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Revision 0

# 105-K Basins 1999 Debris Report

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Prepared for the U.S. Department of Energy  
Assistant Secretary for Environmental Management

Project Hanford Management Contractor for the  
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**United States  
Department of Energy**

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**CONTENTS**

1			
2	1.0	PURPOSE.....	1-1
3	2.0	BACKGROUND INFORMATION.....	2-1
4	2.1	PROGRAM PLANNING STATUS.....	2-1
5	2.2	FACILITY DESCRIPTION.....	2-1
6	3.0	SCOPE.....	3-1
7	4.0	DESCRIPTION OF K BASIN DEBRIS.....	4-1
8	4.1	IN-POOL DEBRIS.....	4-1
9	4.2	OUT-OF-POOL DEBRIS.....	4-3
10	5.0	STORAGE AND DISPOSAL FACILITIES.....	5-1
11	5.1	COMMON REQUIREMENTS FOR STORAGE/DISPOSAL	
12		FACILITIES.....	5-1
13		5.1.1 Characterization.....	5-1
14		5.1.2 Designation.....	5-2
15		5.1.3 Packaging.....	5-2
16	5.2	STORAGE/DISPOSAL FACILITIES.....	5-2
17	6.0	DEBRIS WASTE DESIGNATION METHODOLOGY.....	6-1
18	6.1	IN-POOL DEBRIS.....	6-1
19	6.2	OUT-OF-POOL DEBRIS.....	6-2
20	7.0	QUANTITIES OF DEBRIS REMOVED.....	7-1
21	8.0	REFERENCES.....	8-1
22			

1

**LIST OF FIGURES**

2 Figure 2-1. Location of the 100-K Area within the Hanford Site. ....2-2  
3 Figure 2-2. Location of 105-KW and 105-KE Basins within the 100-K Area. ....2-3  
4 Figure 2-3. 105-K West Basin General Layout.....2-5

5

**LIST OF TABLES**

6 Table 4-1. 1997 105-KE and 105-KW Basins In-Pool Debris Estimate. ....4-2  
7 Table 7-1. 105-KE and 105-KW Basins Debris Removed. ....7-2

8

## LIST OF TERMS

1		
2	CERCLA	<i>Comprehensive Environmental Response, Compensation and</i>
3		<i>Liability Act of 1980</i>
4	CFR	<i>Code of Federal Regulations</i>
5	DOE	U.S. Department of Energy
6	Ecology	Washington State Department of Ecology
7	EPA	U.S. Environmental Protection Agency
8	ERDF	Environmental Restoration Disposal Facility
9	g	gram
10	LLW	low-level waste
11	mg/L	milligrams per liter
12	mrem/h	millirem per hour
13	NaCi	nanocurie
14	PCB	polychlorinated biphenyl
15	ppm	parts per million
16	RCRA	<i>Resource Conservation and Recovery Act of 1976</i>
17	RL	U.S. Department of Energy, Richland Operations Office
18	SNF	spent nuclear fuel
19	TCLP	toxicity characteristic leaching procedure
20	TRU	transuranic (waste)
21	TSD	treatment, storage, or disposal
22	WAC	<i>Washington Administrative Code</i>
23		

## DEFINITIONS

- 1
- 2 **B-25 Box**—A painted carbon steel box measuring 4 by 4 by 6 ft.
- 3 **Dangerous waste**—Solid waste designated per WAC 173-303-070 through WAC 173-303-100  
4 as dangerous, extremely hazardous, or mixed waste.
- 5 **K Basin Debris**—Any object that is larger than 0.25 in. in any one dimension within the  
6 105-K East and K West Spent Nuclear Fuel Basins that is not a permanent structure. This does  
7 not include spent fuel or sludge that is currently maintained within the 105-K Basins.
- 8 **Low-level waste**—Waste that contains radioactivity and is not classified as high-level waste,  
9 transuranic waste, or spent nuclear fuel or byproducts material as defined by  
10 DOE Order 5820.2A.
- 11 **Mixed waste**—Waste containing both radioactive and hazardous/dangerous waste components  
12 as defined by the *Atomic Energy Act of 1954*, the *Resource Conservation and Recovery Act of*  
13 *1976*, and WAC 173-303.
- 14 **Radioactive waste**—A solid, liquid, or gaseous material that contains radionuclides regulated  
15 under the *Atomic Energy Act of 1954*, and is of negligible economic value, considering costs of  
16 recovery.
- 17 **RCRA Debris**—Defined in 40 CFR 268.2. *Resource Conservation and Recovery Act of 1976*  
18 (RCRA) debris consists of solid material exceeding a 2.4-in. particle size that is intended for  
19 disposal and that is a manufactured object, plant or animal matter, or natural geologic material  
20 and designated as a hazardous waste.
- 21 **Remote handled**—Packaged waste whose external surface dose rates exceed 200 mrem/h as  
22 defined by DOE Order 5820.2A.
- 23 **Sludge**—A product that is the result of long-term storage of irradiated fuel. This sludge consists  
24 of fuel corrosion products, small fuel pieces, fission and activation products, iron and aluminum  
25 oxides, concrete grit, dirt, ion-exchange resin, and biological material.
- 26 **Transuranic waste**—Contaminated with alpha-emitting transuranium radionuclides with an  
27 atomic number greater than 92 with half-lives greater than 20 years and concentrations greater  
28 than 100 NaCi of alpha per gram of waste at the time of characterization. In addition, radium  
29 sources and <sup>233</sup>U in concentrations greater than 100 NaCi of alpha per gram of waste matrix also  
30 are managed as transuranic waste as defined by DOE Order 5820.2A.
- 31

1 **METRIC CONVERSION CHART**

2 The following chart is provided to the reader as a tool to aid in conversion.

Into metric units			Out of metric units		
If you know	Multiply by	To get	If you know	Multiply by	To get
<b>Length</b>			<b>Length</b>		
inches	25.40	millimeters	millimeters	0.0393	inches
inches	2.54	centimeters	centimeters	0.393	inches
feet	0.3048	meters	meters	3.2808	feet
yards	0.914	meters	meters	1.09	yards
miles	1.609	kilometers	kilometers	0.62	miles
<b>Area</b>			<b>Area</b>		
square inches	6.4516	square centimeters	square centimeters	0.155	square inches
square feet	0.092	square meters	square meters	10.7639	square feet
square yards	0.836	square meters	square meters	1.20	square yards
square miles	2.59	square kilometers	square kilometers	0.39	square miles
square miles	259	hectares	hectares	0.00391	square miles
acres	0.404	hectares	hectares	2.471	acres
<b>Mass (weight)</b>			<b>Mass (weight)</b>		
ounces	28.35	grams	grams	0.0352	ounces
pounds	0.453	kilograms	kilograms	2.2046	pounds
short ton	0.907	metric ton	metric ton	1.10	short ton
<b>Volume</b>			<b>Volume</b>		
fluid ounces	29.57	milliliters	milliliters	0.03	fluid ounces
quarts	0.95	liters	liters	1.057	quarts
gallons	3.79	liters	liters	0.26	gallons
cubic feet	0.03	cubic meters	cubic meters	35.3147	cubic feet
cubic yards	0.76	cubic meters	cubic meters	1.308	cubic yards
<b>Temperature</b>			<b>Temperature</b>		
Fahrenheit	subtract 32 then multiply by 5/9	Celsius	Celsius	multiply by 9/5, then add 32	Fahrenheit

3 Source: *Engineering Unit Conversions*, M. R. Lindeburg, PE., Second Ed., 1990,  
4 Professional Publications, Inc., Belmont, California.



## 2.0 BACKGROUND INFORMATION

The U.S. Department of Energy (DOE), its predecessors, and contractors at the Hanford Site were involved in the production and purification of nuclear defense materials from the early 1940s to the late 1980s. These production activities generated large quantities of liquid and solid mixed waste. This waste is subject to regulation under authority of the *Resource Conservation and Recovery Act of 1976* (RCRA) and the *Atomic Energy Act of 1954*.

The Washington State Department of Ecology (Ecology), U.S. Environmental Protection Agency (EPA), and the U.S. Department of Energy, Richland Operations Office (RL) entered into an agreement (known as the *Hanford Federal Facility Agreement and Consent Order* [Tri-Party Agreement] [Ecology et al. 1996]) to bring Hanford Site operations into compliance with dangerous waste regulations and to establish a timetable for cleanup. This annual debris report provides a quantitative description of debris removed from the basins in calendar year 1999.

On September 22, 1999, the EPA, Ecology, and RL signed a *Comprehensive Environmental Response, Compensation and Liability Act of 1980* (CERCLA) Record of Decision (ROD 1999) designating the removal of fuel, sludge, debris, and water from the K Basins as a CERCLA-interim removal action.

### 2.1 PROGRAM PLANNING STATUS

The extent of debris removal and its management after removal depends on the completion of the K Basins Spent Nuclear Fuel (SNF) Project and the transition turnover criteria of the Tri-Party Agreement (Ecology et. al 1996, Section 8.5). These criteria will make it possible to define the "types" of debris that will be removed as part of the SNF Project and those types which will be removed later.

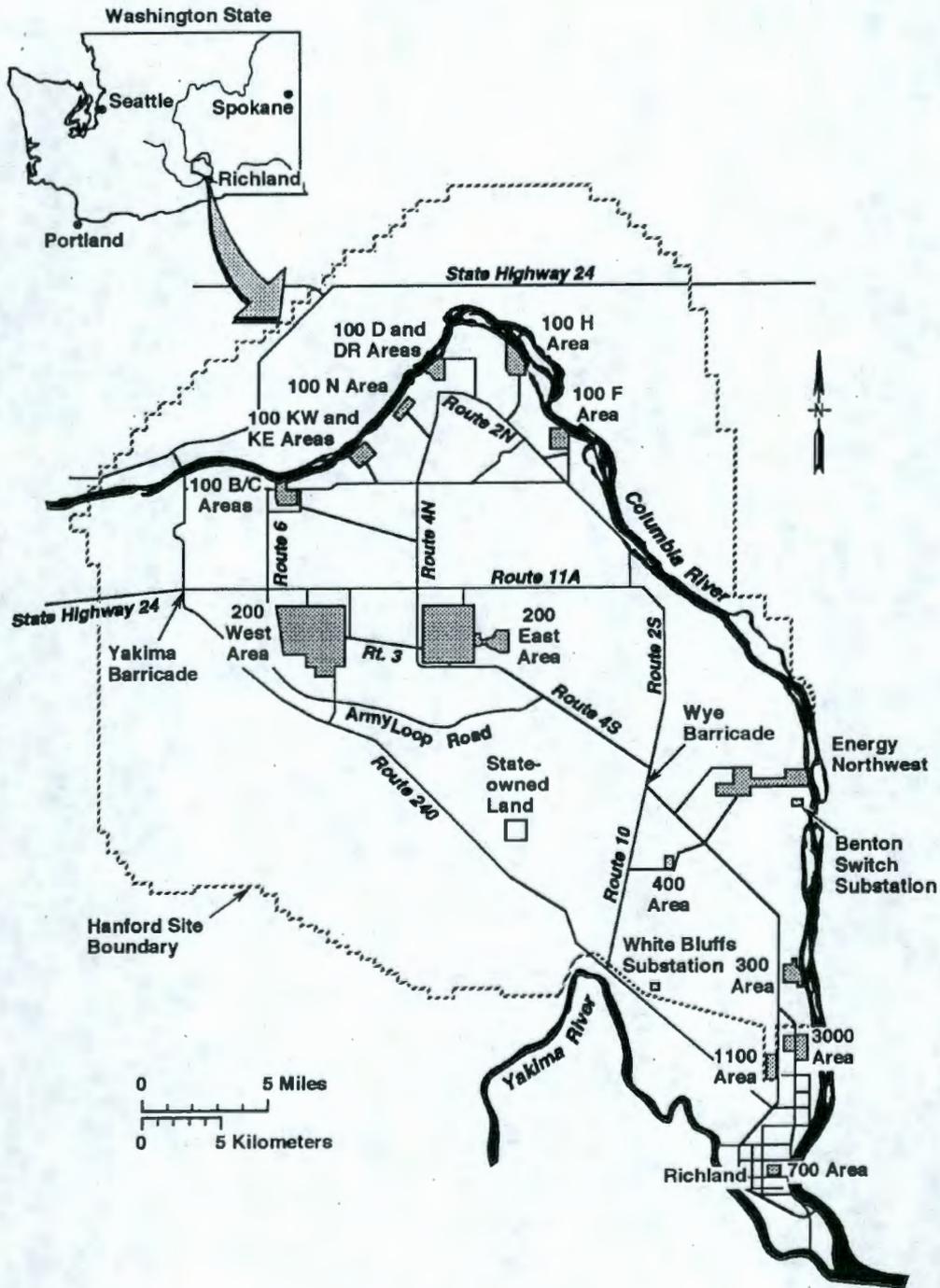
### 2.2 FACILITY DESCRIPTION

The 105-K East (KE) and 105-K West (KW) reactors and their associated SNF storage basins were constructed in the early 1950s and are located in the 100-K Area about 1,400 ft from the Columbia River (Figures 2-1 and 2-2). SNF has been stored in these basins since 1975 (KE) and 1981 (KW). Approximately 1,100 metric tons of SNF are stored in the 105-KE Basin underwater in 3,677 open canisters. In addition, the 105-KE Basin contains numerous empty canisters. This SNF has been stored for varying periods ranging from 8 to 24 years. The fuel is corroding, and an estimated 1,800 ft<sup>3</sup> of sludge, containing radionuclides and miscellaneous materials, have accumulated on the floor of the 105-KE Basin.

Approximately 1,000 metric tons of SNF are stored in the 105-KW Basin underwater in 3,817 closed canisters. Because the SNF was placed in closed containers before storage, there is no appreciable sludge buildup on the floor of the 105-KW Basin.

1

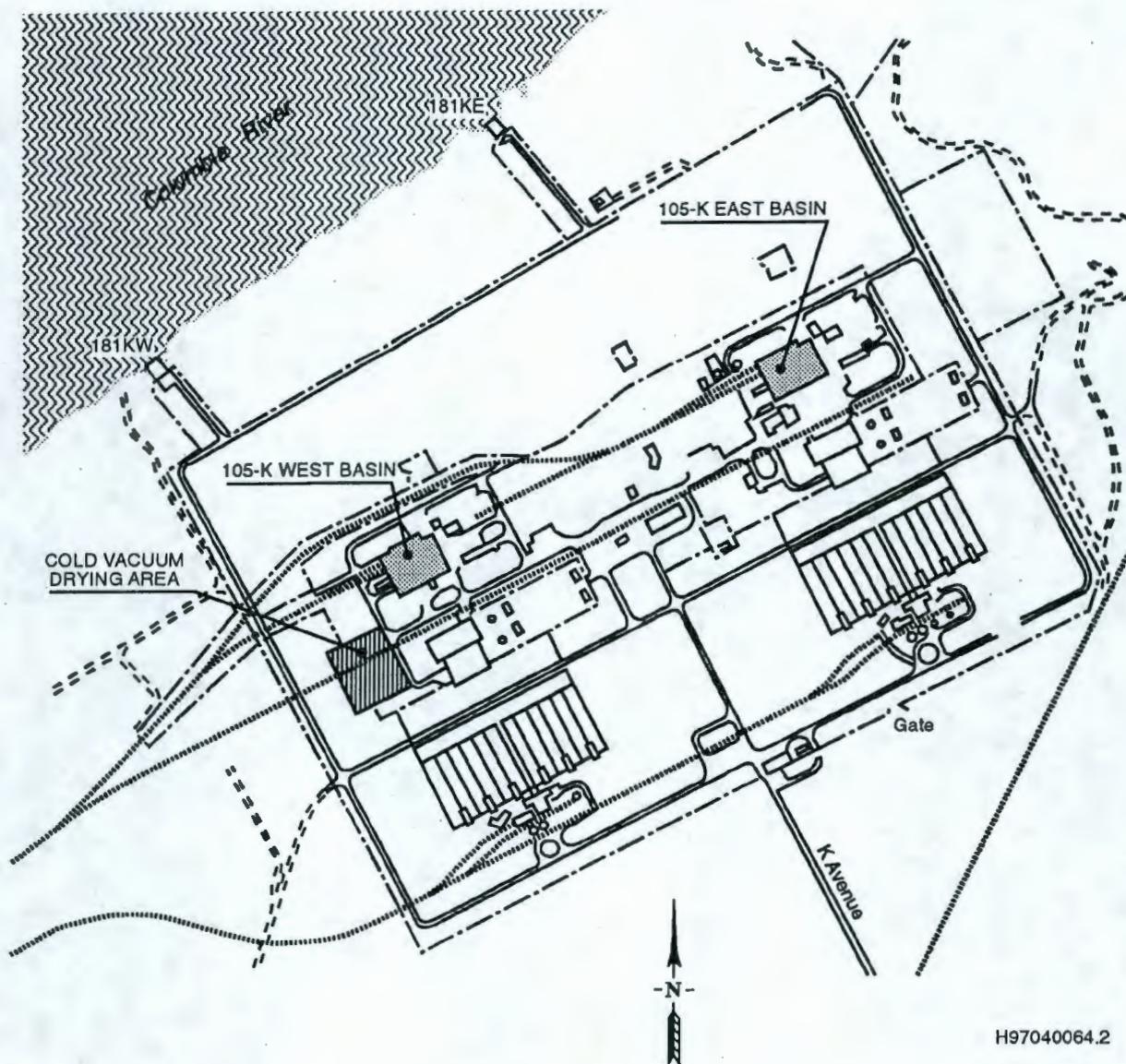
Figure 2-1. Location of the 100-K Area within the Hanford Site.



2

3

1 Figure 2-2. Location of 105-KW and 105-KE Basins within the 100-K Area.



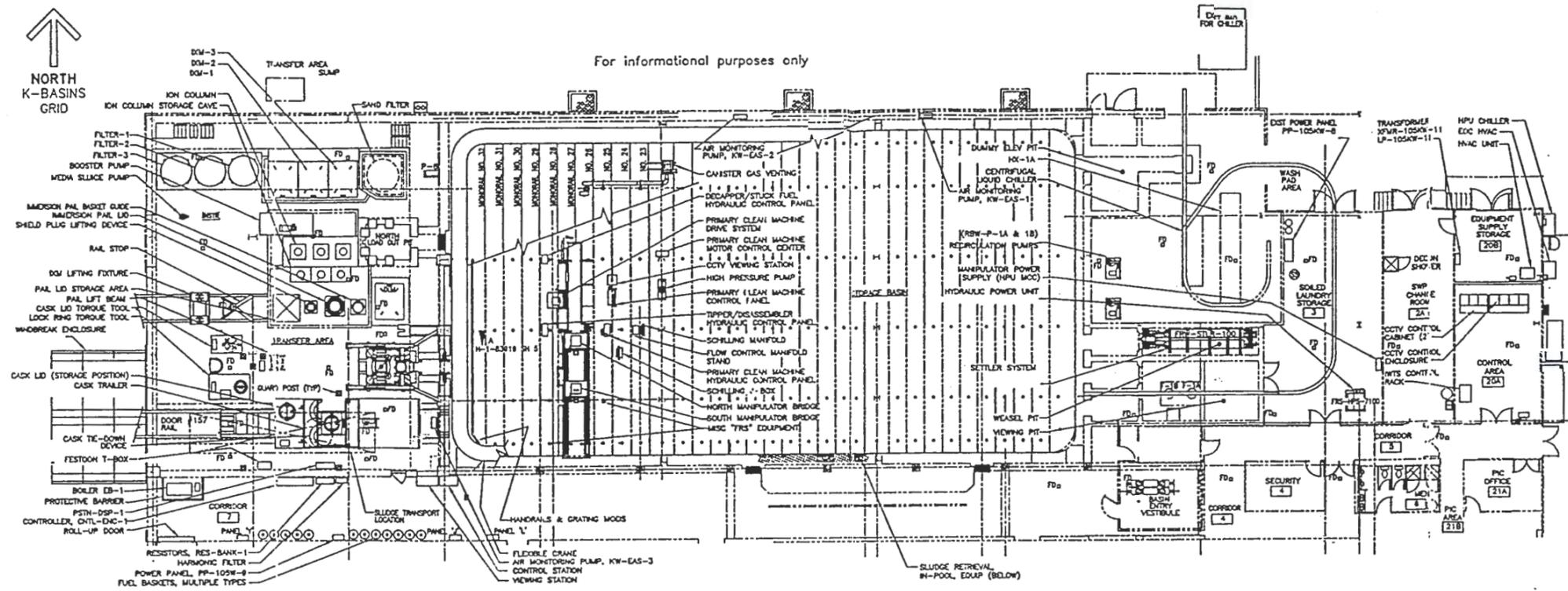
2 The 105-KE and 105-KW SNF storage basin buildings are structural steel with transite  
 3 siding and are approximately 275 ft long and 85 ft wide. Figure 2-3 shows the general facility  
 4 layout of the 105-KW Basin. This figure depicts the complexity of underwater equipment being  
 5 installed for the removal of SNF in the 105-KW Basin. Because the 105-KE Basin will be  
 6 equipped with similar equipment, this figure also is considered representative of the  
 7 105-KE Basin for purposes of this report.

8

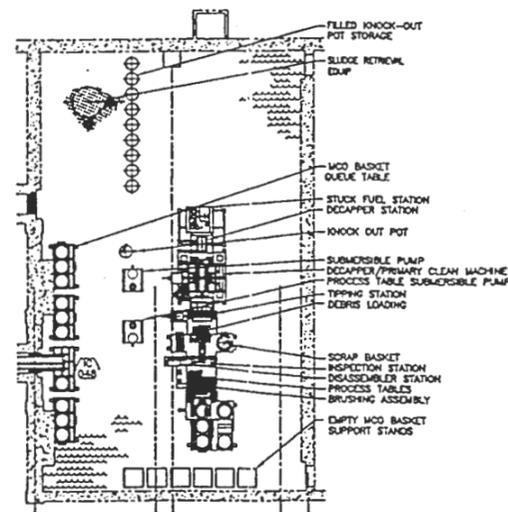
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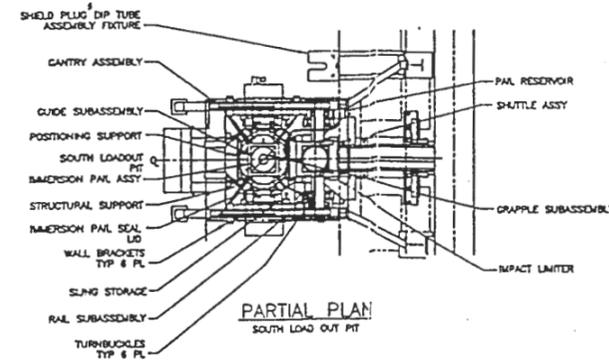
Figure 2-3 105-K West General Layout.\*



PLAN



PARTIAL PLAN  
IN-POOL EQUIPMENT



PARTIAL PLAN  
SOUTH LOAD OUT PIT

- LEGEND:**
- CCTV CLOSE-CIRCUIT TELEVISION
  - CTM CASK TRANSFER FACILITY MODIFICATION
  - EOC EQUIPMENT OPERATIONS CENTER
  - FD FLOOR DRAIN
  - FRS FUEL RETRIEVAL SYSTEM
  - HPU HYDRAULIC POWER UNIT
  - IWTS ITERATED WATER TREATMENT SYSTEM
  - DM ION EXCHANGE MODULE
  - MCC MOTOR CONTROL CENTER
  - MOC MULTI-CASKET OVERPACK
  - PC PERSON IN CHARGE

1

### 3.0 SCOPE

2

3

4

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6

This report applies only to the debris waste currently being generated at the 105-KE and 105-KW Basins as the result of the CERCLA removal action described in DOE/RL-99-89, *Remedial Design Report and Remedial Action Work Plan for the K Basins Interim Remedial Action* (RL 2000a). A more detailed description of 105-K Basins debris resides in Section 4.0.

## 4.0 DESCRIPTION OF K BASIN DEBRIS

There are two general categories of debris at the 105-K Basins:

- In-pool debris is debris located underwater in the spent fuel pool.
- Out-of-pool debris is debris located within the buildings, but not located underwater in the spent fuel pools.

### 4.1 IN-POOL DEBRIS

In-pool debris, which could be highly radiologically contaminated, consists of the following:

- Process equipment that has no use or planned use (e.g., large and heavy, bulky items such as a fuel canister crusher, canister washer [old], fuel segregation equipment, transfer channel equipment, encapsulation dump table, remote-operated manipulators, pumps, hydrocyclones, and cartridge filters)
- Irradiated metal debris consisting of metal objects that were irradiated in the reactor during operation if it can be confirmed that SNF is not bonded or adhered to the object
- Fuel storage equipment consisting of empty fuel element canisters, canister lids, fuel hangers, and poles
- Structural steel and fabricated structural components (e.g., fuel storage racks and bulkheads)
- Piping and piping components
- Miscellaneous debris consisting of an assortment of commodities and consumables (e.g., electrical cable, junction boxes, light fixtures, tools, plastic, wood, tarps, tubing, rope, brushes, gloves, face masks, rodents, and other materials contained within the pools).

Table 4-1 provides a snapshot of the 1997 estimated volume of certain types of debris located under approximately 16 ft of water (Knox 1997). While the actual debris amounts are constantly changing, these data are being provided to show the type and quantities being dealt with. Changes in the total debris in the basins result from debris removal (see Section 7.0, Table 7-1 for this year's estimate) and from the addition of systems that may be removed after fuel removal is complete.

1

Table 4-1. 1997 105-KE and 105-KW Basins In-Pool Debris Estimate.

Description	Estimated volume <sup>a</sup> (ft <sup>3</sup> )	Boxes (4 by 4 by 8 ft)/drums needed (estimated) <sup>b</sup>
<b>Canisters</b>		
Approximately 3,677 canisters in 105-KE Basin <sup>c</sup>	11,031 <sup>d</sup> /3,352 <sup>e</sup>	294 (85 gal) drums
Approximately 3,817 stainless steel canisters in 105-KW Basin	11,523 <sup>d</sup> /3,500 <sup>e</sup>	307 (85 gal) drums
<b>Canister totals</b>	<b>22,554<sup>d</sup>/6,852<sup>e</sup></b>	<b>601 (85 gal) drums</b>
<b>Miscellaneous debris</b>		
Miscellaneous debris in 105-KE Basin	211	2 plywood boxes
Miscellaneous debris in 105-KE Basin dummy elevator pit	640	5 plywood boxes
Miscellaneous debris in 105-KE Basin technical viewing pit	192	2 plywood boxes
Miscellaneous debris in 105-KE Basin weasel pit	32	1 plywood box
Miscellaneous debris in 105-KE Basin Discharge Chute	96	1 plywood box (repackaging equipment left for decontamination and decommissioning)
Miscellaneous debris in 105-KW Basin	50	1 plywood box
Approximately 20 poles and tools in 105-KW Basin	68	9 (55 gal) drums
<b>Miscellaneous debris totals</b>	<b>1,289</b>	<b>12 plywood boxes/9 (55 gal) drums</b>
<b>Racks</b>		
Fuel storage racks in 105-KE Basin	7,628 <sup>f</sup>	61 plywood boxes
Fuel storage racks in 105-KW Basin	7,628 <sup>f</sup>	61 plywood boxes
<b>Rack totals</b>	<b>15,256</b>	<b>122 plywood boxes</b>
<b>TOTAL (debris, canisters, and rack)</b>	<b>39,099<sup>g</sup></b>	<b>134 plywood boxes, 601 (85 gal) drums, and 9 (55 gal) drums</b>

<sup>a</sup>Debris volume subject to change with installation of new mechanical and structural systems required to support fuel removal.

<sup>b</sup>Number of boxes needed have been rounded up to the next whole box.

<sup>c</sup>The quantity of fuel canisters in the 105-KE Basin has been revised upward to reflect actual numbers of canisters per recent inventory.

<sup>d</sup>Volume shown represents uncrushed canister volume, approximately 3 ft<sup>3</sup>/canister.

<sup>e</sup>Super-compacted at 3:1 ratio (rounded).

<sup>f</sup>Volume of fuel storage racks re-estimated and reflects volume of packaged racks versus volume of metal only.

<sup>g</sup>Of this 39,099 ft<sup>3</sup>, 22,554 ft<sup>3</sup> were super-compacted to 6,852 ft<sup>3</sup>.

2

1           In calendar year 1999, construction activities in the 105-KW Basin included the  
2 installation of the Fuel Retrieval System, Integrated Water Treatment System, and Multi-  
3 Canister Overpack/Cask Loadout System. Startup testing of these new systems also was in  
4 progress. Activities in the 105-KE Basin included demolition of certain interior structures to  
5 make room for new systems. The extent to which these systems will either be removed in the  
6 future following fuel removal or stabilized/left in place has not yet been determined (see  
7 Section 2.1). Table 4-1 does not contain an estimate of this volume.

#### 8   **4.2   OUT-OF-POOL DEBRIS**

9           Out-of-pool debris is typically generated from the maintenance, operation, and facility  
10 modifications of the 105-KE and 105-KW Basins, but not located in the spent fuel pool itself  
11 (i.e., above water). Out-of-pool debris consists of the following:

- 12           • Process equipment that has no use or planned use (e.g., sand filter, ion-exchange  
13           columns, piping and piping components, and heat exchangers)
- 14           • Consumables, including ion-exchange modules, cartridge filters, gloves, plastics,  
15           tape, anti-C's, and other miscellaneous trash generated during maintenance and  
16           operational activities
- 17           • Demolition debris, including structural steel and other fabricated components no  
18           longer needed and are required to be removed to make room for new fuel-  
19           handling processes.

20

## 5.0 STORAGE AND DISPOSAL FACILITIES

Debris will be removed from the K Basins, treated as appropriate, and disposed of at the Environmental Restoration Disposal Facility (ERDF). CERCLA waste-staging areas have been established at the K Basins to allow temporary storage of the waste before disposal. If the debris cannot be treated to meet *ERDF Waste Acceptance Criteria* (BHI 1996), it will be transferred to a 200 Area waste management facility, including one or more of the following:

- Central Waste Complex
- Mixed Waste Trench (Project W-025)
- Low-Level Burial Grounds
- Waste Receiving and Processing Facility
- T Plant.

The scope of the CERCLA interim remedial action for debris is removal from the basins, packaging, and transport to ERDF for disposal or alternatively transport to an approved waste management facility appropriate for the designation. When the debris is received at the storage or disposal facility, further waste management of the debris is beyond the scope of this interim remedial action.

### 5.1 COMMON REQUIREMENTS FOR STORAGE/DISPOSAL FACILITIES

Before debris waste can be shipped or accepted at the storage or disposal facility, the following criteria must be adequately addressed:

- Characterization
- Designation
- Packaging.

Any other requirements listed in the receiving facilities' waste acceptance criteria also must be met.

#### 5.1.1 Characterization

The 105-K Basins debris waste will be characterized to provide for proper segregation, treatment, storage, and/or disposal. A *K Basins Sampling and Analysis Plan* (HNF-5521) will be used to provide the characterization information.

### 1 5.1.2 Designation

2 Debris waste will be designated in accordance with WAC 173-303-070. This designation  
3 considers the following:

- 4 • Listed discarded chemical products
- 5 • Listed dangerous waste sources
- 6 • Dangerous waste characteristics, including ignitability, corrosivity, reactivity,  
7 toxicity, and persistence.

8 Section 6.0 addresses the designation methodology.

### 9 5.1.3 Packaging

10 Containment packages for debris will be in a condition with no visible cracks, holes,  
11 significant corrosion, or other damage that could compromise integrity of the waste package.

## 12 5.2 STORAGE/DISPOSAL FACILITIES

13 The 105-K Basins debris waste can be categorized into one of the following types of  
14 waste and will be dispositioned to one or more of the following storage/disposal facilities:

- 15 • Recyclable material—This is material (e.g., paper, scrap metal, and light bulbs  
16 that can be reused or reprocessed elsewhere) that can be released from the  
17 radiological areas. If this material is radiologically contaminated, it is  
18 nonrecyclable. Nonrecyclable material will be managed as a low-level or mixed  
19 waste after being removed from the facility.
- 20 • Low-level waste—Most of the 105-K Basins debris will be managed as low-level  
21 waste. This waste cannot be radiologically decontaminated for release, and will  
22 be disposed in the ERDF based on the ERDF's waste acceptance criteria.
- 23 • Mixed waste—A small portion of debris will be managed as mixed waste. This  
24 debris waste is both a radioactive waste and a dangerous waste. This material will  
25 be disposed in the ERDF based on the ERDF's waste acceptance criteria.
- 26 • Transuranic (TRU) waste—A portion of 105-K Basins debris waste will be  
27 managed as TRU waste and TRU mixed waste. These wastes will be stored at the  
28 Central Waste Complex until a permanent disposal path becomes available.

29 If debris cannot be treated to meet *ERDF Waste Acceptance Criteria* (BHI 1996), the  
30 debris will be transferred to an existing 200 Area waste management facility appropriate for the  
31 type of waste.

## 6.0 DEBRIS WASTE DESIGNATION METHODOLOGY

The following sections provide the designation methodologies for in-pool debris and out-of-pool debris waste.

All 105-K Basins debris will be designated pursuant to WAC 173-303-070. The 105-K Basins debris that is designated as a dangerous waste also will be screened to determine if it also meets the definition of RCRA debris (i.e., over 2.4 in. per 40 CFR 268.2, "Land Disposal Restrictions"). If it does, this type of debris will be managed in accordance with 40 CFR 268.

### 6.1 IN-POOL DEBRIS

Most of the in-pool debris waste has come in contact with sludge located at the bottom of the basin. Sludge is the result of long-term storage of irradiated fuel. This sludge consists of fuel corrosion products, small fuel pieces, fission and activation products, iron and aluminum oxides, concrete grit, dirt, ion-exchange resin, and biological material. The *Analysis of Sludge from the Hanford K East Basin Floor and Weasel Pit* (WHC-SP-1182 [Makenas 1996]) provides information describing sludge characteristics. The 105-KW Basin sludge is conservatively bounded by the characteristics of the 105-KE Basin sludge.

A preliminary designation of the 105-KE Basin sludge using the characterization information in WHC-SP-1182 results in the following waste numbers: D005 (barium), D006 (cadmium), D007 (chromium), D008 (lead), D010 (selenium), and D011 (silver). This designation is based on a total metals analysis. Therefore, the results are conservative compared with the toxicity characteristic leaching procedure (TCLP). Based on a total metals analysis, the highest concentration of a heavy metal found in the sludge is chromium (D007). Chromium, assuming 100% TCLP extraction, also has the highest ratio of concentration to the regulation limit (95.5 mg/L:5 mg/L). Using this ratio, 454 g of debris would be regulated for chromium if 24 g of sludge also were present. Because the debris will be washed and visually confirmed, most of the debris would not be regulated as dangerous waste for heavy metal contamination. TCLP analyses of the sludge are planned to support actual waste designation. However, fibrous debris and debris with inner void spaces that cannot be rinsed and/or washed of sludge could require management as a dangerous waste.

The WAC 173-303 designates solid waste with a polychlorinated biphenyl (PCB) concentration between 2 and 50 ppm with waste number W001, if the contamination is from a source identified in WAC 173-303-9904. Because the source of PCB contamination is unknown, the sludge would not be designated with W001.

The K Basin sludge is a PCB remediation waste. The debris is regulated as a PCB remediation waste where it has contacted sludge. As the underwater debris is removed from the basins, it will be drained of free-flowing liquid and rinsed with water to remove the majority of sludge adhering to the debris. Thereafter, the debris would be managed in accordance with applicable radioactive waste and dangerous waste requirements, but would no longer be designated or managed as a *Toxic Substance Control Act of 1976*-regulated waste.

1   **6.2   OUT-OF-POOL DEBRIS**

2           Out-of-pool debris waste is generated from construction, maintenance, and operation  
3 activities. This waste generally does not come into contact with any sludge, and is managed as a  
4 solid waste and designated and disposed accordingly.

5           On occasion, chemicals (e.g., sodium hydroxide or hydrogen peroxide) periodically are  
6 used to maintain basin water quality. Excess chemicals will be returned to inventory or managed  
7 as a solid waste.

1

**7.0 QUANTITIES OF DEBRIS REMOVED**

2 To date, all 105-KE and 105-KW Basins debris has either been stored or disposed onsite.  
3 K Basin debris that is stored or disposed is tracked by the Solid Waste Information and Tracking  
4 System.

5 A quantification of debris removed in calendar year 1999 is contained in Table 7-1 for  
6 the 105-KE and 105-KW Basins. Debris that has been removed and sent to storage or disposal,  
7 which also has been designated a mixed waste, also is contained in DOE/RL-2000-14, *Hanford*  
8 *Site Annual Dangerous Waste Report, CY 1999 (RL 2000b)*.

Table 7-1. 105-KE and 105-KW Basins Debris Removed. (4 sheets)  
 (in-pool and out-of-pool debris) 01/01/99 to 12/31/99

Package ID Secondary PIN	Waste Type	TSD Accept Date	Content	Disposal Vol (cu ft)
OUT-OF-POOL (105-KW) RMW (CAT 1)				
9804347	M	09/01/1999	MIXED WASTE/GROUT/LEAD BASED PAINT	9.18
9804421	M	09/01/1999	MIXED WASTE/CITRISTRIP/LEAD BASED PAINT	9.18
9700923	M	09/27/1999	MISC DRIED PAINT DEBRIS	9.18
9804346	M	10/06/1999	MIXED WASTE, DRIED PAINTS ON INERT MATERIAL	9.18
Sub Total				36.72
ION EXCHANGE MODULES (CAT 3)				
100K-99-005900	R	09/23/1999	LLW IXM MODULE/WC3	267.68
100K-99-006000	R	09/30/1999	LLW IXM MODULE/WC3	267.68
Sub Total				535.36
NON-COMPACTABLE MISC. (CAT 1)				
100K-97-005600	R	09/30/1999	LOW LEVEL SOLID WASTE	143.02
100K-97-005800	R	09/30/1999	LOW LEVEL SOLID WASTE	143.02
Sub Total				286.04
SUPER COMPACTED (CAT 1)				
9880400	R	11/19/1999	COMPACTABLE TRASH	13.49
9880401	R	11/19/1999	COMPACTABLE TRASH	13.49
9880402	R	11/19/1999	COMPACTABLE TRASH	13.49
9880403	R	11/19/1999	COMPACTABLE TRASH	13.49

7-2

DOE/RL-2000-31  
Rev. 0

Table 7-1. 105-KE and 105-KW Basins Debris Removed. (4 sheets)  
 (in-pool and out-of-pool debris) 01/01/99 to 12/31/99

Package ID Secondary PIN	Waste Type	TSD Accept Date	Content	Disposal Vol (cu ft)
9880404	R	11/19/1999	COMPACTABLE TRASH	10.56
9880405	R	11/19/1999	COMPACTABLE TRASH	13.49
9880406	R	11/19/1999	COMPACTABLE TRASH	10.56
9880407	R	11/19/1999	COMPACTABLE TRASH	9.61
9880408	R	11/19/1999	COMPACTABLE TRASH	8.55

Sub Total 106.73  
 Total for 105-KW (Out of Pool) 964.85  
 Total for 105-KW Basin 964.85

OUT-OF-POOL (105-KE) SUPER COMPACTED (CAT 1)				
9773665	R	11/19/1999	COMPACTABLE TRASH	13.49
9773666	R	11/19/1999	COMPACTABLE TRASH	13.49
9773667	R	11/19/1999	COMPACTABLE TRASH	13.49
9773668	R	11/19/1999	COMPACTABLE TRASH	13.49
9773669	R	11/19/1999	COMPACTABLE TRASH	13.49
9773670	R	11/19/1999	COMPACTABLE TRASH	13.49
9773671	R	11/19/1999	COMPACTABLE WASTE	13.49
9773672	R	11/19/1999	COMPACTABLE TRASH	9.61
9773673	R	11/19/1999	COMPACTABLE TRASH	8.55
9773674	R	11/19/1999	COMPACTABLE TRASH	8.55

Table 7-1. 105-KE and 105-KW Basins Debris Removed. (4 sheets)  
 (in-pool and out-of-pool debris) 01/01/99 to 12/31/99

Package ID Secondary PIN	Waste Type	TSD Accept Date	Content	Disposal Vol (cu ft)
9773675	R	11/19/1999	COMPACTABLE WASTE	9.61
Sub Total				130.75
ION EXCHANGE MODULES (CAT 3)				
100K-99-005800	R	09/23/1999	LLW IXM MODULE/WC3	267.68
100K-99-006100	R	09/23/1999	LLW IXM MODULE/IXM	267.68
100K-99-006300	R	09/30/1999	LOW LEVEL/IXM MODULE/WC3	267.68
100K-99-009100	R	11/04/1999	LLW IXM MODULE	276.87
100K-97-006200	R	09/30/1999	LOW LEVEL WASTE/WC3	276.87
Sub Total				1356.78
NON-COMPACTABLE MISC. (CAT 1)				
9606738	R	09/30/1999	LOW LEVEL SOLID WASTE	143.02
Sub Total				143.02
Total for 105-KE (Out of Pool)				1630.55
IN-POOL WASTE (105-KE) CANISTERS (CAT 3)				
9880340	R	04/27/1999	STAINLESS STEEL AND ALUMINUM CANISTERS.	13.49
9880341	R	04/27/1999	STAINLESS STEEL AND ALUMINUM CANISTERS.	10.56
9880342	R	04/27/1999	STAINLESS STEEL AND ALUMINUM CANISTERS.	8.55
9880343	R	04/27/1999	STAINLESS STEEL AND ALUMINUM CANISTERS.	13.49
9880344	R	04/27/1999	STAINLESS STEEL AND ALUMINUM CANISTERS	13.49

7-4

DOE/RL-2000-31  
Rev. 0

Table 7-1. 105-KE and 105-KW Basins Debris Removed. (4 sheets)  
 (in-pool and out-of-pool debris) 01/01/99 to 12/31/99

Package ID Secondary PIN	Waste Type	TSD Accept Date	Content	Disposal Vol (cu ft)
9880345	R	04/27/1999	STAINLESS STEEL AND ALUMINUM CANISTERS.	9.61
9880346	R	04/27/1999	STAINLESS AND ALUMINUM CANISTERS.	13.49
9880347	R	04/27/1999	STAINLESS STEEL AND ALUMINUM CANISTERS.	9.61
9880348	R	04/27/1999	STAINLESS STEEL AND ALUMINUM CANISTERS.	9.61
9880349	R	04/27/1999	STAINLESS STEEL AND ALUMINUM CANISTERS.	13.49
9880350	R	04/27/1999	STAINLESS STEEL AND ALUMINUM CANISTERS.	13.49
9880351	R	04/27/1999	STAINLESS STEEL AND ALUMINUM CANISTERS.	8.55
9880352	R	04/27/1999	STAINLESS STEEL AND ALUMINUM CANISTERS.	13.49
9880353	R	04/27/1999	STAINLESS STEEL AND ALUMINUM CANISTERS.	13.49
9880354	R	04/27/1999	STAINLESS STEEL AND ALUMINUM CANISTERS.	9.61
9880355	R	04/27/1999	STAINLESS STEEL AND ALUMINUM CANISTERS.	8.55
9880356	R	04/27/1999	STAINLESS STEEL AND ALUMINUM CANISTERS.	9.61
9880357	R	04/27/1999	STAINLESS STEEL AND ALUMINUM CANISTERS.	8.55
9880358	R	04/27/1999	STAINLESS STEEL AND ALUMINUM CANISTERS.	8.55

Sub Total 209.28

Total for 105-KE (In-Pool) 209.28

Total for 105-KE Basin 1839.83

TOTAL DEBRIS WASTE FROM ALL OF 105-K BASINS 2804.68

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