMIT #: TSD Process:
DOE/NRC 741 #: Profile #: RSR #: 02942
Item #: 1A Manifest #: 21429 CWDR Number:
NMIT #: TSD Process: S01C

APPENDIX D

ORIGINAL SOLID WASTE INFORMATION TRACKING SYSTEM RECORDS FOR ALL 55-GALLON WASTE DRUMS WITH GREATER THAN 300 GRAMS OF PLUTONIUM

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ORIGINAL SOLID WASTE INFORMATION TRACKING SYSTEM RECORDS FOR ALL 55-GALLON WASTE DRUMS WITH GREATER THAN 300 GRAMS OF PLUTONIUM

This appendix contains complete Solid Waste Information Tracking System (SWITS) records for the ten 55-gal waste drums and 22 other containers that have over 300 g of plutonium stored in them.

Each SWITS data run in this appendix is preceded by the query used to generate the data.

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APPENDIX D.1

55-GALLON WASTE DRUMS WITH GREATER THAN 300 GRAMS OF PLUTONIUM

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55-GALLON WASTE DRUMS WITH GREATER THAN 300 GRAMS OF PLUTONIUM

This subappendix contains the Solid Waste Information Tracking System (SWITS) records for the ten 55-gal drums from the Plutonium Finishing Plant (PFP) that contain greater than 300 g of plutonium. All 10 drums were filled to the standard weight of 68 kg and all were disposed of on October 28, 1980.

```
set pagesize 55
set linesize 90
set newpage 0
spool judy.srep
select con_pkg_id,
        rad_qty,
        con_size_descr
from radwaste, isoqty
where rdet_swtyp_cd between '1A' and '1E' and con_size_descr = '55 GALLON' and
con_srce_facil_id = '2345Z' and rad_iso_num in (1,21,22,26,41,52,57,87,97,98,
100,104,111,146,147) and rad_qty >= '300' and con_pkg_id = rad_pkg_id
;
spool off
```

Container Listing for Container ID: T-102
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: T-102

Location Beginning Coordinates: N N40190 W W77582 Location Ending Coordinates: N N40190 W W77557
Content Analysis Return Date: Packaged Date: TSD Accept Date: 10/28/80
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.210 Gross Wt: 68.04
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code:
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 801541
Container Empty Tare Wt.: 27.00 Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 1.000E-03
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				1.000E-04	GM
19	TOTAL BETA/GAMMA				1.000E-03	CI
41	PU-238				5.125E+02	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

Container Listing for Container ID: T-103
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: T-103

Location Beginning Coordinates: N N40190 W W77582 Location Ending Coordinates: N N40190 W W77557
Content Analysis Return Date: Packaged Date: TSD Accept Date: 10/28/80
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.210 Gross Wt: 68.04
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code:
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 801547
Container Empty Tare Wt.: 27.00 Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 1.000E-03
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				1.000E-04	GM
19	TOTAL BETA/GAMMA				1.000E-03	CI
41	PU-238				5.126E+02	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

Container Listing for Container ID: T-104
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: T-104

Location Beginning Coordinates: N N40190 W W77582 Location Ending Coordinates: N N40190 W W77557
Content Analysis Return Date: Packaged Date: TSD Accept Date: 10/28/80
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.210 Gross Wt: 68.04
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code:
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 801542
Container Empty Tare Wt.: 27.00 Container Thermal Power: Container Total Wt.
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 1.000E-03
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				1.000E-04	GM
19	TOTAL BETA/GAMMA				1.000E-03	CI
41	PU-238				5.150E+02	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

Container Listing for Container ID: T-105
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: T-105

Location Beginning Coordinates: N N40190 W W77582 Location Ending Coordinates: N N40190 W W77557
Content Analysis Return Date: Packaged Date: TSD Accept Date: 10/28/80
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.210 Gross Wt: 68.04
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code:
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 801548
Container Empty Tare Wt.: 27.00 Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 1.000E-03
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				1.000E-04	GM
19	TOTAL BETA/GAMMA				1.000E-03	CI
41	PU-238				5.143E+02	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

Container Listing for Container ID: T-106
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: T-106

Location Beginning Coordinates: N N40190 W W77582 Location Ending Coordinates: N N40190 W W77557
Content Analysis Return Date: Packaged Date: TSD Accept Date: 10/28/80
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.210 Gross Wt: 68.04
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code:
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 801549
Container Empty Tare Wt.: 27.00 Container Thermal Power: Container Total Wt
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 1.000E-03
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				1.000E-04	GM
19	TOTAL BETA/GAMMA				1.000E-03	CI
41	PU-238				5.117E+02	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

Container Listing for Container ID: T-108
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: T-108

Location Beginning Coordinates: N N40190 W W77582 Location Ending Coordinates: N N40190 W W77557
Content Analysis Return Date: Packaged Date: TSD Accept Date: 10/28/80
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.210 Gross Wt: 68.04
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code:
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 801550
Container Empty Tare Wt.: 27.00 Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 1.000E-03
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				1.000E-04	GM
19	TOTAL BETA/GAMMA				1.000E-03	CI
41	PU-238				4.948E+02	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

Container Listing for Container ID: T-109
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: T-109

Location Beginning Coordinates: N N40190 W W77582 Location Ending Coordinates: N N40190 W W77557
Content Analysis Return Date: Packaged Date: TSD Accept Date: 10/28/80
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.210 Gross Wt: 68.04
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
  Name: ID: WHC Facility ID: 2345Z Charge Code:
Location Information:
  Area Name: 200W Facility ID: 218W4C Module: Surface Area:
  Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 801551
Container Empty Tare Wt.: 27.00 Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
  Total Alpha (Ci): Total Beta-Gamma (Ci): 1.000E-03
  Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				1.000E-04	GM
19	TOTAL BETA/GAMMA				1.000E-03	CI
41	PU-238				4.839E+02	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

Container Listing for Container ID: T-110
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: T-110

Location Beginning Coordinates: N N40190 W W77582 Location Ending Coordinates: N N40190 W W77557
Content Analysis Return Date: Packaged Date: TSD Accept Date: 10/28/80
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.210 Gross Wt: 68.04
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code:
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 801544
Container Empty Tare Wt.: 27.00 Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 1.000E-03
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				1.000E-04	GM
19	TOTAL BETA/GAMMA				1.000E-03	CI
41	PU-238				3.134E+02	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

Container Listing for Container ID: T-112
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: T-112

Location Beginning Coordinates: N N40190 W W77582 Location Ending Coordinates: N N40190 W W77557
Content Analysis Return Date: Packaged Date: TSD Accept Date: 10/28/80
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.210 Gross Wt: 68.04
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code:
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 801545
Container Empty Tare Wt.: 27.00 Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 1.000E-03
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				1.000E-04	GM
19	TOTAL BETA/GAMMA				1.000E-03	CI
41	PU-238				5.013E+02	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

Container Listing for Container ID: T-113
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: T-113

Location Beginning Coordinates: N N40190 W W77582 Location Ending Coordinates: N N40190 W W77557
Content Analysis Return Date: Packaged Date: TSD Accept Date: 10/28/80
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.210 Gross Wt: 68.04
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code:
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 801546
Container Empty Tare Wt.: 27.00 Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 1.000E-03
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				1.000E-04	GM
19	TOTAL BETA/GAMMA				1.000E-03	CI
41	PU-238				3.971E+02	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

APPENDIX D.2

CONTAINERS OTHER THAN 55-GALLON DRUMS WITH GREATER THAN 300 GRAMS OF PLUTONIUM

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CONTAINERS OTHER THAN 55-GALLON DRUMS WITH GREATER THAN 300 GRAMS OF PLUTONIUM

This subappendix contains Solid Waste Information Tracking System (SWITS) records for the 22 containers other then 55-gal drums that contain greater than 300 g of plutonium. These containers had weights ranging from 136 to 197 kg and were all disposed of between 1980 and 1982.

```
set pagesize 55
set linesize 90
set newpage 0
spool judy.srep
select con_pkg_id,
       rad_qty,
       con_size_descr
from radwaste, isoqty
where rdet_swtyp_cd between '1A' and '1E' and con_size_descr  <> '55 GALLON' and
con_cntyp_cd in ('DF','DM','DW') and
con_srce_facil_id = '2345Z' and rad_iso_num in (1,21,22,26,41,52,57,87,97,98,
100,104,111,146,147) and rad_qty >= '300' and con_pkg_id = rad_pkg_id
;
spool off
```

Container Listing for Container ID: R409
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: R409

Location Beginning Coordinates: N N40190 W W77635 Location Ending Coordinates: N N40190 W W77609
Content Analysis Return Date: Packaged Date: TSD Accept Date: 10/16/80
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.419 Gross Wt: 158.76
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: UNKNOWN
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 830005
Container Empty Tare Wt.: Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 1.000E-03
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				3.200E+02	GM
17	URANIUM-NATURAL				9.286E+03	GM
19	TOTAL BETA/GAMMA				1.000E-03	CI

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

Container Listing for Container ID: R488
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: R488

Location Beginning Coordinates: N N40190 W W77635 Location Ending Coordinates: N N40190 W W77609
Content Analysis Return Date: Packaged Date: TSD Accept Date: 10/16/80
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.419 Gross Wt: 158.76
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: UNKNOWN
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 830003
Container Empty Tare Wt.: Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 1.000E-03
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				3.130E+02	GM
17	URANIUM-NATURAL				9.286E+03	GM
19	TOTAL BETA/GAMMA				1.000E-03	CI

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

Container Listing for Container ID: CCS74-137
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: CCS74-137

Location Beginning Coordinates: N N40190 W W77635 Location Ending Coordinates: N N40190 W W77609
Content Analysis Return Date: Packaged Date: TSD Accept Date: 03/04/82
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 2.000E+00 Neutron Dose Rate: Container Volume: 0.419 Gross Wt: 197.31
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: UNKNOWN
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 830021
Container Empty Tare Wt.: Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 2.000E-03
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				8.490E+02	GM
17	URANIUM-NATURAL				4.300E+04	GM
19	TOTAL BETA/GAMMA				2.000E-03	CI

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

Container Listing for Container ID: CCS74-138
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: CCS74-138

Location Beginning Coordinates: N N40190 W W77635 Location Ending Coordinates: N N40190 W W77609
Content Analysis Return Date: Packaged Date: TSD Accept Date: 03/04/82
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 2.000E+00 Neutron Dose Rate: Container Volume: 0.419 Gross Wt: 197.31
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: UNKNOWN
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 830019
Container Empty Tare Wt.: Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 2.000E-03
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				6.870E+02	GM
17	URANIUM-NATURAL				4.300E+04	GM
19	TOTAL BETA/GAMMA				2.000E-03	CI

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

Container Listing for Container ID: CCS74-141
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
fot Secondary Waste Type Code: %

Container ID: CCS74-141

Location Beginning Coordinates: N N40190 W W77635 Location Ending Coordinates: N N40190 W W77609
Content Analysis Return Date: Packaged Date: TSD Accept Date: 03/04/82
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 2.000E+00 Neutron Dose Rate: Container Volume: 0.419 Gross Wt: 197.31
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: UNKNOWN
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 830018
Container Empty Tare Wt.: Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 2.000E-03
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				6.870E+02	GM
17	URANIUM-NATURAL				4.300E+04	GM
19	TOTAL BETA/GAMMA				2.000E-03	CI

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

Container Listing for Container ID: CCS74-142
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: CCS74-142

Location Beginning Coordinates: N N40190 W W77635 Location Ending Coordinates: N N40190 W W77609
Content Analysis Return Date: Packaged Date: TSD Accept Date: 03/04/82
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 2.000E+00 Neutron Dose Rate: Container Volume: 0.419 Gross Wt: 197.31
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: UNKNOWN
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 830017
Container Empty Tare Wt.: Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 2.000E-03
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				7.680E+02	GM
17	URANIUM-NATURAL				4.300E+04	GM
19	TOTAL BETA/GAMMA				2.000E-03	CI

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

Container Listing for Container ID: CCS74-143
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: CCS74-143

Location Beginning Coordinates: N N40190 W W77635 Location Ending Coordinates: N N40190 W W77609
Content Analysis Return Date: Packaged Date: TSD Accept Date: 03/04/82
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 2.000E+00 Neutron Dose Rate: Container Volume: 0.419 Gross Wt: 197.31
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: UNKNOWN
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 830015
Container Empty Tare Wt.: Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 2.000E-03
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				3.940E+02	GM
17	URANIUM-NATURAL				4.300E+04	GM
19	TOTAL BETA/GAMMA				2.000E-03	CI

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

Container Listing for Container ID: CCS74-149
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: CCS74-149

Location Beginning Coordinates: N N40190 W W77635 Location Ending Coordinates: N N40190 W W77609
Content Analysis Return Date: Packaged Date: TSD Accept Date: 03/04/82
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 2.000E+00 Neutron Dose Rate: Container Volume: 0.419 Gross Wt: 197.31
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: UNKNOWN
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 830016
Container Empty Tare Wt.: Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 2.000E-03
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				9.100E+02	GM
17	URANIUM-NATURAL				4.300E+04	GM
19	TOTAL BETA/GAMMA				2.000E-03	CI

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

Container Listing for Container ID: 7774-412
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: 7774-412

Location Beginning Coordinates: N N40190 W W77635 Location Ending Coordinates: N N40190 W W77609
Content Analysis Return Date: Packaged Date: TSD Accept Date: 03/25/82
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.419 Gross Wt: 136.08
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: 110 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 820172
Container Empty Tare Wt.: Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 1.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				4.760E+02	GM
17	URANIUM-NATURAL				1.429E+04	GM
19	TOTAL BETA/GAMMA				1.000E-02	CI
23	URANIUM-DEPLETED				4.429E+03	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

Container Listing for Container ID: 7774-413
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: 7774-413

Location Beginning Coordinates: N N40190 W W77635 Location Ending Coordinates: N N40190 W W77609
Content Analysis Return Date: Packaged Date: TSD Accept Date: 03/25/82
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.419 Gross Wt: 136.08
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: 110 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 820165
Container Empty Tare Wt.: Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 1.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				3.970E+02	GM
17	URANIUM-NATURAL				1.663E+04	GM
19	TOTAL BETA/GAMMA				1.000E-02	CI
23	URANIUM-DEPLETED				3.000E+03	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

Container Listing for Container ID: 7774-414
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: 7774-414

Location Beginning Coordinates: N N40190 W W77635 Location Ending Coordinates: N N40190 W W77609
Content Analysis Return Date: Packaged Date: TSD Accept Date: 03/25/82
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.419 Gross Wt: 136.08
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: 110 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 820158
Container Empty Tare Wt.: Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 1.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				4.560E+02	GM
17	URANIUM-NATURAL				1.663E+04	GM
19	TOTAL BETA/GAMMA				1.000E-02	CI
23	URANIUM-DEPLETED				3.000E+03	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

Container Listing for Container ID: 7774-415
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: 7774-415

Location Beginning Coordinates: N N40190 W W77635 Location Ending Coordinates: N N40190 W W77609
Content Analysis Return Date: Packaged Date: TSD Accept Date: 03/25/82
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.419 Gross Wt: 136.08
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: 110 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 820166
Container Empty Tare Wt.: Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 1.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				4.360E+02	GM
17	URANIUM-NATURAL				1.429E+04	GM
19	TOTAL BETA/GAMMA				1.000E-02	CI
23	URANIUM-DEPLETED				4.429E+03	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

Container Listing for Container ID: 7774-416
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: 7774-416

Location Beginning Coordinates: N N40190 W W77635 Location Ending Coordinates: N N40190 W W77609
Content Analysis Return Date: Packaged Date: TSD Accept Date: 03/25/82
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.419 Gross Wt: 136.08
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: 110 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 820167
Container Empty Tare Wt.: Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 1.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				3.170E+02	GM
17	URANIUM-NATURAL				1.429E+04	GM
19	TOTAL BETA/GAMMA				1.000E-02	CI
23	URANIUM-DEPLETED				4.429E+03	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

Container Listing for Container ID: 7774-417
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: 7774-417

Location Beginning Coordinates: N N40190 W W77635 Location Ending Coordinates: N N40190 W W77609
Content Analysis Return Date: Packaged Date: TSD Accept Date: 03/25/82
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.419 Gross Wt: 136.08
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: 110 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 820168
Container Empty Tare Wt.: Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 1.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				3.970E+02	GM
17	URANIUM-NATURAL				1.429E+04	GM
19	TOTAL BETA/GAMMA				1.000E-02	CI
23	URANIUM-DEPLETED				4.429E+03	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

Container Listing for Container ID: 7774-418
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: 7774-418

Location Beginning Coordinates: N N40190 W W77635 Location Ending Coordinates: N N40190 W W77609
Content Analysis Return Date: Packaged Date: TSD Accept Date: 03/25/82
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.419 Gross Wt: 136.08
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: 110 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 820159
Container Empty Tare Wt.: Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 1.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				3.570E+02	GM
17	URANIUM-NATURAL				1.663E+04	GM
19	TOTAL BETA/GAMMA				1.000E-02	CI
23	URANIUM-DEPLETED				3.000E+03	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

Container Listing for Container ID: 7774-419
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: 7774-419

Location Beginning Coordinates: N N40190 W W77635 Location Ending Coordinates: N N40190 W W77609
Content Analysis Return Date: Packaged Date: TSD Accept Date: 03/25/82
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.419 Gross Wt: 136.08
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: 110 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 820160
Container Empty Tare Wt.: Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 1.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				3.970E+02	GM
17	URANIUM-NATURAL				1.663E+04	GM
19	TOTAL BETA/GAMMA				1.000E-02	CI
23	URANIUM-DEPLETED				3.000E+03	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

Container Listing for Container ID: 7774-421
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: 7774-421

Location Beginning Coordinates: N N40190 W W77635 Location Ending Coordinates: N N40190 W W77609
Content Analysis Return Date: Packaged Date: TSD Accept Date: 03/25/82
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.419 Gross Wt: 136.08
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: 110 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 820169
Container Empty Tare Wt.: Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 1.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				4.160E+02	GM
17	URANIUM-NATURAL				1.429E+04	GM
19	TOTAL BETA/GAMMA				1.000E-02	CI
23	URANIUM-DEPLETED				4.429E+03	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

Container Listing for Container ID: 7774-422
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: 7774-422

Location Beginning Coordinates: N N40190 W W77635 Location Ending Coordinates: N N40190 W W77609
Content Analysis Return Date: Packaged Date: TSD Accept Date: 03/25/82
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.419 Gross Wt: 136.08
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: 110 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 820162
Container Empty Tare Wt.: Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 1.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				4.160E+02	GM
17	URANIUM-NATURAL				1.663E+04	GM
19	TOTAL BETA/GAMMA				1.000E-02	CI
23	URANIUM-DEPLETED				3.000E+03	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

Container Listing for Container ID: 7774-423
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: 7774-423

Location Beginning Coordinates: N N40190 W W77635 Location Ending Coordinates: N N40190 W W77609
Content Analysis Return Date: Packaged Date: TSD Accept Date: 03/25/82
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.419 Gross Wt: 136.08
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: 110 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 820163
Container Empty Tare Wt.: Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 1.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				3.960E+02	GM
17	URANIUM-NATURAL				1.663E+04	GM
19	TOTAL BETA/GAMMA				1.000E-02	CI
23	URANIUM-DEPLETED				3.000E+03	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

Container Listing for Container ID: 7774-424
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: 7774-424

Location Beginning Coordinates: N N40190 W W77635 Location Ending Coordinates: N N40190 W W77609
Content Analysis Return Date: Packaged Date: TSD Accept Date: 03/25/82
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.419 Gross Wt: 136.08
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: 110 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 820170
Container Empty Tare Wt.: Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 1.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				4.290E+02	GM
17	URANIUM-NATURAL				1.429E+04	GM
19	TOTAL BETA/GAMMA				1.000E-02	CI
23	URANIUM-DEPLETED				4.429E+03	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

Container Listing for Container ID: 7774-425
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: 7774-425

Location Beginning Coordinates: N N40190 W W77635 Location Ending Coordinates: N N40190 W W77609
Content Analysis Return Date: Packaged Date: TSD Accept Date: 03/25/82
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.419 Gross Wt: 136.08
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: 110 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 820164
Container Empty Tare Wt.: Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 1.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				6.700E+02	GM
17	URANIUM-NATURAL				1.663E+04	GM
19	TOTAL BETA/GAMMA				1.000E-02	CI
23	URANIUM-DEPLETED				3.000E+03	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

Container Listing for Container ID: 7774-426
FROM: 01/01/55 THRU: 12/04/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: 7774-426

Location Beginning Coordinates: N N40190 W W77635 Location Ending Coordinates: N N40190 W W77609
Content Analysis Return Date: Packaged Date: TSD Accept Date: 03/25/82
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.000E+00 Neutron Dose Rate: Container Volume: 0.419 Gross Wt: 136.08
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W4C Module: Surface Area:
Tier Level: Tier Position: Unit: T01
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1A
Container Size Description: 110 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 820171
Container Empty Tare Wt.: Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 1.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				4.290E+02	GM
17	URANIUM-NATURAL				1.429E+04	GM
19	TOTAL BETA/GAMMA				1.000E-02	CI
23	URANIUM-DEPLETED				4.429E+03	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

Relocation History:

Shipment Information:

APPENDIX E

SOLID WASTE INFORMATION AND TRACKING SYSTEM RECORD FOR TRU CLASSIFIED DRUM RS-83-6-1

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SOLID WASTE INFORMATION AND TRACKING SYSTEM RECORD FOR TRU CLASSIFIED DRUM RS-83-6-1

This appendix contains the complete Solid Waste Information and Tracking System (SWITS) record for the one classified transuranic (TRU) waste drum recorded for 234-SZ.

Container Listing for Container ID: RS-83-6-1
FROM: 01/01/55 THRU: 01/01/92
for Generating Company: %
for Facility ID: %
for Primary Waste Type Code: %
for Secondary Waste Type Code: %

Container ID: RS-83-6-1

Location Beginning Coordinates: N N44540 W W77748 Location Ending Coordinates: N N44540 W W77756
Content Analysis Return Date: Packaged Date: TSD Accept Date: 07/03/84
Certification Date: Container Type Code: DM Container Count: 1
Dose Rate: 1.100E+01 Neutron Dose Rate: Container Volume: 0.210 Gross Wt: 56.70
Previous Container ID:
Current Container ID: Organic Volume: Organic Wt.:
Compaction Wt. (Prorated): % Content Compaction: Compactor PIN:
Comments/Description:
Designation Code: DW Waste #:
Generator Information:
Name: ID: WHC Facility ID: 2345Z Charge Code: K6
Location Information:
Area Name: 200W Facility ID: 218W3A Module: Surface Area:
Tier Level: Tier Position: Unit: T05
Lab Pack Description:
Lab Pack Flag: N
Physical State Code: S Chemical Nature Code: Primary Waste Type Code: R Secondary Waste Type Code: 1B
Container Size Description: 55 GALLON
Container Storage Category Code: SWIMS Waste Description Code: DS SWSDR #: 840139
Container Empty Tare Wt.: 27.00 Container Thermal Power: Container Total Wt.:
Content Wrap Category: SDAR Approval #:
Radioactive Information:
Total Alpha (Ci): Total Beta-Gamma (Ci): 5.000E-02
Total Pu Equivalent (Ci): Total Pu Fissile Gram Equivalent:
SWEA General Comments:

Isotope Number	Isotope Name	Alpha Ci	PE-Ci	PU-FGE	Isotope Activity	Unit
1	PU				2.600E+01	GM
19	TOTAL BETA/GAMMA				5.000E-02	CI
24	URANIUM-ENRICHED				2.455E+03	GM

Hazardous Chemical Components:

Component Text	PPM	Weight (kg)	%

Physical Components:

Content Description	Volume %	Weight (kg)
METAL/IRON/GALVANIZED/SHEET	100	

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