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Listed Waste History at Hanford Facility TSD Units

A. G. Miskho

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

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V. L. Birkland
V.L. Birkland

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LISTED WASTE HISTORY AT HANFORD FACILITY TSD UNITS

Prepared by: _____ 5/21/96

A. G. Miskho
Westinghouse Hanford Company
Senior Engineer, Environmental Services

Date

Approved by: _____ 5/21/96

W. T. Dixon
Westinghouse Hanford Company
Director, Environmental Services

Date

Approved by: _____ 5/21/96

R. J. Landon,
Bechtel Hanford, Inc.
Manager, Regulatory Support

Date

Approved by: _____ 5/21/96

E. A. Flores
Pacific Northwest National Laboratories
Laboratory Environmental Compliance Manager

Date

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ABSTRACT

This document was prepared to close out an occurrence report that Westinghouse Hanford Company issued on December 29, 1994. Occurrence Report RL-WHC-GENERAL-1994-0020 was issued because knowledge became available that could have impacted start up of a Hanford Site facility. The knowledge pertained to how certain wastes on the Hanford Site were treated, stored, or disposed of. This document consolidates the research performed by Westinghouse Hanford Company regarding listed waste management at onsite laboratories that transfer waste to the Double-Shell Tank System.

Liquid and solid (non-liquid) dangerous wastes and mixed wastes at the Hanford Site are generated from various Site operations. These wastes may be sampled and characterized at onsite laboratories to meet waste management requirements. In some cases, the wastes that are generated in the field or in the laboratory from the analysis of samples require further management on the Hanford Site and are aggregated together in centralized tank storage facilities. The process knowledge presented herein documents the basis for designation and management of 242-A Evaporator Process Condensate, a waste stream derived from the treatment of the centralized tank storage facility waste (the Double-Shell Tank System). This document will not be updated as clean up of the Hanford Site progresses.

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CONTENTS

TABLES

ACRONYMS

ASE	Area Solvent Evaporator
BHI	Bechtel Hanford Incorporated
CWC	Central Waste Complex
CY	calendar year
DST	double-shell tank
Ecology	Washington State Department of Ecology
EDL	Engineering Development Laboratory
EII	Environmental Investigations Instruction
EPA	U.S. Environmental Protection Agency
GEA	gamma energy analysis
HEDL	Hanford Environmental Development Laboratory
HEHF	Hanford Environmental Health Foundation
HWTU	Hazardous Waste Treatment Unit
ICP	inductively coupled plasma
LDR	Land Disposal Restrictions
LERF	Liquid Effluent Retention Facility
LWDF	Liquid Waste Disposal Facility
NCAW	Neutralized Current Acid Waste
NRDWSF	Nonradioactive Dangerous Waste Storage Facility
Part A Form 3	Part A Form 3 Permit Application
PNNL	Pacific Northwest National Laboratory
PUREX	Plutonium Uranium Extraction
RCRA	*Resource Conservation and Recovery Act of 1976*
REDOX	Reduction Oxidation (Facility)
RL	U.S. Department of Energy, Richland Operations Office
RLWS	Radioactive Liquid Waste System
SAL	Shielded Analytical Laboratory
SST	single-shell tank
TCLP	Toxicity Characteristic Leaching Procedure
Tri-Party Agreement	Hanford Federal Facility Agreement and Consent Order
TRU	transuranic
TSD	Treatment, Storage, and Disposal
UST	U.S. Testing, Inc.
UV	ultraviolet
WAC	Washington Administrative Code
WATS	Waste Acid Treatment System
WHC	Westinghouse Hanford Company
WRAP	Waste Receiving and Packaging
WSCF	Waste Sampling and Characterization Facility

LISTED WASTE HISTORY AT HANFORD FACILITY TSD UNITS

1.0 INTRODUCTION AND SCOPE

This document contains a history of the management of listed wastes at Hanford Facility Treatment, Storage, and Disposal (TSD) units. Part of this history includes how Hanford Site laboratories support the characterization of wastes being managed at Hanford Facility TSD units. Some Hanford Site laboratories generate waste that is transferred to the Double-Shell Tank System, a TSD unit, for subsequent storage until treatment is made available for that waste. Samples of wastes sent to the Hanford Site laboratories are managed under the sample exclusion while they are being tested to determine their characteristics or composition. The sample exclusion is found in *Washington Administrative Code* (WAC), Chapter 173-303, "Dangerous Waste Regulations" in Section -071(3)(l). Once the sample exclusion has expired, all knowledge pertaining to the original sample becomes attached to the laboratory waste by virtue of the mixture and/or derived from rules in the *Resource Conservation and Recovery Act of 1976* (RCRA).

There are more than 60 TSD units on the Hanford Site that must be either permitted or closed in accordance with the schedule identified in the Hanford Facility RCRA Permit. The Hanford Facility RCRA Permit defines most of the Hanford Site as a facility and the TSD units as discrete locations on the Hanford Site where TSD can occur or has occurred. These locations are referred to as the "active portions" of the Hanford Facility as defined in WAC-173-303. These activities are outlined for the different TSD units or groups of TSD units in the latest revision of DOE/RL-88-21, *Hanford Facility Dangerous Waste Part A Permit Application* (DOE 1988). The Hanford Facility's Part A Permit Application consists of two different forms called a Form 1 and a Form 3. In many cases, a single TSD unit is contained in a Part A Form 3. There are situations, however, where a group of TSD units appear on a single Part A Form 3. The *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement) (Ecology et al. 1996e) Action Plan, Section 3.2, allows TSD units to be grouped to meet permitting needs. These forms are filed with the Washington State Department of Ecology (Ecology).

Listed waste managed at non-TSD unit locations on the Hanford Facility are not discussed in this document. During the cleanup of the Hanford Facility, it is expected that new listed waste sources will be discovered at non-TSD unit locations since historical information about how chemicals were used on the Hanford Facility must be applied to the management of remediated wastes (57 FR 37284).

This document does not discuss history of wastes that were designated for either the characteristics or criteria in WAC 173-303-090 and -100, respectively. For information on which of these waste codes are associated with TSD units, refer to the most current version of the TSD units' Part A Form 3.

2.0 PURPOSE

The information contained in this document may be used by RCRA permitting organizations to maintain the Part A Form 3 of each TSD unit or group of units on the Hanford Facility when wastes are transferred between TSD units for subsequent treatment and disposal. It also can be used by program personnel to identify possible contained-in determinations, treatment equivalency demonstrations, and/or treatability variances for environmental media or hazardous debris. Much of the environmental media and hazardous debris at the Hanford Site is managed as a mixed waste as a result of contact or potential contact with listed wastes described in Table 1 and Table 2 of this document. This document can also be used as a reference for past decisions regarding listed waste. This information may be valuable in the preparation of Part B Permit Applications or Closure/Post Closure permit Applications and/or Closure Plans.

3.0 PRESENTATION OF INFORMATION

Two tables are presented in this document. For a reader to obtain information about what listed wastes were managed in a TSD group/unit, Table 1 should be consulted first. Once the TSD group/unit has been identified, the reader can obtain detailed information about listed waste management from Table 2. Table 1 of this document identifies all TSD units that have a history of listed waste management, regardless if the TSD unit has been clean closed. This TSD unit list is a subset of all of the TSD units contained in DOE/RL-88-21. Because of the complexity of information at certain TSD units, a separate supplemental Table 2 has been prepared.

Table 2 of this document provides detailed information to supplement the information contained in Table 1. There are three categories of information in Table 2: Unit History, Samples, and Current. The Unit History information section describes the type of TSD units on the Part A Form 3 and whether any other Hanford Facility TSD units have managed the same waste. It also discusses any relevant waste designation aspects. The Samples information section indicates when listed wastes were sampled, and in some cases, the laboratory to which the samples were sent. The Current information describes a variety of subjects appropriate for the TSD unit.

Of the more than 60 Part A Form 3's identified in DOE/RL-88-21, a subset of those (42) appear in the tables contained in this document. The information is presented in the same way as it is presented in DOE/RL-88-21, by geographical area on the Hanford Site. Information appearing in Tables 1 and 2 contain the following entries, in the order it appears below:

100 AREAS
- 183-H SOLAR EVAPORATION BASINS
- 1301-N LIQUID WASTE DISPOSAL FACILITY
- 1325-N LIQUID WASTE DISPOSAL FACILITY

200 AREAS
- 204-AR WASTE UNLOADING STATION
- PUREX PLANT
- HANFORD WASTE VITRIFICATION PLANT
- 200 AREA EFFLUENT TREATMENT FACILITY
- 200 WEST ASHPIT DEMOLITION SITE
- 218-E-8 BORROW PIT DEMOLITION SITE
- 242-A EVAPORATOR
- GROUT TREATMENT FACILITY
- T PLANT COMPLEX
- B PLANT COMPLEX
- 222-S LABORATORY COMPLEX
- 2727-S STORAGE FACILITY
- LIQUID EFFLUENT RETENTION FACILITY
- DOUBLE-SHELL TANK SYSTEM
- HEXONE STORAGE AND TREATMENT FACILITY
- 224-T TRANSURANIC WASTE STORAGE AND ASSAY FACILITY
- CENTRAL WASTE COMPLEX
- WASTE RECEIVING AND PROCESSING
- SINGLE-SHELL TANK SYSTEM
- 207-A SOUTH RETENTION BASIN
- LOW-LEVEL BURIAL GROUNDS
- 216-A-37-1 CRIB
- 216-B-3 EXPANSION POND
- 216-A-29 DITCH
- 216-B-3 MAIN POND

300 AREA
- THERMAL TREATMENT TEST FACILITIES
- 300 AREA SOLVENT EVAPORATOR
- 300 AREA WASTE ACID TREATMENT SYSTEM
- 325 HAZARDOUS WASTE TREATMENT UNITS
- BIOLOGICAL TREATMENT TEST FACILITIES
- PHYSICAL & CHEMICAL TREATMENT TEST FACILITIES
- 303-K STORAGE UNIT
- 305-B STORAGE FACILITY
- 332 STORAGE FACILITY
- 300 AREA PROCESS TRENCHES

600 AREA
- HANFORD PATROL ACADEMY DEMOLITION SITES
- 616 NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY
- 600 AREA PURGEWATER STORAGE AND TREATMENT FACILITY
- NONRADIOACTIVE DANGEROUS WASTE LANDFILL

4.0 DESCRIPTIONS OF COLUMNS IN TABLE 1

This section provides a description of the columns in Table 1 of this document.

4.1 TREATMENT, STORAGE, AND DISPOSAL UNIT NAME [UNIT CODES]

The Treatment, Storage, and Disposal (TSD) unit name identified in this column is exactly as it appears in DOE/RL-88-21, *Hanford Facility Dangerous Waste Part A Permit Application*, Revision 13 (DOE 1988). The unit code in parentheses indicates the type of TSD unit that is permitted to operate. TSD units operating under interim status are deemed to have a permit to operate when a current Part A Form 3 is maintained in this document. The unit codes include the following:

S01 = Container storage
S02 = Tank Storage
S03 = Waste Pile Storage
S04 = Surface Impoundment Storage
S05 = Containment Building Storage

D81 = Landfill
D84 = Surface Impoundment

T01 = Tank Treatment
T04 = Other treatment (includes containers)

4.2 LISTED WASTE CODES ON PART A FORM 3

The listed waste codes identified in this column were obtained from reviewing the Part A Form 3, Permit Applications (Part A Form 3) contained in DOE/RL-88-21, Revision 13. The listed waste codes include any federal RCRA waste codes identified by a three-digit number preceded with an 'F,' 'K,' 'U,' or 'P' letter. Ecology-regulated, state-only waste codes and Federal-characteristic waste codes are purposely excluded from this document.

4.3 LISTED WASTE CODES MANAGED IN UNIT

The information presented in this column was developed by (1) reviewing all Form 5, "Annual Dangerous and Mixed Waste" TSD reports that were submitted to Ecology (Calendar Year [CY] 1984 to Present), (2) reviewing existing Ecology-approved RCRA Closure Plans and drafts within Westinghouse Hanford Company (WHC) and Bechtel Hanford Incorporated (BHI) for TSD units that are closing, (3) investigation of TSD unit operating records and generator files, (4) Tri-Party Agreement (Ecology et al. 1996e) unit manager or project manager meeting minutes, and (5) discussions with personnel who are knowledgeable of historical TSD unit operations. The accuracy of the information in this column is critical for properly developing the next two columns.

4.4 TABLE 2 PG#

The information in this column identifies the page number on which information appears in Table 2, a supplemental table containing the listed waste management history at the TSD group/unit.

4.5 CO-OP

The information in this column identifies the Hanford Facility major contractor identified as the Co-operator on the Part A Form 3.

4.6 AREA

Information in this column identifies the Hanford Facility geographical area(s) where the TSD group/unit is located.

4.7 DOE/RL-88-21 MANUAL SECTION

This information identifies the section number where the Part A Form 3 appears in DOE/RL-88-21 and the associated Part A Form 3 revision number in DOE/RL-88-21, Revision 13.

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Table 1. Treatment, Storage, and Disposal Units with F, P, K, or U Waste Codes on Part A Form 3. (Page 1 of 6)

TSD UNIT NAME [UNIT CODES]	LISTED WASTE CODES ON PART A FORM 3	LISTED WASTE CODES MANAGED IN UNIT	TABLE 2 pg#	CO-OP	AREA	DOE/RL-88-21 MANUAL SECTION #
183-H SOLAR EVAPORATION BASINS [T01, S02]	U123, P030, P120, P029, P106, P098	U123-Formic acid P030-Cyanides (soluble salts and complexes) P029-Copper Cyanide P106-Sodium Cyanide P098-Potassium Cyanide P120-Vanadium Pentoxide	1-2	BHI	100H	4.1.1.4 Rev. 4
1301-N LIQUID WASTE DISPOSAL FACILITY [D81]	F003, U133	U133-Hydrazine	3	BHI	100N	4.1.2.1 Rev. 5
1325-N LIQUID WASTE DISPOSAL FACILITY [D81]	F003, U133	U133-Hydrazine F003-Methanol	4	BHI	100N	4.1.2.2 Rev. 5
204-AR WASTE UNLOADING STATION [T04]	F001-F005, F039	Same as Double-Shell Tank System identified in this table	5	WHC	200E	4.2.1.10 Rev. 3
PUREX PLANT [T01, S02, S05]	NONE. Not applicable based on Tri-Party Agreement PUREX Plant unit managers meeting minutes dated August 9, 1995.	F003- acetone, n-butyl alcohol, xylene F005- toluene	5	WHC	200E	4.2.1.11 Rev. 6
HANFORD WASTE VITRIFICATION PLANT [T01, T04, S02, S05, S01]	F003, F005	NONE	6	WHC	200E	4.2.1.12 Rev. 4
200 AREA EFFLUENT TREATMENT FACILITY [T01, S02, S01]	F001-F005, F039	F001-F005	6	WHC	200E	4.2.1.13 Rev. 1
200 WEST ASHPIT DEMOLITION SITE [T04]	P003, U019, U056, U098, U108, U112, U117, U133, U135, U154, U213, U220	P003-Acrolein U019-Benzene U056-Cyclohexane U098-1,1, Dimethylhydrazine U108-1,4 Dioxane U112-Ethyl Acetate U117-Ethyl Ether U133-Hydrazine U135-Hydrogen Sulfide U154-Methanol U213-Tetrahydrofuran U220-Toluene This TSD unit was cleen closed on October 26, 1995	7	WHC	200W	4.2.1.2 Rev. 4
218-E-8 BORROW PIT DEMOLITION SITE [T04]	U108, U160	U108-1,4 Dioxane U160-Methyl Ethyl Ketone Hydroxide This TSD unit was clean closed on October 26, 1995	7	WHC	200E	4.2.1.3 Rev. 4

Table 1. Treatment, Storage, and Disposal Units with F, P, K, or U Waste Codes on Part A Form 3. (Page 2 of 6)

TSD UNIT NAME (UNIT CODES)	LISTED WASTE CODES ON PART A FORM 3	LISTED WASTE CODES MANAGED IN UNIT	TABLE 2 pg#	CO-OP	AREA	DOE/RL-88-21 MANUAL SECTION #
242-A EVAPORATOR [T04]	F001-F005, F039	Same as Double-Shell Tank System identified in this table	8	WHC	200E	4.2.1.4 Rev. 5
GROUT TREATMENT FACILITY [T04, T02, S02, T01, D81]	F001, F002, F003, F005	NONE	8	WHC	200E	4.2.1.5 Rev. 4
T PLANT COMPLEX [S02, S05, T01, T04, S01, T04]	S02, T01, T04, S05: F001-F005, F039 S01, T04: F001-F005, F020-23, F026-28, F039, MANY U AND P WASTES	S02, T01, T04, S05: Same as Double-Shell Tank System identified in this table S01, T04: Many	9	WHC	200W	4.2.1.6 Rev. 5
B PLANT COMPLEX [S02, T01, S01, S05]	NCAW TANKS S02, T01: F001-F005 LLW TANKS S02, T01: F001-F005 ORGANIC WASTE TANKS S02: F001-F005 LLW CONC'N T01: F001-F005 CONTAINMENT BUILDING S05: F001-F005	All units: Same as Double-Shell Tank System identified in this table Units will never manage F039 wastes	10	WHC	200E	4.2.1.8 Rev. 3
222-S LABORATORY COMPLEX [S02, T01, S01]	S02, T01: F001-F005, F039 S01: F001-F005, F027, F039	S02, T01: Same as Double-Shell Tank System identified in this table S01: F001- 1,1,1 Trichloroethane F002- Methylene Chloride F003- Acetone, Xylene F005- Methyl ethyl Ketone, Toluene F027-Pentachlorophenol	11-13	WHC	200W	4.2.1.9 Rev. 3
2727-S STORAGE FACILITY [S01]	F001-F005, F027, MANY U AND P WASTES	Many This TSD unit was clean closed on June 27, 1995	13	WHC	200W	4.2.2.1 Rev. 2
LIQUID EFFLUENT RETENTION FACILITY [S04] (1)	F001-F005, F039	Same as Double-Shell Tank System identified in this table	14	WHC	200E	4.2.2.10 Rev. 3

Table 1. Treatment, Storage, and Disposal Units with F, P, K, or U Waste Codes on Part A Form 3. (Page 3 of 6)

TSD UNIT NAME [UNIT CODES]	LISTED WASTE CODES ON PART A FORM 3	LISTED WASTE CODES MANAGED IN UNIT	TABLE 2 pg#	CO-OP	AREA	DOE/RL-88-21 MANUAL SECTION #
DOUBLE-SHELL TANK SYSTEM [S02, T01]	F001-F005, F039	F001-1,1,1 Trichloroethane F002-Methylene Chloride F003-Acetone, Methyl Isobutyl Ketone F004-Cresols and cresylic acid (o-cresol and p-cresol) F005-Methyl Ethyl Ketone	15-16	WHC	200E& 200W	4.2.2.2 Rev. 7
HEXONE STORAGE AND TREATMENT FACILITY [S02, T04, S01]	F003	F003-Methyl Isobutyl Ketone (Hexone)	17	BHI	200W	4.2.2.3 Rev. 3
224-T TRANSURANIC WASTE STORAGE AND ASSAY FACILITY [S01]	F001-F005, F020-23, F026-28, MANY U AND P WASTES	F001-F005: same as Double-Shell Tank System identified in this table U123, P029, P030, P098, P106, P120	17	WHC	200W	4.2.2.6 Rev. 4

Table 1. Treatment, Storage, and Disposal Units with F, P, K, or U Waste Codes on Part A Form 3. (Page 4 of 6)

TSD UNIT NAME [UNIT CODES]	LISTED WASTE CODES ON PART A FORM 3	LISTED WASTE CODES MANAGED IN UNIT	TABLE 2 pg#	CO-OP	AREA	DOE/RL-88-21 MANUAL SECTION #
CENTRAL WASTE COMPLEX [S01, T04]	F001-F005, F020-23, F026-28, F039, MANY U AND P WASTES	F001 through F005-constituents not determined P012-Arsenic Trioxide P022-Carbon Disulfide P023-Chloroacetaldehyde P029-Copper Cyanide P030-Cyanides (soluble salts and complexes) P098-Potassium Cyanide P102-Propargyl Alcohol P106-Sodium Cyanide P120-Vanadium Pentoxide U001-Acetaldehyde U002-Acetone U004-Acetophenone U019-Benzene U025-Dichloroethyl ether U031-n-Butyl Alcohol U057-Cyclohexanone U080-Methylene Chloride U103-Dimethyl Sulfate U108-1,4 Diethylene dioxide U117-1,1'-oxybis-ethane U121-Trichloromono fluoromethane U123-Formic Acid U144-Lead Acetate U151-Mercury U154-Methanol U159-Methyl Ethyl Ketone U160-2-butanone peroxide U161-Methyl Isobutyl Ketone U162-Methyl methacrylate U165-Napthalene U169-Nitrobenzene U170-p-Nitrophenol U188-Phenol U196-Pyridine U211-Carbon Tetrachloride U213-Tetrahydrofuran U218-Thioacetamide U220-Toluene U226-1,1,1-Trichloroethane U239-Xylenes U359-2-ethoxyethanol	18	WHC	200W	4.2.2.7 Rev. 2
WASTE RECEIVING AND PROCESSING [S01, T04]	F001-F005, F020-23, F026-28, F039, MANY U AND P WASTES	NONE	18	WHC	200W	4.2.2.7 Rev. 2
SINGLE-SHELL TANK SYSTEM [S02, T01]	F001-F005	Same as Double-Shell Tank System identified in this table Unit will never manage F039 wastes	19	WHC	200E& 200W	4.2.2.8 Rev. 3

Table 1. Treatment, Storage, and Disposal Units with F, P, K, or U Waste Codes on Part A Form 3. (Page 5 of 6)

TSD UNIT NAME [UNIT CODES]	LISTED WASTE CODES ON PART A FORM 3	LISTED WASTE CODES MANAGED IN UNIT	TABLE 2 pg#	CO-OP	AREA	DOE/RL-88-21 MANUAL SECTION #
207-A SOUTH RETENTION BASIN [S04]	F001-F005	Same as Double-Shell Tank System identified in this table Unit will never manage F039 wastes	19	WHC	200E	4.2.2.9 Rev. 1
LOW-LEVEL BURIAL GROUNDS [D81]	F001-F005, F028, F039, MANY U AND P WASTES	Many	20	WHC	200E& 200W	4.2.3.1 Rev. 7
216-A-37-1 CRIB [D81]	F001-F005	Same as Double-Shell Tank System identified in this table Unit will never manage F039 wastes	20	BHI	200E	4.2.3.10 Rev. 2
216-B-3 EXPANSION POND [T02, D84]	U133	U133-Hydrazine This TSD unit was clean closed on June 27, 1995	21	WHC	200E	4.2.3.11 Rev. 0
216-A-29 DITCH [T04, D84]	U133	U133-Hydrazine	21	BHI	200E	4.2.3.4 Rev. 3
216-B-3 MAIN POND [T02, D84]	U133	U133-Hydrazine	22	BHI	200E	4.2.3.5 Rev. 5
THERMAL TREATMENT TEST FACILITIES [T04]	F001-F005, F006, F007, F008, F009, K031, K035, K084, K101, K102, U001-U247, P001-P123	NONE	22	PNNL	300	4.3.1.10 Rev. 0
300 AREA SOLVENT EVAPORATOR [T01, S01]	F001, F002, F003, F005	F001- Tetrachloroethylene, Trichloroethylene, Methylene Chloride F002-1,1,1 Trichloroethane F003- Ethyl acetate F005- Methyl Ethyl Ketone This TSD unit was clean closed on June 27, 1995	23	WHC	300	4.3.1.4 Rev. 4
300 AREA WASTE ACID TREATMENT SYSTEM [T01, S01, S02, T04]	300 Area WATS-T01, S02, T04: P120, U123 (1) 311 Tanks-T01, S01: NONE	NONE	23-24	WHC	300	4.3.1.5 Rev. 3
325 HAZARDOUS WASTE TREATMENT UNITS [S01,T04]	F001-F005, F027, F039, K011, K013, K048, K049, K050, K051, K052, MANY U AND P WASTES	Same as Double-Shell Tank System identified in this table	25-26	PNNL	300	4.3.1.7 Rev. 3
BIOLOGICAL TREATMENT TEST FACILITIES [T04]	F001-F005, F027, U001-U247, P001-P123	NONE	26	PNNL	300	4.3.1.8 Rev. 0
PHYSICAL & CHEMICAL TREATMENT TEST FACILITIES [S01,T04]	S01: F002, F003, F005 T04: F001-F005, K048, K049, K050, K051, K052, MANY U AND P WASTES	Same as Double-Shell Tank System identified in this table Unit will never manage F039 wastes	26	PNNL	300	4.3.1.9 Rev. 1

Table 1. Treatment, Storage, and Disposal Units with F, P, K, or U Waste Codes on Part A Form 3. (Page 6 of 6)

TSD UNIT NAME [UNIT CODES]	LISTED WASTE CODES ON PART A FORM 3	LISTED WASTE CODES MANAGED IN UNIT	TABLE 2 pg#	CO-OP	AREA	DOE/RL-88-21 MANUAL SECTION #
303-K STORAGE UNIT [S01]	F001, F002, F003, F005	F001 or F002- Tetrachloroethylene, 1,1,1 trichloroethane, Trichloroethylene F003- Ethyl acetate F005- Methyl Ethyl Ketone, Toluene	27	WHC	300	4.3.2.2 Rev. 4
305-B STORAGE FACILITY [S01]	F001-F005, F027, P001-P123, U001-U249, U328, U353, U359	Many	27	PNNL	300	4.3.2.3 Rev. 1
332 STORAGE FACILITY [S01]	F001-F005, F027, MANY U AND P WASTES	NONE	27	PNNL	300	4.3.2.4 Rev. 0
300 AREA PROCESS TRENCHES [D84]	F001, F002, F003, F005, U210	F001- Tetrachloroethylene, Trichloroethylene, F002-Methylene Chloride	28-29	WHC	300	4.3.3.1 Rev. 4
HANFORD PATROL ACADEMY DEMOLITION SITES [T04]	P022, P048, P105, U108, U117, U133, U213, U234	P022-Carbon Disulfide P048- 2,4 Dinitrophenol P105- Sodium Azide U108-1,4 Dioxane U117-Ethyl Ether U133-Hydrazine U213-Tetrahydrofuran U234-1,3,5-Trinitrobenzene This TSD unit was clean closed on October 26, 1995	29	WHC	600	4.5.1.1 Rev. 4
616 NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY [S01]	F001-F012, F019-F028, MANY U AND P WASTES	Many	30	WHC	600	4.5.2.1 Rev. 5
600 AREA PURGEWATER STORAGE AND TREATMENT FACILITY [T04, S05]	F001-F003	NONE	30	WHC	600	4.5.2.2 Rev. 1
NONRADIOACTIVE DANGEROUS WASTE LANDFILL [D81]	F001-F005, MANY U WASTES, P010, P012, P022, P030, P048, P096, P098, P106	Many	31	BHI	600	4.5.3.1 Rev. 4

Footnote: (1) The Part A Form 3 for this unit is being, or has been revised to modify the footnoted information.

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units.
(Sheet 1 of 31)

TSD Unit	Listed Waste History
183-H SOLAR EVAPORATION BASINS	**Unit history:** The 183-H Solar Evaporation Basin #1 received listed waste shipments from the 300 Area Waste Acid Treatment System (WATS) via tanker truck in 1976 and 1977. The lifetime of the 183-H Solar Evaporation Basins as a waste disposal unit was from October 1973 to November 1985. In addition to tanker truck discharges, certain wastes were poured directly into Basin #1 when safety issues surrounded the disposal of the waste. Cyanide wastes meeting the discarded chemical product listing description were poured directly into the basins and were not transported by tanker truck. All of this information is documented in DOE/RL-88-04, Revision 3, *183-H Solar Evaporation Basins Closure/Post-Closure Plan* (DOE 1991), and is included in the Hanford Facility RCRA Permit Dangerous Waste portion as Attachments 11 through 15. The listed waste from Basin #1 was pumped and mixed with waste in Basins #2 through #4 so that the waste in all four basins were listed wastes. Thousands of drums containing solidified/stabilized basin waste were shipped to the Central Waste Complex (CWC) for continued storage as mixed waste. **Samples:** Waste - The waste in the 183-H Basins was sampled three different times according to the *183-H Solar Evaporation Basin Closure/Post-Closure Plan* (DOE 1991a). The first sampling event (October 1984) resulted in samples being shipped to Pacific Northwest National Laboratory (PNNL) for analysis. Analysis from this sampling event was completed in three PNNL buildings: 3720, 3708, and the 329 Building. PNNL cannot identify any knowledge about the disposition of analytical wastes that were generated from analysis or any unused sample portions. The second sampling effort (January 1986) involved samples that were sent to the 222-S Laboratory for selected radiological and chemical analysis (including heavy metals). From this sampling effort, heavy metals analysis was requested. 222-S Laboratory analytical instrumentation that analyzes heavy metals, discharges the analytical wastes via a hard piped drain line to the 222-S Laboratory Complex tank system so that the aqueous waste that was generated from analysis was mixed in the laboratory waste water stream that was transferred to the Double-Shell Tank (DST) System. The third sampling event (March 1987) involved analysis of samples at an offsite laboratory, TMA/Norcal in Richmond, California. Waste sampling activities continue in order to support information needed to dispose of the waste that is stored in the CWC. Approximately 5,000 samples have been sent to the Weston Laboratory, an offsite laboratory, for analysis from the 377 Building in the 300 Area. The 377 Building received drums of 183-H Solar Evaporation Basin waste (as a sample) from the CWC.

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units.
(Sheet 2 of 31)

TSD Unit	Listed Waste History
183-H SOLAR EVAPORATION BASINS (cont.)	Media -In 1986, a statement of work was written to have PNNL drill, install, develop, and test between 16 and 25 groundwater monitoring wells in and around the 183-H Basins. Listed waste management issues pertaining to environmental media that contain listed waste such as drill cuttings, purgewater, and groundwater has not been evaluated. These activities occurred before documents such as the Purgewater Agreement, which is attached to the and the Hanford Facility RCRA Permit, and Westinghouse Hanford Company (WHC)-CM-7-7 (WHC 1988a) Environmental Investigations Instruction (EII) 4.3 were negotiated with Ecology and the U.S. Environmental Protection Agency (EPA). One sampling event of near surface soil occurred in 1989. This sampling event utilized the U.S. Testing, Inc. (UST) Laboratory in Richland, Washington. Many soil samples that were taken during 1991 included the soil berms near the basins, near surface sampling, vadose zone sampling, and soil pile sampling. The soil berm and near surface sampling events utilized the K-25 Laboratory at Oak Ridge, Tennessee. The vadose zone sampling utilized TMA/Norcal in Richmond, California. The soil pile sampling effort was conducted at the request of Ecology. Samples were released to Ecology following total activity analysis by the 222-S Laboratory. The soil pile sampling effort also resulted in split samples (nitrate and sulfate analysis) being taken, which WHC sent to an offsite laboratory for analysis. Total Activity Analysis by the 222-S Laboratory was requested for each sampling event. Debris - Concrete basin core samples also were obtained in 1991 and sent to the K-25 Laboratory and PNNL's 325 Laboratory for analysis (PNNL 1991). Total activity also was performed at the 222-S Laboratory for the samples shipped offsite. The 325 Laboratory completed formate analysis on the concrete cores. PNNL cannot identify any knowledge about the disposition of analytical wastes that were generated from analysis or any unused sample portions. Current: BHI received contained-in determinations for all of the 183-H Solar Evaporation Basin soil and debris. An equivalent treatment determination, in accordance with 40 CFR 268.42(b) for the U123 formic acid treatment standard is being pursued by WHC to dispose of the containers that are stored in the CWC. RL transmitted the request to EPA-HQ (with copy to Ecology) on October 17, 1995 (DOE 1995f). Separate determinations from EPA and Ecology are pending.

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units.
(Sheet 3 of 31)

TSD Unit	Listed Waste History
1301-N LIQUID WASTE DISPOSAL FACILITY	**Unit History:** The 1301-N Liquid Waste Disposal Facility (LWDF) received aqueous wastes from the 100N Area until September 1985. Many drains from around the 100N Area were used to discharge waste waters to the 1301-N LWDF. Discussions with operators indicate that hydrazine, a listed waste, was discharged to the 1301-N LWDF via the drains in room 2 of the 105-N Building. The hydrazine source had originated from worn pumps and valves that dripped unused hydrazine/water mixture to the drain system in the 100N Area that was routed to the 1301-N LWDF (WHC 1996). These discharges meet the listing description for a spill of unused commercial chemical products. The drippings were small in volume but were continuous. The listed waste discharges were not documented since the quantity of listed waste that was discharged had never exceeded the 1 pound reportable quantity limit within 24 hours. Reportable quantities were determined by hydrazine monitoring of the effluent. When the 1301-N LWDF was receiving all of the effluent from 100N Area, approximately 3 to 4 feet of standing water existed. The 1301-N LWDF dried up after its use was discontinued. Knowledge to indicate that discharges of spent solvents had occurred to the 1301-N LWDF could not be identified. **Samples:** Sampling activities for monitoring and surveillance of the 1301-N LWDF included those for vegetation, surface soils, and sediments. These sampling activities occurred during the mid 1970's and continued through the 1980's with the exception of the sediments. Once the 1301-N LWDF dried up, the dose rates at the head end of the trench soared to 1 to 2 rad/hr. It was not as low as reasonably achievable (ALARA) to continue sampling activities of the 1301-N LWDF sediments. Other monitoring activities on vegetation and surface samples around 1301-N continued. The laboratories that completed the radiological analysis on all of these samples were the 100N Analytical Laboratory and the UST Laboratory in Richland, Washington. During late 1995 and early 1996, samples were collected as part of characterization activities for the 1301-N LWDF. These samples were analyzed at Quanterra in Richland, Washington, and the 222-S Laboratory Complex (WHC 1995c). **Current:** Hydrazine's chemical properties do not support a belief that samples could contain listed waste since hydrazine readily degrades upon contact with oxygen. A request for a contained-in determination will be addressed in closure documentation. This TSD unit will be incorporated into the Hanford Facility RCRA Permit during modification E in 1999.

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units.
(Sheet 4 of 31)

TSD Unit	Listed Waste History
1325-N LIQUID WASTE DISPOSAL FACILITY	**Unit History:** The 1325-N LWDF received aqueous wastes from the 100N Area beginning in early 1985. During a short period in 1985, both the 1301-N and the 1325-N LWDF were receiving 100N wastewaters until 1325-N became the primary receiver in September 1985. Many drains from around the 100N Area were used to discharge waste waters to the LWDF. Of the hydrazine uses in the 100N Area, room 2 in the 105-N Building constitutes the only listed waste source of hydrazine from worn pumps and valves, which dripped almost continuously until they were upgraded in 1987 (WHC 1996). However, the upgraded hydrazine chemical delivery system in room 2 was never activated and the N Reactor at the 100N Area was shut down in 1987. The listed waste discharges are not documented since the quantity of listed waste that was discharged never exceeded the 1 pound reportable quantity limit within 24 hours. Other nonlisted discharges of hydrazine (injected in cooling systems used for its intended purpose to scavenge oxygen) were documented in occurrence reports dated May 26, 1989, and August 25, 1989. Listed waste sources from spent solvents to the 1325-N LWDF were documented on the 1986 Treatment, Storage, and Disposal (TSD) Facility Annual Dangerous Waste Report (Form 5), page 21 of 21. **Samples:** Sampling activities for monitoring and surveillance of the 1325-N LWDF included those for vegetation, surface soils, and sediments. These sampling activities occurred during the mid 1970's and continued through the 1980's. The laboratories that completed the radiological analysis on all of these samples were the 100N Analytical Laboratory and the UST Laboratory in Richland, Washington, until 1990 when UST became the IT Laboratory. During late 1995 and early 1996, samples were collected as part of characterization activities for the 1325-N LWDF. These samples were analyzed at Quanterra in Richland, Washington, and the 222-S Laboratory Complex (WHC 1995c).. **Current:** Hydrazine's chemical properties do not support a belief that samples could contain listed waste since hydrazine readily degrades upon contact with oxygen. A request for a contained-in determination will be addressed in closure documentation. This TSD unit will be incorporated into the Hanford Facility RCRA Permit during modification E in 1999.

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units. (Sheet 5 of 31)

TSD Unit	Listed Waste History
204-AR WASTE UNLOADING STATION	**Unit History:** This unit accepts liquid wastes from Hanford Site sources for transfer into the DST System. Wastes can be accepted either by tanker truck or by railcar into this unit. Listed waste managed in this unit are dependent on the types of wastes received from across the Hanford Site. The 204-AR Waste Unloading Station does not generate listed wastes unique to Hanford Facility TSD units. Listed wastes receipts have included those from the 222-S Laboratory Complex via tanker truck, the 340 Facility 90-day tank system via railcar, and from the T-Plant Complex via railcar. **Samples:** Sample evaluation is irrelevant since this unit does not generate its own listed wastes. **Current:** Since this unit receives listed wastes and nonlisted waste, all wastes managed in this unit are considered listed wastes. The Part B Permit Application for this TSD unit will be combined with the Part B Permit Application for the DST System during the Hanford Facility RCRA Permit modification E in 1999.
PUREX PLANT	**Unit History:** The PUREX Plant was constructed in 1956 and was used for the recovery of uranium and plutonium from irradiated reactor fuel. The PUREX Plant is undergoing deactivation, a transition phase in its closure during which past process solutions and chemicals are being removed. Listed waste management in the PUREX Plant was associated only with spent solvents from operations in the PUREX Plant laboratory where small quantities of F-listed wastes were introduced into the PUREX Plant process. The listed constituents included acetone, xylene, n-butyl alcohol, and toluene. **Samples:** The samples are not being investigated because of the listed waste issue resolution obtained through the Tri-Party Agreement (Ecology et al. 1996e) unit managers meeting minutes. **Current:** The listed waste issues at the PUREX plant were resolved on August 9, 1995, when language was entered into the PUREX Plant Tri-Party Agreement (Ecology et al. 1996e) unit managers meeting minutes concerning listed waste management (DOE et al. 1995h). Attachment 6 of these meeting minutes contains the information pertaining to listed waste management. The more important points can be paraphrased as: (1) the listed waste codes will not be added to any Part A Form 3, (2) waste managed or generated from the PUREX Plant will not be designated as listed waste, and (3) at the time of final disposition of any waste from the PUREX Plant including the storage tunnels, certain cribs, and vessels, all listed waste constituents must be addressed in the sampling plan and in the assessment of final disposal options.

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units. (Sheet 6 of 31)

TSD Unit	Listed Waste History
HANFORD WASTE VITRIFICATION PLANT	**Unit History:** Unit not constructed. This TSD unit may treat the high-level fraction of DST System and Single-Shell Tank (SST) System wastes. **Samples:** Not applicable. **Current:** Not applicable.
200 AREA EFFLUENT TREATMENT FACILITY	**Unit History:** This newly constructed TSD unit began operation in late 1995. The TSD unit processes listed wastes and delists those wastes. The delisting point in the TSD unit is at the back end of the process in the verification tanks. Treatment residues derived from listed wastes will be generated and sent to the CWC and/or the mixed waste landfill in the Low-Level Burial Grounds. Wastes initially will be received for processing from the Liquid Effluent Retention Facility (LERF) containing 242-A Evaporator process condensate. **Samples:** Samples of 200 Area Effluent Treatment Facility wastes are sent to the Waste Sampling and Characterization Facility (WSCF) Laboratory for analysis. **Current:** EPA approved the RCRA Delisting Petition for this TSD unit on June 13, 1995 (60 FR 31115), which delists F001 through F005 wastes, and F039 (derived from F001-F005) wastes. Ecology issued a letter to RL dated March 7, 1995 (Ecology 1995a), concerning non F001-F005 laboratory listed wastes that stated: "[RL] should not be required to add these new listed waste codes to the Part A [Form 3 Permit] Applications for Hanford laboratories (222-S, PNNL 300 Area Labs, and WSCF), DST [Systems], and downstream facilities." The 200 Area Effluent Treatment Facility is a downstream facility to the DST Systems. Although Ecology's letter addressed whether to add listed waste codes to any affected Part A Form 3, the Ecology determination was not broad enough to avoid the land disposal restrictions of RCRA. As a result, Ecology read statements into the 200 Area Effluent Treatment Facility's unit managers meeting held on August 31, 1995 (DOE et al. 1995g), in accordance with the Tri-Party Agreement (Ecology et al. 1996e). These statements clarify that Ecology's enforcement discretion was exercised with respect to the designation of the laboratory listed wastes. The meeting minutes say that, "This means the waste is not designated as hazardous/dangerous waste with the waste codes listed in the attachment under RCRA or Washington State Dangerous Waste law." Ecology also issued a letter on December 7, 1995 (Ecology 1995b), stating that "Ecology believes granting of the delisting petition by EPA is sufficient to comply with the state dangerous waste regulations [WAC 173-303] and, therefore, no delisting petition is required to be submitted to Ecology" (Ecology 1995b).

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units.
(Sheet 7 of 31)

TSD Unit	Listed Waste History
200 WEST ASHPIT DEMOLITION SITE	**Unit History:** This TSD unit managed listed waste in two detonation events, one in November 1984 and the other in June 1986 (DOE 1994a). The discarded chemical products identified on the unit's Part A Form 3 were detonated in the unit. This TSD unit is included as a Part V unit in the Hanford Facility RCRA Permit Dangerous Waste portion as Attachment 21. **Samples:** The only samples taken were soil samples acquired on July 12, 1994, and a second round of soil samples on December 16, 1994. Field screening was performed by the Solid Waste Analysis Team on May 12, 1994. The July 12 samples were sent offsite for analysis to the Knoxville, Tennessee, IT Laboratory through their local Richland, Washington, affiliate. The second round of samples were analyzed by the new Environmental Analytical Laboratory in the 100N Area of the Hanford Facility. No samples were taken following the two detonation events. **Current:** All listed waste concerns were addressed through the Hanford Facility RCRA Permit closure process. This is based on information pertaining to the efficiency by which chemicals are destroyed through detonation and the time that has elapsed from the last event at the TSD unit (DOE 1994a). The TSD unit has been clean closed as of October 25, 1995.
218-E-8 BORROW PIT DEMOLITION SITE	**Unit History:** This TSD unit managed listed waste during one detonation event (DOE 1994d). The discarded chemical products identified on the Part A Form 3 were detonated in November 1984. This TSD unit is a Part V unit included in the Hanford Facility RCRA Permit Dangerous Waste portion as Attachment 20. **Samples:** The only protocol samples taken were soil samples acquired on July 12, 1994. Field screening was performed by the Solid Waste Analysis Team on May 16, 1994. The July 12 samples were sent for analysis to the Knoxville, Tennessee, IT Laboratory through their local Richland, Washington, affiliate. No samples were taken following the detonation event. **Current:** All listed waste concerns were addressed through the Hanford Facility RCRA Permit closure process. This is based on DOE/RL-92-53, *218-E-8 Borrow Pit Demolition Site Closure Plan* (DOE 1992) information pertaining to the efficiency by which chemicals are destroyed through detonation and the time that has elapsed from the last event at the TSD unit. The TSD unit has been clean closed as of October 25, 1995.

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units.
(Sheet 8 of 31)

TSD Unit	Listed Waste History
242-A EVAPORATOR	**Unit History:** This TSD unit evaporates DST System waste. Concentrated bottoms are returned to the DST System. The overheads stream, called process condensate, is discharged to the LERF. Prior to LERF construction, the process condensate was discharged to the 207-A South Retention Basin. Listed waste managed in this unit is dependent on the wastes received from the DST System. Wastes generated at the 242-A Evaporator receive the same listed waste codes as the DST System waste (except for certain maintenance wastes). Since the 242-A Evaporator is a downstream TSD unit to the DST System, wastes managed in accordance with Ecology's March 7, 1995, letter (Ecology 1995a) may also be managed in this TSD unit. Although the Part A Form 3 indicates that F039 waste may be treated in this TSD unit, no waste with that designation has yet been accepted. See the DST System description in this table for additional information. **Samples:** Sample evaluation is irrelevant since this unit does not generate its own listed wastes. **Current:** Treatment of listed waste to meet LDR requirements does not occur at the 242-A Evaporator. Both concentrated bottoms (slurry) and process condensate must be further treated before disposal is allowed. This TSD unit will be incorporated into the Hanford Facility RCRA Permit during modification C in 1997.
GROUT TREATMENT FACILITY	**Unit History:** This TSD unit never managed listed waste since it did not treat DST System waste. The campaign processed in the Grout Treatment Facility was nondangerous phosphate-sulfate waste from the 100N Area. **Samples:** Not applicable. **Current:** Not applicable.

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units.
(Sheet 9 of 31)

TSD Unit	Listed Waste History
T PLANT COMPLEX	**Unit History:** The T Plant Complex has many TSD units grouped on its Part A Form 3. Listed waste codes are different for liquid waste sent from the dangerous waste tank system to the DST System via railcar than those for containerized waste management. The waste from the T Plant tank system contributes to the listed wastes in the DST System from their historical spent solvent sources containing methylene chloride (F002), acetone (F003), and cresols/cresylic acids (F004) used for decontamination (DOE 1992e, WHC 1992c, and WHC 1993). Waste managed in the T Plant tank system are generated from decontamination activities in the 2706-T Building and from activities inside the T Plant Canyon. The T Plant Complex is serving as the verification TSD unit for mixed waste that is received into the CWC, the Low-Level Burial Grounds, and the 224-T Transuranic Waste Storage and Assay Facility. The T Plant Complex processed most all of the containers of listed waste under the Backlog Program during 1994 before they were stored in the CWC. T Plant may also accept containerized listed waste for treatment in accordance with the description contained in the Part A Form 3. **Samples:** Samples taken in support of decontamination activities, waste verification activities, and treatment of containerized waste could result in the identification of new listed waste samples that must be managed. All sample residues and wastes generated from container verification activities are returned to the parent container before the container leaves the T Plant Complex. Sample residues and wastes generated from containerized waste treatment activities either will be returned to the parent container or will be dispositioned according to the receiving TSD unit's acceptance criteria. **Current:** T Plant will continue to treat and store dangerous and mixed wastes in the future. The railcar shipments from the T Plant tank system into the DST System are always designated as listed waste. The T Plant tank system and railcars have not been decontaminated to allow otherwise.

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units.
(Sheet 10 of 31)

TSD Unit	Listed Waste History
B PLANT COMPLEX	**Unit History:** The B Plant Complex has grouped TSD units on its Part A Form 3. The TSD units which have managed listed waste include all of the tank systems and a containment building. The listed waste codes on the Part A Form 3 (F001-F005) result from three activities: (1) processing SST System waste prior to the effective date of mixed waste regulation (November 23, 1987), (2) storing DST System waste in the NCAW tank system, and (3) the B Plant Complex being a listed waste source to the DST System from the spent solvent waste generated in the canyon. B Plant was a spent solvent source to the DST System from 1,1,1 Trichloroethane (F001) degreasing operations on the canyon crane until 1988 (WHC 1992c). B Plant also managed SST System waste in the early 1980's and stored DST System waste for a few years inside B Plant canyon cell tanks, called the NCAW tank system. Inventories of DST System waste were transferred back to the DST System via underground pipes in May 1993. NCAW tanks, which stored DST System waste, are considered empty for dangerous waste reporting purposes. Investigation of liquid levels in all B Plant canyon tanks is included as a facility transition effort. B Plant continues to store an organic waste in another TSD unit tank system. The organic waste is not a spent solvent itself. It is a mixture of Tri-Butyl Phosphate, di-2ethylhexyl phosphoric acid, and normal paraffin hydrocarbons. It was used to remove radionuclides from SST System waste. Since the inventory is still being stored in a TSD unit, listed waste codes from SST System waste (F001-F005) are applied to the waste designation of the organic waste based on application of the mixture rule and the derived from rule. **Samples:** Samples of the DST System waste were taken to meet DST System acceptance criteria before the waste was transferred back. **Current:** B Plant underground transfers to the DST System are managed as listed waste because of mixing the aqueous waste generated at the B Plant Complex with tank heels remaining in the canyon tanks. Any additional listed waste management concerns will be discussed with Ecology during transition negotiations for the B Plant Complex in accordance with the Tri-Party Agreement (Ecology et al. 1996e).

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units.
(Sheet 11 of 31)

TSD Unit	Listed Waste History
222-S LABORATORY COMPLEX	**Unit History:** The 222-S Laboratory Complex manages two TSD units, a tank system, and a container storage unit. Containers of listed waste (mostly labpacks) are shipped directly offsite, offsite through the 616 Nonradioactive Dangerous Waste Storage Facility (NRDWSF), or to the CWC for further management onsite. The mixed waste stored and treated in the tank system is transferred to the DST System. Transfers from the tank system were accomplished underground into 200 West Area DSTs until 1990. In 1991, the mode of transportation changed, and tanker truck transfers began to the 204-AR Waste Unloading Station in the 200 East Area. It is expected that the 222-S Laboratory Complex will return to underground transfers in the near future after completion of the transfer line upgrade project between the 222-S Laboratory Complex and the DST System. One listed waste source in the 222-S Laboratory Complex comes from the laboratory's chemical inventory. From the chemical inventory, the laboratory generates spent solvents and discarded chemical products that are labpacked in containers and segregated from management in the TSD unit tank system. In these cases, the listed wastes usually are managed in the container storage unit. For example, an F027 waste was managed through the container storage unit and sent offsite for disposal. The only listed wastes managed in the tank system from this source are those F001-F005 spent solvents soluble in an aqueous phase that meet DST System acceptance criteria. The 222-S Laboratory Complex has been a listed waste source for the DST System based on solvent uses in the laboratory of acetone (F003) and methyl ethyl ketone (F005). There are also wastes generated in the laboratory containing small quantities of chemicals identified under the spent solvent listings that are not designated as a listed waste and are managed in the tank system. These nonlisted wastes include aqueous wastes that have contacted a spent solvent organic phase during liquid-liquid extraction processes and were separated from the organic phase. EPA did not intend for incidental solvent carryover to result in the application of the mixture rule. The waste designation is based on an EPA policy memo on laboratory wastes dated June 28, 1989 (EPA 1989). The second listed waste source for the 222-S Laboratory Complex comes from the samples that are received into the laboratory. Listed waste samples from around the Hanford Site known to have been received in the 222-S Laboratory Complex include ones from the: (1) SST System, (2) DST System, (3) 183-H Solar Evaporation Basins, (4) 216-B-3 Main Pond, (5) 216-B-3 Expansion Pond, (6) 216-A-29 Ditch, (7) 1301-N Liquid Waste Disposal Facility, (8) 1325-N Liquid Waste Disposal Facility, and (9) wastes from Hanford Site generators. Wastes generated in the laboratory from the analysis of listed waste samples will be designated as a listed waste in most instances based on application of the derived from rule. EPA considers laboratory characterization activities as treatment and the staging of samples for characterization as storage under RCRA.

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units.
(Sheet 12 of 31)

TSD Unit	Listed Waste History
222-S LABORATORY COMPLEX (cont.)	However, EPA excluded laboratories from the requirement to obtain a treatment and storage permit when EPA promulgated the sample exclusion in RCRA (46 FR 47426). The only instances where these analytical wastes will be designated as nonlisted wastes will occur when the analytical waste is managed in accordance with the conditions identified in Ecology's memo discussing laboratory listed waste management (Ecology 1995a). The aqueous listed wastes from the analysis of samples are wastes from SST System or DST System characterization activities. Aqueous wastes from the analysis of SST and DST System waste samples are discharged to the 222-S Laboratory Complex tank system. Other waste matrices such as debris are managed as mixed waste in containers and sent to the CWC for storage on site. Ecology determined that wastes generated from the analysis of samples from the 183-H Solar Evaporation Basins, 216-B-3 Main Pond, 216-B-3 Expansion Ponds, and 216-A-29 Ditch were designated as nonlisted waste (Ecology 1995a and DOE et al. 1995g). These wastes were generated in the mid 1980's and have not been discharged to the 222-S Laboratory Complex tank system since the effective date of mixed waste regulation (November 23, 1987). If non F001-F005 samples are received into the 222-S Laboratory, the aqueous analytical wastes may be eligible for the nonlisted waste designation and discharge to the tank system if the conditions of Ecology's letter (Ecology 1995a) are complied with. DST System and 200 Area Effluent Treatment Facility personnel will have to approve any of these waste discharges to the laboratories tank system in order to avoid jeopardizing 200 Area Effluent Treatment Facility delisting of 242-A Evaporator process condensate. This and other programmatic responsibilities for complying with Ecology's March 7, 1995, letter (Ecology 1995a) were documented in an internal memo dated October 23, 1995 (WHC 1995a), and were concurred by PNNL. In late 1995 and early 1996, listed waste samples from the 1301-N LWDF and the 1325-N LWDF were received at the 222-S Laboratory Complex (WHC 1995c). The aqueous wastes generated from the analysis of the samples were managed as non-listed waste in accordance with Ecology's March 7, 1995, letter. As for the listed waste sample sources from the Hanford Site generators, in some instances the 222-S Laboratory Complex managed listed waste when a sample was being radiologically characterized prior to release from the Hanford Site for offsite chemical analysis. Radiological characterization can include alpha total, total beta, total gamma, gamma energy analysis (GEA) and some radionuclide specific procedures. The majority of Hanford Site radiological characterization work utilizes the total activity and GEA procedures.

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units.
(Sheet 13 of 31)

TSD Unit	Listed Waste History
222-S LABORATORY COMPLEX (cont.)	Wastes from total activity analysis are segregated from the tank system and packaged for storage in the 222-S Laboratory Complex container storage unit and transferred to the CWC. Wastes from GEA analysis are returned to the generator when it cannot meet DST System acceptance criteria since the sample is not prepared and is analyzed 'as-received.' GEA analysis waste is only discarded into the tank system when it meets DST System acceptance criteria. **Samples:** Samples of the 222-S Laboratory Complex tank system waste are analyzed to meet DST System acceptance requirements by 222-S Laboratory personnel. Samples taken from any laboratory-generated spent solvent waste and discarded chemical products are primarily analyzed for radiological characterization through total activity and GEA analysis. The F027 waste was not sampled before it was shipped to the 616 NRDWSF. The 222-S Laboratory Complex received 183-H Solar Evaporation Basin waste samples in 1986, and soil/effluent monitoring samples from the 216-A-29 Ditch and 216-B-3 Pond in 1986 for analysis. Samples from the SST System and the DST System are still being received. Unused sample portions that meet DST System acceptance criteria may be disposed of to the laboratory tank system. **Current:** The waste codes on the Part A Form 3 for the tank system identify listed waste codes F001-F005 and F039. Although the Part A Form 3 indicates that F039 waste may be stored and treated in this TSD unit, no waste with that designation has yet been accepted. Because of the heels that are always present in the tank system tanks and the SST/DST System waste characterization activities, every transfer of aqueous waste to the DST System receives waste codes F001-F005. The 222-S Laboratory Complex will be incorporated into the Hanford Facility RCRA Permit during modification E in 1999.
2727-S STORAGE FACILITY	**Unit History:** This TSD unit was the nonradioactive storage unit that pre-dates the 616 NRDWSF. The unit managed listed waste in containers and staged them for offsite disposal for three years from 1983 through 1986 (DOE 1992a). **Samples:** Samples were not taken from the waste that was managed in the TSD unit. **Current:** There are no listed waste concerns or issues at this TSD unit. This unit was clean closed on June 27, 1995 and is included in the Hanford Facility RCRA Permit Dangerous Waste Portion as Attachment 17.

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units.
(Sheet 14 of 31)

TSD Unit	Listed Waste History
LIQUID EFFLUENT RETENTION FACILITY	**Unit History:** This TSD unit receives 242-A Evaporator process condensate for treatment and storage. The Part A Form 3 revision to add the treatment code has been certified by RL and WHC. Ecology has approved this revision (Ecology 1996d). Revision 4 of the Part A Form 3 will be included in Revision 14 of DOE/RL-88-21. The process condensate is then transferred to the 200 Area Effluent Treatment Facility for final treatment. 242-A Evaporator campaigns 94-1, 94-2, and 95-1 were received into LERF and future campaigns are planned. The waste codes on this Part A Form 3 are based on the point of generation established when the 242-A Evaporator process condensate is generated as a waste derived from DST System waste, a treatment residue. Although the Part A Form 3 indicates that F039 wastes may be treated and stored in the LERF, no waste with that designation has yet been accepted. **Samples:** Not applicable. The LERF does not generate any unique listed wastes. **Current:** The waste in LERF is listed waste because it is derived from the treatment of DST System waste. Sampling activities and/or process knowledge determinations on those wastes managed under Ecology's March 7, 1995, letter are required by condition 3 (Ecology 1995a). Waste streams other than 242-A Evaporator process condensate are under consideration for receipt at the LERF. This TSD unit will be incorporated into the Hanford Facility RCRA Permit during modification C in 1997.

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units.
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TSD Unit	Listed Waste History
DOUBLE-SHELL TANK SYSTEM	**Unit History:** This unit receives liquid wastes from many locations on the Hanford Site via underground transfers, from tanker truck transfers, or railcar shipments. Tank truck transfers and railcar shipments are unloaded at the 204-AR Waste Unloading Station for storage in the DST System. Any listed wastes managed in the DST System resulted from listed waste received from Hanford Site locations. All of the listed waste codes appearing on this unit's Part A Form 3 apply to all of the DST System tanks except for F039. Although The Part A Form 3 indicates that F039 wastes may be stored in the DST system, no waste with that designation has yet been managed. Operating records for the DST System does not provide information to differentiate listed waste codes for different tanks. Several listed wastes have been introduced into the DST System. Some of these wastes were discharged before the effective date of mixed waste regulation on November 23, 1987. Others were accepted into the DST System after this date and discontinued some time later. The balance are still accepted for management in the DST System today. Process knowledge for wastes received into the DST System before the effective date of mixed waste regulation must be applied to the waste still in storage (57 FR 37284). Based on this approach, four facilities were sources of listed waste applicable to the designation of DST System waste. For more information on any of these sources, refer to the respective TSD unit write up in this table. T Plant Complex spent solvent sources sent to the DST System include Methylene chloride (F002) and cresols (F004) from cleaning operations. A B Plant Complex spent solvent source came from 1,1,1 Trichloroethane (F001) when it was used for degreasing the canyon crane. Reduction Oxidation (REDOX) Facility solvent extraction operations (see the Hexone Storage and Treatment Facility) contributed methyl isobutyl ketone (F003) into the DST System. Spent solvents generated from Hanford Site laboratory activities include acetone (F003) and methyl ethyl ketone (F005) (WHC 1990d). Nonlisted wastes are also received into the DST System and mixed with the listed waste. Of these wastes, Ecology determined that historical laboratory analytical wastes are appropriately designated as nonlisted. Analytical wastes that would have received waste codes U123, P029, P030, P098, P106, and P120 were introduced into the DST System from the analysis of 183-H Solar Evaporation Basins wastes in the 222-S Laboratory Complex. Analytical wastes that would have received waste code U133 were introduced from analysis of environmental media (surface waters) in the 222-S Laboratory Complex from the 216-A-29 Ditch and the 216-B-3 Pond. Since U and P waste codes identified above are not included in the DST System Part A Form 3, Ecology was approached in January 1995 to determine whether these additional waste codes should be added. Ecology determined that adding the U and P waste codes were not necessary because these analytical wastes did not designate as a listed waste (DOE et al. 1995g).

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units.
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TSD Unit	Listed Waste History
DOUBLE-SHELL TANK SYSTEM (cont.)	This determination was based on factors pertaining to operating the 200 Area Effluent Treatment Facility. Ecology also issued a letter on March 7, 1995, providing for nonlisted management of laboratory analytical wastes generated in the future (Ecology 1995a). The letter identified conditions for nonlisted waste management and includes a list of eligible wastes in the letter that could be discharged to the DST System. DST System and 200 Area Effluent Treatment Facility personnel will have to approve these analytical waste discharges to avoid jeopardizing 200 Area Effluent Treatment Facility delisting of 242-A Evaporator process condensate. This and other programmatic responsibilities for complying with Ecology's March 7, 1995, letter (Ecology 1995a) were documented in an internal memo dated October 23, 1995 (WHC 1995a), and were concurred by PNNL. In late 1995 and early 1996, non-listed analytical waste from the analysis of 1301-N LWDF and the 1325-N LWDF were received by the DST System from the 222-S Laboratory Complex. These wastes were managed in accordance with Ecology's March 7, 1995, letter (WHC 1995c). Samples: Samples of DST System waste are sent to the 222-S Laboratory and the 325 Laboratory on the Hanford Site for analysis. The samples can be grab samples or core samples. Some of the DST System waste sampling is conducted to meet Tri-Party Agreement (Ecology et al. 1996e) Milestone M-44. Contaminated soils and debris generated in the DST System tank farms and near transfer lines are managed as a listed waste because of the contained-in policy although the concentration of listed waste constituents is believed to not warrant such management. Soil samples that contain DST System waste are also obtained from 55-gallon drums. Current: A contained-in determination for soils and debris may be pursued for these wastes based on the outcome of the contained-in determination being pursued for DST System soils and debris stored in the CWC. The Part B Permit Application for the DST System will be combined with the Part B Permit Application for the 204-AR Waste Unloading Station when it is incorporated into the Hanford Facility RCRA Permit during modification E in 1999.

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units.
(Sheet 17 of 31)

TSD Unit	Listed Waste History
HEXONE STORAGE AND TREATMENT FACILITY	**Unit History:** This unit provided underground tank system storage (two tanks) for spent hexone (methyl isobutyl ketone-F003) from the REDOX Facility in the 200 West Area (DOE 1992e). All that remains in these two tanks are heels from the removal and distillation operations of the hexone. The two tanks are considered empty for dangerous waste reporting purposes. The majority of the hexone was distilled onsite at the unit and sent offsite for incineration in June 1992. REDOX Facility operations and the transfer of this spent solvent to the DST System is one of the listed waste sources identified for DST System waste. **Samples:** Samples of waste or soils have not been evaluated since this listed waste constituent is one that is already identified in the DST System. **Current:** Heels from the hexone removal activities remain in the tank system. Removal of the heels and the two tanks may generate soils and debris containing listed waste.
224-T TRANSURANIC WASTE STORAGE AND ASSAY FACILITY	**Unit History:** This TSD unit stores transuranic (TRU) listed waste until an offsite TRU waste receiving facility is available in the United States. The unit does not perform treatment activities, and all verification of waste contents is accomplished through nonintrusive means. **Samples:** Not applicable. This is only a container storage facility and containers holding the TRU waste are not sampled in this facility. **Current:** Unless spills of listed waste occur, there are no listed waste concerns at this TSD unit. This TSD unit will be incorporated into the Hanford Facility RCRA Permit during modification E in 1999.

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units.
(Sheet 18 of 31)

TSD Unit	Listed Waste History
CENTRAL WASTE COMPLEX	**Unit History:** This TSD unit began storing mixed waste in the fall of 1988 and continues to receive waste. Waste from the CWC will be treated in a yet-to-be-built treatment unit onsite or a non-RL, privately owned treatment unit. Waste is received into this unit from both onsite sources and offsite sources. The listed waste stored in the CWC consists of many F, P, and U waste codes identified in Table 1. Unlike the Part A Form 3 for SST and DST Systems, the Part A Form 3 for CWC contains almost all listed waste codes in the regulations and cannot be used to determine what listed wastes are in storage. There is no sampling or treatment activities that occur at the CWC. The T Plant Complex completes verification sampling requirements for the CWC. Verification activities began at the T Plant Complex in 1994 and all wastes generated from verification activities are returned to the container that was sampled. The only listed waste management concerns at the CWC stem are a response to any spills or releases of listed waste in storage since waste verification or treatment activities do not occur at the CWC. **Samples:** Over 50 containers of listed waste are in storage at the CWC that are storing U and P wastes other than 183-H Solar Evaporation Basins wastes (WHC 1991). Since sampling does not occur at the CWC, no listed waste concerns arise from the management of this listed waste at the CWC. **Current:** Unless spills of listed waste occur inside CWC, there are no listed waste concerns at this TSD unit until the containers are removed from the TSD unit and treated and/or disposed. Treatability variances and/or equivalent treatment determination requests may be submitted to EPA or Ecology for some of the listed wastes being stored. The Direct Disposal Team Report (DOE 1995a) identified certain high-volume listed waste streams stored in CWC that could be disposed of with no treatment or treatment requiring minimal cost. On October 17, 1995, RL transmitted an equivalent treatment request for 183-H Solar Evaporation Basins waste to EPA-HQ (DOE 1995f). A determination from EPA is pending. Other activities include a possible contained-in determination from Ecology on the SST System and DST System contaminated soils and debris stored in CWC.
WASTE RECEIVING AND PROCESSING	**Unit History:** Unit not yet constructed. When constructed, different Waste Receiving and Packaging (WRAP) modules will repackage and process radioactive and mixed wastes. **Samples:** Not applicable. **Current:** Not applicable.

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units.
(Sheet 19 of 31)

TSD Unit	Listed Waste History
SINGLE-SHELL TANK SYSTEM	**Unit History:** The SST System received many types of wastes from across the Hanford Site until 1980 (DOE 1995c). The listed waste codes that have been applied to the SST System Part A Form 3 result from the waste codes appearing on the DST System Part A Form 3. The amount of SST System listed waste pumped to the DST System since 1980 is difficult if not impossible to track. The listed waste in the SST System does not include waste code F039 since this waste has not been generated and will never be introduced into the SST System. Operating records for the SST System do not provide information to differentiate listed waste codes for different tanks. The SST System Part A Form 3 listed waste codes are applied to all SST System tanks. **Samples:** Samples of SST System waste are sent to the 222-S Laboratory and the 325 Laboratory on the Hanford Site for analysis. The samples can be grab samples or core samples. Some of the SST System waste sampling is conducted to meet Tri-Party Agreement (Ecology et al. 1996e) Milestone M-44. Contaminated soils and debris generated in the SST System tank farms and near transfer lines are managed as a listed waste because of the contained-in policy, although the concentration of listed waste constituents is not believed to warrant such management. Soil samples that contain SST System waste are also obtained from 55-gallon drums. **Current:** Contained-in determinations for contaminated soil and/or debris may be pursued based on the outcome of the contained-in determination underway for the wastes already in storage at the CWC.
207-A SOUTH RETENTION BASIN	**Unit History:** This TSD unit received 242-A Evaporator process condensate prior to construction of the LERF. The process condensate was discharged from the 207-A South Retention Basins to the 216-A-37-1 Crib (DOE 1988). **Samples:** Samples of waste or soil from this unit have not been evaluated since the waste is derived from DST System waste. **Current:** The concrete basin and any liquids that collect in the basins from precipitation should not be expected to contain any listed waste. Concurrence in this belief has not been documented through Ecology.

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units.
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TSD Unit	Listed Waste History
LOW-LEVEL BURIAL GROUNDS	**Unit History:** This disposal unit has disposed of waste that could be designated as listed waste if it is actively managed after the effective date of regulation (57 FR 37284). The amount of waste disposed has not been evaluated for this document. Burial records indicate a wide variety of listed waste that may require evaluation if non-TRU wastes are ever excavated and actively managed. The new disposal trenches (currently two) meeting minimum technology requirements for RCRA Subtitle C disposal will receive mixed waste for disposal in compliance with all applicable requirements. F039 leachate will be generated by the new mixed waste trenches at some time in the future. Waste verification activities for wastes received into the LLBG are performed at the T Plant Complex. There are no sampling or treatment activities occurring at the LLBG. The only listed waste management concerns at the LLBG stem from responding to spills or releases of listed waste. **Samples:** Samples taken of waste, soil, or groundwater from this unit has not been evaluated since listed waste has not been actively managed. **Current:** Suspect-TRU and TRU retrieval activities have commenced. These excavated wastes will be managed as nondangerous wastes until information is generated from nondestructive examination at the 224-T Transuranic Waste Storage and Assay Facility and from the evaluation of available records. Other wastes in the Low-Level Burial Grounds are not planned for retrieval.
216-A-37-1 CRIB	**Unit History:** This disposal unit began operation in March 1977 and received 242-A Evaporator process condensate from the 207-A South Retention Basins until April 1989 (DOE 1988). **Samples:** Samples of soils or process waters have not been evaluated since these wastes are derived from DST System wastes. **Current:** Listed waste contained-in evaluations on the soils have not been performed.

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units.
(Sheet 21 of 31)

TSD Unit	Listed Waste History
216-B-3 EXPANSION POND	**Unit History:** This TSD unit received effluents from PUREX, B Plant, and other 200 East Area Hanford Site facilities and consists of three lobes of the 216-B-3 Pond (3A, 3B, and 3C) (DOE 1994c). The 216-A-29 Ditch discharged to the 216-B-3 Pond until it was interim stabilized. The only listed waste received into this unit was a one-time-only discharge that occurred in July 1986 from the 216-A-29 Ditch. This TSD unit was clean closed on June 27, 1995, and is included in the Hanford Facility RCRA Permit Dangerous Waste portion as Attachment 23. **Samples:** Soil and effluent samples have been taken from this unit for environmental monitoring and closure activities. Annual reports for Environmental Surveillance activities from 1986 to 1987 and beyond showed that water, vegetation, and sediment samples were taken and analyzed by the 222-S Laboratory Complex. RCRA closure sampling activities in 1989 showed that hydrazine could not be detected. **Current:** There are no listed waste issues associated with this TSD unit. Clean closure of this TSD unit was based on the chemical nature of hydrazine and the 1989 sampling activities.
216-A-29 DITCH	**Unit History:** This unit received chemical sewer effluents from the PUREX Facility. The listed waste discharged to this unit consists of a single spill to the unit of a unused commercial chemical product. The spill occurred on July 7, 1986, and consisted of a sole active ingredient, a hydrazine-water solution (RHO 1986c). The effluent from this unit is sent to the 216-B-3 Pond via the 216-B-3-3 Ditch. **Samples:** Soil and effluent samples have been taken from this unit for environmental monitoring purposes. Annual reports for Environmental Surveillance activities from 1986 to 1987 and beyond showed that water, vegetation, and sediment samples were taken and analyzed by the 222-S Laboratory Complex. **Current:** This TSD unit will be incorporated into the Hanford Facility RCRA Permit during modification F in 2000. Clean closure of the TSD unit is expected based on the chemical nature of hydrazine and the 1989 sampling activities at the 216-B-3 Pond. There is no reason to believe that soil or surface water samples contain listed waste. A request for a contained-in determination will be addressed in closure documentation.

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units.
(Sheet 22 of 31)

TSD Unit	Listed Waste History
216-B-3 MAIN POND	**Unit History:** This TSD unit received effluents from PUREX, B Plant, and other 200 East Area Hanford Site facilities (DOE 1990c). Among other ditches, the 216-A-29 Ditch discharged to the 216-B-3 Main Pond. This TSD unit consists of the main pond as well as the 216-B-3-3 Ditch. **Samples:** Soil and effluent samples have been taken from this unit for environmental monitoring and closure activities. Annual reports for Environmental Surveillance activities from 1986 to 1987 and beyond showed that water, vegetation, and sediment samples were taken and analyzed by the 222-S Laboratory Complex. RCRA closure sampling activities in 1989 showed that hydrazine could not be detected. **Current:** This TSD unit will be incorporated into the Hanford Facility RCRA Permit during modification F in 2000. Clean closure of the TSD unit is expected based on the chemical nature of hydrazine and the 1989 sampling activities. There is no reason to believe that soil or surface water samples contain listed waste. A request for a contained-in determination will be addressed in closure documentation.
THERMAL TREATMENT TEST FACILITIES	**Unit History:** This TSD unit consists of the Engineering Development Laboratory (EDL), 324 EDL high bay and hotcell, In-Situ Vitrification Test Site, 1116-B-6-1 Crib, and other 324, 325, and 331 Building laboratories. This unit never managed dangerous waste. **Samples:** Not applicable. **Current:** This Part A Form 3 was procedurally closed in accordance with *Tri-Party Agreement Action Plan*, Section 6.3.3 (Ecology et al. 1996e). Ecology approved the closure of this TSD unit on May 13, 1996 (Ecology 1996f).

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units.
(Sheet 23 of 31)

TSD Unit	Listed Waste History
300 AREA SOLVENT EVAPORATOR	**Unit History:** This TSD unit is a Part V unit included in the Hanford Facility RCRA Permit Dangerous Waste portion, as Attachment 16. The TSD unit's active life was from 1975 through 1985 and it was used to treat spent solvents by evaporation. The spent solvents identified in the RCRA Closure Plan include tetrachloroethylene (F001), Trichloroethylene (F001), Methylene Chloride (F001), 1,1,1 Trichloroethane (F002), Ethyl acetate (F003), and Methyl ethyl ketone (F005) (DOE 1992b). **Samples:** In January 1985, a single sample of the solvent waste was collected for inorganic analysis (DOE 1992b). The analysis was performed by PNNL for uranium and other elements by inductively coupled plasma (ICP). Additional information regarding what laboratory did the analysis and how laboratory waste were managed cannot be found. PNNL cannot identify any knowledge about the disposition of analytical wastes generated from analysis or any unused sample portions. Concrete and soil samples also were obtained during a separate sampling event; however, these samples do not have any listed waste concerns associated with them. This is because of closure plan language (page 3-5) that states: "Based on the spill scenario....it is likely that little, if any, waste was discharged from the 300 Area Solvent Evaporator (ASE) when it was inadvertently filled with water....from the leaky steam heating coil system [and overflowed]." A few sentences later: "Such small quantities of solvent evaporator volatile components (if any) would be likely to have since evaporated from the soil..." Therefore, the soil and concrete samples did not contain any listed waste when analyzed. **Current:** There are no listed waste issues associated with this unit. The TSD unit was clean closed on June 27, 1995.
300 AREA WASTE ACID TREATMENT SYSTEM	**Unit History:** This Part A Form 3 has two units grouped together: (1) The 300 Area WATS and (2) the 311 Tanks. Listed waste codes P120 and U123 are identified on Revision 3 of the Part A Form 3 and are only associated with the 300 Area WATS unit. Tanks 40 and 50 are the two tanks that make up the 311 Tanks entry on the Part A Form 3 that received wastes from the 300 Area WATS. Although listed waste codes P120 and U123 appear in this Part A Form 3, these listed wastes were never managed in either of these units upon the effective day of the RCRA regulations for nonradioactive wastes in 1980.

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units.
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TSD Unit	Listed Waste History
300 AREA WASTE ACID TREATMENT SYSTEM (cont.)	Wastes collected in the 311 Tanks (Tanks 40 and 50) were transferred to a tanker truck. The tanker truck transported waste to the 100H Area and unloaded the waste into the 183-H Solar Evaporation Basins until November 1985. The tanker truck was emptied after each shipment. When the 183-H Solar Evaporation Basins disposal pathway ceased to exist, the waste was transported by tanker truck to another 300 Area facility, the 340 Facility 90-day accumulation tank system. The 340 Facility loads the waste into a railcar for transport to the 200 East Area DST System. Since the tanker truck was emptied between shipments, listed waste concerns from this TSD unit do not effect management of waste at the 340 Facility 90-day accumulation tank system. Although it is clear that listed wastes were never managed under this Part A Form 3 based on the effective date of the regulations, the chemicals managed on January 15, 1976 (formic acid-U123), and on June 29, 1976 (vanadium pentoxide-P120), in the 300 Area WATS and the 311 Tanks were sole active ingredients that would be designated as discarded chemical products under RCRA (UNC 1985b). Any TSD unit managing resultant waste on the effective day of applicable regulations would have to apply the listed waste codes to the waste being managed (57 FR 37284). **Samples:** When the 311 Tank Farm waste was transferred into the tanker truck, samples were taken and analyzed at PNNL's 3720 Building laboratory. Beginning in October 1973, every tanker truck of waste was sampled for certain radioactive and chemical parameters. Monthly composites of multiple batches also were analyzed. The tanker truck sample was sent to the 3720 Building during the life of the 183-H Solar Evaporation Basins. Unused samples portions left over from analysis were returned to personnel managing the 311 Tanks and placed into the next tanker truck shipment to the 100H Area. No listed waste concerns exist from these sampling activities under the 300 Area WATS Part A Form 3 since they occurred before the effective date of the RCRA regulations in 1980. **Current:** Listed waste concerns do not exist under this Part A Form 3. This position will be documented in the RCRA Closure Plan for this unit. Revision 4 of the Part A Form 3 has been certified by RL/WHC. The revision removes the listed waste codes from the 300 Area WATS TSD unit. This unit is scheduled to be incorporated into the Hanford Facility RCRA Permit in 1997 during modification C.

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units.
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TSD Unit	Listed Waste History
325 HAZARDOUS WASTE TREATMENT UNITS	**Unit History:** The 325 Hazardous Waste Treatment Units (HWTU) are located within the 325 Laboratory and are identified in the Part A Form 3. On December 2, 1994, the Part A Form 3 was activated for the first time. Since this time, TSD unit activities have been limited to container storage and treatment in the Shielded Analytical Laboratory (SAL) (in 325B Hotcells) under this Part A Form 3. TSD unit activities are being consolidated in the 325 Building under this Part A Form 3, and a Part B Permit will be pursued. SAL treatment and storage activities were conducted prior to December 2, 1994, under the Physical and Chemical Treatment Test Facilities Part A Form 3. TSD unit activities include container storage and treatment in other 325 Building locations under the existing Part A Form 3, as well as tank system storage and treatment after completing the Notice of Intent process to add the tank. The 325 HWTUs' activities in the SAL hotcell primarily consist of preparing SST System/DST System samples before the sample is distributed in the 325 Laboratory for analysis. Wastes generated in the SAL usually result from preparing samples. Mixed wastes from the SAL either are managed further in containers or are wastes that meet acceptance criteria of the 300 Area Radioactive Liquid Waste System (RLWS). The 300 Area RLWS acceptance criteria are set by 340 Facility 90-day accumulation tank system personnel and are based on the DST System/204-AR Waste Unloading Station acceptance criteria and additional 300 Area piping system considerations. Containers of high chloride aqueous waste and containers of organic waste are labpacked in containers and segregated from 300 Area RLWS bound waste. Labpacks of mixed wastes either are moved to the 305-B Storage Facility for shipment to the CWC or are shipped to the CWC directly from the generating location for further management on the Hanford Site. Aqueous wastes meeting 300 Area RLWS acceptance criteria are transferred down SAL drains to the 340 Facility 90-day accumulation tank system. Railcar transfers from the 340 Facility 90-day tank system to the DST System are accomplished through the 204-AR Waste Unloading Station in the 200 East Area. Listed waste sources that could be managed in the future within the 325 HWTUs come from 325 Laboratory operations or other PNNL activities in the 300 Area. Some wastes may be hand carried into the 325 Building for introduction into the 300 Area RLWS if the acceptance criteria are met for those wastes. 325 Laboratory building operations result in listed wastes that are generated from the laboratory's chemical inventory and the samples that are received into the laboratory. From the chemical inventory, laboratory operations generate spent solvents and discarded chemical products, which are labpacked in containers and segregated from wastes bound for the 300 Area RLWS.

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units.
(Sheet 26 of 31)

TSD Unit	Listed Waste History
325 HAZARDOUS WASTE TREATMENT UNITS (cont.)	The only listed wastes discharged from portions of the HWTU to the 300 Area RLWS under this Part A Form 3 are those F001-F005 wastes that meet the acceptance criteria. These aqueous wastes are analytical wastes generated from SST System or DST System characterization activities. **Samples:** Any samples taken of SAL-generated wastes are analyzed in the 325 Laboratory. SAL wastes are sampled to confirm that acceptance criteria are met for either the 300 Area RLWS or CWC. **Current:** Listed waste is managed in containers in the SAL. Only when SAL waste is discharged to the 300 Area RLWS via a building drain will the listed waste enter the tank being added to this Part A Form 3. When other treatment and storage activities are activated under this Part A Form 3, listed waste management will increase and may include management of the spent solvent and discarded chemical products generated within the 325 Laboratory or other listed waste samples received by personnel at the 325 Laboratory.
BIOLOGICAL TREATMENT TEST FACILITIES	**Unit History:** This TSD unit Part A Form 3 lists the 324, 325, and 331 Buildings as permitted locations. This unit never managed any dangerous waste. **Samples:** Not applicable. **Current:** This Part A Form 3 will be procedurally closed in accordance with *Tri-Party Agreement Action Plan*, Section 6.3.3 (Ecology et al. 1996e).
PHYSICAL & CHEMICAL TREATMENT TEST FACILITIES	**Unit History:** This TSD unit Part A Form 3 lists three locations where treatment and storage in containers could occur: two in the 324 Building and one in the 325 Building. TSD unit activities have only occurred in one location under this Part A Form 3 in the 325 Building SAL (in 325B Hotcells). PNNL used this Part A Form 3 to treat SAL hotcell wastes until December 2, 1994, when the 325 HWTU Part A Form 3 was activated. See the 325 HWTU discussion in this table for a description of the SAL activities. SST System and DST System samples have been the only listed wastes managed under this Part A Form 3. All other listed waste managed within the 325 Building have been managed under the generator provisions of WAC 173-303 and not under any PNNL Part A Form 3. **Samples:** Any samples taken of SAL-generated wastes were analyzed in the 325 Laboratory. SAL wastes were sampled to meet either 300 Area RLWS or CWC acceptance criteria. **Current:** The TSD unit has been inactive since December 2, 1994. Since waste management activities under the Part A Form 3 were transferred to the 325 HWTU Part A Form 3, Ecology approved the closure of this TSD unit on May 13, 1996 (Ecology 1996f).

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units.
(Sheet 27 of 31)

TSD Unit	Listed Waste History
303-K STORAGE UNIT	**Unit History:** This TSD unit is a container storage unit. This TSD unit managed spent solvents from the fuel fabrication activities in the 300 Area. 57 drums of absorbed spent solvents were managed on this pad until 1993. These drums are now stored in the CWC as mixed waste. **Samples:** The drums of waste were sampled in order to meet CWC acceptance criteria. The samples were sent offsite for analysis. **Current:** There is no listed waste managed in the TSD unit now, and the unit is expected to be clean closed. The TSD unit will be incorporated into the Hanford Facility RCRA Permit in 1997 during modification C.
305-B STORAGE FACILITY	**Unit History:** This TSD unit has obtained its Part B Permit at the same time as the 616 NRDWSF. It is included in the Hanford Facility RCRA Permit Dangerous Waste portion as Attachment 18. Wastes generated from PNNL operations are managed through the 305-B Storage Unit. The 305-B Storage unit is a container storage unit. Listed wastes have been routinely managed through this building and the Part A Form 3 has almost all possible listed waste codes on it. **Samples:** Not applicable with the exception of verification activities required by the Part B Permit. Verification activities result in samples being analyzed at 305-B and all wastes are placed back into the parent container. **Current:** Unless spills of listed waste occur that are not properly cleaned up, there are no listed waste concerns at this TSD unit.
332 STORAGE FACILITY	**Unit History:** This TSD unit has never managed dangerous waste and the Part A Form 3 will undergo procedural closure. **Samples:** Not applicable. **Current:** Not applicable.

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units.
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TSD Unit	Listed Waste History
300 AREA PROCESS TRENCHES	**Unit History:** The 300 Area process trenches received listed waste from multiple sources in the 300 Area through the process sewer. These discharges were in small quantities and occurred until 1985 when administrative controls were put in place to eliminate dangerous waste discharges to the process trenches. The process sewer has not been considered a listed waste stream since 1985. Spent solvent sources into the 300 Area Process trenches consisted of a few known sources from the fuels fabrication facilities and other laboratory process wastes. The known spent solvent sources include trichloroethylene and tetrachloroethylene under waste code F001 and methylene chloride under waste code F002. The information concerning which laboratory chemicals were discharged as spent solvents and when they were discharged into the process sewer is not well documented. The chemical constituents identified in the DOE/RL-93-73, *The 300 Area Process Trenches Closure Plan* (DOE 1995g), RCRA Closure plan that are also identified under spent solvent waste code listings in WAC 173-303-9904 include: benzene, carbon tetrachloride, chlorinated benzenes, methyl ethyl ketone, tetrachloroethylene, toluene, 1,1,1-Trichloroethane, trichloroethylene, and xylenes. All of these chemicals are included as constituents under four waste codes (F001, F002, F003, and F005) in the event that information would surface to indicate that laboratory chemical uses constituted spent solvent uses. The Part A Form 3 for this unit (Revision 4 dated May 25, 1995) includes listed waste codes F001, F002, F003, F005, and U210. The U210 discarded chemical product listed waste source was identified on Page 32 of 38 in the CY 1984 TSD Facility Annual Dangerous Waste Report as a result of a spill on July 6, 1984 (RHO 1984). Two other documented spills of degreaser tetrachloroethylene (spent solvent) to the 300 Area Process Trenches occurred on January 5, 1981 (UNC 1981), and November 4, 1982 (UNC 1982). **Samples:** The 300 Area Process Trenches were sampled weekly at the head end of the trenches by Hanford Environmental Development Laboratory (HEDL) during the periods when dangerous wastes were intentionally discharged to the process sewer in 1985 (DOE 1995g). According to discussions with HEDL operating personnel, from 1982 to 1985 these samples were sent to the 325 Building and PNNL's 3720 Building for analysis of metals, pH, gross alpha, gross beta, and uranium. Documentation, such as actual analytical results from PNNL or signed chain-of-custody forms, cannot be found. PNNL cannot identify any knowledge about the disposition of analytical wastes generated from analysis or any unused sample portions. Process water samples also were taken on May 7, 1986, and May 22, 1986, according to WHC-SP-0193 (WHC 1987a). UST in Richland, Washington, performed the analysis on these samples.

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units.
(Sheet 29 of 31)

TSD Unit	Listed Waste History
300 AREA PROCESS TRENCHES (cont.)	Soil samples from the 300 Area Process Trenches have been obtained twice. One set of shallow sediment sampling events occurred between June 16, 1986 and September 10, 1986 where UST performed the analysis on these samples. Samples of soil also were obtained before and after performing the expedited response actions in the process trenches. Two offsite laboratories performed the analysis on these samples: TMA and Weston. Groundwater monitoring samples also were taken repeatedly. UST and PNNL performed the analysis on the groundwater samples according to the groundwater monitoring plan. It is not known what PNNL building the groundwater samples were sent or where the analytical wastes were sent. **Current:** Ecology issued a conditional contained in determination for the 300 Area Process Trenches soils on May 15, 1995 (DOE 1995e and Ecology 1995c). The contained in determination covers methyl ethyl ketone, carbon tetrachloride, trichloroethylene, tetrachloroethylene, toluene, xylenes, and chlorobenzene under waste codes F001, F002, F003, F004, and F005. The waste code F004 seems to have been inadvertently added to the Part A Form 3. The condition in the letter says that the soil must be disposed of on the Hanford Site in a landfill meeting minimum technical standards of 40 CFR 264. On January 16, 1995, Ecology issued a supplemental letter addressing the contained in determination for waste code U210 (Ecology 1996a). This TSD unit is being incorporated into the Hanford Facility RCRA Permit during modification B in 1996.
HANFORD PATROL ACADEMY DEMOLITION SITES	**Unit History:** This TSD unit detonated discarded chemical products during its lifetime. The listed waste that was detonated is reflected on the Part A Form 3 for the unit. On March 12, 1987, a demolition failure occurred such that contaminated soil was placed into 30-gallon drums and sent directly offsite (not through 616 NRDWSF) for disposal. This TSD unit has been added as a Part V unit to the Hanford Facility RCRA Permit. DOE/RL-92-39, *Hanford Patrol Academy Demolition Sites' Closure Plan*, Revision 1, (DOE 1994b) is Attachment 24 to the Hanford Facility RCRA Permit. **Samples:** On September 26, 1994, soil samples were acquired from the TSD unit locations and sent offsite to Lockheed for analysis to support closure activities. Samples also were obtained from soil at the TSD unit as provided in Appendix 3A to the *Hanford Patrol Academy Demolition Sites Closure Plan* (DOE 1994b). The laboratories used for these samples include the Hanford Environmental Health Foundation (HEHF) laboratory in Richland, Washington, as well as Northwest Enviroservice in Seattle, Washington. **Current:** There are no listed waste concerns at this TSD unit. The TSD unit has been clean closed as of October 26, 1995. Clean closure was based on information pertaining to the efficiency by which chemicals are destroyed through detonation and the time that has elapsed from the last event at the TSD unit.

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units.
(Sheet 30 of 31)

TSD Unit	Listed Waste History
616 NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY	**Unit History:** This TSD unit stores nonradioactive dangerous waste until it is shipped off the Hanford Facility for treatment and disposal. Waste is received into this unit only from Hanford Site sources. The Part A Form 3 for this TSD unit has almost every listed waste code contained on it. **Samples:** Issues pertaining to management of listed waste samples from the wastes received into 616 NRDWSF are not applicable with the exception of verification activities required by the Part B Permit for the TSD unit. When Ecology issued the Part B Permit for this TSD unit, verification sampling became a requirement for a certain percentage of the incoming wastes (Ecology 1994, Part III, Chapter 1). All wastes from verification sampling activities are returned to the container. **Current:** Unless spills of listed waste occur that are not properly cleaned up, there are no listed waste concerns at this TSD unit. The 616 NRDWSF is empty because Hanford Site nonradioactive dangerous wastes are shipped directly offsite to a TSD facility other than the Hanford Facility.
600 AREA PURGEWATER STORAGE AND TREATMENT FACILITY	**Unit History:** This TSD unit was established to manage purgewater from Hanford Site groundwater wells. With the signing of the Purgewater Agreement between Ecology and DOE-RL, purgewater containing listed waste constituents is not managed as a listed waste on the Hanford Site. The Purgewater Agreement (DOE et al. 1990a) is attached to the Tri-Party Agreement (Ecology et al. 1996e) and the Hanford Facility RCRA Permit (Ecology 1994). Listed waste codes on the Part A Form 3 were added as a protective filing although no listed wastes have been managed in the unit. **Samples:** Samples taken at the groundwater wells have shown to contain significant levels of carbon tetrachloride. **Current:** This TSD unit will be closed under interim status. It is not scheduled to be incorporated on the Hanford Facility RCRA Permit, Attachment 27.

Table 2. Listed Waste Management History at Treatment, Storage, and Disposal Units.
(Sheet 31 of 31)

TSD Unit	Listed Waste History
NONRADIOACTIVE DANGEROUS WASTE LANDFILL	**Unit History:** According to burial records and the closure plan (DOE 1990d), this disposal unit received a great deal of listed waste and nonlisted waste up until the point when this unit no longer accepted waste in 1985. The Part A Form 3 for this unit was modified in 1990 to include 39 waste codes based on the waste designation database contained in Appendix 4B of the closure plan. The waste codes identified in the database cannot be relied on for any listed waste determinations however because spent solvent waste codes (Fxxx) and discarded chemical product waste codes (Pxxx/Uxxx) are identified for the same waste which was disposed. By definition, these two types of listed waste codes are never concurrently assigned to the same waste. Other waste designation aspects contained in Appendix 4B are useful if they are still accurate. Furthermore, when the waste codes in the Part A Form 3 are compared with the ones in Appendix 4B, there are two waste codes appearing on the Part A Form 3 that do not appear in Appendix 4B: U051-Creosote, and U219-Thiourea. Samples: Wastes typically were disposed without any sampling being performed. Current: If the waste buried in this unit is excavated, additional investigation of burial records is required to determine any listed waste management impacts. It is not expected that any waste will be excavated from the NRDWL to close this TSD unit. Additionally, excavation also could result in F039 leachate generation if liquids are found.

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