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ENGINEERING CHANGE NOTICE	Page 1 of 2	1. ECN № 618786 Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.	4. USQ Required?	5. Date
Supplemental [ ] Direct Revision [X] Change ECN [ ] Temporary [ ] Standby [ ] Supersedure [ ] Cancel/Void [ ]	T. M. Brown, R2-12, 373-4437	[ ] Yes [X] No	02/13/97
	6. Project Title/No./Work Order No. Historical Tank Content Estimate for the Northwest Quadrant of the Hanford 200 West Area	7. Bldg./Sys./Fac. No. 2750/200E	8. Approval Designator N/A
	9. Document Numbers Changed by this ECN (includes sheet no. and rev.) WHC-SD-WM-ER-351, Rev. 0a	10. Related ECN No(s). N/A	11. Related PO No. N/A

12a. Modification Work	12b. Work Package No.	12c. Modification Work Complete	12d. Restored to Original Condition (Temp. or Standby ECN only)
[ ] Yes (fill out Blk. 12b) [X] No (NA Blks. 12b, 12c, 12d)	N/A	N/A Design Authority/Cog. Engineer Signature & Date	N/A Design Authority/Cog. Engineer Signature & Date

13a. Description of Change   13b. Design Baseline Document? [ ] Yes [X] No

1. Performed a complete rewrite and reformat of all pages of the HTCE document.
2. Almost all of the narrative description of the tank farm section and the individual tank sections were replaced by summary tables.
3. The single solids composite inventory table provided by Los Alamos National Laboratory has been replaced by 3 tables:
   - Total Inventory Estimate table of 33 chemical analytes and 46 radionuclides
   - Tank Layer Model Solids Composite Inventory Estimate table
   - Supernatant Mixing Model table.
4. The Tank Layer Model graph is enlarged and on a separate page.
5. The Tank Riser Location and Tank Cross Section sketches are enlarged.
6. The glossary and reference sections are placed in Appendix A and B, respectively.
7. The document prefix number has changed from WHC-SD-WM-ER-351, Rev. 0a to HNF-SD-WM-ER-351, Rev. 1

14a. Justification (mark one)

Criteria Change	[ ]	Design Improvement	[X]	Environmental	[ ]	Facility Deactivation	[ ]
As-Found	[ ]	Facilitate Const	[ ]	Const. Error/Omission	[ ]	Design Error/Omission	[ ]

14b. Justification Details

To update historical tank content estimates documents with more recent tank waste characterization information and expanded radionuclides and updated chemical analyte information for the inventory estimates.

15. Distribution (include name, MSIN, and no. of copies)

See attached distribution sheet.

RELEASE STAMP

DATE: STA: 4 ID:

MAR 06 1997

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A-7900-013-1

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ENGINEERING CHANGE NOTICE

1. ECN (use no. from pg. 1) 618786

16. Design Verification Required	17. Cost Impact						18. Schedule Impact (days)	
	ENGINEERING			CONSTRUCTION				
[] Yes	Additional	[]	$	Additional	[]	$	Improvement	[]
[X] No	Savings	[]	$	Savings	[]	$	Delay	[]

19. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 13. Enter the affected document number in Block 20.

SDD/DD	[]	Seismic/Stress Analysis	[]	Tank Calibration Manual	[]
Functional Design Criteria	[]	Stress/Design Report	[]	Health Physics Procedure	[]
Operating Specification	[]	Interface Control Drawing	[]	Spares Multiple Unit Listing	[]
Criticality Specification	[]	Calibration Procedure	[]	Test Procedures/Specification	[]
Conceptual Design Report	[]	Installation Procedure	[]	Component Index	[]
Equipment Spec.	[]	Maintenance Procedure	[]	ASME Coded Item	[]
Const. Spec.	[]	Engineering Procedure	[]	Human Factor Consideration	[]
Procurement Spec.	[]	Operating Instruction	[]	Computer Software	[]
Vendor Information	[]	Operating Procedure	[]	Electric Circuit Schedule	[]
OM Manual	[]	Operational Safety Requirement	[]	ICRS Procedure	[]
FSAR/SAR	[]	IEFD Drawing	[]	Process Control Manual/Plan	[]
Safety Equipment List	[]	Cell Arrangement Drawing	[]	Process Flow Chart	[]
Radiation Work Permit	[]	Essential Material Specification	[]	Purchase Requisition	[]
Environmental Impact Statement	[]	Fac. Proc. Samp. Schedule	[]	Tickler File	[]
Environmental Report	[]	Inspection Plan	[]		[]
Environmental Permit	[]	Inventory Adjustment Request	[]	N/A	[X]

20. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number Revision
N/A		

21. Approvals

	Signature	Date		Signature	Date
Design Authority			Design Agent	J. L. Stroup *J L Stroup*	3/4/97
Cog. Eng.	T. M. Brown *Todd Brown*	3/4/97	PE		
Cog. Mgr.	J. W. Cammann *JW Cammann*	3/4/97	QA		
QA			Safety		
Safety			Design		
Environ.			Environ.		
Other			Other		
			Lead Engineer	J. W. Funk *J. W. Funk*	3/4/97
			Project Mgr	C. H. Brevick *CH Brevick*	03/04/97

DEPARTMENT OF ENERGY

Signature or a Control Number that tracks the Approval Signature

ADDITIONAL

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Historical Tank Content Estimate for the Northwest Quadrant of the Hanford 200 West Area

C. H. Brevick, J. L. Stroup, J. W. Funk
Fluor Daniel Northwest Inc., Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-96RL13200

EDT/ECN: 618786 UC: 2070
Org Code: 408 Charge Code: E18675
B&R Code: EW3120074 Total Pages: ~~243~~ 493
MW 3/6/97

Key Words: Northwest quadrant, Historical Tank Content Estimate, tank farms, tank level, tank temperature, tank farm aerial photos, in-tank montages, TLM, SMM, inventory estimates, riser locations

Abstract: The Historical Tank Content Estimate for the Quadrant provides historical information on a tank-by- tank basis of the radioactive mixed wastes stored in the underground single-shell tanks for the Hanford 200 West Area. This report summarized historical information such as waste history, level history, temperature history, riser configuration, tank integrity, and inventory estimates on a tank-by-tank basis. Tank farm aerial photographs and interior tank montages are also provided for each tank. A description of the development of data for the document of the inventory estimates provided by Los Alamos National Laboratory are also given in this report.

Maria Williams 3/6/97
Release Approval Date

Approved for Public Release

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RECORD OF REVISION	(1) Document Number HNF-SD-WM-ER-351	Page 1

(2) Title
Historical Tank Content Estimate for the Northwest Quadrant of the Hanford 200 West Area

CHANGE CONTROL RECORD

(3) Revision	(4) Description of Change - Replace, Add, and Delete Pages	Authorized for Release (5) Cog. Engr.	(6) Cog. Mgr. Date
0	(7) Initial issue, EDT ~~136992~~ 611638 cwm 3/7/97	B. Carpenter	C. S. Haller 6/30/94
0a	1. Mark out inventory estimates on pages 41, 46, 51, 56, 61, 66, 71, 76, 81, 86, 91, 96, 101, 106, 111, 116, 126, 131, 136, 141, 146, 151, 156, 161, 166, 171, 176, 181, 186, 191, 196, 201, 206, 211, 221, 226, 231, 236, 241, and 246. 2. Add pages 41a, 41b, 41c, 41d, 41e, 46a, 46b, 46c, 46d, 46e, 51a, 51b, 51c, 51d, 51e, 56a, 56b, 56c, 56d, 56e, 61a, 61b, 61c, 61d, 61e, 66a, 66b, 66c, 66d, 66e, 71a, 71b, 71c, 71d, 71e, 76a, 76b, 76c, 76d, 76e, 81a, 81b, 81c, 81d, 81e, 86a, 86b, 86c, 86d, 86e, 91a, 91b, 91c, 91d, 91e, 96a, 96b, 96c, 96d, 96e, 101a, 101b, 101c, 101d, 101e, 106a, 106b, 106c, 106d, 106e, 111a, 111b, 111c, 111d, 111e, 116a, 116b, 116c, 116d, 116e, 126a, 126b, 126c, 126d, 126e, 131a, 131b, 131c, 131d, 131e, 136a, 136b, 136c, 136d, 136e, 141a, 141b, 141c, 141d, 141e, 146a, 146b, 146c, 146d, 146e, 151a, 151b, 151c, 151d, 151e, 156a, 156b, 156c, 156d, 156e, 161a, 161b, 161c, 161d, 161e, 166a, 166b, 166c, 166d, 166e, 171a, 171b, 171c, 171d, 171e, 176a, 176b, 176c, 176d, 176e, 181a, 181b, 181c, 181d, 181e, 186a, 186b, 186c, 186d, 186e, 191a, 191b, 191c, 191d, 191e, 196a, 196b, 196c, 196d, 196e, 201a, 201b, 201c, 201d, 201e, 206a, 206b, 206c, 206d, 206e, 211a, 211b, 211c, 211d, 211e, 221a, 221b, 221c, 221d, 221e, 226a, 226b, 226c, 226d, 226e, 231a, 231b, 231c, 231d, 231e, 236a, 236b, 236c, 236d, 236e, 241a, 241b, 241c, 241d, 241e, 246a, 246b, 246c, 246d, 246e 3. Add pages A-1 and A-2 as Appendix A Incorporates ECN 634826	T. M. Brown	J. W. Cammann 09/25/96
1 RS	1. Preformed a complete rewrite and reformat of all pages of the HTCE document. 2. Almost all of the narrative description of the tank farm section and the individual tank sections were replaced by summary tables. 3. The single solids composite inventory table provided by Los Alamos National Laboratory has been replaced by 3 tables: • Total Inventory Estimate Table of 33 chemical analytes and 46 radionuclides • Tank Layer Model Solids Composite Inventory Estimate Table • Supernatant Mixing Model table. 4. The Tank Layer model graph is enlarged and on a separate page. 5. The Tank Riser Location and Tank Cross Section sketches are enlarged. 6. The glossary and reference sections are placed in Appendix A and B, respectively. 7. The document prefix number has changed from WHC-SD-WM-ER-351, Rev. 0a to HNF-SD-WM-ER-351, Rev. 1 Incorporates ECN No. 618786	T. M. Brown Todd Brown	J. W. Cammann JW Cammann 3/4/97

HISTORICAL TANK CONTENT ESTIMATE FOR THE NORTHWEST QUADRANT OF THE HANFORD 200 WEST AREA

Prepared for

Lockheed Martin Hanford Corporation

January 1997

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HISTORICAL TANK CONTENT ESTIMATE FOR THE NORTHWEST QUADRANT OF THE HANFORD 200 WEST AREA

WORK ORDER E18675

APPROVED:

Fluor Daniel Northwest, Inc.

J R Zimmerman — 3/4/97
Technical Documents — Date

L. W. Fuh — 3/4/97
Lead Engineer — Date

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ACKNOWLEDGMENTS

A project of the this magnitude would not be possible without the help of a significant number of persons and organizations. Fluor Daniel Northwest, Inc., would like to acknowledge the contributions made by our Los Alamos National Laboratory counterparts: Stephen F. Agnew, Kenneth A. Jurgensen, Robert A. Corbin, Tomasita B. Duran, Bonnie L. Young, Theodore P. Ortiz, John FitzPatrick, and James Boyer. Also, Todd Brown, Brett Simpson and Jerry Cammann of Lockheed Martin Hanford Corporation are recognized for their contributions.

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INFORMATION FEEDBACK CARD

HISTORICAL TANK CONTENT ESTIMATE FOR THE NORTHWEST QUADRANT OF THE HANFORD 200 WEST AREA

COMMENTS AND CONTRIBUTIONS

The reader is requested to use this card to comment on this document, report any discrepancies, or contribute new information to improve the accuracy and content of the document. Please use the space provided, add additional pages if necessary, and return the comments to the person noted at the address listed below.

Send Comments to: Mr. Jerry W. Cammann
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TABLE OF CONTENTS

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1.0 Introduction

1.0.1 Purpose

The purpose of this historical characterization document is to present the synthesized summaries of the historical records concerning the physical characteristics, and radiological, and chemical composition of mixed wastes stored in underground single-shell tanks and the physical conditions of these tanks. The single-shell tanks are located on the United States Department of Energy's Hanford Site, approximately 25 miles northwest of Richland, Washington. The document will be used to assist in characterizing the waste in the tanks in conjunction with the current program of sampling and analyzing the tank wastes. Los Alamos National Laboratory (LANL) developed computer models that used the historical data to attempt to characterize the wastes and to generate estimates of each tank's inventory. A historical review of the tanks may reveal anomalies or unusual contents that could be critical to characterization and post characterization activities.

This document was developed by reviewing the operating plant process histories, waste transfer data, and available physical and chemical data from numerous resources. These resources were generated by numerous contractors from 1945 to the present.

Waste characterization, the process of describing the character or quality of a waste, is required by Federal law (Resource Conservation and Recovery Act [RCRA]) and state law (Washington Administrative Code [WAC] 173-303, Dangerous Waste Regulations). Characterizing the waste is necessary to determine methods to safely retrieve, transport, and/or treat the wastes.

This document is not intended for use as a total design basis document. Further investigations of the information may be required before using this data for design purposes or safety analysis.

1.0.2 Scope

The scope of this document is to provide a summary of the supporting documents (Brevick et al.,1997a, b, c) for the Northwest Quadrant (NW). The NW Quadrant covers three single-shell tank farms. These three tank farms, T, TX, and TY, are located in the 200 West Area and are shown on the map in Figure 1. This summary includes waste transfer and level data, tank physical information, and surveillance data of the tanks and wastes for the NW Quadrant. The inventory estimates of waste types and volumes generated by the computer modeling programs developed by LANL are also included. A flow diagram showing the relationships between the sources of data, the HTCE, and the supporting documents is in Figure 2. The HTCE document also includes information on the safety issues affecting the tanks and the plants and processes that produced the waste in the underground waste storage tanks. For further explanation and development of the information, see the supporting documents.

1.0.3 Approach

This document was compiled from work performed by Fluor Daniel Northwest, Inc. (FDNW), LANL, and Lockheed Martin Hanford Corporation (LHMC). FDNW reviewed the historical

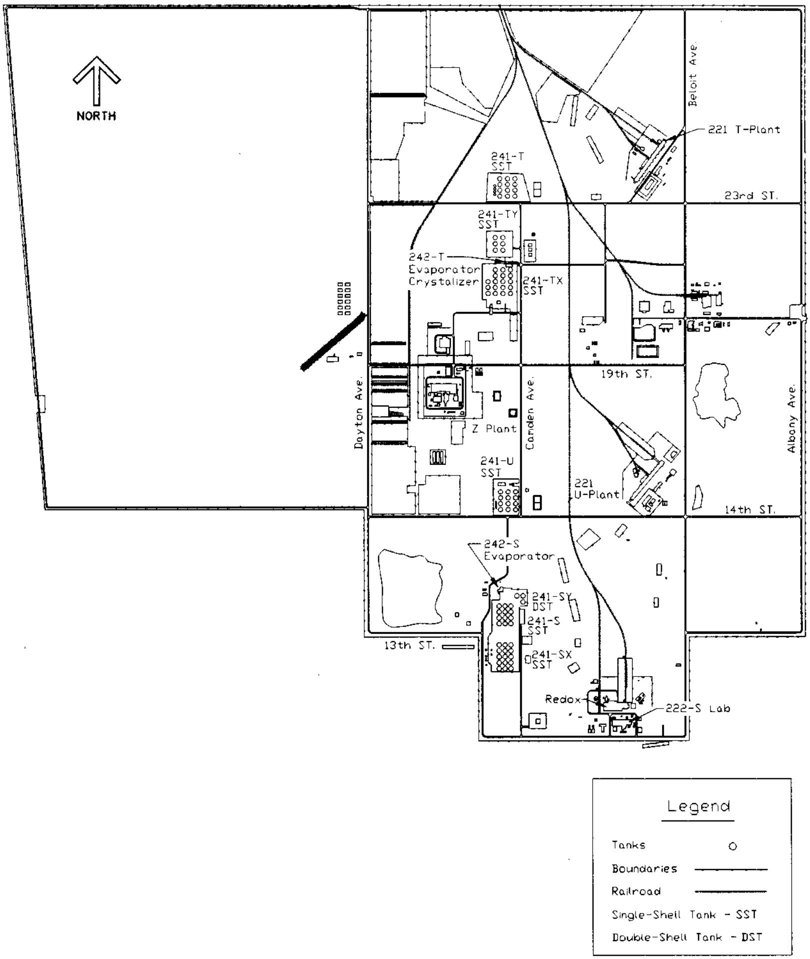

Figure 1. 200 West Area.

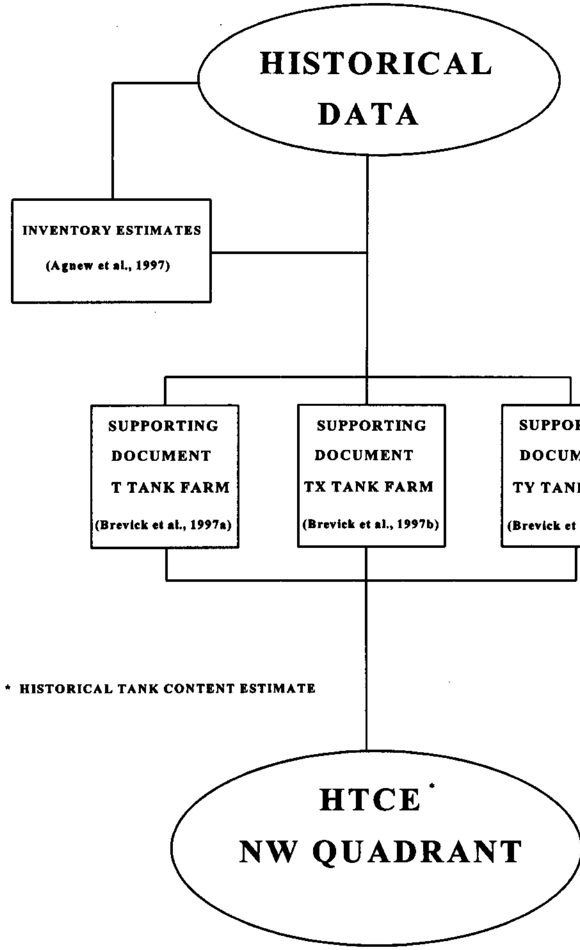

Figure 2. HTCE and Supporting Document Flow Diagram.

records of the tanks and incorporated the inventory estimates and models of waste layers in the tanks being developed by LANL into this document.

1.1 Safety Issues

The safety issues that affect the tanks can be divided into two groups: watch list and non-watch list. The watch lists are listings of tanks believed to pose potential safety hazards to workers, the environment, and the public. Non-watch list issues are of concern because of their possible effect on workers and the environment. Occurrences are unusual events on the Hanford Site that sometimes are related to safety issues.

1.1.1 Watch List Safety Issues

Watch list safety issues for these tanks were identified as "issues/situations that contain most of the necessary conditions that could lead to worker (onsite) or offsite radiation exposure through an uncontrolled release of fission products" under Public Law 101-510, Section 3137, of the *National Defense Authorization Act of Fiscal Year 1991* (i.e., the Wyden Amendment). As of September 30, 1996, 32 single-shell tanks and 6 double-shell tanks are on watch lists (Hanlon, 1996l). See the *Approach for Tank Safety Characterization of Hanford Site Waste*(Eberlein et al., 1995) for more information on the watch list issues.

1.1.2 Non-Watch List Safety Issues

Non-watch list issues include safety hazards such as leaking tanks. Tank leaks are a safety hazard because of their potential to release chemicals and radioactive liquids into the ground. Corrosion is the main cause of tank leaks. Three other safety issues that do not require a watch list and continual monitoring under the Wyden Amendment include criticality, tank bumps, and toxic vapor releases. The following sections provide a general description of the different non-watch list safety issues. See the *Hanford Site Tank Farm Facilities Interim Safety Basis*(Leach and Stahl, 1993) for more information.

- **Corrosion**
  Corrosion is the most probable degradation mechanism of the steel tank liners resulting from contact with liquid, liquid-vapor, vapor, and solid phases of the wastes. The corrosion mechanisms that reduce the thickness of the carbon steel liners can be divided into two categories: localized and general or uniform. Localized corrosion occurs on a localized area of the liner surface. Some of the localized corrosion mechanisms include pitting corrosion, stress corrosion cracking, and crevice corrosion. General or uniform corrosion occurs over the entire liner surface. Corrosion of the steel tank liners may involve more than one of these mentioned mechanisms. Corrosion is a safety issue because it has the potential to degrade the tank liner to the point of causing a leak or, more seriously, structural failure of the tank. Either condition could release contamination to the environment.

- **Criticality**
  Criticality is a self-sustained, nuclear chain reaction that can occur when a sufficient mass of fissile material is present in the proper configuration along with a neutron source to start the nuclear reaction. Criticality in the tank farms has been declared an unreviewed safety question, even though

the *Hanford Site Tank Farm Facilities Interim Safety Basis* (Leach and Stahl, 1993) indicates that a "nuclear criticality accident in the tank farms is probably not an imminent risk." The unreviewed safety question on criticality in the tank farms remains because the inventory of fissile material and its distribution within the tanks cannot be confirmed as being within the approved safety envelope defined in the current safety analysis reports. Criticality is a safety issue because of the potential to release contamination to the environment.

- **Tank Bumps**

A tank bump is the sudden pressurization of the tank. This phenomenon occurs when solids overheat in the lower portion of the tank followed by uncontrolled mixing of these solids. The stirred hot solids rapidly transfer heat to the liquid in the tank, some of which quickly vaporizes. The rapid vapor generation causes a sudden internal tank pressurization that causes a bump. Uncontrolled mixing of heated solids can occur when an airlift circulator fails allowing the solids to heat up followed by rapid startup of the airlift circulator which causes rapid mixing. Uncontrolled mixing can also occur when a natural "rollover" of waste occurs in the tank. Tank bumps are a safety issue because of their potential to release contamination to the environment.

- **Toxic Vapor Releases**

Toxic vapor releases are a recently analyzed safety concern at the Hanford Site. The entire issue of toxic gas releases at the tank farms is being investigated (Leach and Stahl, 1993).

1.1.3 Occurrences

Over the years, unusual events (occurrences) have occurred at several tanks in the NW Quadrant tank farms. An occurrence is an event that falls outside the normal operating, maintenance and/or construction procedures of the tank farm. Occurrences have been documented by various reporting methods including unusual occurrences reports, off-normal reports, event fact sheets, and occurrence reports. Before it was included in the supporting document, the occurrence documentation that could be located was evaluated for its significance in determining the waste content of the tanks. The types of significant occurrences included in the supporting documents are occurrences written about surface level changes, temperature changes, and radioactivity changes (activity in the drywells). This document does not contain information from the reports. For more information on occurrences, refer to the Occurrences Section for the specific tank in the supporting documents.

1.2 Waste Generating Plants and Processes

1.2.1 Plants Processes

Brief descriptions and histories of the plants and processes that generated waste now contained in the single-shell and double-shell tanks are presented in alphabetical order. Typically, the name of the plant and the process are synonymous. The dates and events described in the following brief histories are presented on time lines in Figures 3 and 4. Although not all of the processes listed below contributed waste directly to tanks in the Northwest Quadrant, the waste they generated could have been transferred indirectly from tank to tank.

- **A Plant (PUREX)**

The Plutonium Uranium Extraction (PUREX) plant (i.e., A Plant) began operating in January 1956 (Gerber, 1993a). "The PUREX process is an advanced solvent extraction process that uses a tributyl phosphate in kerosene solvent for recovering uranium and plutonium from nitric acid solutions of irradiated uranium. Nitric acid is used instead of metallic nitrates to promote the extraction of uranium and plutonium from aqueous phase to an organic phase." (Wilson and Reep, 1991, p. B-4). Two campaigns of the Thorex process were conducted in 1966 and 1971 (Jungfleisch, 1984). The Thorex process recovered ^{233}U from thorium irradiated in the Hanford Site reactors (Wilson and Reep, 1991). PUREX reprocessed aluminum-clad fuel elements and zirconium alloy-clad fuel elements, and provided plutonium for research reactor development, safety programs, and defense. Also, PUREX recovered slightly enriched uranium to be recycled as fuel in reactors generating electricity and plutonium (Rockwell, 1985). PUREX was put on standby in 1972 (Gerber, 1993a).

The PUREX plant was restarted in November 1983 but was shut down in December 1988 (see Figure 3). The plant was shut down due to the lack of steam pressure needed to operate the support backup safety equipment. There was a brief stabilization run in early 1990. In October 1990, PUREX was placed on standby by Secretary of Energy James Watkins. DOE issued the final closure order in December 1992 (Gerber, 1993b).

- **B Plant**

B Plant used the bismuth phosphate process at first, and later changed its processing capabilities to strontium and cesium fractionation. The bismuth phosphate process "separated plutonium from uranium and the bulk of fission products in irradiated fuel by co-precipitation with bismuth phosphate from a uranium nitrate solution. The plutonium was then separated from fission products by successive precipitation cycles using bismuth phosphate and lanthanum fluoride. The plutonium was isolated as a peroxide and, after dissolving in nitric acid, was concentrated as plutonium nitrate. The waste containing the uranium from which the plutonium had been separated, was made alkaline (neutralized) and stored in underground single-shell tanks. Other acid waste (which included most of the fission products) generated by this process was neutralized and stored in other single-shell tanks" (Wilson and Reep, 1991, p. B-3). "Some of the strontium and cesium fission products were removed (fractionated) from the waste and separately isolated to reduce the heat generation in the tanks. B Plant . . . was modified in 1968 to permit removal of these fission products by a combination of precipitation, solvent extraction, and ion-exchange steps. The residual acid waste from the processing was neutralized and stored in single-shell tanks" (Wilson and Reep, 1991, pp. B-4 and B-5).

B Plant began its first batch run on April 13, 1945 (Anderson, 1990), and was shutdown in 1952 (Gerber, 1993b) (see Figure 3). Shortly after the renovations to B Plant were completed in December 1955, the 4X Program was abandoned. The 4X Program "planned to utilize the capabilities of all four Hanford processing plants (B, T, REDOX, and PUREX)" (Gerber, 1993b, p. 12); however, the large production and economic efficiency of the PUREX plant caused the 4X Program to be abandoned (Gerber, 1993b). B Plant restarted in 1968 to recover cesium and strontium from stored liquid waste. Cesium and strontium recovery was completed in September 1983 and February 1985, respectively (Rockwell, 1985).

- **225-B (WESF)**

The Waste Encapsulation and Storage Facility (WESF) converted solutions of cesium and strontium nitrates recovered in B Plant to strontium fluoride and cesium chloride solids that are doubly encapsulated in metal (Ballinger and Hall, 1991). "Strontium and cesium capsules have been used in applications of fission byproducts for gamma and heat sources" (Wilson and Reep, 1991, p. B-5).

WESF was constructed in 1974 (see Figure 3). The process optimization for cesium and strontium was completed in 1978 and 1981, respectively (Rockwell, 1985). The cesium processing ended in 1983 and strontium encapsulation in 1985. The capsule return program started in 1988 and ended in 1995 (Gerber, 1996).

- **C Plant (Strontium Semiworks)**

The Strontium or Hot Semiworks Facility (i.e., C Plant) began operating in 1952 as a hot pilot plant for the REDOX process (see Figure 3). In 1954, the plant was converted to a pilot plant for the PUREX process and continued operating until 1956 (Ballinger and Hall, 1991). "The process building (201-C) contains three hot cells equipped only for contact maintenance and is supported by an aqueous makeup and control building (271-C) and a solvent handling building (276-C). The facility also includes a fiberglass exhaust filter and a 200-ft stack." (PNL, 1991, Vol. 1, p. 3.6). In 1960, the plant was reactivated as a pilot plant used to recover ^{90}Sr, ^{147}Pm, and ^{144}Cs from PUREX waste. The plant was shut down in 1967 and the building and the site have been decontaminated and decommissioned (PNL, 1991).

- **S Plant (REDOX)**

The Reduction and Oxidation extraction (REDOX) plant (i.e., S Plant) began processing on January 9, 1952 (Anderson, 1990) (see Figure 3). "The REDOX extraction process was a second-generation recovery process and the first process to recover both plutonium and uranium. It used a continuous solvent extraction process to extract plutonium and uranium from dissolved fuel into a methyl isobutyl ketone (hexone) solvent. The slightly acidic wastestream contained the fission products and large quantities of aluminum nitrate that were used to promote the extraction of plutonium and uranium. This waste was neutralized and stored in single-shell tanks. The volume of high-level waste from this process was much smaller than that from the bismuth phosphate process, but larger than that from the PUREX process" (Wilson and Reep, 1991, pp. B-3 and B-4). REDOX operated until 1967 (Rockwell, 1985).

- **T Plant**

T Plant was the first full-scale separations plant at the Hanford Site. T Plant used the bismuth phosphate process to separate plutonium from uranium and the bulk of fission products in irradiated fuel (B Plant used the same process). "The waste containing the uranium from which the plutonium had been separated was made alkaline (neutralized) and stored in underground single-shell tanks. Other acid waste (which included most of the fission products) generated by this process was neutralized and stored in other single-shell tanks" (Wilson and Reep, 1991, p. B-3).

T Plant began operating in 1944 (Rockwell, 1985) as a separations plant and continued until March 1956 (Gerber, 1994) (see Figure 4). T Plant's mission was changed in 1957 to the repair and high-level decontamination of equipment (Rockwell, 1985). T Plant was converted to a "central decontamination facility for the site. As such, failed and contaminated equipment was assessed and either repaired or discarded there for over three decades" (Gerber, 1994, p. 1). Early decontamination operations used steam, sand, chemicals, and detergents. "Smaller equipment pieces were immersed in decontamination solutions in 'thimble tanks,' and larger pieces were flushed with water, chemical solutions, sand-blasted, steam-blasted, high-pressure sprayed (using pressures up to 10,000 pounds per square inch), and/or scrubbed with detergents. During the initial years, a strong nitric acid flush (approximately 60%) usually began the decontamination process, followed by a caustic wash with sodium hydroxide combined with sodium phosphate, boric acid, versene, sodium dichromate, sodium tartrate, or sodium citrate. However, it was learned that versene and tartrate, in particular, adversely affected the ability of soil cribs to absorb the rinsate materials. High-pressure sprays often used 1,1,1 trichloroethane or perchloroethylene, and detergents generally were chloride-based. By the mid-1960s, commercially prepared and trademarked chemical mixtures had replaced most of the simpler chemicals used in the early years. Many commercial products were based on oxalic acid, phosphates, nitric acid-ferrous ammonium sulfate combinations, potassium permanganate, and sodium bisulfate, with some unknown additives" (Gerber, 1994, pp. 40–42). The facility was modified in 1978 to store pressurized water reactor (PWR) core II fuel assemblies (Rockwell, 1985).

- **U Plant**

U Plant (221-U) was built as one of three original bismuth phosphate process facilities, but it was not used for that purpose. U Plant was modified extensively and used for the uranium recovery process, operating from 1952 to 1958 (see Figure 4). Uranium in waste from the bismuth phosphate process initially was stored in the single-shell tanks. Later, the waste was sluiced, dissolved in nitric acid, and processed through a solvent extraction process using tributyl phosphate in kerosene to recover the uranium. The process was similar to that used later in the plutonium-uranium extraction (PUREX) process except that plutonium was not recovered. The acid waste from the uranium recovery process was made alkaline and returned to single-shell tanks. The tributyl phosphate waste was treated with potassium ferrocyanide as a cesium and strontium scavenger. The recovery process resulted in an increase in nonradioactive salts and a small increase in waste volume (Wilson and Reep, 1991).

- **224-U (UO_3, Uranium Trioxide Plant)**

The 224-U Building was converted to a uranium trioxide (UO_3) plant that began operating in 1952 (see Figure 4). The UO_3 plant was capable of handling the uranyl nitrate hexahydrate (UNH) stream from REDOX, U Plant, and PUREX. "The basic UO_3 process, calcining, consisted of concentrating and then heating liquid UNH until it converted to a stable, orange-yellow powder. The nitric acid in the UNH solution could be recovered in the same process. The UO_3 powder was the base material needed for the manufacture of uranium hexafluoride (UF_6), the primary feed material for the United States' gaseous diffusion plants. Because the largest of these plants was located in Ohio and Tennessee, it was considered safer to ship the material across the country in powder rather than in liquid form" (Gerber, 1993b, pp. 33–34). The UO_3 plant was shut down in 1972, but restarted in 1984. Since 1984, there have been 17 campaigns at the plant averaging 8 days each. Final deactivation of the plant was ordered in 1992. In April 1993, the UO_3 plant resumed operations to convert 200,000 gallons of remaining UNH to UO_3 powder. A final deactivation plan was written in the summer of 1993 (Gerber, 1993b).

- **Z Plant (PFP, Plutonium Finishing Plant)**

The Plutonium Finishing Plant (PFP) or Z Plant, previously called Plutonium Recovery and Finishing Operations, processed plutonium and prepared plutonium products. "Waste from this plant contained only minor amounts of fission products but did contain low concentration of plutonium and other transuranic elements and was high in metallic nitrates. Initially, this waste was discharged via cribs to soil columns, which absorbed the transuranic elements and retained them close to the point of discharge. Beginning in 1973, waste from PFP was stored with other waste in underground tanks" (Wilson and Reep, 1991, p. B-4). "Three types of feed materials are processed at the PFP to produce plutonium metal. Feed material types are handled differently in different process lines . . . . Historically, the main feed for the PFP was purified plutonium nitrate solution that was produced elsewhere in a fuel reprocessing plant. This feed was charged directly to one of the main process lines, which was initially a glovebox line. The glovebox line was replaced by remote mechanical lines, which were upgraded over the years. In time, processes were added to handle rework and scrap plutonium. These processes were used to convert the rework and scrap materials into a purified plutonium nitrate solution that could be handled by the main process" (Duncan and Mayancsik, 1993, pp. 2-1–2-2).

In July 1949, PFP began operations with a glovebox line (see Figure 4). The remote mechanical A line replaced the glovebox line in May 1953. Installment of the Recuplex Facility at PFP was completed in April 1955. The remote mechanical C line was installed in July 1960. In September 1961, the 232-Z Building had an incinerator and leaching equipment installed. In June 1964, the Plutonium Reclamation Facility (PRF) replaced the functions of the Recuplex Facility. Fabrication of plutonium metal nuclear weapon components ceased at the PFP in December 1965. In April 1973, the 232-Z Incinerator was shut down and the remote mechanical C line was placed on standby. The PRF was placed on standby in February 1979, and the remote mechanical A line was shutdown in December 1979. In January 1984, the PRF was restarted for a series of campaigns. The remote mechanical C line was restarted in June 1985 for a series of campaigns. In September 1986, operations at PFP were halted for nine months. This partial listing of the process history in the PFP is from Duncan et al. (1993).

1.2.2 Waste Management Operations

This section describes the different methods used to concentrate waste in the 200 Areas. Evaporating, and in-tank solidification are methods used to reduce the volumes of supernate. Brief descriptions and histories of the operations are presented in alphabetical order. The events and dates described in the brief histories are presented on a time line (Figure 5).

- **242-A Evaporator-Crystallizer**

"The program objective was to reduce the volume of tanked waste liquors through the boiloff of water. This was accomplished by boiling the liquor in an enclosed vessel at reduced pressure. The evaporation was carried out until a slurry containing about 30 wt% solids was formed. The slurry was returned to underground waste tanks for cooling, crystallization, and settling. The principal products of waste solidification have been large volumes of sodium nitrate salt cakes and waste liquors that are rich in sodium hydroxide and sodium aluminate" (Wilson and Reep, 1991, p. B-5).

The 242-A Evaporator-Crystallizer began operating on March 18, 1977 (Anderson, 1990) (see Figure 5). In 1981, the evaporator was shut down for ten months to tie AW Tank Farm into the process (Rockwell, 1985). The evaporator was shut down in 1989 because of regulatory issues, but was restarted in 1994 after extensive modifications (Gerber, 1996).

■ **242-B Evaporator**

"The first type of waste solidification facility, the 242-B and 242-T Concentrators, was originally used for concentration of bismuth phosphate process waste. In 1951, they began to concentrate cladding/first cycle waste. These concentrators were steam-heated pot evaporators operated outside the waste tanks and at atmospheric pressure. The liquors were partially boiled down and cycled to underground waste storage tanks" (Jungfleisch, 1984, p. 1-5). This evaporator ran for approximately four years (Anderson, 1990) (see Figure 5).

■ **242-S Evaporator-Crystallizer**

The 242-S Evaporator-Crystallizer was designed to boil off water from the waste in an enclosed vessel at reduced pressure, similar to the 242-A Evaporator-Crystallizer. "The evaporation was carried out until a slurry containing about 30 wt% solids was formed. The slurry was returned to underground waste tanks for cooling, crystallization, and settling. The principal products of waste solidification have been large volumes of sodium nitrate salt cakes and waste liquors that are rich in sodium hydroxide and sodium aluminate" (Wilson and Reep, 1991, p. B-5). The evaporator began operating on November 1, 1973 (Anderson, 1990) and was shut down in 1981 (Gerber, 1996) (see Figure 5).

■ **242-T Evaporator**

The 242-T Evaporator, like the 242-B Evaporator, began operating in 1951 (Gerber, 1992) to reclaim nonboiling waste storage capacity in existing tanks (see Figure 5). The evaporator was shut down in the summer of 1955 and modified for tributyl phosphate scavenging (Godfrey, 1965), although scavenging was never performed in this evaporator. The evaporator was restarted on December 3, 1965, and operated until April 15, 1976 (Anderson, 1990).

■ **In-Tank Solidification**

The in-tank solidification systems immobilized high level wastes, that were not self-boiling, by concentrating the waste directly inside the tanks to form radionuclide-bearing salt cakes (Shefcik, 1964). The first in-tank solidification unit (ITS-1) and the second in-tank solidification unit (ITS-2) operated in tanks in the BY Tank Farm (Caudill, 1965 and 1967). "...[O]ne used a hot air sparge (ITS-1) and the other used an immersed electrical heater (ITS-2). The ITS-1 operations were conducted in individual tanks. The ITS-2 concentrations were performed by heating the contents of one tank and moving the heated liquor through a series of other tanks" (Wilson and Reep, 1991, p. B-5).

ITS units 1 and 2 began operating on March 19, 1965, and February 17, 1968, respectively (see Figure 5). ITS-1 was converted to a cooler for ITS-2 on August 24, 1971. Both units were shut down on June 30, 1974 (Anderson, 1990).

1.2.3 Miscellaneous Waste Sources and Equipment

Wastes from various other sources on the Hanford Site have been added to the tanks. Some wastes are from the 300 Area, the 100 Area production reactors, various laboratories, and catch tanks.

■ **Critical Mass Laboratories**

The critical mass laboratories were used to study the physics of plutonium solutions and solids to avoid accidently creating a criticality or self-sustained nuclear reaction. The first facility began operating in the 120 Building near 100 F in April 1950 and closed in December 1951. The second facility, the 209-E Building, was located next to the Strontium Semiworks and began operating in July 1961 (Ballinger and Hall, 1991). The plutonium used in the lab was reprocessed in PUREX.

- **244-AR, -BXR, and -CR Process Vaults**

Three of the process vaults are the 244-AR Vault, the 244-BXR Vault, and the 244-CR Vault. These vaults were composed of several process vessels or tanks used to prepare waste for treatment or storage. Specific wastes from tanks can be pumped temporarily to the vaults and later sent directly to desired tanks or processing facilities.

The AR Vault, located north and west of the A Tank Farm, was constructed in 1966. The vault facilities include a canyon building with process cells containing tanks. The AR Vault has been on standby since 1978 (Leach and Stahl, 1993).

The 244-BXR Vault, located south of the BX Tank Farm, began operating in 1952 (Rodenhizer, 1987) and became inactive in 1956. The waste in the vault was difficult to handle so the vault was jetted with high-pressure steam in 1976. The 244-BXR Vault was used to process sludge in the recovery of uranium from bismuth phosphate metal waste in the tanks (Rodenhizer, 1987).

The 244-CR Vault, constructed in 1952, is located south of the C Tank Farm (Leach and Stahl, 1993). Salt-well waste from the C Tank Farm is interimly stored in the CR Vault. The 244-CR Vault was used to process sludge in the recovery of uranium from bismuth phosphate metal waste in the tanks (Rodenhizer, 1987).

- **204-AR and 204-S Railroad Car Facilities**

The 204-AR rail car unloading facility built in 1981 (Leach and Stahl, 1993), replaced the 204-S rail car unloading facility. The facilities were built for pumping liquid radioactive waste from tank cars and sending the waste to 200 East Area tank farms (Leach and Stahl, 1993).

1.2.4 Time Lines

Time lines presented on the following pages represent many of the events that occurred during the history of the major plants and waste management operations on the Hanford Site. These are the same events as those described in the description of each facility. The plants, associated processes, and methods for managing waste are the main sources of the wastes stored in the tanks. Abbreviations are defined in the preceding text and in the glossary in Appendix A.

One time line represents the history of each of the tank farms in the Northwest Quadrant of the 200 West Area (Figure 6). The events represented include the dates of construction, the individual tank's entry into service and removal from service, and the deactivation of each tank farm.

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PLANTS / PROCESS - TIME LINE

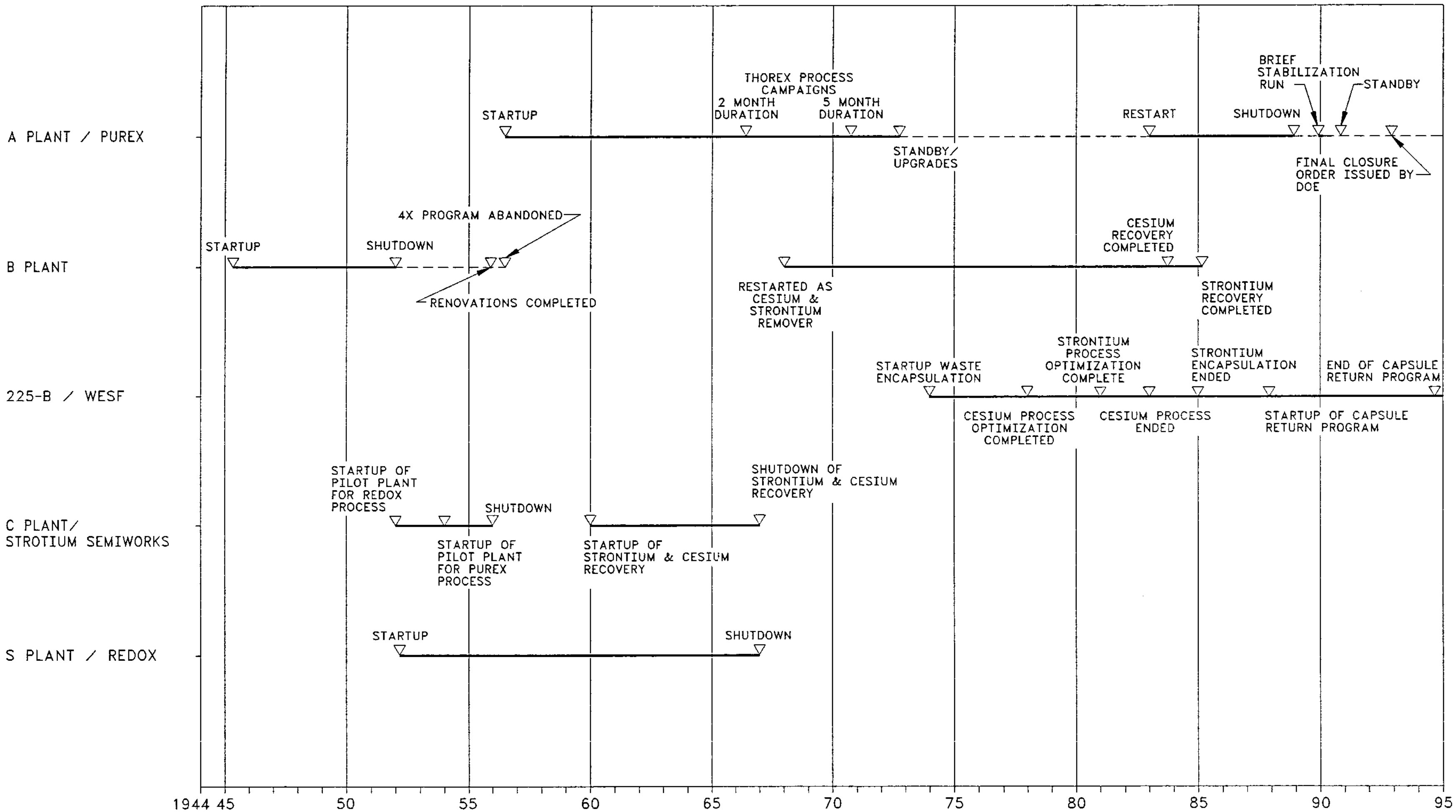

FIGURE 3

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PLANTS / PROCESS - TIME LINE

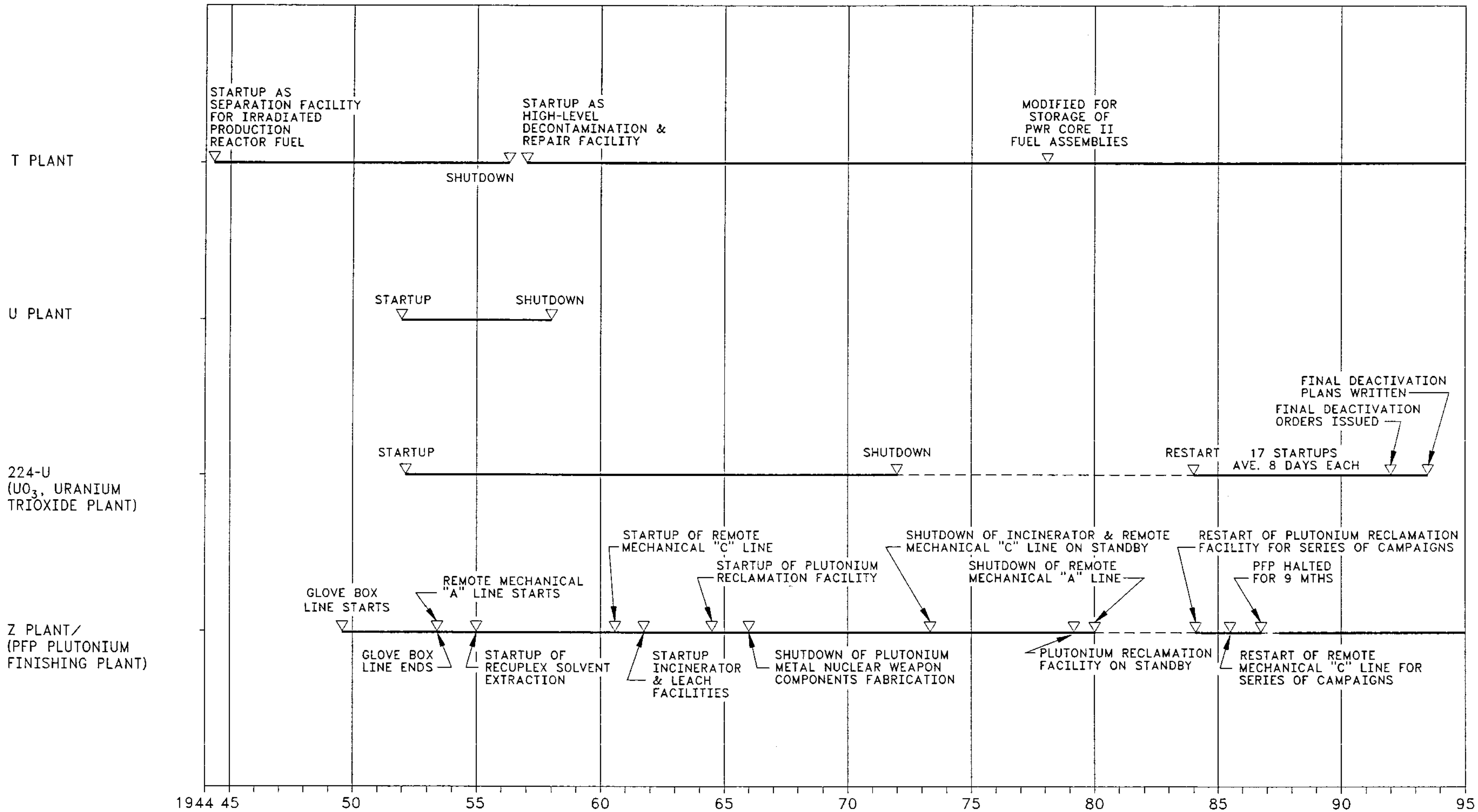

FIGURE 4

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WASTE MANAGEMENT - TIME LINE

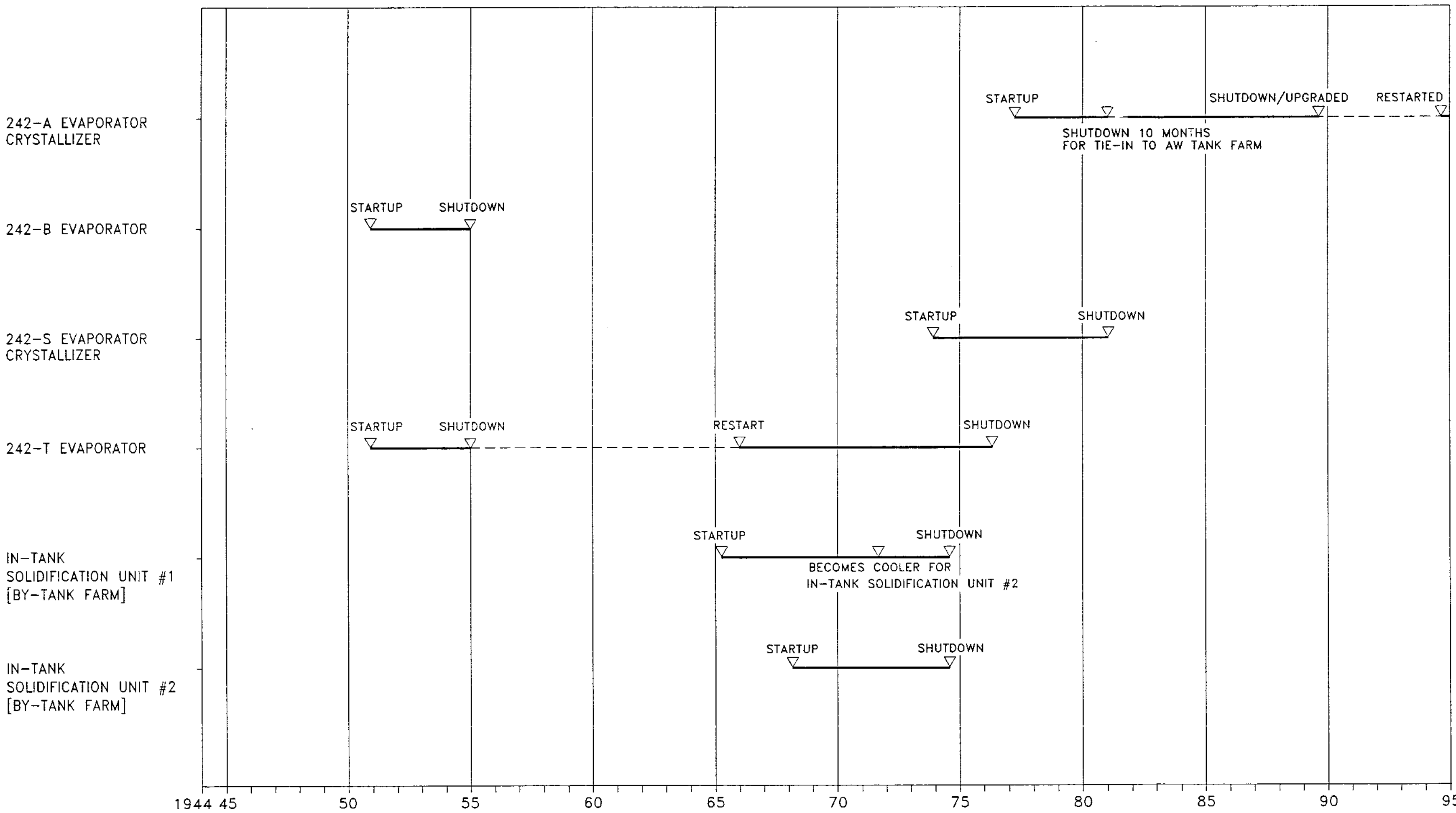

FIGURE 5

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NW QUADRANT TANK FARMS - TIMELINE

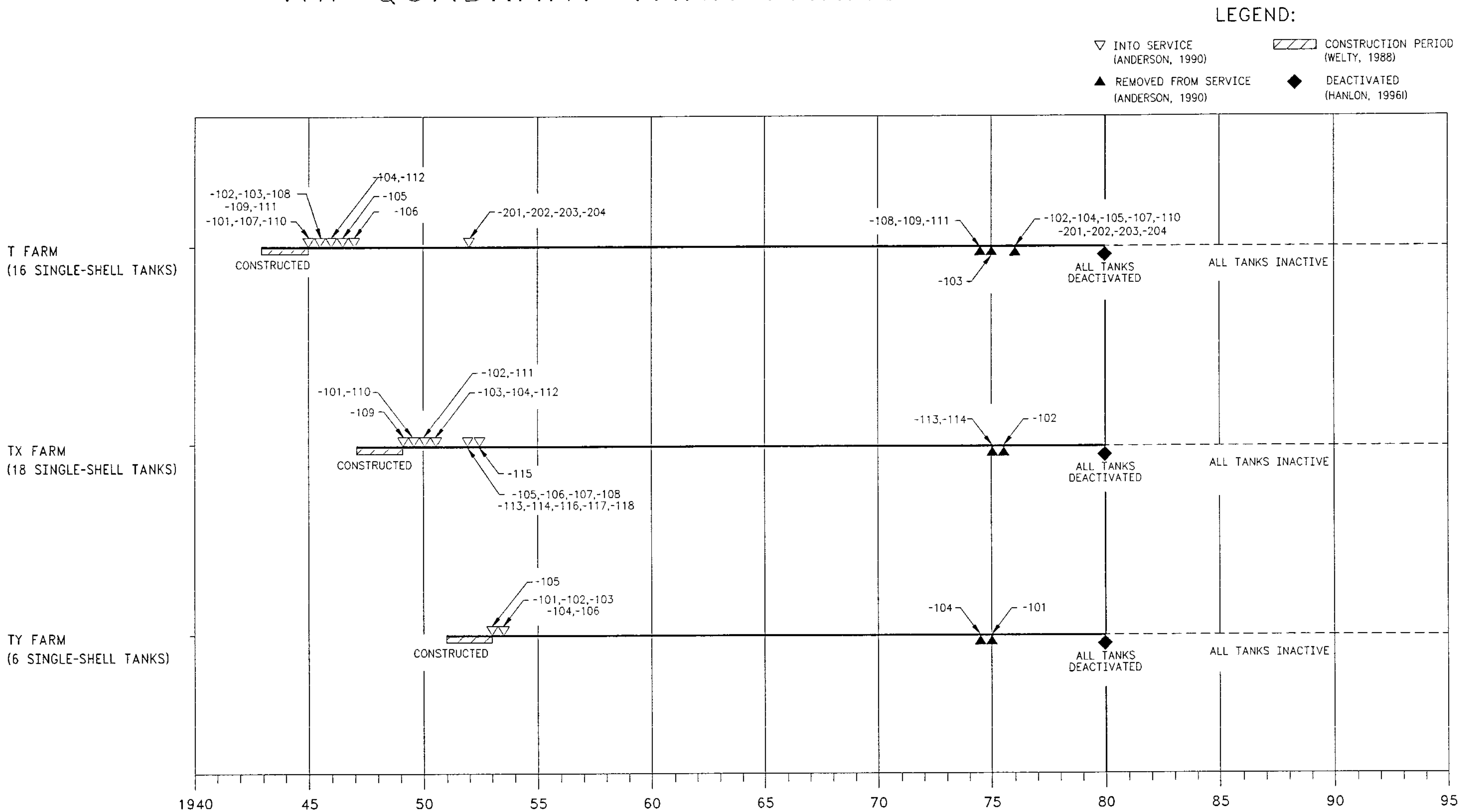

FIGURE 6

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1.3 Tank and Tank Farm Summary Tables: Source and Development

The summary tables for each tank farm and each tank in the NW Quadrant comprise information from the supporting documents and the *Waste Tank Summary Report for Month Ending September 30, 1996* (Hanlon, 1996l).

The information on the Tank Farm Summary tables includes the Tank Farm Description, Integrity, Tank Volumes, and Watch Lists sections selected from the supporting documents. The Waste Volume section information was taken from the *Waste Tank Summary Report for Month Ending September 30, 1996* (Hanlon, 1996l).

The information on the Tank Summary tables includes the Tank History, Tentatively Available Risers, Tank Temperature, Tank Description, Interior Photographs and Waste Surface Level sections selected from the supporting documents. The Waste Volume Section information was taken from the *Waste Tank Summary Report for Month Ending September 30, 1996* (Hanlon, 1996l).

The "-" in the tank summary tables indicates the information is unknown, not applicable, and/or not available in the supporting documents.

The risers referred to in the Tentatively Available Riser section are risers that are available for interior tank waste sampling (Lipnicki, 1996). For more information, see the supporting documents.

The temperature and waste surface level data presented in the Tank Summary tables are from a continually updated database. Therefore there are limits on the temperature and waste surface level data presented in the tables. All other information on the Tank Summary tables is from referenced documents.

The temperature data were queried from the Surveillance Analysis Computer System (SACS) database. The temperature data were queried for the period from January 1, 1950, through October 3, 1996. The end date for the queries varies for each tank farm (see supporting documents for further information). Temperature data prior to 1970 were not located. The temperature information presented is for data from 1970 through the date of the query for the specific tank. For a graphical representation of the data, further explanation about the development of the data, and the references, see the supporting documents.

The waste surface level data also were queried from the Surveillance Analysis Computer System (SACS) database. The waste surface level data were queried for the period from January 1, 1991 through December 9, 1996. The end date for the queries varies for each tank farm (see supporting documents for further information). The waste surface level information presented is for data from January 1, 1991 through the date of the query for the specific tank. The waste surface level device indicated on the Tank Summary tables is the most recent device being used based on the queried data. The maximum and minimum waste surface levels indicated on the Tank Summary tables do not always correlate to the most recent device indicated on the Tank Summary tables. For a graphical representation of the data, further explanation about the development of the data, and the references, see the supporting documents.

For further information on the development of the data and more specific references on the Farm Summary tables and Tank Summary tables see the supporting documents.

1.4 Waste and Level History: Source and Development

The Waste and Level Histories combine the level history of the tank and the wastes added to the tank through out history. The Waste and Level History's were incorporated from the Supporting Document for each tank. The supporting data were not included in this document. For the supporting data, further information on the development of the Waste and Level History sketches, and the references, see the supporting documents.

1.5 Riser Configuration: Source and Development

The riser configurations were incorporated directly from the supporting documents for each particular farm. The riser configurations were developed from numerous drawings and documents. For further information on the sizes of the risers, uses of the risers, references and the development of the riser configurations, see the supporting documents.

1.6 Tank Layer Model: Source and Development

The Tank Layer Model(TLM) graphs present the estimated waste types from the *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 4* (Agnew et al., 1997). The Tank Layer Model graphs were reformatted into individual tank graphs from Agnew's document to better illustrate what waste types Agnew has estimated. For further information on the TLM, see the supporting documents and Agnew's document..

1.7 Inventory Estimates: Source and Development

The Inventory Estimates present the estimated waste contents of the tanks from the *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 4* (Agnew et al., 1997). The inventory estimates predict the physical characteristics, and the chemical, and radiological constituents of the supernatant, the solids and the total volume for each tank. The inventory estimates for each tank include a Supernatant Mixing Model (SMM) Composite Inventory Estimate, a Tank Layer Model (TLM) Solids Composite Inventory Estimate and a Total Inventory Estimate. The SMM Composite Inventory Estimate is based on the output of the Supernatant Mixing Model and the TLM Solids Composite Inventory Estimate is based on the output of the Tank Layer Model. The Total Inventory Estimate is a combination of the SMM Composite Inventory Estimate and the TLM Solids Composite Inventory Estimate. The Inventory Estimates were incorporated directly from the supporting document which were incorporated directly from Agnew's document for each tank. For further information on the Inventory Estimates, see the supporting documents and Agnew's document..

1.8 Tank Farm Photographs and Tank Montages: Source and Development

The tank farm photographs and tank montages were incorporated directly from the supporting documents for each particular farm. The tank farm photographs and interior tank montages were reviewed in January 1996 to determine the clearest and most recent representation. For further information on the tank farm photograph and the interior tank montages, see the supporting documents.

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2.0 241-T Tank Farm

The T Tank Farm is located in the 200 West Area at the intersection of Camden Avenue and 23rd Street. The farm contains twelve 100 series and four 200 series, dish bottom design, single-shell tanks built between 1943 and 1944. The 100 series tanks are 75 ft in diameter with an operating capacity of 530,000 gallons. The 200 series tanks are 20 foot in diameter with an operating capacity of 55,000 gallons. The tanks were designed to store non-boiling waste with a maximum fluid temperature of 220°F. The 100 series tanks were constructed at different elevations with connecting overflow lines that allowed waste to cascade from tank to tank. The tank farm has four cascades of three tanks each. The 200 series tanks were constructed at the same elevation. For more information on the design, construction, and waste contents of the tanks, refer to the T Tank Farm Supporting Document, HNF-SD-WM-ER-320, Rev. 1 (Brevick et al., 1997a).

The T Tank Farm tanks were built to store wastes from T Plant. The first cascade began receiving metal waste from T Plant bismuth phosphate process in December 1944. The other cascades received decontamination-cycle wastes. The tanks were later emptied and used for ion exchange wastes, 221-T Plant wastes, and TBP waste from the 244-CR vault (Leach and Stahl, 1993). The primary additions to the tanks were first-cycle decontamination waste (1C1 and 1C2), second-cycle decontamination waste (2C1 and 2C2), ferrocyanide waste (PFeCN1), saltcake waste (T1SltCk), uranium recovery waste (UR), decontamination waste (DW), metal waste (MW1 and MW2), coating (cladding) waste (CWR1 and CWR2), 224-U waste (224), and water (WTR) (Agnew et al., 1995).

Tanks 241-T-101 through -103 underwent metal waste removal during 1953 and were sluiced during 1956 and 1957 (Agnew et al., 1995).

The following table presents a summary of the 241-T Tank Farm. Refer to the glossary for waste type terminology.

241-T TANK FARM SUMMARY

TANK FARM DESCRIPTION	
Shell Type	Single
Number of Tanks	16
Construction Date	1943-1944
INTEGRITY	
Sound	102, 104, 105, 110 112, 201, 202, 203 204
Asmd Lkr	101, 103, 106, 107 108, 109, 111
TANK VOLUMES	
12@530,000 gal	
4@55,000 gal	

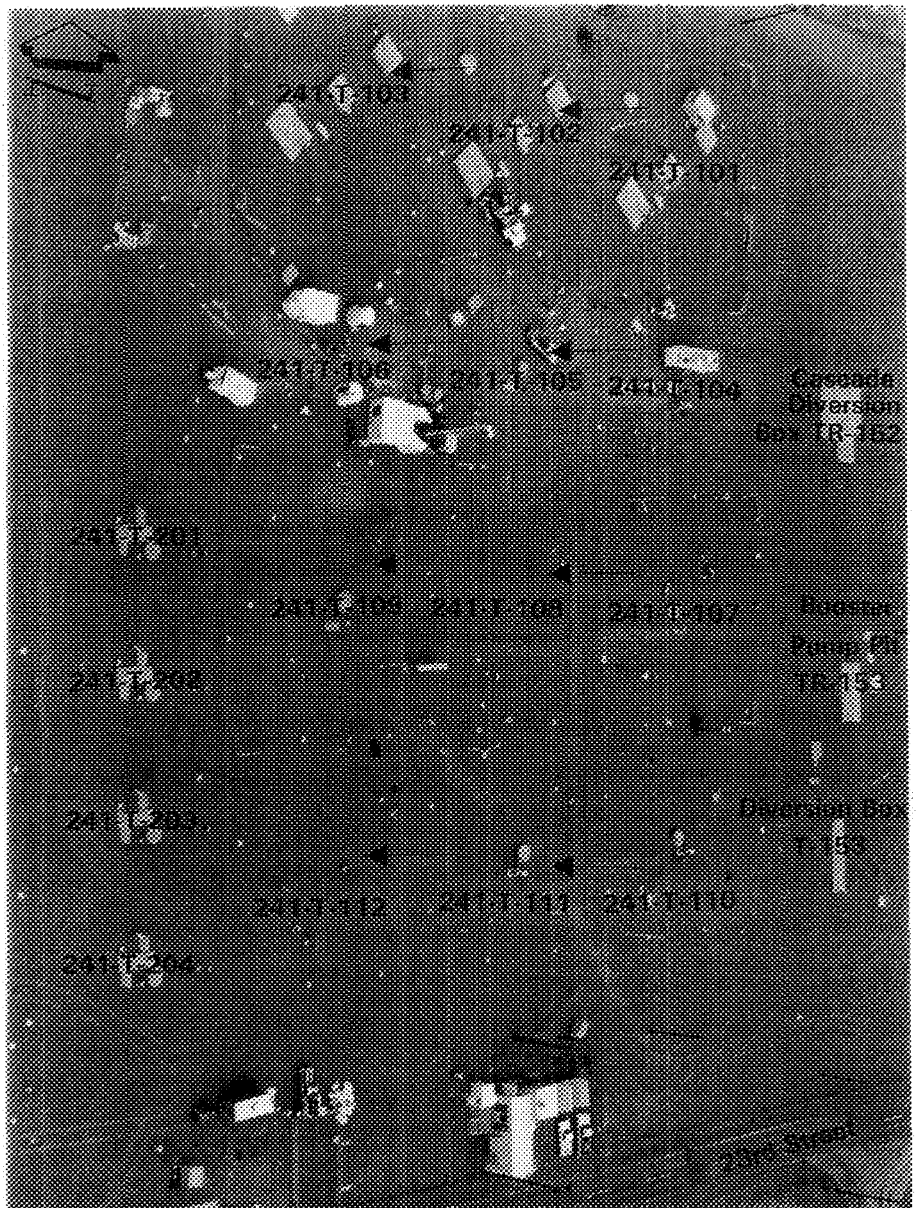
WASTE VOLUME (HANLON 1996l)	
Total Waste Volume	1,948,000 gal
Waste Type	NCPLX
Drainable Interstitial Liquids	234,000 gal
Pumpable Liquids	194,000 gal
Saltcake	0 gal
Sludge	1,917,000 gal
Supernatant	31,000 gal
WATCH LISTS	
Hydrogen	110
Organic	111
High Heat	none

The historical characterization and waste inventory information for each tank is assembled into a set of tables, sketches, graphs, and interior tank montage. The set consists of the following for each tank in T Tank Farm:

- Tank Summary table
- Waste and Level History sketch
- Tank Configuration sketch
- Tank Layer Model Estimate graph
- Total Inventory Estimate tables
- TLM Solids Composite Inventory Estimate tables
- SMM Composite Inventory Estimate tables
- Interior tank montage

The supporting document for T Tank Farm provides backup data and further explanation of the above tables, sketches, and graphs.

T TANK FARM


241-T-101
241-T-102
241-T-201
241-T-202
241-T-204
241-T-107
241-T-111
241-T-110
Diversion Box

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TANK 241-T-101 SUMMARY

TANK HISTORY	
Entered Service	1st qtr 1945
Removed from Service	-
Inactive	1979
Watch Lists	none
Integrity	Assumed Leaker
Assumed Leaker	1992
Interim Stabilization (IS)	April 1993
Partial Interim Isolation (PI)	Dec 1982
Intrusion Prevention (IP)	-

TENTATIVELY AVAILABLE RISERS	
Riser Number	Size
7, 12	12 in

TANK TEMPERATURE	
Average Tank Temperature	67°F
Maximum Temperature	88°F
Date	Aug 5, 1976
Elevation from tank bottom	unknown
Riser Number	8
Minimum Temperature	54°F
Date	April 7, 1993
Elevation from tank bottom	unknown
Riser Number	8

TANK DESCRIPTION	
Diameter	75 ft
Bottom Shape	Dish
Nominal Capacity	530,000 gal
Cascade Tank	to 241-T-102
Total Risers	11

WASTE VOLUME (HANLON 1996l)	
Total Waste Volume	102,000 gal
Waste Type	NCPLX
Drainable Interstitial Liquids	16,000 gal
Pumpable Liquids	0 gal
Saltcake	0 gal
Sludge	101,000 gal
Supernatant	1,000 gal

INTERIOR PHOTOGRAPHS	
Date	April 7, 1993
Montage Number	94080233-44CN
Photo Set Number	93-031684

WASTE SURFACE LEVEL	
Devices	Manual ENRAF
Max Level	44.5 in
Date	Jan 8 - Aug 12, 1991*
Min Level	30.5 in
Date	July 1, 1994

* Numerous dates in this time span.

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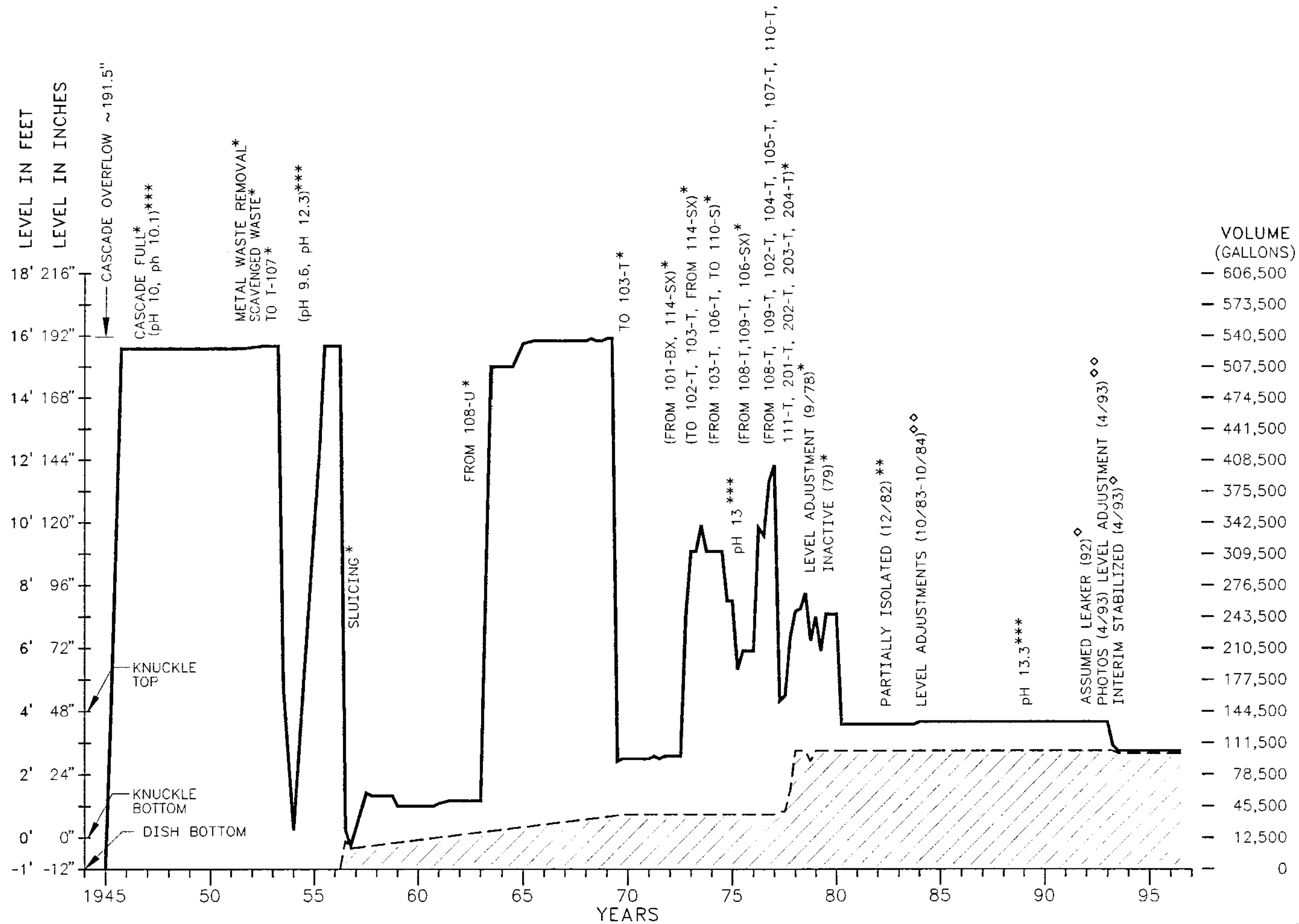
WASTE TYPES TIME LINE (ANDERSON 1990)	MW	MW TBP	CW	BL DW EB IX	R RIX	BL BNW CW DW EB	EVAP IX R RIX 224	NCPLX
PRIMARY ADDITIONS TIME LINE (AGNEW 1995)	MW1	MW2 PFeCN1	WTR	CWR2				



TANK INFO:

CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 530,000 GAL
DISH BOTTOM, 4 FOOT RADIUS KNUCKLE
75 FOOT DIAMETER TANK

REFERENCES

- * ANDERSON 1990
- ** WELTY 1988
- *** BORSHEIM AND KIRCH 1991
- ◊ HANLON 1996l
- ◊◊ McCANN (1983k,l and 1984a-i)

NOTES:

1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.

GLOSSARY OF WASTE TERMS:

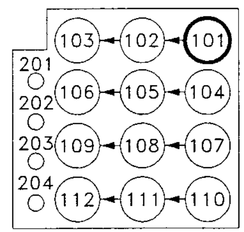
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A.

224:	224-U WASTE
BL:	B-PLANT LOW-LEVEL WASTE
BNW:	BATTELLE NW LABORATORY WASTE
CW:	COATING (CLADDING) WASTE
CWR2:	COATING (CLADDING) WASTE 1961-72
DW:	DECONTAMINATION WASTE
EB:	EVAPORATOR BOTTOMS
EVAP:	EVAPORATOR FEED
IX:	ION EXCHANGE
MW:	METAL WASTE
MW1:	METAL WASTE 1944-51
MW2:	METAL WASTE 1950-52
NCPLX:	NON-COMPLEXED WASTE
PFeCN1:	FERROCYANIDE WASTE
R:	REDOX HIGH-LEVEL WASTE
RIX:	REDOX ION EXCHANGE WASTE
TBP:	TRIBUTYL PHOSPHATE
WTR:	WATER

LEGEND

- TOTAL WASTE LEVEL (SUPERNATE)
- TOTAL WASTE LEVEL (SOLIDS)
- SOLIDS LEVEL
- SOLIDS

T TANK FARM CASCADE



U.S. DEPARTMENT OF ENERGY
Richland Operations Office
FLUOR DANIEL NORTHWEST, INC.

241-T-101 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1945-1996
ASSUMED LEAKER/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E94	1/97
SCALE NONE		JOB NO.	SHEET 1 OF 1

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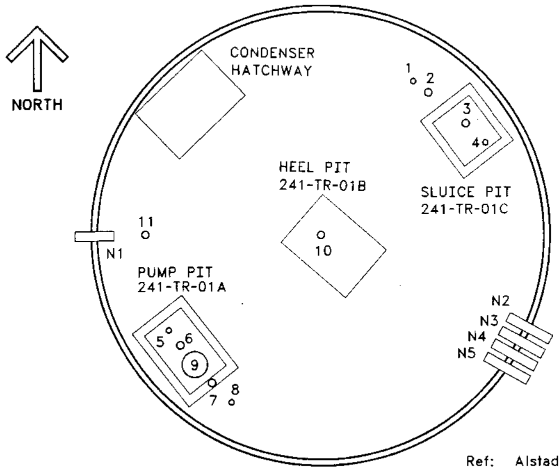
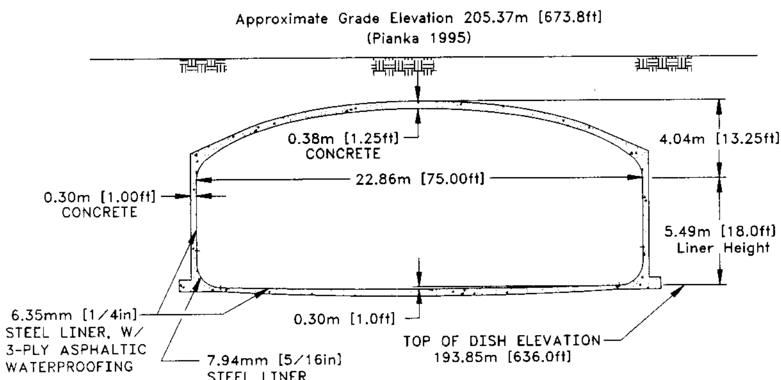
241-T-101



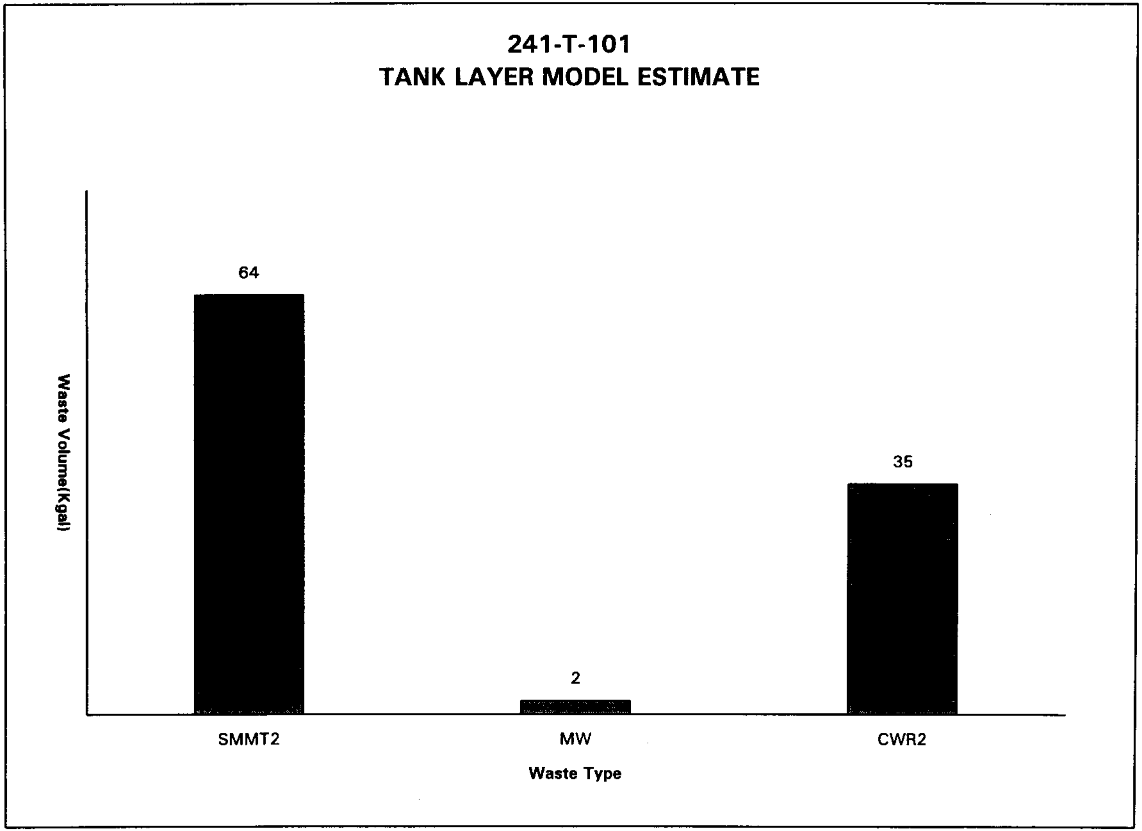
Ref: Alstad 1993
W-72743
H-2-73059, Rev. 4

TANK RISER LOCATION



Ref: H-2-1741, Rev. 3
CVI 73550, dwg D-2

NOT TO SCALE



Tank Layer Model(TLM) Estimate from *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 4* (Agnew et al., 1997).

HDW Model Rev. 4

Single-Shell Tank 241-T-101							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	2.32E+05 (kg)	(37.0 kgal)	----	—	—	—	—
Heat Load	*6.66E-03 (kW)*	*(22.7 BTU/hr)*	----	*6.54E-03*	6.60E-03	6.72E-03	6.77E-03
Bulk Density	1.66 (g/cc)	----	----	1.65	1.65	1.66	1.67
Void Fraction	0.743	—	----	0.730	0.736	0.750	0.756
Water wt%	47.9	—	----	47.6	47.8	48.0	48.2
TOC wt% C (w	0	—	----	0	0	0	0
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	1.59	2.21E+04	5.13E+03	1.50	1.55	1.63	1.66
Al3+	5.54	9.02E+04	2.09E+04	5.53	5.54	5.55	5.55
Fe3+ (total Fe)	0.439	1.48E+04	3.43E+03	0.411	0.424	0.453	0.467
Cr3+	2.28E-03	71.6	16.6	2.24E-03	2.26E-03	2.30E-03	2.32E-03
Bi3+	0	0	0	0	0	0	0
La3+	0	0	0	0	0	0	0
Hg2+	1.04E-02	1.26E+03	293	1.04E-02	1.04E-02	1.04E-02	1.05E-02
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0.308	3.85E+04	8.94E+03	0.285	0.296	0.320	0.331
Ni2+	1.14E-03	40.4	9.38	1.12E-03	1.13E-03	1.17E-03	1.22E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	0.309	7.48E+03	1.74E+03	0.198	0.253	0.366	0.420
K+	2.55E-03	60.3	14.0	2.51E-03	2.53E-03	2.58E-03	2.60E-03
OH-	22.4	2.30E+05	5.33E+04	22.3	22.3	22.4	22.5
NO3-	0.620	2.32E+04	5.38E+03	*0.609*	*0.615*	*0.626*	*0.631*
NO2-	0.231	6.42E+03	1.49E+03	0.227	0.229	0.234	0.236
CO32-	0.407	1.47E+04	3.42E+03	0.296	0.350	0.464	0.518
PO43-	2.16E-02	1.24E+03	288	9.29E-03	1.58E-02	2.66E-02	3.07E-02
SO42-	1.40E-02	810	188	1.33E-02	1.36E-02	1.43E-02	1.46E-02
Si (as SiO32-)	9.22E-05	1.56	0.363	7.88E-05	8.55E-05	9.87E-05	1.05E-04
F-	0	0	0	0	0	0	0
Cl-	1.18E-02	251	58.3	1.15E-02	1.16E-02	1.19E-02	1.20E-02
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	8.42E-05	0.863	0.200	7.95E-05	8.18E-05	8.66E-05	8.90E-05
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-101							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	2.57E+05 (kg)	(65.0 kgal)	---	----	---	---	---
Heat Load	2.96E-02 (kW)	(101 BTU/hr)	----	2.43E-02	2.71E-02	3.08E-02	3.20E-02
Bulk Density*	1.04 (g/cc)	---	---	1.03	1.04	1.05	1.05
Water wt%	92.5	---	----	91.4	91.9	93.2	93.9
TOC wt% C (w	9.14E-02	---	---	7.85E-02	8.48E-02	9.79E-02	0.104
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	1.06	2.33E+04	5.99E+03	0.847	0.954	1.15	1.23
Al3+	9.11E-02	2.36E+03	605	7.57E-02	8.43E-02	9.82E-02	0.105
Fe3+ (total Fe)	1.03E-03	55.1	14.1	6.81E-04	8.51E-04	1.21E-03	1.38E-03
Cr3+	9.53E-03	475	122	7.36E-03	8.49E-03	1.02E-02	1.07E-02
Bi3+	2.79E-04	56.0	14.4	2.54E-04	2.66E-04	2.92E-04	3.04E-04
La3+	1.55E-04	20.6	5.28	1.12E-04	1.33E-04	1.76E-04	1.97E-04
Hg2+	3.82E-07	7.34E-02	1.88E-02	3.64E-07	3.72E-07	3.90E-07	3.98E-07
Zr (as ZrO(OH)2	8.87E-06	0.776	0.199	7.42E-06	8.11E-06	9.66E-06	1.05E-05
Pb2+	3.50E-05	6.96	1.78	2.43E-05	2.95E-05	4.05E-05	4.57E-05
Ni2+	4.69E-04	26.4	6.78	4.44E-04	4.56E-04	4.82E-04	4.95E-04
Sr2+	0	0	0	0	0	0	0
Mn4+	7.55E-04	39.8	10.2	5.88E-04	6.70E-04	8.40E-04	9.22E-04
Ca2+	2.41E-03	92.7	23.8	1.91E-03	2.16E-03	2.67E-03	2.91E-03
K+	1.39E-02	521	134	1.13E-02	1.26E-02	1.52E-02	1.65E-02
OH-	0.628	1.02E+04	2.63E+03	0.517	0.575	0.682	0.734
NO3-	0.354	2.11E+04	5.40E+03	0.310	0.336	0.364	0.373
NO2-	0.181	7.98E+03	2.05E+03	0.109	0.142	0.218	0.253
CO32-	4.54E-02	2.61E+03	670	3.93E-02	4.23E-02	4.85E-02	5.06E-02
PO43-	7.17E-03	653	167	6.71E-03	6.94E-03	7.35E-03	7.53E-03
SO42-	2.27E-02	2.10E+03	537	1.35E-02	1.79E-02	2.77E-02	3.21E-02
Si (as SiO32-)	7.26E-03	196	50.2	4.87E-03	6.05E-03	8.49E-03	9.66E-03
F-	1.43E-02	261	67.0	1.12E-02	1.28E-02	1.56E-02	1.56E-02
Cl-	1.81E-02	615	158	1.40E-02	1.61E-02	2.00E-02	2.16E-02
C6H5O73-	4.62E-03	838	215	4.27E-03	4.44E-03	4.80E-03	4.97E-03
EDTA4-	7.32E-05	20.2	5.19	1.96E-05	4.58E-05	1.01E-04	1.28E-04
HEDTA3-	1.45E-04	38.0	9.75	3.83E-05	9.02E-05	1.99E-04	2.53E-04
glycolate-	9.32E-03	670	172	4.72E-03	6.97E-03	1.17E-02	1.39E-02
acetate-	1.13E-05	0.641	0.164	9.21E-06	1.02E-05	1.24E-05	1.34E-05
oxalate2-	2.02E-04	17.1	4.38	1.79E-04	1.91E-04	2.14E-04	2.26E-04
DBP	2.54E-03	512	131	1.95E-03	2.24E-03	2.83E-03	3.11E-03
butanol	2.54E-03	180	46.3	1.95E-03	2.24E-03	2.83E-03	3.11E-03
NH3	6.07E-03	99.0	25.4	3.38E-03	4.44E-03	8.15E-03	1.06E-02
Fe(CN)64-	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-101							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	4.89E+05 (kg)	(102 kgal)	---	---	---	---	---
Heat Load	3.63E-02 (kW)	(124 BTU/hr)	---	3.10E-02	3.38E-02	3.75E-02	3.86E-02
Bulk Density†	1.27 (g/cc)	---	---	1.26	1.26	1.27	1.27
Water wt%†	71.3	---	---	70.8	71.1	71.6	72.0
TOC wt% C (w	4.80E-02	---	---	4.10E-02	4.45E-02	5.15E-02	5.48E-02
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	1.25	2.27E+04	1.11E+04	1.12	1.19	1.31	1.36
Al3+	2.07	4.41E+04	2.15E+04	2.06	2.06	2.07	2.08
Fe3+ (total Fe)	0.160	7.05E+03	3.45E+03	0.150	0.155	0.165	0.170
Cr3+	6.90E-03	283	138	5.52E-03	6.24E-03	7.32E-03	7.64E-03
Bi3+	1.78E-04	29.4	14.4	1.62E-04	1.70E-04	1.86E-04	1.94E-04
La3+	9.85E-05	10.8	5.28	7.13E-05	8.46E-05	1.12E-04	1.26E-04
Hg2+	3.78E-03	599	293	3.77E-03	3.78E-03	3.79E-03	3.79E-03
Zr (as ZrO(OH)2	5.65E-06	0.408	0.199	4.73E-06	5.17E-06	6.16E-06	6.67E-06
Pb2+	0.112	1.83E+04	8.94E+03	0.103	0.108	0.116	0.120
Ni2+	7.13E-04	33.1	16.2	6.97E-04	7.05E-04	7.24E-04	7.42E-04
Sr2+	0	0	0	0	0	0	0
Mn4+	4.81E-04	20.9	10.2	3.74E-04	4.27E-04	5.35E-04	5.87E-04
Ca2+	0.114	3.60E+03	1.76E+03	7.35E-02	9.32E-02	0.134	0.154
K+	9.78E-03	302	148	8.13E-03	8.94E-03	1.06E-02	1.14E-02
OH-	8.52	1.14E+05	5.59E+04	8.45	8.49	8.55	8.59
NO3-	0.451	2.21E+04	1.08E+04	0.423	0.439	0.457	0.463
NO2-	0.199	7.24E+03	3.54E+03	0.154	0.175	0.223	0.245
CO32-	0.176	8.37E+03	4.09E+03	0.136	0.156	0.197	0.217
PO43-	1.24E-02	931	455	7.94E-03	1.03E-02	1.42E-02	1.57E-02
SO42-	1.96E-02	1.48E+03	725	1.37E-02	1.65E-02	2.27E-02	2.55E-02
Si (as SiO32-)	4.66E-03	103	50.6	3.14E-03	3.89E-03	5.44E-03	6.19E-03
F-	9.13E-03	137	67.0	7.17E-03	8.13E-03	9.93E-03	9.93E-03
Cl-	1.58E-02	442	216	1.32E-02	1.45E-02	1.70E-02	1.80E-02
C6H5O73-	2.94E-03	440	215	2.72E-03	2.83E-03	3.06E-03	3.16E-03
EDTA4-	4.66E-05	10.6	5.19	1.25E-05	2.92E-05	6.42E-05	8.13E-05
HEDTA3-	9.21E-05	20.0	9.75	2.44E-05	5.75E-05	1.27E-04	1.61E-04
glycolate-	5.94E-03	352	172	3.01E-03	4.44E-03	7.44E-03	8.87E-03
acetate-	7.21E-06	0.336	0.164	5.87E-06	6.53E-06	7.90E-06	8.56E-06
oxalate2-	1.29E-04	8.97	4.38	1.14E-04	1.21E-04	1.37E-04	1.44E-04
DBP	1.62E-03	269	131	1.24E-03	1.43E-03	1.80E-03	1.98E-03
butanol	1.62E-03	94.7	46.3	1.24E-03	1.43E-03	1.80E-03	1.98E-03
NH3	3.90E-03	52.4	25.6	2.18E-03	2.86E-03	5.22E-03	6.77E-03
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-101							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	2.32E+05 (kg)	(37.0 kgal)	----	----	----	----	----
Heat Load	6.66E-03 (kW)	(22.7 BTU/hr)	----	6.54E-03	6.60E-03	6.72E-03	6.77E-03
Bulk Density	1.66 (g/cc)	----	----	1.65	1.65	1.66	1.67
Void Fraction	0.743	----	----	0.730	0.736	0.750	0.756
Water wt%	47.9	----	----	47.6	47.8	48.0	48.2
TOC wt% C (w	0	----	----	0	0	0	0
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	1.23E-06	7.43E-04	0.172	1.21E-06	1.22E-06	1.24E-06	1.25E-06
C-14	2.87E-07	1.73E-04	4.01E-02	2.43E-07	2.66E-07	3.04E-07	3.18E-07
Ni-59	4.46E-08	2.69E-05	6.24E-03	4.39E-08	4.42E-08	4.88E-08	5.57E-08
Ni-63	4.37E-06	2.64E-03	0.612	4.30E-06	4.33E-06	4.74E-06	5.34E-06
Co-60	1.62E-07	9.79E-05	2.27E-02	1.59E-07	1.61E-07	1.64E-07	1.65E-07
Se-79	4.05E-08	2.44E-05	5.67E-03	3.98E-08	4.01E-08	4.08E-08	4.11E-08
Sr-90	3.95E-03	2.38	553	3.88E-03	3.91E-03	3.98E-03	4.02E-03
Y-90	3.95E-03	2.38	553	3.88E-03	3.91E-03	3.98E-03	4.02E-03
Zr-93	1.94E-07	1.17E-04	2.72E-02	1.91E-07	1.93E-07	1.96E-07	1.97E-07
Nb-93m	1.48E-07	8.91E-05	2.07E-02	1.45E-07	1.46E-07	1.49E-07	1.50E-07
Tc-99	1.35E-06	8.12E-04	0.189	1.32E-06	1.33E-06	1.36E-06	1.37E-06
Ru-106	4.48E-11	2.70E-08	6.27E-06	4.40E-11	4.44E-11	4.52E-11	4.56E-11
Cd-113m	7.27E-07	4.38E-04	0.102	7.14E-07	7.20E-07	7.33E-07	7.39E-07
Sb-125	6.82E-07	4.11E-04	9.55E-02	6.70E-07	6.76E-07	6.88E-07	6.94E-07
Sn-126	5.78E-08	3.49E-05	8.10E-03	5.69E-08	5.73E-08	5.83E-08	5.88E-08
I-129	2.52E-09	1.52E-06	3.53E-04	2.48E-09	2.50E-09	2.54E-09	2.56E-09
Cs-134	3.46E-08	2.09E-05	4.85E-03	3.40E-08	3.43E-08	3.49E-08	3.52E-08
Cs-137	4.47E-03	2.70	626	4.39E-03	4.43E-03	4.51E-03	4.55E-03
Ba-137m	4.23E-03	2.55	592	4.15E-03	4.19E-03	4.27E-03	4.30E-03
Sm-151	1.46E-04	8.81E-02	20.4	1.44E-04	1.45E-04	1.47E-04	1.48E-04
Eu-152	1.25E-06	7.53E-04	0.175	1.25E-06	1.25E-06	1.25E-06	1.25E-06
Eu-154	3.68E-06	2.22E-03	0.516	3.62E-06	3.65E-06	3.71E-06	3.75E-06
Eu-155	7.44E-05	4.49E-02	10.4	7.44E-05	7.44E-05	7.45E-05	7.45E-05
Ra-226	1.02E-11	6.15E-09	1.43E-06	4.41E-12	4.41E-12	1.91E-11	2.76E-11
Ra-228	2.45E-15	1.48E-12	3.44E-10	2.45E-15	2.45E-15	2.45E-15	2.45E-15
Ac-227	3.21E-11	1.94E-08	4.49E-06	2.18E-11	2.18E-11	8.37E-11	1.33E-10
Pa-231	5.44E-11	3.28E-08	7.61E-06	5.19E-11	5.31E-11	5.56E-11	1.42E-10
Th-229	1.51E-13	9.08E-11	2.11E-08	1.50E-13	1.51E-13	1.51E-13	1.51E-13
Th-232	1.56E-16	9.39E-14	2.18E-11	1.53E-16	1.54E-16	1.57E-16	1.58E-16
U-232	3.61E-09	2.18E-06	5.06E-04	3.52E-09	3.56E-09	3.66E-09	3.71E-09
U-233	1.09E-10	6.60E-08	1.53E-05	1.06E-10	1.08E-10	1.11E-10	1.12E-10
U-234	6.04E-05	3.64E-02	8.45	5.89E-05	5.96E-05	6.11E-05	6.18E-05
U-235	2.34E-06	1.41E-03	0.328	2.29E-06	2.31E-06	2.37E-06	2.40E-06
U-236	3.52E-06	2.12E-03	0.493	3.42E-06	3.47E-06	3.57E-06	3.61E-06
U-238	4.43E-05	2.67E-02	6.20	4.33E-05	4.38E-05	4.48E-05	4.53E-05
Np-237	1.35E-08	8.17E-06	1.90E-03	1.33E-08	1.34E-08	1.37E-08	1.38E-08
Pu-238	1.78E-04	0.107	24.9	1.70E-04	1.74E-04	1.81E-04	1.85E-04
Pu-239	4.93E-03	2.98	691	4.73E-03	4.83E-03	5.03E-03	5.13E-03
Pu-240	8.15E-04	0.492	114	7.82E-04	7.98E-04	8.32E-04	8.48E-04
Pu-241	7.25E-03	4.38	1.02E+03	6.96E-03	7.10E-03	7.40E-03	7.54E-03
Pu-242	1.92E-08	1.16E-05	2.68E-03	1.84E-08	1.88E-08	1.95E-08	1.99E-08
Am-241	7.34E-07	4.43E-04	0.103	7.20E-07	7.27E-07	7.40E-07	7.47E-07
Am-243	5.88E-12	3.55E-09	8.24E-07	5.78E-12	5.83E-12	5.94E-12	5.99E-12
Cm-242	1.25E-08	7.55E-06	1.75E-03	1.25E-08	1.25E-08	1.25E-08	1.25E-08
Cm-243	2.88E-10	1.74E-07	4.03E-05	2.88E-10	2.88E-10	2.88E-10	2.88E-10
Cm-244	1.83E-10	1.11E-07	2.57E-05	1.80E-10	1.82E-10	1.85E-10	1.87E-10
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	8.30E-02 (g/L)	—	11.6	7.97E-02	8.13E-02	8.47E-02	8.63E-02
U	0.558	8.01E+04	1.86E+04	0.545	0.552	0.565	0.571

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-101							
SMM Composite Inventory Estimate							
Physical Properties				-95 CI	-67 CI	+67 CI	+95 CI
Total SMM W	2.57E+05 (kg)	(65.0 kgal)	----	----	----	----	----
Heat Load	2.96E-02 (kW)	(101 BTU/hr)	----	2.43E-02	2.71E-02	3.08E-02	3.20E-02
Bulk Density*	1.04 (g/cc)	----	----	1.03	1.04	1.05	1.05
Water wt%†	92.5	----	----	91.4	91.9	93.2	93.9
TOC wt% C (w	9.14E-02	----	----	7.85E-02	8.48E-02	9.79E-02	0.104
Radiological Constituents	Ci/L	µCi/g	Ci	-95 CI (Ci/L)	-67 CI (Ci/L)	+67 CI (Ci/L)	+95 CI (Ci/L)
H-3	2.44E-05	2.34E-02	6.01	3.14E-06	3.14E-06	2.51E-05	2.58E-05
C-14	4.64E-06	4.45E-03	1.14	1.80E-07	1.80E-07	4.66E-06	4.67E-06
Ni-59	2.32E-07	2.23E-04	5.71E-02	2.26E-08	2.26E-08	2.43E-07	2.53E-07
Ni-63	2.29E-05	2.20E-02	5.64	2.21E-06	2.21E-06	2.40E-05	2.50E-05
Co-60	5.36E-06	5.14E-03	1.32	2.57E-07	2.57E-07	5.40E-06	5.44E-06
Se-79	3.50E-07	3.36E-04	8.62E-02	6.58E-08	6.58E-08	4.53E-07	5.52E-07
Sr-90	1.19E-02	11.4	2.93E+03	1.05E-02	1.12E-02	1.26E-02	1.33E-02
Y-90	1.19E-02	11.4	2.93E+03	2.07E-03	2.07E-03	1.26E-02	1.33E-02
Zr-93	1.73E-06	1.66E-03	0.425	3.04E-07	3.04E-07	2.24E-06	2.74E-06
Nb-93m	1.23E-06	1.18E-03	0.303	2.37E-07	2.37E-07	1.59E-06	1.94E-06
Tc-99	3.27E-05	3.14E-02	8.05	1.61E-05	2.42E-05	4.13E-05	4.95E-05
Ru-106	8.94E-10	8.57E-07	2.20E-04	2.35E-10	2.35E-10	1.04E-09	1.18E-09
Cd-113m	9.71E-06	9.31E-03	2.39	1.17E-06	1.17E-06	1.28E-05	1.58E-05
Sb-125	2.34E-05	2.24E-02	5.76	1.33E-06	1.33E-06	2.37E-05	2.39E-05
Sn-126	5.29E-07	5.08E-04	0.130	1.03E-07	1.03E-07	6.84E-07	8.32E-07
I-129	6.32E-08	6.06E-05	1.56E-02	3.11E-08	4.68E-08	7.98E-08	9.57E-08
Cs-134	6.20E-08	5.94E-05	1.52E-02	2.06E-08	2.06E-08	6.29E-08	6.21E-08
Cs-137	8.63E-03	8.27	2.12E+03	5.37E-03	6.50E-03	8.87E-03	1.00E-02
Ba-137m	8.16E-03	7.83	2.01E+03	2.81E-03	2.81E-03	8.26E-03	8.26E-03
Sm-151	1.23E-03	1.18	303	2.37E-04	2.37E-04	1.59E-03	1.94E-03
Eu-152	4.09E-07	3.92E-04	0.101	5.65E-08	5.65E-08	4.21E-07	4.33E-07
Eu-154	7.82E-05	7.50E-02	19.2	7.13E-06	7.13E-06	1.04E-04	1.14E-04
Eu-155	2.41E-05	2.31E-02	5.94	3.15E-06	3.15E-06	2.48E-05	2.55E-05
Ra-226	1.24E-11	1.19E-08	3.05E-06	3.58E-12	3.58E-12	1.56E-11	1.87E-11
Ra-228	2.64E-10	2.53E-07	6.48E-05	1.10E-10	1.10E-10	2.93E-10	3.25E-10
Ac-227	7.32E-11	7.02E-08	1.80E-05	2.20E-11	2.20E-11	9.17E-11	1.10E-10
Pa-231	3.57E-10	3.42E-07	8.78E-05	7.27E-11	7.27E-11	4.60E-10	5.59E-10
Th-229	1.23E-11	1.18E-08	3.03E-06	5.38E-12	5.38E-12	1.34E-11	1.44E-11
Th-232	8.73E-11	8.37E-08	2.15E-05	2.38E-11	2.38E-11	9.24E-11	9.73E-11
U-232	1.01E-08	9.65E-06	2.48E-03	8.83E-09	9.38E-09	1.09E-08	1.18E-08
U-233	3.90E-08	3.74E-05	9.59E-03	3.42E-08	3.63E-08	4.21E-08	4.58E-08
U-234	6.10E-08	5.85E-05	1.50E-02	5.62E-08	5.86E-08	6.34E-08	6.58E-08
U-235	2.53E-09	2.43E-06	6.23E-04	2.33E-09	2.43E-09	2.63E-09	2.73E-09
U-236	1.82E-09	1.75E-06	4.48E-04	1.68E-09	1.75E-09	1.89E-09	1.96E-09
U-238	5.86E-08	5.62E-05	1.44E-02	5.40E-08	5.63E-08	6.08E-08	6.31E-08
Np-237	1.12E-07	1.07E-04	2.75E-02	5.77E-08	8.42E-08	1.40E-07	1.67E-07
Pu-238	1.69E-07	1.62E-04	4.16E-02	1.05E-07	1.37E-07	2.02E-07	2.33E-07
Pu-239	5.30E-06	5.08E-03	1.30	3.66E-06	4.46E-06	6.13E-06	6.92E-06
Pu-240	9.22E-07	8.84E-04	0.227	6.18E-07	7.67E-07	1.08E-06	1.23E-06
Pu-241	1.17E-05	1.12E-02	2.88	7.34E-06	9.47E-06	1.39E-05	1.60E-05
Pu-242	6.60E-11	6.33E-08	1.62E-05	4.01E-11	5.28E-11	7.93E-11	9.20E-11
Am-241	5.80E-06	5.56E-03	1.43	2.78E-06	4.26E-06	7.35E-06	8.83E-06
Am-243	2.37E-10	2.27E-07	5.82E-05	1.42E-10	1.87E-10	2.87E-10	3.36E-10
Cm-242	1.72E-08	1.65E-05	4.23E-03	2.73E-09	2.73E-09	1.78E-08	1.84E-08
Cm-243	1.67E-09	1.60E-06	4.10E-04	2.87E-10	2.87E-10	1.73E-09	1.80E-09
Cm-244	1.88E-08	1.81E-05	4.64E-03	4.63E-09	4.63E-09	2.37E-08	2.67E-08
Totals	M	µg/g	kg	-95 CI (M or g/L)	-67 CI (M or g/L)	+67 CI (M or g/L)	+95 CI (M or g/L)
Pu	5.64E-05 (g/L)	----	1.39E-02	2.55E-05	4.07E-05	7.21E-05	8.71E-05
U	7.23E-04	165	42.3	6.66E-04	6.94E-04	7.51E-04	7.80E-04

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-101							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	4.89E+05 (kg)	(102 kgal)	----	---	---	----	---
Heat Load	3.63E-02 (kW)	(124 BTU/hr)	---	3.10E-02	3.38E-02	3.75E-02	3.86E-02
Bulk Density†	1.27 (g/cc)	----	---	1.26	1.26	1.27	1.27
Water wt%†	71.3	----	----	70.8	71.1	71.6	72.0
TOC wt% C (w	4.80E-02	----	----	4.10E-02	4.45E-02	5.15E-02	5.48E-02
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	1.60E-05	1.27E-02	6.18	2.45E-06	2.45E-06	1.64E-05	1.69E-05
C-14	3.06E-06	2.42E-03	1.18	2.19E-07	2.19E-07	3.07E-06	3.08E-06
Ni-59	1.64E-07	1.30E-04	6.33E-02	3.06E-08	3.06E-08	1.71E-07	1.77E-07
Ni-63	1.62E-05	1.28E-02	6.26	3.00E-06	3.00E-06	1.69E-05	1.75E-05
Co-60	3.47E-06	2.74E-03	1.34	2.23E-07	2.23E-07	3.50E-06	3.53E-06
Se-79	2.38E-07	1.88E-04	9.18E-02	5.66E-08	5.66E-08	3.03E-07	3.66E-07
Sr-90	9.01E-03	7.12	3.48E+03	8.12E-03	8.55E-03	9.46E-03	9.90E-03
Y-90	9.01E-03	7.12	3.48E+03	2.75E-03	2.75E-03	9.47E-03	9.90E-03
Zr-93	1.17E-06	9.25E-04	0.452	2.64E-07	2.64E-07	1.50E-06	1.81E-06
Nb-93m	8.39E-07	6.63E-04	0.324	2.04E-07	2.04E-07	1.07E-06	1.29E-06
Tc-99	2.13E-05	1.69E-02	8.24	1.08E-05	1.59E-05	2.68E-05	3.21E-05
Ru-106	5.86E-10	4.63E-07	2.26E-04	1.66E-10	1.66E-10	6.80E-10	7.65E-10
Cd-113m	6.45E-06	5.09E-03	2.49	1.01E-06	1.01E-06	8.42E-06	1.03E-05
Sb-125	1.52E-05	1.20E-02	5.85	1.09E-06	1.09E-06	1.53E-05	1.55E-05
Sn-126	3.58E-07	2.83E-04	0.138	8.64E-08	8.64E-08	4.57E-07	5.51E-07
I-129	4.12E-08	3.25E-05	1.59E-02	2.07E-08	3.07E-08	5.17E-08	6.19E-08
Cs-134	5.21E-08	4.11E-05	2.01E-02	2.57E-08	2.57E-08	5.27E-08	5.23E-08
Cs-137	7.12E-03	5.62	2.75E+03	5.04E-03	5.76E-03	7.28E-03	8.01E-03
Ba-137m	6.73E-03	5.32	2.60E+03	3.32E-03	3.32E-03	6.80E-03	6.79E-03
Sm-151	8.38E-04	0.662	324	2.04E-04	2.04E-04	1.07E-03	1.29E-03
Eu-152	7.14E-07	5.64E-04	0.275	4.89E-07	4.89E-07	7.21E-07	7.29E-07
Eu-154	5.12E-05	4.04E-02	19.8	5.88E-06	5.88E-06	6.76E-05	7.41E-05
Eu-155	4.24E-05	3.35E-02	16.4	2.90E-05	2.90E-05	4.28E-05	4.32E-05
Ra-226	1.16E-11	9.16E-09	4.48E-06	5.98E-12	5.98E-12	1.48E-11	1.79E-11
Ra-228	1.68E-10	1.33E-07	6.48E-05	7.01E-11	7.01E-11	1.87E-10	2.07E-10
Ac-227	5.83E-11	4.61E-08	2.25E-05	2.57E-11	2.57E-11	7.70E-11	9.50E-11
Pa-231	2.47E-10	1.95E-07	9.55E-05	6.60E-11	6.60E-11	3.13E-10	3.76E-10
Th-229	7.90E-12	6.24E-09	3.05E-06	3.48E-12	3.48E-12	8.59E-12	9.26E-12
Th-232	5.56E-11	4.39E-08	2.15E-05	1.52E-11	1.52E-11	5.89E-11	6.20E-11
U-232	7.72E-09	6.10E-06	2.98E-03	6.94E-09	7.29E-09	8.24E-09	8.85E-09
U-233	2.49E-08	1.97E-05	9.60E-03	2.18E-08	2.32E-08	2.69E-08	2.92E-08
U-234	2.19E-05	1.73E-02	8.47	2.14E-05	2.17E-05	2.22E-05	2.25E-05
U-235	8.51E-07	6.72E-04	0.328	8.31E-07	8.40E-07	8.61E-07	8.70E-07
U-236	1.28E-06	1.01E-03	0.493	1.24E-06	1.26E-06	1.30E-06	1.31E-06
U-238	1.61E-05	1.27E-02	6.21	1.57E-05	1.59E-05	1.63E-05	1.65E-05
Np-237	7.63E-08	6.03E-05	2.94E-02	4.17E-08	5.86E-08	9.41E-08	1.11E-07
Pu-238	6.45E-05	5.10E-02	24.9	6.19E-05	6.32E-05	6.58E-05	6.71E-05
Pu-239	1.79E-03	1.42	692	1.72E-03	1.76E-03	1.83E-03	1.86E-03
Pu-240	2.96E-04	0.234	114	2.84E-04	2.90E-04	3.02E-04	3.08E-04
Pu-241	2.64E-03	2.08	1.02E+03	2.53E-03	2.58E-03	2.69E-03	2.74E-03
Pu-242	6.99E-09	5.52E-06	2.70E-03	6.71E-09	6.85E-09	7.13E-09	7.27E-09
Am-241	3.96E-06	3.13E-03	1.53	2.04E-06	2.98E-06	4.95E-06	5.89E-06
Am-243	1.53E-10	1.21E-07	5.90E-05	9.24E-11	1.21E-10	1.85E-10	2.16E-10
Cm-242	1.55E-08	1.22E-05	5.98E-03	6.28E-09	6.28E-09	1.59E-08	1.63E-08
Cm-243	1.17E-09	9.22E-07	4.50E-04	2.88E-10	2.88E-10	1.21E-09	1.25E-09
Cm-244	1.21E-08	9.54E-06	4.66E-03	3.02E-09	3.02E-09	1.51E-08	1.71E-08
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	3.01E-02 (g/L)	----	11.6	2.89E-02	2.95E-02	3.08E-02	3.13E-02
U	0.203	3.82E+04	1.86E+04	0.198	0.201	0.205	0.208

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).
†Volume average for density, mass average Water wt% and TOC wt% C.


241-T-101
Photo date: 4-7-93
Saltwell Screen
Temperature Probe
Inlet Nozzles
Unknown
FIC
Level Probe

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TANK 241-T-102 SUMMARY

TANK HISTORY		TANK DESCRIPTION	
Entered Service	3rd qtr 1945	Diameter	75 ft
Removed from Service	1976	Bottom Shape	Dish
Inactive	1976	Nominal Capacity	530,000 gal
Watch Lists	none	Cascade Tank	to 241-T-103
Integrity	Sound	Total Risers	10
Assumed Leaker	-	**WASTE VOLUME (HANLON 1996l)**	
Interim Stabilization (IS)	March 1981	Total Waste Volume	32,000 gal
Partial Interim Isolation (PI)	-	Waste Type	NCPLX
Intrusion Prevention (IP)	Aug 1981	Drainable Interstitial Liquids	0 gal
TENTATIVELY AVAILABLE RISERS		Pumpable Liquids	13,000 gal
Riser Number	Size	Saltcake	0 gal
7, 12	12 in	Sludge	19,000 gal
		Supernatant	13,000 gal
TANK TEMPERATURE		**INTERIOR PHOTOGRAPHS**	
Average Tank Temperature	65°F	Date	June 28, 1989
Maximum Temperature	80°F	Montage Number	94080233-47CN
Date	Oct 3, 1976	Photo Set Number	89-062732
Elevation from tank bottom	unknown	**WASTE SURFACE LEVEL**	
Riser Number	8	Devices	Auto/Manual ENRAF
Minimum Temperature	53°F	Max Level	19.12 in
Date	Feb 18, 1978	Date	Aug 3 - Nov 17, 1996*
Elevation from tank bottom	unknown	Min Level	6.9 in
Riser Number	8	Date	Feb 15, 1995

* Numerous dates in this time span.

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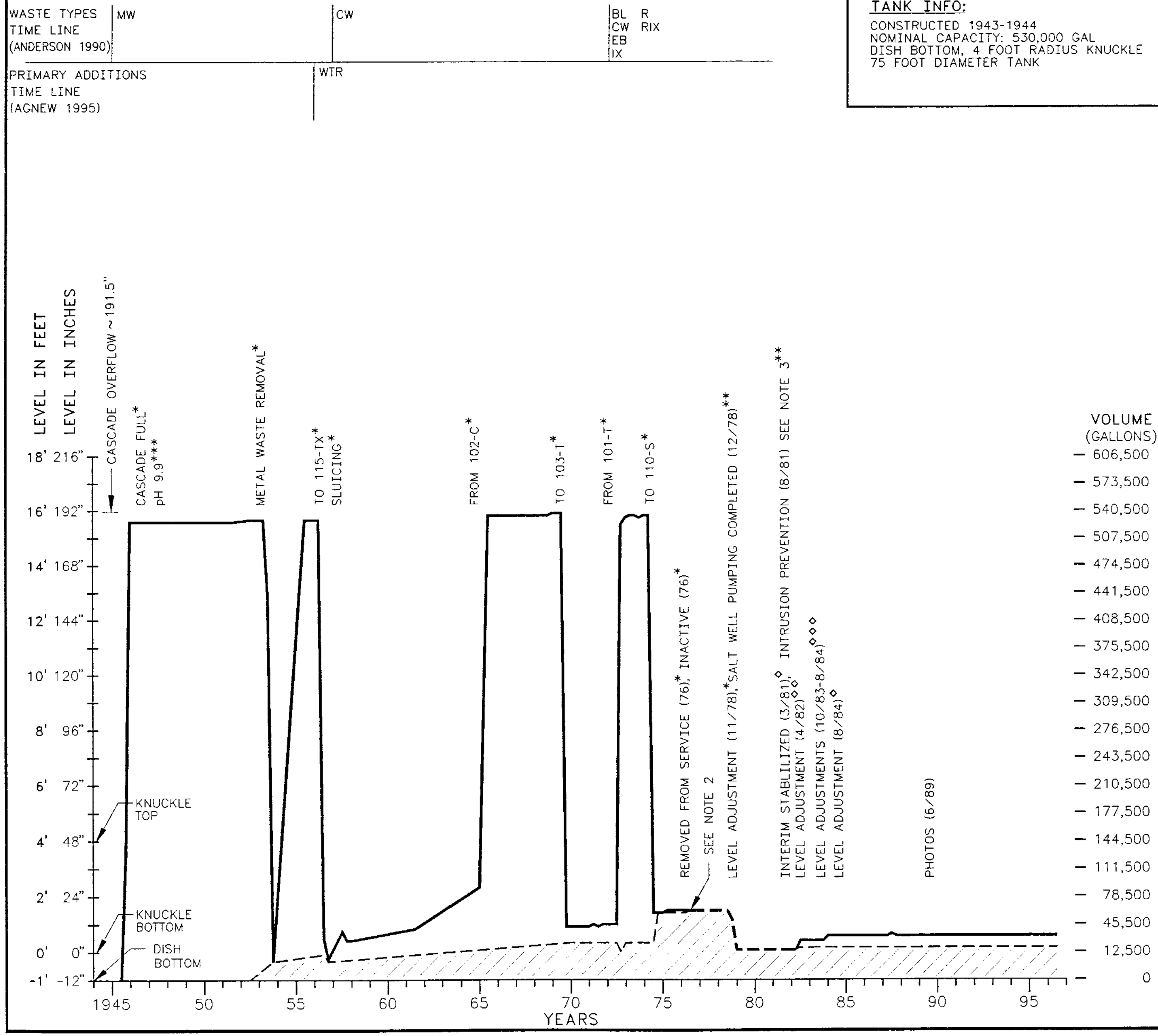


TANK INFO:

CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 530,000 GAL
DISH BOTTOM, 4 FOOT RADIUS KNUCKLE
75 FOOT DIAMETER TANK

REFERENCES

* ANDERSON 1990
** WELTY 1988
*** BORSHEIM AND KIRCH 1991
◇ HANLON 1996l
◇◇ McCANN 1982b
◇◇◇ McCANN (1983k, l & 1984 a-i)

NOTES:

1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN.
3) IN JUNE 1993, INTERIM ISOLATION WAS REPLACED BY INTRUSION PREVENTION.

GLOSSARY OF WASTE TERMS:

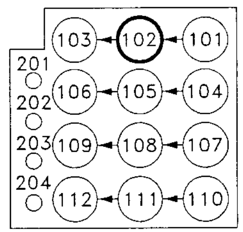
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A.

BL: B-PLANT LOW-LEVEL WASTE
CW: COATING (CLADDING) WASTE
EB: EVAPORATOR BOTTOMS
IX: ION EXCHANGE
MW: METAL WASTE
R: REDOX HIGH-LEVEL WASTE
RIX: REDOX ION EXCHANGE WASTE
WTR: WATER

LEGEND

TOTAL WASTE LEVEL (SUPERNATE)
TOTAL WASTE LEVEL (SOLIDS)
SOLIDS LEVEL
SOLIDS

T TANK FARM
CASCADE



U.S. DEPARTMENT OF ENERGY
Richland Operations Office
FLUOR DANIEL NORTHWEST, INC.

241-T-102 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1945-1996
SOUND/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E95	1/97
SCALE NONE		JOB NO.	SHEET 1 OF 1

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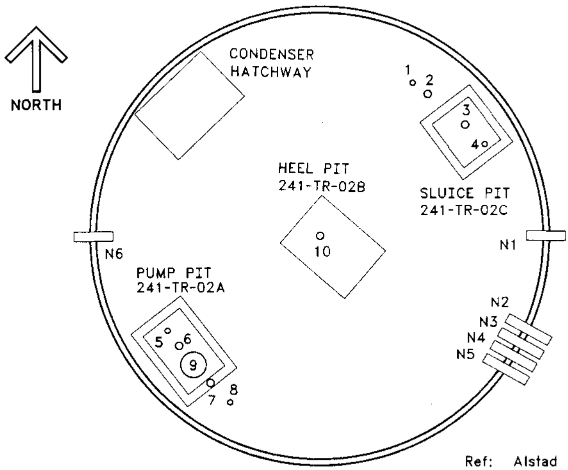
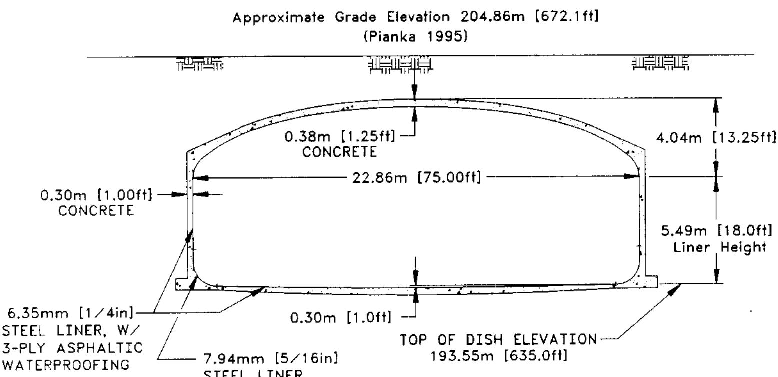
241-T-102



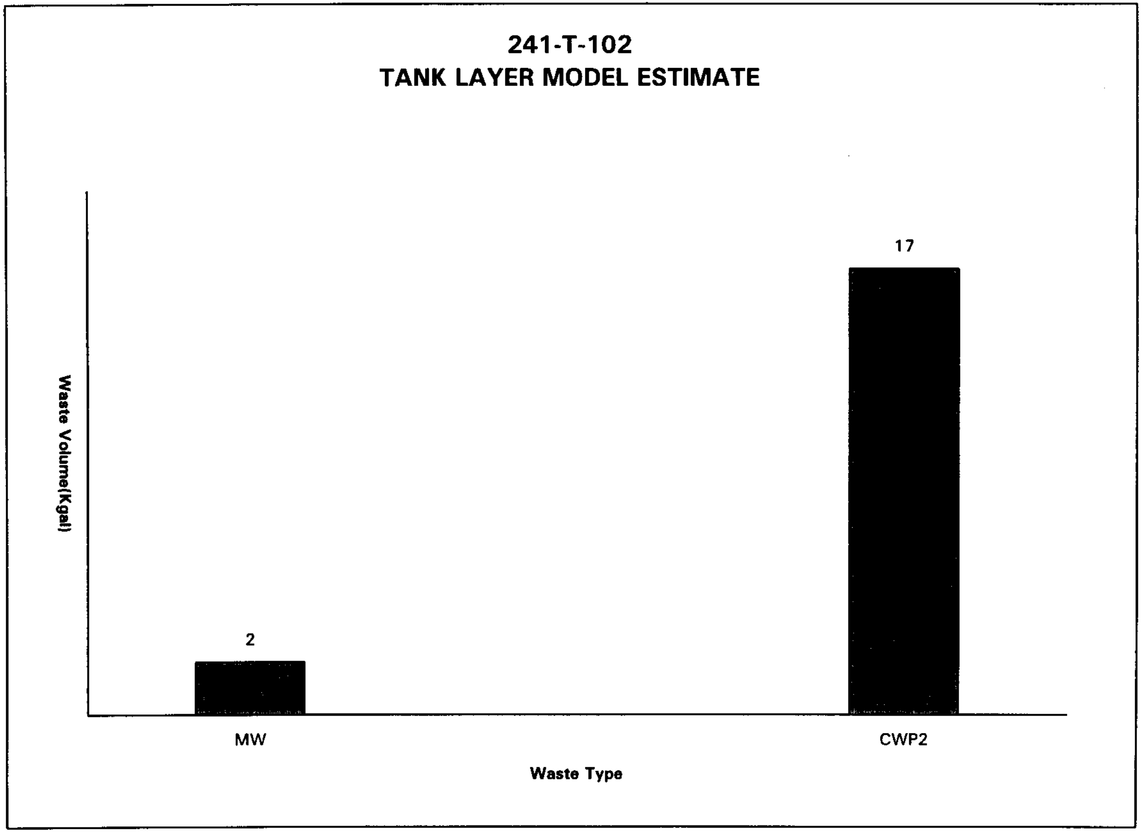
Ref: Alstad 1993
W-72743
H-2-73060, Rev. 2

TANK RISER LOCATION



Ref: H-2-1741, Rev. 3
CVI 73550, dwg D-2

NOT TO SCALE



Tank Layer Model(TLM) Estimate from *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 4* (Agnew et al., 1997).

HDW Model Rev. 4

Single-Shell Tank 241-T-102							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	1.10E+05 (kg)	(19.0 kgal)	----	----	----	----	----
Heat Load	1.61E-03 (kW)	(5.51 BTU/hr)	----	6.13E-04	1.12E-03	2.11E-03	2.60E-03
Bulk Density	1.54 (g/cc)	----	----	1.36	1.46	1.59	1.62
Void Fraction	0.724	----	----	0.709	0.714	0.745	0.767
Water wt%	50.8	----	----	47.3	48.8	53.8	58.5
TOC wt% C (w	0	----	----	0	0	0	0
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	1.64	2.46E+04	2.71E+03	0.866	1.26	2.03	2.40
Al3+	5.24	9.21E+04	1.02E+04	4.94	5.09	5.39	5.54
Fe3+ (total Fe)	0.422	1.53E+04	1.69E+03	0.266	0.386	0.438	0.448
Cr3+	2.23E-03	75.6	8.35	7.72E-04	1.51E-03	2.96E-03	3.67E-03
Bi3+	0	0	0	0	0	0	0
La3+	0	0	0	0	0	0	0
Hg2+	5.29E-03	691	76.3	4.52E-03	5.11E-03	5.37E-03	5.42E-03
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0.291	3.93E+04	4.34E+03	0.167	0.263	0.305	0.313
Ni2+	1.12E-03	42.7	4.72	3.86E-04	7.54E-04	7.90E-03	1.62E-02
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	0.296	7.73E+03	854	1.26E-02	0.137	0.371	0.412
K+	1.75E-03	44.4	4.91	5.47E-04	1.15E-03	2.34E-03	2.92E-03
OH-	20.0	2.22E+05	2.45E+04	17.2	18.9	20.9	21.7
NO3-	0.470	1.90E+04	2.10E+03	0.149	0.311	0.628	0.778
NO2-	0.201	6.03E+03	666	5.92E-02	0.130	0.275	0.349
CO32-	0.486	1.90E+04	2.10E+03	0.203	0.327	0.561	0.602
PO43-	4.21E-02	2.60E+03	288	1.81E-02	3.07E-02	5.18E-02	5.97E-02
SO42-	1.81E-02	1.13E+03	125	1.21E-02	1.51E-02	2.11E-02	2.40E-02
Si (as SiO32-)	1.80E-04	3.29	0.363	1.53E-04	1.66E-04	1.92E-04	2.04E-04
F-	0	0	0	0	0	0	0
Cl-	8.03E-03	185	20.5	2.52E-03	5.29E-03	1.08E-02	1.34E-02
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	2.88E-05	0.319	3.52E-02	2.76E-06	1.24E-05	5.26E-05	8.29E-05
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-102							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	4.92E+04 (kg)	(13.0 kgal)	---	---	---	---	---
Heat Load	0 (kW)	(0 BTU/hr)	---	0	0	0	0
Bulk Density*	1.00 (g/cc)	---	---	1.00	1.00	1.00	1.00
Water wt%	100	---	---	100	100	100	100
TOC wt% C (w	0	---	---	0	0	0	0
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	0	0	0	0	0	0	0
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	0	0	0	0	0	0	0
Cr3+	0	0	0	0	0	0	0
Bi3+	0	0	0	0	0	0	0
La3+	0	0	0	0	0	0	0
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	0	0	0	0	0	0	0
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	0	0	0	0	0	0	0
K+	0	0	0	0	0	0	0
OH-	0	0	0	0	0	0	0
NO3-	0	0	0	0	0	0	0
NO2-	0	0	0	0	0	0	0
CO32-	0	0	0	0	0	0	0
PO43-	0	0	0	0	0	0	0
SO42-	0	0	0	0	0	0	0
Si (as SiO32-)	0	0	0	0	0	0	0
F-	0	0	0	0	0	0	0
Cl-	0	0	0	0	0	0	0
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	0	0	0	0	0	0	0
Fe(CN)64-	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-102							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	1.60E+05 (kg)	(32.0 kgal)	---	---	---	---	---
Heat Load	1.61E-03 (kW)	(5.51 BTU/hr)	---	6.13E-04	1.12E-03	2.11E-03	2.60E-03
Bulk Density†	1.32 (g/cc)	---	---	1.22	1.27	1.35	1.37
Water wt%†	66.0	---	---	62.9	64.2	68.6	72.4
TOC wt% C (w	0	---	---	0	0	0	0
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	0.974	1.70E+04	2.71E+03	0.514	0.746	1.20	1.42
Al3+	3.11	6.37E+04	1.02E+04	2.93	3.02	3.20	3.29
Fe3+ (total Fe)	0.250	1.06E+04	1.69E+03	0.158	0.229	0.260	0.266
Cr3+	1.33E-03	52.3	8.35	4.59E-04	8.95E-04	1.76E-03	2.18E-03
Bi3+	0	0	0	0	0	0	0
La3+	0	0	0	0	0	0	0
Hg2+	3.14E-03	478	76.3	2.68E-03	3.04E-03	3.19E-03	3.22E-03
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0.173	2.72E+04	4.34E+03	9.94E-02	0.156	0.181	0.186
Ni2+	6.63E-04	29.5	4.72	2.29E-04	4.48E-04	4.69E-03	9.62E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	0.176	5.35E+03	854	7.48E-03	8.11E-02	0.220	0.245
K+	1.04E-03	30.7	4.91	3.25E-04	6.83E-04	1.39E-03	1.73E-03
OH-	11.9	1.53E+05	2.45E+04	10.2	11.2	12.4	12.9
NO3-	0.279	1.31E+04	2.10E+03	8.82E-02	0.185	0.373	0.462
NO2-	0.120	4.17E+03	666	3.51E-02	7.70E-02	0.163	0.207
CO32-	0.289	1.31E+04	2.10E+03	0.120	0.194	0.333	0.358
PO43-	2.50E-02	1.80E+03	288	1.07E-02	1.82E-02	3.08E-02	3.54E-02
SO42-	1.08E-02	784	125	7.18E-03	8.98E-03	1.25E-02	1.43E-02
Si (as SiO32-)	1.07E-04	2.27	0.363	9.11E-05	9.89E-05	1.14E-04	1.21E-04
F-	0	0	0	0	0	0	0
Cl-	4.77E-03	128	20.5	1.49E-03	3.14E-03	6.40E-03	7.98E-03
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	1.71E-05	0.220	3.52E-02	1.64E-06	7.39E-06	3.12E-05	4.92E-05
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-102							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	1.10E+05 (kg)	(19.0 kgal)	----	----	----	----	—
Heat Load	1.61E-03 (kW)	(5.51 BTU/hr)	----	6.13E-04	1.12E-03	2.11E-03	2.60E-03
Bulk Density	1.54 (g/cc)	----	----	1.36	1.46	1.59	1.62
Void Fraction	0.724	----	----	0.709	0.714	0.745	0.767
Water wt%	50.8	----	----	47.3	48.8	53.8	58.5
TOC wt% C (w	0	----	----	0	0	0	0
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	5.95E-07	3.88E-04	4.28E-02	1.42E-07	3.05E-07	1.01E-06	1.54E-06
C-14	3.56E-07	2.32E-04	2.56E-02	2.71E-07	3.17E-07	3.90E-07	4.18E-07
Ni-59	2.97E-08	1.94E-05	2.14E-03	1.60E-08	2.29E-08	1.57E-07	3.13E-07
Ni-63	2.86E-06	1.86E-03	0.206	1.48E-06	2.18E-06	1.57E-05	3.13E-05
Co-60	1.06E-07	6.91E-05	7.63E-03	3.54E-08	7.10E-08	1.41E-07	1.76E-07
Se-79	2.29E-08	1.49E-05	1.65E-03	1.21E-08	1.75E-08	2.83E-08	3.35E-08
Sr-90	1.85E-03	1.21	133	7.04E-04	1.28E-03	2.43E-03	2.98E-03
Y-90	1.85E-03	1.21	133	7.05E-04	1.28E-03	2.43E-03	2.98E-03
Zr-93	1.08E-07	7.05E-05	7.79E-03	5.75E-08	8.31E-08	1.34E-07	1.58E-07
Nb-93m	8.38E-08	5.46E-05	6.03E-03	4.67E-08	6.53E-08	1.02E-07	1.20E-07
Tc-99	7.56E-07	4.93E-04	5.44E-02	3.99E-07	5.79E-07	9.35E-07	1.11E-06
Ru-106	1.67E-10	1.09E-07	1.20E-05	5.03E-11	1.09E-10	2.26E-10	2.82E-10
Cd-113m	4.25E-07	2.77E-04	3.06E-02	1.78E-07	3.02E-07	5.48E-07	6.67E-07
Sb-125	5.54E-07	3.61E-04	3.98E-02	1.68E-07	3.62E-07	7.46E-07	9.32E-07
Sn-126	3.47E-08	2.26E-05	2.50E-03	1.82E-08	2.65E-08	4.29E-08	5.09E-08
I-129	1.44E-09	9.39E-07	1.04E-04	7.54E-10	1.10E-09	1.79E-09	2.12E-09
Cs-134	3.66E-08	2.38E-05	2.63E-03	1.10E-08	2.39E-08	4.93E-08	6.16E-08
Cs-137	2.13E-03	1.39	153	8.06E-04	1.47E-03	2.79E-03	3.42E-03
Ba-137m	2.01E-03	1.31	145	7.62E-04	1.39E-03	2.64E-03	3.24E-03
Sm-151	8.39E-05	5.46E-02	6.04	4.50E-05	6.46E-05	1.03E-04	1.22E-04
Eu-152	5.93E-07	3.86E-04	4.26E-02	5.84E-07	5.88E-07	5.97E-07	6.02E-07
Eu-154	2.07E-06	1.35E-03	0.149	6.68E-07	1.37E-06	2.77E-06	3.44E-06
Eu-155	4.28E-05	2.79E-02	3.08	4.22E-05	4.25E-05	4.31E-05	4.34E-05
Ra-226	1.55E-11	1.01E-08	1.11E-06	4.20E-12	4.20E-12	3.28E-11	4.94E-11
Ra-228	4.82E-08	3.14E-05	3.46E-03	4.74E-08	4.78E-08	4.85E-08	4.89E-08
Ac-227	1.48E-07	9.61E-05	1.06E-02	1.20E-07	1.41E-07	1.51E-07	1.55E-07
Pa-231	2.18E-07	1.42E-04	1.57E-02	6.34E-08	1.83E-07	2.40E-07	2.61E-07
Th-229	2.18E-08	1.42E-05	1.57E-03	2.15E-08	2.16E-08	2.20E-08	2.21E-08
Th-232	2.24E-09	1.46E-06	1.61E-04	6.75E-10	1.46E-09	3.03E-09	3.78E-09
U-232	2.48E-06	1.62E-03	0.179	2.97E-08	1.34E-06	3.02E-06	3.31E-06
U-233	9.65E-06	6.28E-03	0.694	1.15E-07	5.20E-06	1.17E-05	1.29E-05
U-234	2.74E-05	1.79E-02	1.97	1.46E-05	2.15E-05	3.02E-05	3.18E-05
U-235	1.18E-06	7.70E-04	8.51E-02	6.57E-07	9.38E-07	1.30E-06	1.36E-06
U-236	4.82E-07	3.14E-04	3.47E-02	9.70E-08	3.03E-07	5.66E-07	6.12E-07
U-238	2.69E-05	1.75E-02	1.93	1.48E-05	2.13E-05	2.95E-05	3.10E-05
Np-237	5.28E-09	3.44E-06	3.80E-04	2.62E-09	3.96E-09	6.61E-09	7.89E-09
Pu-238	5.56E-05	3.62E-02	4.00	3.93E-05	5.18E-05	5.78E-05	6.00E-05
Pu-239	2.32E-03	1.51	167	1.64E-03	2.16E-03	2.41E-03	2.50E-03
Pu-240	4.12E-04	0.268	29.6	2.91E-04	3.84E-04	4.29E-04	4.45E-04
Pu-241	4.45E-03	2.90	320	3.14E-03	4.15E-03	4.63E-03	4.81E-03
Pu-242	1.25E-08	8.15E-06	9.01E-04	8.85E-09	1.17E-08	1.30E-08	1.35E-08
Am-241	4.46E-07	2.91E-04	3.21E-02	1.43E-07	2.95E-07	5.98E-07	7.44E-07
Am-243	4.62E-12	3.01E-09	3.32E-07	1.41E-12	3.02E-12	6.22E-12	7.76E-12
Cm-242	8.50E-09	5.53E-06	6.11E-04	8.37E-09	8.43E-09	8.56E-09	8.62E-09
Cm-243	2.34E-10	1.52E-07	1.68E-05	2.30E-10	2.32E-10	2.36E-10	2.37E-10
Cm-244	1.75E-10	1.14E-07	1.26E-05	5.30E-11	1.14E-10	2.36E-10	2.94E-10
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	3.91E-02 (g/L)	----	2.81	2.76E-02	3.65E-02	4.07E-02	4.23E-02
U	0.339	5.25E+04	5.80E+03	0.186	0.268	0.372	0.390

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-102							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	4.92E+04 (kg)	(13.0 kgal)	----	----	----	----	----
Heat Load	0 (kW)	(0 BTU/hr)	----	0	0	0	0
Bulk Density*	1.00 (g/cc)	----	----	1.00	1.00	1.00	1.00
Water wt%†	100	----	----	100	100	100	100
TOC wt% C (w	0	----	----	0	0	0	0
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	0	0	0	0	0	0	0
C-14	0	0	0	0	0	0	0
Ni-59	0	0	0	0	0	0	0
Ni-63	0	0	0	0	0	0	0
Co-60	0	0	0	0	0	0	0
Se-79	0	0	0	0	0	0	0
Sr-90	0	0	0	0	0	0	0
Y-90	0	0	0	0	0	0	0
Zr-93	0	0	0	0	0	0	0
Nb-93m	0	0	0	0	0	0	0
Tc-99	0	0	0	0	0	0	0
Ru-106	0	0	0	0	0	0	0
Cd-113m	0	0	0	0	0	0	0
Sb-125	0	0	0	0	0	0	0
Sn-126	0	0	0	0	0	0	0
I-129	0	0	0	0	0	0	0
Cs-134	0	0	0	0	0	0	0
Cs-137	0	0	0	0	0	0	0
Ba-137m	0	0	0	0	0	0	0
Sm-151	0	0	0	0	0	0	0
Eu-152	0	0	0	0	0	0	0
Eu-154	0	0	0	0	0	0	0
Eu-155	0	0	0	0	0	0	0
Ra-226	0	0	0	0	0	0	0
Ra-228	0	0	0	0	0	0	0
Ac-227	0	0	0	0	0	0	0
Pa-231	0	0	0	0	0	0	0
Th-229	0	0	0	0	0	0	0
Th-232	0	0	0	0	0	0	0
U-232	0	0	0	0	0	0	0
U-233	0	0	0	0	0	0	0
U-234	0	0	0	0	0	0	0
U-235	0	0	0	0	0	0	0
U-236	0	0	0	0	0	0	0
U-238	0	0	0	0	0	0	0
Np-237	0	0	0	0	0	0	0
Pu-238	0	0	0	0	0	0	0
Pu-239	0	0	0	0	0	0	0
Pu-240	0	0	0	0	0	0	0
Pu-241	0	0	0	0	0	0	0
Pu-242	0	0	0	0	0	0	0
Am-241	0	0	0	0	0	0	0
Am-243	0	0	0	0	0	0	0
Cm-242	0	0	0	0	0	0	0
Cm-243	0	0	0	0	0	0	0
Cm-244	0	0	0	0	0	0	0
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	0 (g/L)	----	0	0	0	0	0
U	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

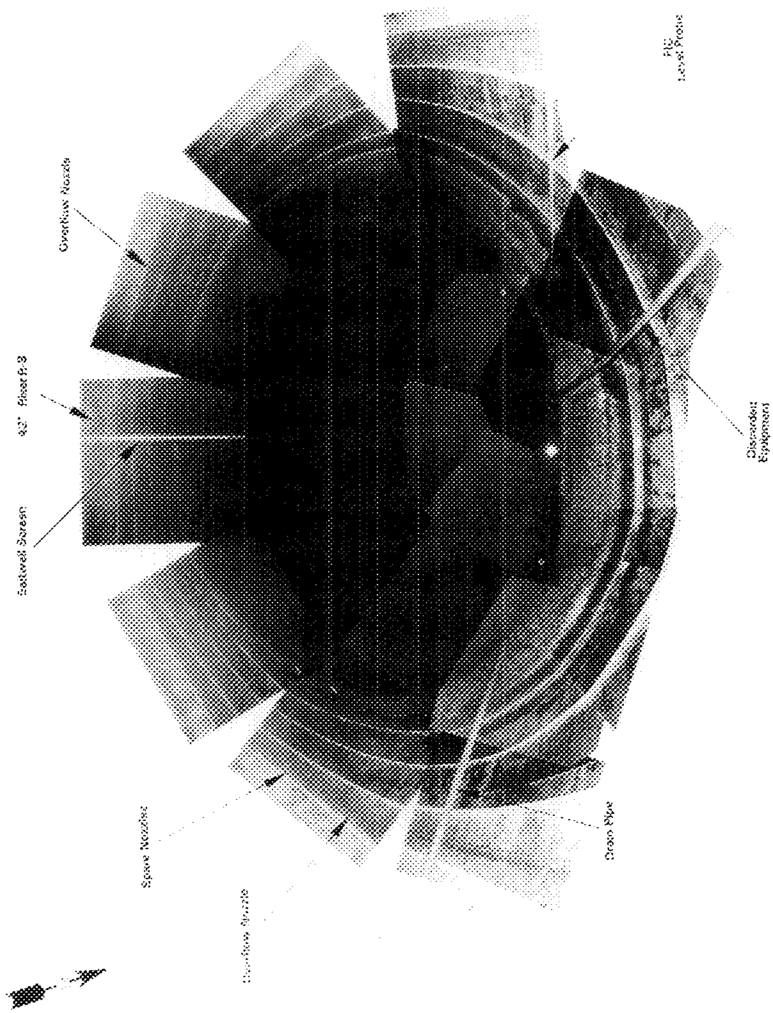
Single-Shell Tank 241-T-102							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	1.60E+05 (kg)	(32.0 kgal)	----	----	----	----	----
Heat Load	1.61E-03 (kW)	(5.51 BTU/hr)	----	6.13E-04	1.12E-03	2.11E-03	2.60E-03
Bulk Density†	1.32 (g/cc)	----	----	1.22	1.27	1.35	1.37
Water wt%†	66.0	----	----	62.9	64.2	68.6	72.4
TOC wt% C (w	0	----	----	0	0	0	0
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	3.53E-07	2.68E-04	4.28E-02	8.44E-08	1.81E-07	6.02E-07	9.15E-07
C-14	2.12E-07	1.60E-04	2.56E-02	1.61E-07	1.88E-07	2.32E-07	2.48E-07
Ni-59	1.77E-08	1.34E-05	2.14E-03	9.51E-09	1.36E-08	9.33E-08	1.86E-07
Ni-63	1.70E-06	1.29E-03	0.206	8.80E-07	1.29E-06	9.30E-06	1.86E-05
Co-60	6.30E-08	4.78E-05	7.63E-03	2.10E-08	4.21E-08	8.40E-08	1.04E-07
Se-79	1.36E-08	1.03E-05	1.65E-03	7.19E-09	1.04E-08	1.68E-08	1.99E-08
Sr-90	1.10E-03	0.835	133	4.18E-04	7.61E-04	1.44E-03	1.77E-03
Y-90	1.10E-03	0.835	133	4.18E-04	7.62E-04	1.44E-03	1.77E-03
Zr-93	6.43E-08	4.88E-05	7.79E-03	3.41E-08	4.93E-08	7.94E-08	9.39E-08
Nb-93m	4.97E-08	3.77E-05	6.03E-03	2.77E-08	3.88E-08	6.07E-08	7.14E-08
Tc-99	4.49E-07	3.41E-04	5.44E-02	2.37E-07	3.44E-07	5.55E-07	6.57E-07
Ru-106	9.93E-11	7.54E-08	1.20E-05	2.99E-11	6.48E-11	1.34E-10	1.67E-10
Cd-113m	2.52E-07	1.91E-04	3.06E-02	1.06E-07	1.80E-07	3.25E-07	3.96E-07
Sb-125	3.29E-07	2.49E-04	3.98E-02	1.00E-07	2.15E-07	4.43E-07	5.53E-07
Sn-126	2.06E-08	1.56E-05	2.50E-03	1.08E-08	1.57E-08	2.55E-08	3.02E-08
I-129	8.56E-10	6.50E-07	1.04E-04	4.48E-10	6.53E-10	1.06E-09	1.26E-09
Cs-134	2.17E-08	1.65E-05	2.63E-03	6.53E-09	1.42E-08	2.93E-08	3.66E-08
Cs-137	1.26E-03	0.958	153	4.78E-04	8.73E-04	1.65E-03	2.03E-03
Ba-137m	1.19E-03	0.906	145	4.53E-04	8.26E-04	1.57E-03	1.92E-03
Sm-151	4.98E-05	3.78E-02	6.04	2.67E-05	3.83E-05	6.14E-05	7.25E-05
Eu-152	3.52E-07	2.67E-04	4.26E-02	3.47E-07	3.49E-07	3.55E-07	3.57E-07
Eu-154	1.23E-06	9.31E-04	0.149	3.97E-07	8.15E-07	1.64E-06	2.04E-06
Eu-155	2.54E-05	1.93E-02	3.08	2.50E-05	2.52E-05	2.56E-05	2.58E-05
Ra-226	9.18E-12	6.96E-09	1.11E-06	2.49E-12	2.49E-12	1.95E-11	2.93E-11
Ra-228	2.86E-08	2.17E-05	3.46E-03	2.82E-08	2.84E-08	2.88E-08	2.90E-08
Ac-227	8.76E-08	6.65E-05	1.06E-02	7.10E-08	8.38E-08	8.99E-08	9.21E-08
Pa-231	1.30E-07	9.84E-05	1.57E-02	3.76E-08	1.09E-07	1.43E-07	1.55E-07
Th-229	1.29E-08	9.82E-06	1.57E-03	1.27E-08	1.28E-08	1.30E-08	1.31E-08
Th-232	1.33E-09	1.01E-06	1.61E-04	4.01E-10	8.70E-10	1.80E-09	2.25E-09
U-232	1.47E-06	1.12E-03	0.179	1.77E-08	7.95E-07	1.79E-06	1.97E-06
U-233	5.73E-06	4.35E-03	0.694	6.82E-08	3.09E-06	6.96E-06	7.64E-06
U-234	1.63E-05	1.24E-02	1.97	8.68E-06	1.27E-05	1.79E-05	1.89E-05
U-235	7.02E-07	5.33E-04	8.51E-02	3.90E-07	5.57E-07	7.70E-07	8.08E-07
U-236	2.86E-07	2.17E-04	3.47E-02	5.76E-08	1.80E-07	3.36E-07	3.63E-07
U-238	1.60E-05	1.21E-02	1.93	8.78E-06	1.26E-05	1.75E-05	1.84E-05
Np-237	3.14E-09	2.38E-06	3.80E-04	1.56E-09	2.35E-09	3.92E-09	4.69E-09
Pu-238	3.30E-05	2.50E-02	4.00	2.33E-05	3.08E-05	3.43E-05	3.56E-05
Pu-239	1.37E-03	1.04	167	9.72E-04	1.28E-03	1.43E-03	1.49E-03
Pu-240	2.44E-04	0.185	29.6	1.73E-04	2.28E-04	2.54E-04	2.64E-04
Pu-241	2.64E-03	2.00	320	1.87E-03	2.46E-03	2.75E-03	2.85E-03
Pu-242	7.44E-09	5.64E-06	9.01E-04	5.25E-09	6.94E-09	7.74E-09	8.03E-09
Am-241	2.65E-07	2.01E-04	3.21E-02	8.48E-08	1.75E-07	3.55E-07	4.42E-07
Am-243	2.74E-12	2.08E-09	3.32E-07	8.39E-13	1.80E-12	3.69E-12	4.61E-12
Cm-242	5.04E-09	3.83E-06	6.11E-04	4.97E-09	5.01E-09	5.08E-09	5.12E-09
Cm-243	1.39E-10	1.05E-07	1.68E-05	1.37E-10	1.38E-10	1.40E-10	1.41E-10
Cm-244	1.04E-10	7.88E-08	1.26E-05	3.14E-11	6.79E-11	1.40E-10	1.75E-10
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	2.32E-02 (g/L)	----	2.81	1.64E-02	2.17E-02	2.42E-02	2.51E-02
U	0.201	3.63E+04	5.80E+03	0.111	0.159	0.221	0.232

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Volume average for density, mass average Water wt% and TOC wt% C.

241-T-102

Photo date: 6-28-89



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TANK 241-T-103 SUMMARY

TANK HISTORY	
Entered Service	4th qtr 1945
Removed from Service	1974
Inactive	1976
Watch Lists	none
Integrity	Assumed Leaker
Assumed Leaker	1974
Interim Stabilization (IS)	Nov 1983
Partial Interim Isolation (PI)	-
Intrusion Prevention (IP)	Aug 1981
TENTATIVELY AVAILABLE RISERS	
Riser Number	Size
2, 7	12 in
TANK TEMPERATURE	
Average Tank Temperature	64°F
Maximum Temperature	78°F
Date	Oct 3, 1976
Elevation from tank bottom	unknown
Riser Number	8
Minimum Temperature	50°F
Date	May 3, 1980
Elevation from tank bottom	unknown
Riser Number	8

TANK DESCRIPTION	
Diameter	75 ft
Bottom Shape	Dish
Nominal Capacity	530,000 gal
Cascade Tank	none
Total Risers	11
WASTE VOLUME (HANLON 1996l)	
Total Waste Volume	27,000 gal
Waste Type	NCPLX
Drainable Interstitial Liquids	0 gal
Pumpable Liquids	0 gal
Saltcake	0 gal
Sludge	23,000 gal
Supernatant	4,000 gal
INTERIOR PHOTOGRAPHS	
Date	July 3, 1984
Montage Number	94080233-43CN
Photo Set Number	84-04685
SURFACE LEVELS	
Devices	Manual ENRAF
Max Level	17.37 in
Date	Oct 2, 1996
Min Level	4.7 in
Date	Nov 8, 1991, Jan 5, 1992

* Numerous dates in this time span.

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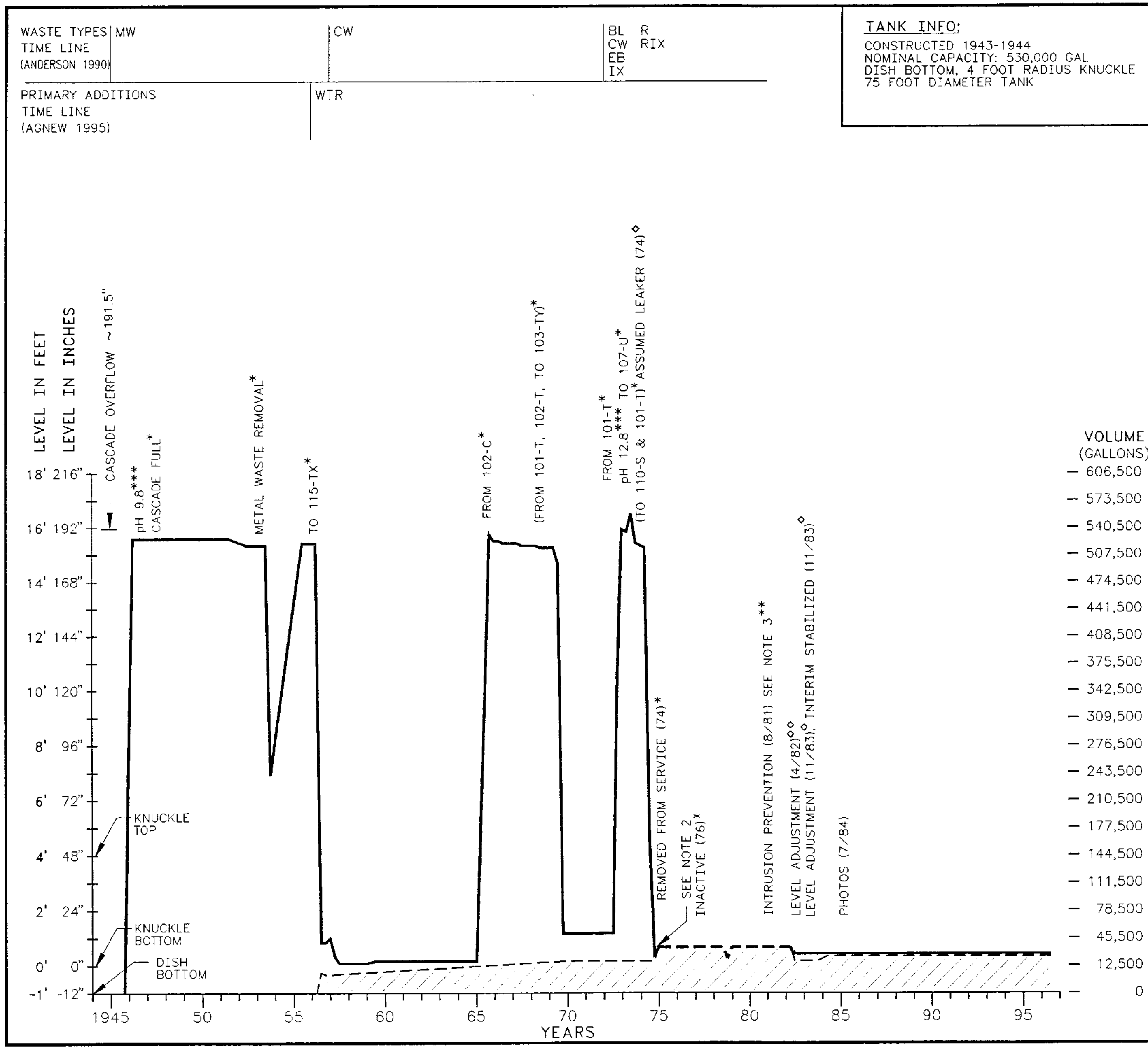


TANK INFO:

CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 530,000 GAL
DISH BOTTOM, 4 FOOT RADIUS KNUCKLE
75 FOOT DIAMETER TANK

REFERENCES

- * ANDERSON 1990
- ** WELTY 1988
- *** BORSHEIM AND KIRCH 1991
- ◇ HANLON 1996l
- ◇◇ McCANN 1982b

NOTES:

1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN.
3) IN JUNE 1993, INTERIM ISOLATION WAS REPLACED BY INTRUSION PREVENTION.

GLOSSARY OF WASTE TERMS:

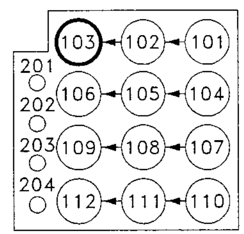
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A.

BL:	B-PLANT LOW-LEVEL WASTE
CW:	COATING (CLADDING) WASTE
EB:	EVAPORATOR BOTTOMS
IX:	ION EXCHANGE
MW:	METAL WASTE
R:	REDOX HIGH-LEVEL WASTE
RIX:	REDOX ION EXCHANGE WASTE
WTR:	WATER

LEGEND

- TOTAL WASTE LEVEL (SUPERNATE)
- TOTAL WASTE LEVEL (SOLIDS)
- SOLIDS LEVEL
- SOLIDS

T TANK FARM CASCADE



U.S. DEPARTMENT OF ENERGY
Richland Operations Office
FLUOR DANIEL NORTHWEST, INC.

241-T-103 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1945-1996
ASSUMED LEAKER/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E96	1/97
SCALE NONE		JOB NO.	SHEET 1 OF 1

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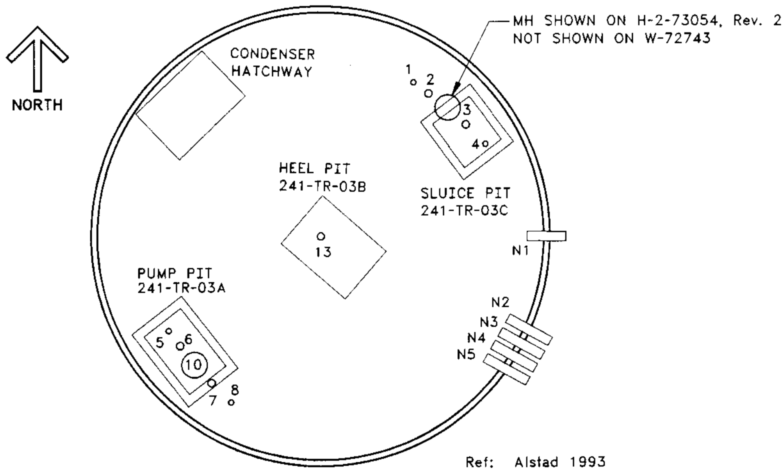
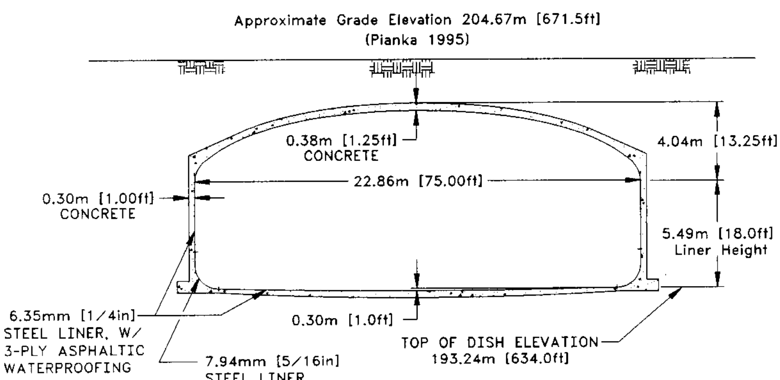
241-T-103



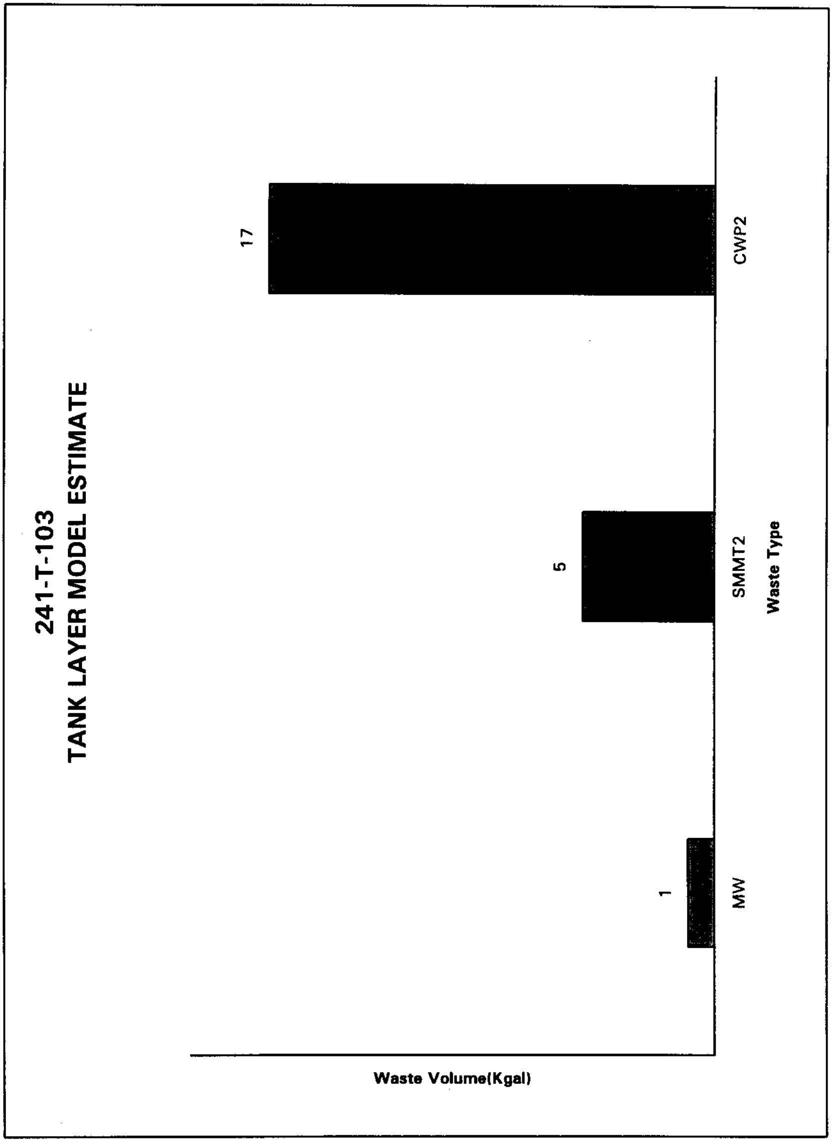
Ref: Alstad 1993
W-72743
H-2-73054, Rev. 2

TANK RISER LOCATION



Ref: H-2-1741, Rev. 3
CVI 73550, dwg D-2

NOT TO SCALE



Tank Layer Model(TLM) Estimate from *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 4* (Agnew et al., 1997).

HDW Model Rev. 4

Single-Shell Tank 241-T-103

TLM Solids Composite Inventory Estimate*

Physical Properties				-95 CI	-67 CI	+67 CI	+95 CI
Total TLM Wa	1.04E+05 (kg)	(18.0 kgal)	---	---	---	---	---
Heat Load	1.52E-03 (kW)	(5.20 BTU/hr)	----	5.22E-04	1.03E-03	2.02E-03	2.51E-03
Bulk Density	1.53 (g/cc)	---	----	1.35	1.45	1.58	1.62
Void Fraction	0.743	---	----	0.726	0.732	0.765	0.788
Water wt%	51.0	----	----	47.3	48.9	54.3	59.3
TOC wt% C (w	0	----	----	0	0	0	0
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	1.45	2.18E+04	2.27E+03	0.633	1.04	1.86	2.25
Al3+	5.53	9.77E+04	1.02E+04	5.22	5.38	5.69	5.84
Fe3+ (total Fe)	0.438	1.60E+04	1.67E+03	0.275	0.401	0.456	0.467
Cr3+	2.28E-03	77.7	8.08	7.39E-04	1.52E-03	3.05E-03	3.80E-03
Bi3+	0	0	0	0	0	0	0
La3+	0	0	0	0	0	0	0
Hg2+	5.58E-03	733	76.3	4.77E-03	5.40E-03	5.67E-03	5.72E-03
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0.308	4.17E+04	4.34E+03	0.177	0.278	0.322	0.331
Ni2+	1.14E-03	43.9	4.56	3.70E-04	7.58E-04	8.31E-03	1.71E-02
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	0.308	8.09E+03	841	8.61E-03	0.140	0.387	0.430
K+	1.83E-03	46.7	4.86	5.61E-04	1.20E-03	2.46E-03	3.07E-03
OH-	20.6	2.29E+05	2.38E+04	17.6	19.3	21.5	22.3
NO3-	0.492	2.00E+04	2.08E+03	0.153	0.325	0.658	0.817
NO2-	0.212	6.39E+03	665	6.22E-02	0.137	0.290	0.368
CO32-	0.408	1.60E+04	1.67E+03	0.109	0.240	0.487	0.531
PO43-	2.22E-02	1.38E+03	144	9.54E-03	1.62E-02	2.73E-02	3.15E-02
SO42-	1.41E-02	887	92.2	7.74E-03	1.09E-02	1.73E-02	2.03E-02
Si (as SiO32-)	9.47E-05	1.74	0.181	8.09E-05	8.78E-05	1.01E-04	1.07E-04
F-	0	0	0	0	0	0	0
Cl-	8.40E-03	195	20.3	2.58E-03	5.51E-03	1.13E-02	1.41E-02
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	3.03E-05	0.338	3.51E-02	2.85E-06	1.31E-05	5.54E-05	8.74E-05
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-103							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	3.68E+04 (kg)	(9.00 kgal)	----	----	----	----	----
Heat Load	8.37E-03 (kW)	(28.6 BTU/hr)	----	7.07E-03	7.75E-03	8.66E-03	8.94E-03
Bulk Density*	1.08 (g/cc)	----	----	1.06	1.07	1.09	1.09
Water wt%	87.2	----	----	85.4	86.2	88.3	89.5
TOC wt% C (w	0.155	----	----	0.134	0.144	0.166	0.176
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	1.89	4.04E+04	1.48E+03	1.52	1.71	2.05	2.20
Al3+	0.213	5.31E+03	195	0.185	0.200	0.225	0.237
Fe3+ (total Fe)	1.68E-03	87.2	3.21	1.07E-03	1.37E-03	2.00E-03	2.30E-03
Cr3+	1.85E-02	893	32.8	1.47E-02	1.67E-02	1.97E-02	2.06E-02
Bi3+	3.11E-05	6.02	0.221	2.63E-05	2.87E-05	3.35E-05	3.58E-05
La3+	3.67E-10	4.72E-05	1.74E-06	2.65E-10	3.15E-10	4.19E-10	4.68E-10
Hg2+	7.66E-07	0.142	5.24E-03	7.35E-07	7.50E-07	7.81E-07	7.96E-07
Zr (as ZrO(OH)2	4.10E-06	0.347	1.27E-02	3.48E-06	3.72E-06	4.37E-06	4.72E-06
Pb2+	1.14E-04	21.9	0.806	9.52E-05	1.04E-04	1.24E-04	1.33E-04
Ni2+	7.19E-04	39.1	1.44	6.74E-04	6.96E-04	7.42E-04	7.65E-04
Sr2+	0	0	0	0	0	0	0
Mn4+	9.73E-04	49.5	1.82	6.76E-04	8.22E-04	1.12E-03	1.27E-03
Ca2+	3.65E-03	136	4.98	2.77E-03	3.20E-03	4.10E-03	4.54E-03
K+	8.25E-03	299	11.0	6.43E-03	7.29E-03	9.23E-03	1.02E-02
OH-	1.37	2.16E+04	794	1.17	1.28	1.47	1.56
NO3-	0.534	3.07E+04	1.13E+03	0.455	0.501	0.550	0.566
NO2-	0.373	1.59E+04	585	0.247	0.305	0.439	0.502
CO32-	7.78E-02	4.33E+03	159	6.73E-02	7.24E-02	8.30E-02	8.67E-02
PO43-	4.22E-03	371	13.7	3.41E-03	3.81E-03	4.42E-03	4.61E-03
SO42-	3.78E-02	3.36E+03	124	2.15E-02	2.92E-02	4.66E-02	5.43E-02
Si (as SiO32-)	1.25E-02	326	12.0	8.30E-03	1.04E-02	1.47E-02	1.68E-02
F-	1.37E-03	24.2	0.889	1.01E-03	1.17E-03	1.55E-03	1.70E-03
Cl-	3.11E-02	1.02E+03	37.5	2.38E-02	2.75E-02	3.44E-02	3.72E-02
C6H5O73-	8.16E-03	1.43E+03	52.6	7.56E-03	7.86E-03	8.47E-03	8.76E-03
EDTA4-	1.43E-04	38.1	1.40	4.78E-05	9.41E-05	1.91E-04	2.39E-04
HEDTA3-	2.57E-04	65.2	2.40	6.81E-05	1.60E-04	3.53E-04	4.48E-04
glycolate-	1.60E-02	1.11E+03	40.8	8.11E-03	1.19E-02	2.00E-02	2.38E-02
acetate-	1.02E-04	5.59	0.205	8.29E-05	9.23E-05	1.12E-04	1.21E-04
oxalate2-	4.80E-10	3.92E-05	1.44E-06	4.26E-10	4.52E-10	5.08E-10	5.35E-10
DBP	4.53E-03	882	32.4	3.49E-03	4.00E-03	5.05E-03	5.55E-03
butanol	4.53E-03	311	11.4	3.49E-03	4.00E-03	5.05E-03	5.55E-03
NH3	9.60E-03	151	5.56	4.83E-03	6.71E-03	1.33E-02	1.76E-02
Fe(CN)64-	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-103							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	1.41E+05 (kg)	(27.0 kgal)	---	---	---	---	---
Heat Load	*9.90E-03 (kW)*	*(33.8 BTU/hr)*	---	*8.59E-03*	*9.27E-03*	*1.04E-02*	*1.09E-02*
Bulk Density†	1.38 (g/cc)	---	---	1.26	1.32	1.41	1.44
Water wt%†	60.5	---	---	57.2	58.6	63.2	67.3
TOC wt% C (w	4.05E-02	---	---	3.46E-02	3.75E-02	4.35E-02	4.63E-02
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	1.60	2.67E+04	3.75E+03	1.04	1.32	1.87	2.14
Al3+	3.76	7.36E+04	1.04E+04	3.55	3.65	3.87	3.97
Fe3+ (total Fe)	0.293	1.19E+04	1.67E+03	0.184	0.268	0.304	0.312
Cr3+	7.70E-03	291	40.9	6.42E-03	7.09E-03	8.22E-03	8.72E-03
Bi3+	1.04E-05	1.57	0.221	8.78E-06	9.56E-06	1.12E-05	1.19E-05
La3+	1.22E-10	1.23E-05	1.74E-06	8.84E-11	1.05E-10	1.40E-10	1.56E-10
Hg2+	3.72E-03	542	76.3	3.18E-03	3.60E-03	3.78E-03	3.81E-03
Zr (as ZrO(OH)2	1.37E-06	9.05E-02	1.27E-02	1.16E-06	1.24E-06	1.46E-06	1.57E-06
Pb2+	0.205	3.08E+04	4.34E+03	0.118	0.185	0.214	0.220
Ni2+	1.00E-03	42.6	6.00	4.78E-04	7.41E-04	5.78E-03	1.16E-02
Sr2+	0	0	0	0	0	0	0
Mn4+	3.24E-04	12.9	1.82	2.26E-04	2.74E-04	3.75E-04	4.23E-04
Ca2+	0.207	6.01E+03	846	6.93E-03	9.42E-02	0.259	0.288
K+	3.97E-03	113	15.9	3.11E-03	3.54E-03	4.39E-03	4.81E-03
OH-	14.2	1.75E+05	2.46E+04	12.2	13.3	14.8	15.3
NO3-	0.506	2.28E+04	3.21E+03	*0.276*	*0.393*	*0.619*	*0.726*
NO2-	0.266	8.88E+03	1.25E+03	0.164	0.215	0.319	0.371
CO32-	0.298	1.30E+04	1.83E+03	9.84E-02	0.186	0.350	0.380
PO43-	1.62E-02	1.12E+03	157	7.77E-03	1.22E-02	1.96E-02	2.24E-02
SO42-	2.20E-02	1.53E+03	216	1.65E-02	1.91E-02	2.49E-02	2.75E-02
Si (as SiO32-)	4.24E-03	86.5	12.2	2.83E-03	3.52E-03	4.96E-03	5.66E-03
F-	4.58E-04	6.31	0.889	3.38E-04	3.90E-04	5.16E-04	5.66E-04
Cl-	1.60E-02	410	57.8	1.20E-02	1.40E-02	1.79E-02	1.98E-02
C6H5O73-	2.72E-03	373	52.6	2.52E-03	2.62E-03	2.82E-03	2.92E-03
EDTA4-	4.76E-05	9.95	1.40	1.59E-05	3.14E-05	6.38E-05	7.97E-05
HEDTA3-	8.55E-05	17.0	2.40	2.27E-05	5.34E-05	1.18E-04	1.49E-04
glycolate-	5.32E-03	290	40.8	2.70E-03	3.98E-03	6.66E-03	7.94E-03
acetate-	3.40E-05	1.46	0.205	2.76E-05	3.08E-05	3.73E-05	4.05E-05
oxalate2-	1.60E-10	1.02E-05	1.44E-06	1.42E-10	1.51E-10	1.69E-10	1.78E-10
DBP	1.51E-03	230	32.4	1.16E-03	1.33E-03	1.68E-03	1.85E-03
butanol	1.51E-03	81.2	11.4	1.16E-03	1.33E-03	1.68E-03	1.85E-03
NH3	3.22E-03	39.8	5.60	1.63E-03	2.26E-03	4.45E-03	5.88E-03
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-103							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	1.04E+05 (kg)	(18.0 kgal)	----	----	----	----	----
Heat Load	1.52E-03 (kW)	(5.20 BTU/hr)	----	5.22E-04	1.03E-03	2.02E-03	2.51E-03
Bulk Density	1.53 (g/cc)	----	----	1.35	1.45	1.58	1.62
Void Fraction	0.743	----	----	0.726	0.732	0.765	0.788
Water wt%	51.0	----	----	47.3	48.9	54.3	59.3
TOC wt% C (w	0	----	----	0	0	0	0
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	5.75E-07	3.77E-04	3.92E-02	9.72E-08	2.69E-07	1.02E-06	1.57E-06
C-14	2.24E-07	1.47E-04	1.53E-02	1.73E-07	1.99E-07	2.50E-07	2.75E-07
Ni-59	2.60E-08	1.71E-05	1.77E-03	1.16E-08	1.88E-08	1.61E-07	3.25E-07
Ni-63	2.55E-06	1.67E-03	0.174	1.09E-06	1.83E-06	1.61E-05	3.26E-05
Co-60	1.09E-07	7.16E-05	7.45E-03	3.47E-08	7.23E-08	1.47E-07	1.83E-07
Se-79	2.02E-08	1.32E-05	1.38E-03	8.84E-09	1.46E-08	2.59E-08	3.14E-08
Sr-90	1.84E-03	1.21	126	6.32E-04	1.24E-03	2.45E-03	3.03E-03
Y-90	1.85E-03	1.21	126	6.33E-04	1.24E-03	2.45E-03	3.03E-03
Zr-93	9.55E-08	6.25E-05	6.51E-03	4.19E-08	6.88E-08	1.22E-07	1.48E-07
Nb-93m	7.22E-08	4.73E-05	4.92E-03	3.30E-08	5.28E-08	9.18E-08	1.11E-07
Tc-99	6.69E-07	4.38E-04	4.55E-02	2.92E-07	4.81E-07	8.57E-07	1.04E-06
Ru-106	1.77E-10	1.16E-07	1.20E-05	5.31E-11	1.15E-10	2.38E-10	2.98E-10
Cd-113m	4.10E-07	2.69E-04	2.79E-02	1.50E-07	2.81E-07	5.40E-07	6.65E-07
Sb-125	5.83E-07	3.82E-04	3.97E-02	1.76E-07	3.81E-07	7.86E-07	9.82E-07
Sn-126	3.08E-08	2.01E-05	2.10E-03	1.33E-08	2.21E-08	3.95E-08	4.78E-08
I-129	1.28E-09	8.38E-07	8.72E-05	5.54E-10	9.20E-10	1.64E-09	1.99E-09
Cs-134	3.86E-08	2.53E-05	2.63E-03	1.16E-08	2.52E-08	5.21E-08	6.51E-08
Cs-137	2.12E-03	1.39	144	7.25E-04	1.43E-03	2.82E-03	3.49E-03
Ba-137m	2.01E-03	1.31	137	6.86E-04	1.35E-03	2.66E-03	3.30E-03
Sm-151	7.37E-05	4.82E-02	5.02	3.26E-05	5.32E-05	9.42E-05	1.14E-04
Eu-152	6.22E-07	4.07E-04	4.24E-02	6.13E-07	6.18E-07	6.27E-07	6.32E-07
Eu-154	2.15E-06	1.41E-03	0.146	6.70E-07	1.41E-06	2.89E-06	3.60E-06
Eu-155	4.47E-05	2.93E-02	3.04	4.40E-05	4.43E-05	4.50E-05	4.53E-05
Ra-226	8.68E-12	5.69E-09	5.92E-07	2.74E-12	2.74E-12	1.78E-11	2.66E-11
Ra-228	5.08E-08	3.33E-05	3.46E-03	5.01E-08	5.05E-08	5.12E-08	5.16E-08
Ac-227	1.56E-07	1.02E-04	1.06E-02	1.26E-07	1.49E-07	1.60E-07	1.64E-07
Pa-231	2.31E-07	1.51E-04	1.57E-02	6.69E-08	1.93E-07	2.53E-07	2.75E-07
Th-229	2.30E-08	1.51E-05	1.57E-03	2.27E-08	2.28E-08	2.32E-08	2.34E-08
Th-232	2.37E-09	1.55E-06	1.61E-04	7.13E-10	1.55E-09	3.20E-09	3.99E-09
U-232	2.62E-06	1.72E-03	0.179	3.13E-08	1.41E-06	3.18E-06	3.50E-06
U-233	1.02E-05	6.67E-03	0.694	1.21E-07	5.49E-06	1.24E-05	1.36E-05
U-234	2.13E-05	1.40E-02	1.45	7.79E-06	1.50E-05	2.43E-05	2.59E-05
U-235	9.05E-07	5.93E-04	6.17E-02	3.50E-07	6.46E-07	1.03E-06	1.09E-06
U-236	4.60E-07	3.01E-04	3.13E-02	5.36E-08	2.71E-07	5.48E-07	5.97E-07
U-238	2.07E-05	1.35E-02	1.41	7.88E-06	1.47E-05	2.34E-05	2.50E-05
Np-237	4.80E-09	3.14E-06	3.27E-04	1.99E-09	3.40E-09	6.20E-09	7.55E-09
Pu-238	5.87E-05	3.84E-02	4.00	4.14E-05	5.47E-05	6.11E-05	6.34E-05
Pu-239	2.44E-03	1.60	167	1.73E-03	2.28E-03	2.54E-03	2.64E-03
Pu-240	4.35E-04	0.285	29.6	3.07E-04	4.05E-04	4.52E-04	4.70E-04
Pu-241	4.70E-03	3.08	320	3.32E-03	4.38E-03	4.89E-03	5.08E-03
Pu-242	1.32E-08	8.65E-06	9.00E-04	9.34E-09	1.23E-08	1.38E-08	1.43E-08
Am-241	4.64E-07	3.04E-04	3.16E-02	1.44E-07	3.05E-07	6.24E-07	7.79E-07
Am-243	4.85E-12	3.18E-09	3.31E-07	1.47E-12	3.17E-12	6.54E-12	8.17E-12
Cm-242	8.96E-09	5.86E-06	6.10E-04	8.82E-09	8.89E-09	9.02E-09	9.09E-09
Cm-243	2.47E-10	1.62E-07	1.68E-05	2.43E-10	2.45E-10	2.49E-10	2.50E-10
Cm-244	1.84E-10	1.21E-07	1.26E-05	5.56E-11	1.20E-10	2.49E-10	3.11E-10
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	4.13E-02 (g/L)	----	2.81	2.92E-02	3.85E-02	4.30E-02	4.46E-02
U	0.260	4.05E+04	4.22E+03	9.92E-02	0.185	0.295	0.314

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-103							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	3.68E+04 (kg)	(9.00 kgal)	----	---	---	----	---
Heat Load	8.37E-03 (kW)	(28.6 BTU/hr)	----	7.07E-03	7.75E-03	8.66E-03	8.94E-03
Bulk Density*	1.08 (g/cc)	---	---	1.06	1.07	1.09	1.09
Water wt%†	87.2	----	---	85.4	86.2	88.3	89.5
TOC wt% C (w	0.155	----	---	0.134	0.144	0.166	0.176
Radiological Constituents	**CI/L**	**µCi/g**	**Ci**	**-95 CI (CI/L)**	**-67 CI (CI/L)**	**+67 CI (CI/L)**	**+95 CI (CI/L)**
H-3	4.87E-05	4.51E-02	1.66	1.09E-05	1.09E-05	4.98E-05	5.11E-05
C-14	8.48E-06	7.86E-03	0.289	5.81E-07	5.81E-07	8.51E-06	8.54E-06
Ni-59	4.30E-07	3.98E-04	1.46E-02	5.85E-08	5.85E-08	4.49E-07	4.67E-07
Ni-63	4.25E-05	3.94E-02	1.45	5.76E-06	5.76E-06	4.44E-05	4.62E-05
Co-60	9.76E-06	9.04E-03	0.332	7.16E-07	7.16E-07	9.83E-06	9.90E-06
Se-79	6.57E-07	6.09E-04	2.24E-02	1.53E-07	1.53E-07	8.40E-07	1.01E-06
Sr-90	2.13E-02	19.7	725	1.88E-02	2.00E-02	2.25E-02	2.38E-02
Y-90	2.13E-02	19.7	725	3.86E-03	3.86E-03	2.25E-02	2.38E-02
Zr-93	3.24E-06	3.01E-03	0.111	7.24E-07	7.24E-07	4.16E-06	5.03E-06
Nb-93m	2.31E-06	2.14E-03	7.87E-02	5.46E-07	5.46E-07	2.95E-06	3.56E-06
Tc-99	6.01E-05	5.57E-02	2.05	3.06E-05	4.50E-05	7.53E-05	8.99E-05
Ru-106	1.64E-09	1.52E-06	5.58E-05	4.69E-10	4.69E-10	1.90E-09	2.14E-09
Cd-113m	1.83E-05	1.70E-02	0.623	3.17E-06	3.17E-06	2.38E-05	2.90E-05
Sb-125	4.25E-05	3.93E-02	1.45	3.32E-06	3.32E-06	4.29E-05	4.34E-05
Sn-126	9.92E-07	9.20E-04	3.38E-02	2.36E-07	2.36E-07	1.27E-06	1.53E-06
I-129	1.16E-07	1.07E-04	3.95E-03	5.90E-08	8.68E-08	1.45E-07	1.74E-07
Cs-134	1.65E-07	1.53E-04	5.63E-03	9.18E-08	9.18E-08	1.68E-07	1.66E-07
Cs-137	2.19E-02	20.3	745	1.61E-02	1.81E-02	2.26E-02	2.44E-02
Ba-137m	2.07E-02	19.2	705	1.12E-02	1.12E-02	2.10E-02	2.08E-02
Sm-151	2.31E-03	2.14	78.7	5.46E-04	5.46E-04	2.95E-03	3.56E-03
Eu-152	7.54E-07	6.99E-04	2.57E-02	1.29E-07	1.29E-07	7.74E-07	7.94E-07
Eu-154	1.45E-04	0.134	4.93	1.87E-05	1.87E-05	1.90E-04	2.08E-04
Eu-155	4.42E-05	4.10E-02	1.51	7.03E-06	7.03E-06	4.54E-05	4.65E-05
Ra-226	2.25E-11	2.09E-08	7.68E-07	6.91E-12	6.91E-12	2.82E-11	3.36E-11
Ra-228	5.10E-10	4.73E-07	1.74E-05	2.38E-10	2.38E-10	5.72E-10	6.38E-10
Ac-227	1.38E-10	1.28E-07	4.71E-06	4.75E-11	4.75E-11	1.71E-10	2.03E-10
Pa-231	6.92E-10	6.41E-07	2.36E-05	1.88E-10	1.88E-10	8.75E-10	1.05E-09
Th-229	3.16E-11	2.93E-08	1.08E-06	1.93E-11	1.93E-11	3.70E-11	4.23E-11
Th-232	1.96E-10	1.82E-07	6.69E-06	8.38E-11	8.38E-11	2.22E-10	2.47E-10
U-232	2.14E-08	1.99E-05	7.30E-04	1.92E-08	2.02E-08	2.29E-08	2.45E-08
U-233	8.28E-08	7.68E-05	2.82E-03	7.43E-08	7.82E-08	8.84E-08	9.49E-08
U-234	1.13E-07	1.05E-04	3.86E-03	1.05E-07	1.09E-07	1.18E-07	1.22E-07
U-235	4.64E-09	4.30E-06	1.58E-04	4.29E-09	4.47E-09	4.82E-09	4.99E-09
U-236	3.89E-09	3.60E-06	1.33E-04	3.63E-09	3.76E-09	4.02E-09	4.14E-09
U-238	1.06E-07	9.86E-05	3.63E-03	9.83E-08	1.02E-07	1.10E-07	1.15E-07
Np-237	2.07E-07	1.92E-04	7.05E-03	1.11E-07	1.58E-07	2.57E-07	3.05E-07
Pu-238	3.09E-07	2.86E-04	1.05E-02	1.96E-07	2.51E-07	3.66E-07	4.22E-07
Pu-239	9.37E-06	8.69E-03	0.319	6.47E-06	7.90E-06	1.08E-05	1.23E-05
Pu-240	1.66E-06	1.54E-03	5.67E-02	1.12E-06	1.39E-06	1.94E-06	2.20E-06
Pu-241	2.12E-05	1.97E-02	0.723	1.35E-05	1.73E-05	2.51E-05	2.89E-05
Pu-242	1.19E-10	1.10E-07	4.04E-06	7.27E-11	9.52E-11	1.42E-10	1.65E-10
Am-241	1.08E-05	1.00E-02	0.368	5.45E-06	8.07E-06	1.35E-05	1.62E-05
Am-243	4.35E-10	4.03E-07	1.48E-05	2.66E-10	3.47E-10	5.24E-10	6.11E-10
Cm-242	3.11E-08	2.88E-05	1.06E-03	5.48E-09	5.48E-09	3.22E-08	3.33E-08
Cm-243	3.02E-09	2.80E-06	1.03E-04	5.74E-10	5.74E-10	3.14E-09	3.25E-09
Cm-244	3.38E-08	3.13E-05	1.15E-03	8.60E-09	8.60E-09	4.23E-08	4.78E-08
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	9.99E-05 (g/L)	---	3.40E-03	4.51E-05	7.20E-05	1.28E-04	1.54E-04
U	1.31E-03	289	10.6	1.21E-03	1.26E-03	1.36E-03	1.41E-03

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-103

Total Inventory Estimate*

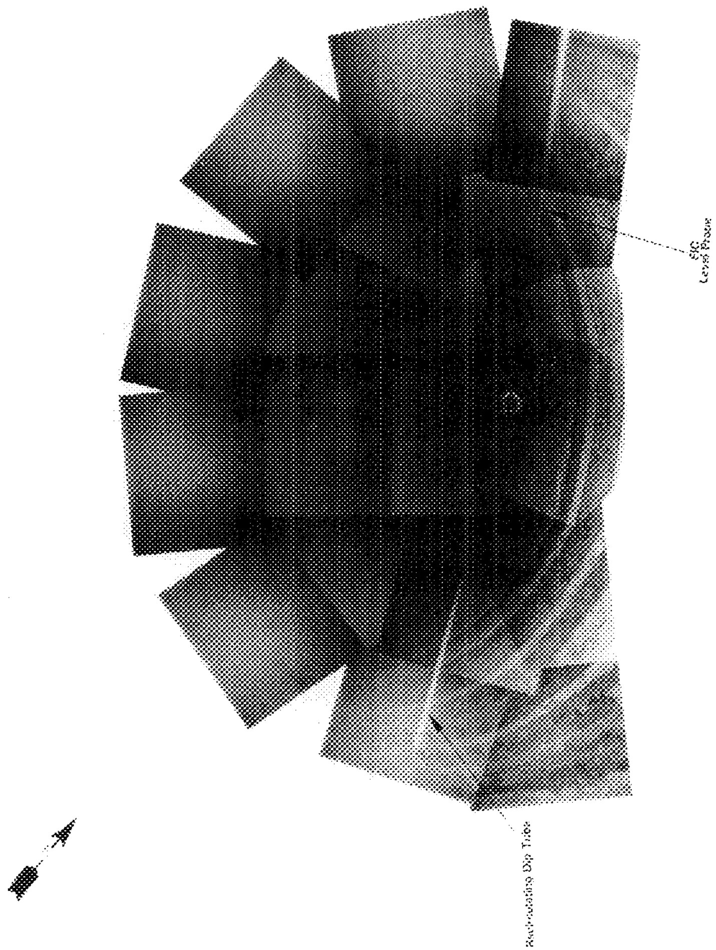
Physical Properties				-95 CI	-67 CI	+67 CI	+95 CI
Total Waste	1.41E+05 (kg)	(27.0 kgal)	—	—	—	—	—
Heat Load	9.90E-03 (kW)	(33.8 BTU/hr)	—	8.59E-03	9.27E-03	1.04E-02	1.09E-02
Bulk Density†	1.38 (g/cc)	----	—	1.26	1.32	1.41	1.44
Water wt%†	60.5	----	----	57.2	58.6	63.2	67.3
TOC wt% C (w	4.05E-02	—	----	3.46E-02	3.75E-02	4.35E-02	4.63E-02
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	1.66E-05	1.21E-02	1.70	4.03E-06	4.03E-06	1.70E-05	1.74E-05
C-14	2.98E-06	2.16E-03	0.304	3.43E-07	3.43E-07	2.99E-06	3.01E-06
Ni-59	1.61E-07	1.17E-04	1.64E-02	3.69E-08	3.69E-08	2.50E-07	3.60E-07
Ni-63	1.59E-05	1.15E-02	1.62	3.62E-06	3.62E-06	2.49E-05	3.59E-05
Co-60	3.33E-06	2.41E-03	0.340	3.12E-07	3.12E-07	3.35E-06	3.38E-06
Se-79	2.33E-07	1.69E-04	2.38E-02	6.45E-08	6.45E-08	2.93E-07	3.52E-07
Sr-90	8.32E-03	6.04	850	7.49E-03	7.90E-03	8.74E-03	9.15E-03
Y-90	8.32E-03	6.04	851	2.52E-03	2.52E-03	8.75E-03	9.15E-03
Zr-93	1.15E-06	8.31E-04	0.117	3.05E-07	3.05E-07	1.45E-06	1.74E-06
Nb-93m	8.18E-07	5.94E-04	8.36E-02	2.30E-07	2.30E-07	1.03E-06	1.24E-06
Tc-99	2.05E-05	1.49E-02	2.09	1.07E-05	1.55E-05	2.55E-05	3.04E-05
Ru-106	6.64E-10	4.82E-07	6.78E-05	2.74E-10	2.74E-10	7.51E-10	8.30E-10
Cd-113m	6.37E-06	4.62E-03	0.651	1.33E-06	1.33E-06	8.20E-06	9.95E-06
Sb-125	1.45E-05	1.06E-02	1.49	1.49E-06	1.49E-06	1.47E-05	1.48E-05
Sn-126	3.51E-07	2.55E-04	3.59E-02	9.93E-08	9.93E-08	4.43E-07	5.30E-07
I-129	3.95E-08	2.87E-05	4.04E-03	2.05E-08	2.98E-08	4.93E-08	5.87E-08
Cs-134	8.08E-08	5.86E-05	8.26E-03	5.63E-08	5.63E-08	8.99E-08	9.87E-08
Cs-137	8.71E-03	6.32	890	6.78E-03	7.45E-03	9.18E-03	9.63E-03
Ba-137m	8.24E-03	5.98	842	5.07E-03	5.07E-03	8.68E-03	9.11E-03
Sm-151	8.20E-04	0.595	83.8	2.31E-04	2.31E-04	1.03E-03	1.24E-03
Eu-152	6.66E-07	4.83E-04	6.81E-02	4.58E-07	4.58E-07	6.73E-07	6.79E-07
Eu-154	4.97E-05	3.61E-02	5.08	7.66E-06	7.66E-06	6.49E-05	7.09E-05
Eu-155	4.45E-05	3.23E-02	4.55	3.21E-05	3.21E-05	4.49E-05	4.53E-05
Ra-226	1.33E-11	9.65E-09	1.36E-06	8.09E-12	8.09E-12	1.94E-11	2.52E-11
Ra-228	3.41E-08	2.47E-05	3.48E-03	3.35E-08	3.38E-08	3.43E-08	3.46E-08
Ac-227	1.04E-07	7.54E-05	1.06E-02	8.42E-08	9.93E-08	1.07E-07	1.09E-07
Pa-231	1.54E-07	1.12E-04	1.57E-02	4.48E-08	1.29E-07	1.69E-07	1.84E-07
Th-229	1.54E-08	1.11E-05	1.57E-03	1.51E-08	1.52E-08	1.55E-08	1.56E-08
Th-232	1.64E-09	1.19E-06	1.68E-04	5.24E-10	1.09E-09	2.20E-09	2.75E-09
U-232	1.75E-06	1.27E-03	0.179	2.78E-08	9.50E-07	2.13E-06	2.34E-06
U-233	6.82E-06	4.95E-03	0.697	1.08E-07	3.69E-06	8.27E-06	9.08E-06
U-234	1.43E-05	1.03E-02	1.46	5.23E-06	1.00E-05	1.62E-05	1.73E-05
U-235	6.05E-07	4.39E-04	6.18E-02	2.35E-07	4.32E-07	6.85E-07	7.30E-07
U-236	3.08E-07	2.24E-04	3.15E-02	3.70E-08	1.82E-07	3.67E-07	4.00E-07
U-238	1.38E-05	1.00E-02	1.41	5.29E-06	9.83E-06	1.57E-05	1.67E-05
Np-237	7.22E-08	5.24E-05	7.38E-03	4.01E-08	5.58E-08	8.88E-08	1.05E-07
Pu-238	3.92E-05	2.84E-02	4.01	2.77E-05	3.66E-05	4.08E-05	4.23E-05
Pu-239	1.63E-03	1.18	167	1.15E-03	1.52E-03	1.70E-03	1.76E-03
Pu-240	2.90E-04	0.211	29.7	2.05E-04	2.71E-04	3.02E-04	3.14E-04
Pu-241	3.14E-03	2.28	321	2.22E-03	2.93E-03	3.27E-03	3.39E-03
Pu-242	8.85E-09	6.42E-06	9.05E-04	6.27E-09	8.26E-09	9.21E-09	9.56E-09
Am-241	3.91E-06	2.84E-03	0.400	2.13E-06	3.00E-06	4.83E-06	5.70E-06
Am-243	1.48E-10	1.08E-07	1.51E-05	9.21E-11	1.19E-10	1.78E-10	2.07E-10
Cm-242	1.63E-08	1.19E-05	1.67E-03	7.80E-09	7.80E-09	1.67E-08	1.71E-08
Cm-243	1.17E-09	8.50E-07	1.20E-04	3.56E-10	3.56E-10	1.21E-09	1.25E-09
Cm-244	1.14E-08	8.27E-06	1.16E-03	2.99E-09	2.99E-09	1.42E-08	1.61E-08
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	2.76E-02 (g/L)	----	2.82	1.95E-02	2.57E-02	2.87E-02	2.98E-02
U	0.174	3.00E+04	4.23E+03	6.65E-02	0.124	0.197	0.210

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Volume average for density, mass average Water wt% and TOC wt% C.

241-T-103

Photo date:



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TANK 241-T-104 SUMMARY

TANK HISTORY		TANK DESCRIPTION	
Entered Service	1st qtr 1946	Diameter	75 ft
Removed from Service	1976	Bottom Shape	Dish
Inactive	1977	Nominal Capacity	530,000 gal
Watch Lists	none	Cascade Tank	to 241-T-105
Integrity	Sound	Total Risers	9
Assumed Leaker	-	**WASTE VOLUME (HANLON 1996l)**	
Interim Stabilization (IS)	-	Total Waste Volume	378,000 gal
Partial Interim Isolation (PI)	Dec 1982	Waste Type	NCPLX
Intrusion Prevention (IP)	-	Drainable Interstitial Liquids	56,000 gal
TENTATIVELY AVAILABLE RISERS		Pumpable Liquids	56,000 gal
Riser Number	Size	Saltcake	0 gal
8	4 in	Sludge	378,000 gal
2, 3, 6	12 in	Supernatant	0 gal
TANK TEMPERATURE		**INTERIOR PHOTOGRAPHS**	
Average Tank Temperature	64°F	Date	June 28, 1989
Maximum Temperature	78°F	Montage Number	94080233-45CN
Date	Nov 16, 1980	Photo Set Number	89-032146
Elevation from tank bottom	unknown	**WASTE SURFACE LEVEL**	
Riser Number	4	Devices	Manual Tape and ENRAF
Minimum Temperature	52.7°F	Max Level	165.27 in
Date	March 15 - 24, 1996*	Date	April 2, 1996
Elevation from tank bottom	unknown	Min Level	138.45 in
Riser Number	4	Date	Oct 2, 1996

* Numerous dates in this time span.

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WASTE TYPES TIME LINE (ANDERSON 1990)	1C	
PRIMARY ADDITIONS TIME LINE (AGNEW 1995)	1C	1C2

TANK INFO:

CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 530,000 GAL
DISH BOTTOM, 4 FOOT RADIUS KNUCKLE
75 FOOT DIAMETER TANK

REFERENCES

* ANDERSON 1990
** WELTY 1988
◇ HANLON 1996I
◇◇ McCANN 1982b

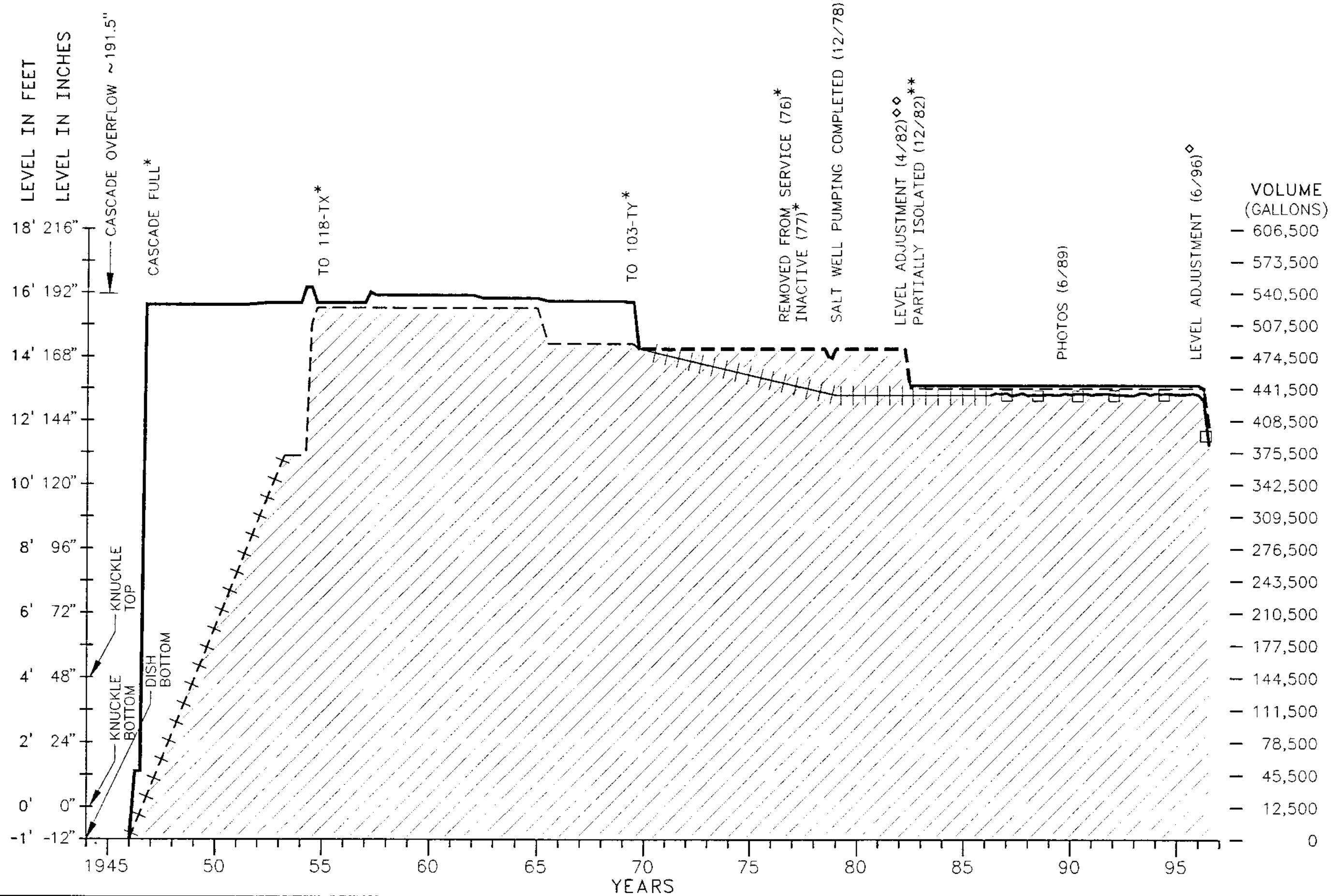
NOTES:

1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.

GLOSSARY OF WASTE TERMS:

FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A.

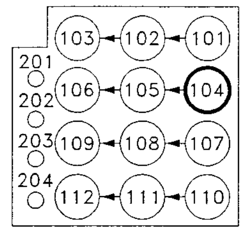
1C: FIRST CYCLE DECONTAMINATION WASTE
1C1: FIRST CYCLE DECON WASTE 1944-49
1C2: FIRST CYCLE DECON WASTE 1950-56



LEGEND

TOTAL WASTE LEVEL (SUPERNATE)
TOTAL WASTE LEVEL (SOLIDS)
SOLIDS LEVEL
ASSUMED SOLIDS LEVEL
INTERSTITIAL LIQUID LEVEL
ASSUMED INTERSTITIAL LIQUID LEVEL
SOLIDS

T TANK FARM CASCADE



U.S. DEPARTMENT OF ENERGY
Richland Operations Office
FLUOR DANIEL NORTHWEST, INC.

241-T-104 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1946-1996
SOUND/NON-STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E97	1/97
SCALE NONE		JOB NO.	SHEET 1 OF 1

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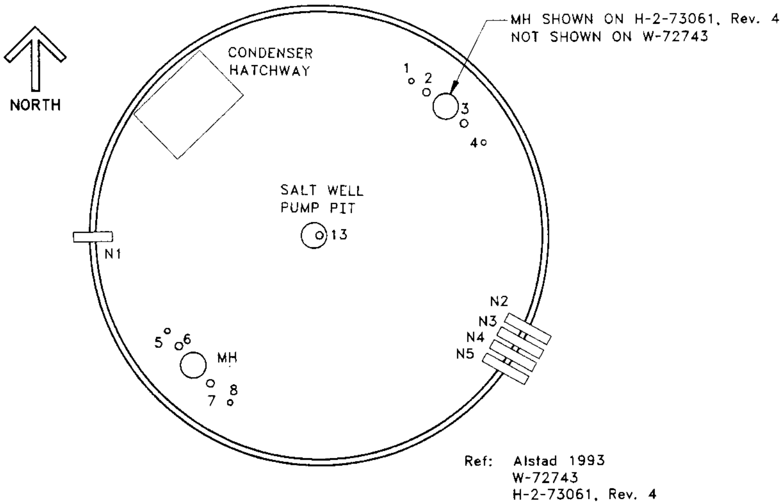
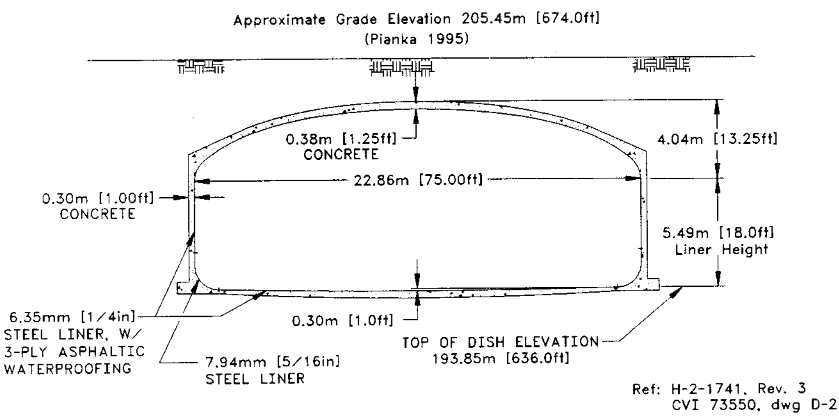
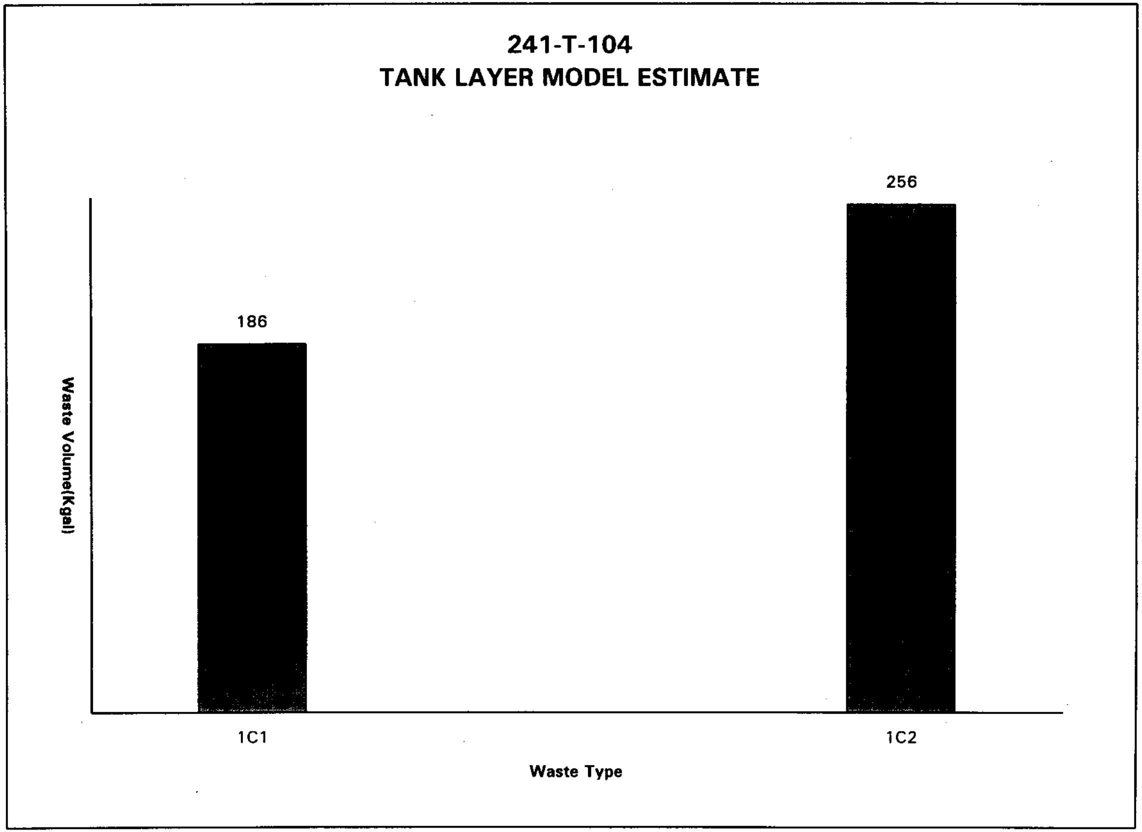
241-T-104



TANK RISER LOCATION



NOT TO SCALE



Tank Layer Model(TLM) Estimate from *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 4* (Agnew et al., 1997).

HDW Model Rev. 4

Single-Shell Tank 241-T-104							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	2.29E+06 (kg)	(442 kgal)	----	----	----	----	----
Heat Load	0.224 (kW)	(764 BTU/hr)	----	0.164	0.195	0.254	0.282
Bulk Density	1.37 (g/cc)	----	----	1.25	1.32	1.40	1.42
Void Fraction	0.729	----	----	0.673	0.696	0.784	0.867
Water wt%	64.9	----	----	61.2	62.9	67.9	72.5
TOC wt% C (w	0	----	----	0	0	0	0
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	5.10	8.59E+04	1.96E+05	3.01	4.22	5.72	6.26
Al3+	0.503	9.94E+03	2.27E+04	0.503	0.503	0.503	0.503
Fe3+ (total Fe)	0.344	1.41E+04	3.21E+04	0.336	0.341	0.346	0.347
Cr3+	4.93E-03	188	429	3.85E-03	4.40E-03	5.47E-03	5.99E-03
Bi3+	6.10E-02	9.33E+03	2.13E+04	4.41E-02	5.53E-02	6.43E-02	6.65E-02
La3+	0	0	0	0	0	0	0
Hg2+	9.87E-05	14.5	33.1	5.66E-05	8.44E-05	1.07E-04	1.12E-04
Zr (as ZrO(OH)2	2.43E-04	16.2	37.0	1.89E-04	2.17E-04	2.69E-04	2.95E-04
Pb2+	0	0	0	0	0	0	0
Ni2+	1.21E-03	52.1	119	9.47E-04	1.08E-03	2.24E-03	3.20E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	7.46E-02	2.19E+03	5.00E+03	3.71E-02	6.18E-02	8.22E-02	8.69E-02
K+	6.85E-03	196	448	5.34E-03	6.12E-03	7.60E-03	8.33E-03
OH-	3.70	4.60E+04	1.05E+05	3.57	3.65	3.72	3.74
NO3-	1.01	4.57E+04	1.04E+05	0.835	0.930	1.08	1.13
NO2-	0.272	9.17E+03	2.10E+04	0.166	0.214	0.343	0.422
CO32-	7.46E-02	3.28E+03	7.49E+03	3.71E-02	6.18E-02	8.22E-02	8.69E-02
PO43-	1.13	7.83E+04	1.79E+05	0.579	0.914	1.25	1.33
SO42-	5.28E-02	3.71E+03	8.48E+03	4.12E-02	4.72E-02	5.86E-02	6.42E-02
Si (as SiO32-)	0.191	3.92E+03	8.96E+03	0.109	0.142	0.221	0.249
F-	*0.141*	*1.96E+03*	*4.48E+03*	0.110	0.126	0.180	0.307
Cl-	3.15E-02	817	1.87E+03	2.46E-02	2.81E-02	3.50E-02	3.83E-02
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	0	0	0	0	0	0	0
butanol	*0*	*0*	*0*	0	0	0	0
NH3	6.80E-02	846	1.93E+03	5.57E-02	6.22E-02	7.38E-02	7.91E-02
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-104							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	2.30E+06 (kg)	(445 kgal)	----	----	----	----	----
Heat Load	*0.239 (kW)*	*(818 BTU/hr)*	----	*0.179*	*0.210*	*0.270*	*0.299*
Bulk Density†	1.37 (g/cc)	----	----	1.26	1.32	1.40	1.42
Water wt%†	64.8	----	----	61.1	62.8	67.8	72.4
TOC wt% C (w	4.98E-03	----	----	2.91E-03	3.92E-03	6.04E-03	7.07E-03
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	5.13	8.64E+04	1.99E+05	3.05	4.26	5.74	6.28
Al3+	0.506	1.00E+04	2.30E+04	0.506	0.506	0.507	0.507
Fe3+ (total Fe)	0.342	1.40E+04	3.21E+04	0.333	0.339	0.343	0.345
Cr3+	5.50E-03	209	481	4.42E-03	4.97E-03	6.04E-03	6.56E-03
Bi3+	6.06E-02	9.27E+03	2.13E+04	4.39E-02	5.49E-02	6.39E-02	6.60E-02
La3+	1.19E-07	1.21E-02	2.78E-02	8.61E-08	1.02E-07	1.36E-07	1.52E-07
Hg2+	9.80E-05	14.4	33.1	5.62E-05	8.39E-05	1.06E-04	1.12E-04
Zr (as ZrO(OH)2	2.43E-04	16.2	37.3	1.89E-04	2.17E-04	2.69E-04	2.95E-04
Pb2+	3.87E-06	0.586	1.35	3.10E-06	3.48E-06	4.25E-06	4.63E-06
Ni2+	1.23E-03	53.1	122	9.69E-04	1.11E-03	2.26E-03	3.20E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	1.59E-05	0.640	1.47	1.17E-05	1.37E-05	1.81E-05	2.01E-05
Ca2+	7.43E-02	2.18E+03	5.01E+03	3.70E-02	6.15E-02	8.18E-02	8.65E-02
K+	7.08E-03	203	467	5.58E-03	6.35E-03	7.84E-03	8.57E-03
OH-	3.71	4.62E+04	1.06E+05	3.59	3.67	3.74	3.75
NO3-	1.02	4.64E+04	1.07E+05	*0.850*	*0.946*	*1.09*	*1.15*
NO2-	0.281	9.46E+03	2.18E+04	0.175	0.223	0.352	0.430
CO32-	7.61E-02	3.34E+03	7.69E+03	3.88E-02	6.33E-02	8.36E-02	8.83E-02
PO43-	1.12	7.78E+04	1.79E+05	0.576	0.909	1.24	1.32
SO42-	5.36E-02	3.77E+03	8.67E+03	4.20E-02	4.80E-02	5.94E-02	6.50E-02
Si (as SiO32-)	0.190	3.90E+03	8.98E+03	0.108	0.142	0.219	0.248
F-	0.141	1.96E+03	4.50E+03	0.110	0.126	0.179	0.305
Cl-	3.24E-02	839	1.93E+03	2.54E-02	2.90E-02	3.58E-02	3.92E-02
C6H5O73-	1.29E-04	17.8	41.0	1.16E-04	1.22E-04	1.36E-04	1.42E-04
EDTA4-	9.71E-05	20.5	47.1	2.81E-05	6.18E-05	1.33E-04	1.67E-04
HEDTA3-	1.84E-04	36.9	85.0	4.60E-05	1.13E-04	2.55E-04	3.24E-04
glycolate-	5.29E-04	29.0	66.8	3.51E-04	4.38E-04	6.20E-04	7.07E-04
acetate-	3.25E-05	1.40	3.23	2.63E-05	2.93E-05	3.56E-05	3.87E-05
oxalate2-	1.56E-07	1.00E-02	2.31E-02	1.38E-07	1.47E-07	1.65E-07	1.73E-07
DBP	7.98E-05	12.3	28.2	6.49E-05	7.22E-05	8.72E-05	9.43E-05
butanol	7.98E-05	4.33	9.96	6.49E-05	7.22E-05	8.72E-05	9.43E-05
NH3	6.80E-02	847	1.95E+03	5.57E-02	6.22E-02	7.38E-02	7.92E-02
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-104							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	2.29E+06 (kg)	(442 kgal)	----	---	---	---	----
Heat Load	0.224 (kW)	(764 BTU/hr)	----	0.164	0.195	0.254	0.282
Bulk Density	1.37 (g/cc)	----	----	1.25	1.32	1.40	1.42
Void Fraction	0.729	----	----	0.673	0.696	0.784	0.867
Water wt%	64.9	----	----	61.2	62.9	67.9	72.5
TOC wt% C (w	0	----	----	0	0	0	0
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	5.59E-07	4.09E-04	0.936	2.88E-07	4.08E-07	7.50E-07	9.63E-07
C-14	1.17E-07	8.55E-05	0.195	8.67E-08	1.02E-07	1.32E-07	1.46E-07
Ni-59	3.32E-08	2.43E-05	5.56E-02	2.47E-08	2.91E-08	6.63E-08	9.70E-08
Ni-63	3.00E-06	2.19E-03	5.01	2.21E-06	2.62E-06	6.01E-06	8.81E-06
Co-60	2.67E-08	1.96E-05	4.47E-02	1.86E-08	2.28E-08	3.08E-08	3.47E-08
Se-79	2.46E-08	1.80E-05	4.12E-02	1.83E-08	2.16E-08	2.78E-08	3.09E-08
Sr-90	1.11E-02	8.12	1.86E+04	8.14E-03	9.66E-03	1.26E-02	1.40E-02
Y-90	1.11E-02	8.12	1.86E+04	8.14E-03	9.66E-03	1.26E-02	1.40E-02
Zr-93	1.17E-07	8.57E-05	0.196	8.69E-08	1.02E-07	1.32E-07	1.47E-07
Nb-93m	9.88E-08	7.23E-05	0.165	7.36E-08	8.65E-08	1.11E-07	1.24E-07
Tc-99	8.11E-07	5.94E-04	1.36	6.02E-07	7.09E-07	9.16E-07	1.02E-06
Ru-106	1.11E-14	8.15E-12	1.86E-08	7.01E-15	9.14E-15	1.32E-14	1.52E-14
Cd-113m	2.86E-07	2.09E-04	0.479	2.07E-07	2.48E-07	3.26E-07	3.64E-07
Sb-125	2.48E-08	1.81E-05	4.14E-02	1.65E-08	2.08E-08	2.89E-08	3.29E-08
Sn-126	3.71E-08	2.71E-05	6.20E-02	2.75E-08	3.24E-08	4.19E-08	4.65E-08
I-129	1.53E-09	1.12E-06	2.56E-03	1.13E-09	1.34E-09	1.73E-09	1.92E-09
Cs-134	1.03E-09	7.53E-07	1.72E-03	6.60E-10	8.50E-10	1.21E-09	1.39E-09
Cs-137	1.26E-02	9.22	2.11E+04	9.23E-03	1.10E-02	1.43E-02	1.59E-02
Ba-137m	1.19E-02	8.72	1.99E+04	8.73E-03	1.04E-02	1.35E-02	1.50E-02
Sm-151	9.17E-05	6.71E-02	153	6.82E-05	8.03E-05	1.03E-04	1.15E-04
Eu-152	3.46E-08	2.54E-05	5.80E-02	3.35E-08	3.41E-08	3.52E-08	3.58E-08
Eu-154	4.82E-07	3.53E-04	0.806	3.27E-07	4.07E-07	5.59E-07	6.34E-07
Eu-155	2.63E-06	1.92E-03	4.39	2.55E-06	2.59E-06	2.66E-06	2.70E-06
Ra-226	6.72E-12	4.92E-09	1.12E-05	5.43E-12	6.09E-12	7.36E-12	7.98E-12
Ra-228	1.34E-16	9.83E-14	2.25E-10	1.31E-16	1.33E-16	1.36E-16	1.37E-16
Ac-227	3.43E-11	2.51E-08	5.74E-05	2.76E-11	3.11E-11	3.76E-11	4.09E-11
Pa-231	7.45E-11	5.46E-08	1.25E-04	5.95E-11	6.72E-11	8.21E-11	8.93E-11
Th-229	2.61E-14	1.91E-11	4.36E-08	2.54E-14	2.58E-14	2.64E-14	2.67E-14
Th-232	3.33E-17	2.44E-14	5.57E-11	2.51E-17	2.93E-17	3.74E-17	4.14E-17
U-232	2.83E-10	2.07E-07	4.73E-04	2.51E-10	2.72E-10	2.89E-10	2.93E-10
U-233	1.41E-11	1.03E-08	2.35E-05	1.26E-11	1.36E-11	1.44E-11	1.45E-11
U-234	1.52E-05	1.11E-02	25.4	1.38E-05	1.47E-05	1.54E-05	1.56E-05
U-235	6.75E-07	4.94E-04	1.13	6.17E-07	6.56E-07	6.87E-07	6.94E-07
U-236	1.29E-07	9.48E-05	0.217	1.16E-07	1.25E-07	1.32E-07	1.34E-07
U-238	1.54E-05	1.13E-02	25.7	1.41E-05	1.49E-05	1.57E-05	1.58E-05
Np-237	5.00E-09	3.66E-06	8.37E-03	3.70E-09	4.37E-09	5.66E-09	6.29E-09
Pu-238	2.82E-07	2.06E-04	0.471	5.75E-08	1.79E-07	3.73E-07	4.60E-07
Pu-239	3.93E-05	2.87E-02	65.7	1.14E-05	2.65E-05	5.05E-05	6.13E-05
Pu-240	3.56E-06	2.61E-03	5.96	8.40E-07	2.31E-06	4.66E-06	5.71E-06
Pu-241	1.16E-05	8.52E-03	19.5	1.80E-06	7.13E-06	1.56E-05	1.94E-05
Pu-242	5.28E-11	3.87E-08	8.84E-05	7.82E-12	3.22E-11	7.10E-11	8.85E-11
Am-241	2.25E-07	1.65E-04	0.376	1.45E-07	1.86E-07	2.65E-07	3.03E-07
Am-243	1.57E-12	1.15E-09	2.63E-06	9.95E-13	1.29E-12	1.86E-12	2.14E-12
Cm-242	6.31E-10	4.62E-07	1.06E-03	6.09E-10	6.20E-10	6.43E-10	6.54E-10
Cm-243	1.29E-11	9.46E-09	2.16E-05	1.25E-11	1.27E-11	1.32E-11	1.34E-11
Cm-244	3.71E-11	2.72E-08	6.21E-05	2.34E-11	3.05E-11	4.40E-11	5.06E-11
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	6.47E-04 (g/L)	----	1.08	1.87E-04	4.36E-04	8.33E-04	1.01E-03
U	0.194	3.37E+04	7.71E+04	0.177	0.188	0.197	0.199

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-104							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	1.59E+04 (kg)	(3.01 kgal)	---	---	---	---	---
Heat Load	1.57E-02 (kW)	(53.7 BTU/hr)	---	1.47E-02	1.53E-02	1.61E-02	1.65E-02
Bulk Density*	1.40 (g/cc)	---	---	1.36	1.38	1.41	1.42
Water wt%†	49.0	---	---	46.7	47.8	50.3	51.9
TOC wt% C (w	0.720	---	---	0.424	0.569	0.870	1.02
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	1.57E-04	0.113	1.79	7.76E-05	7.76E-05	1.65E-04	1.75E-04
C-14	2.31E-05	1.66E-02	0.264	6.45E-06	6.45E-06	2.34E-05	2.37E-05
Ni-59	1.46E-06	1.05E-03	1.66E-02	6.74E-07	6.74E-07	1.50E-06	1.54E-06
Ni-63	1.43E-04	0.102	1.63	6.53E-05	6.53E-05	1.47E-04	1.51E-04
Co-60	2.61E-05	1.87E-02	0.297	6.96E-06	6.96E-06	2.66E-05	2.72E-05
Se-79	2.35E-06	1.68E-03	2.67E-02	1.28E-06	1.28E-06	2.73E-06	3.10E-06
Sr-90	8.63E-02	61.9	985	8.11E-02	8.37E-02	8.90E-02	9.16E-02
Y-90	8.64E-02	61.9	985	4.96E-02	4.96E-02	8.90E-02	9.16E-02
Zr-93	1.15E-05	8.23E-03	0.131	6.16E-06	6.16E-06	1.34E-05	1.53E-05
Nb-93m	8.35E-06	5.98E-03	9.52E-02	4.62E-06	4.62E-06	9.70E-06	1.10E-05
Tc-99	1.64E-04	0.118	1.87	1.02E-04	1.32E-04	1.96E-04	2.27E-04
Ru-106	4.97E-09	3.56E-06	5.66E-05	2.50E-09	2.50E-09	5.52E-09	6.02E-09
Cd-113m	6.02E-05	4.31E-02	0.687	2.82E-05	2.82E-05	7.18E-05	8.29E-05
Sb-125	1.14E-04	8.15E-02	1.30	3.10E-05	3.10E-05	1.17E-04	1.20E-04
Sn-126	3.55E-06	2.54E-03	4.05E-02	1.95E-06	1.95E-06	4.13E-06	4.68E-06
I-129	3.17E-07	2.27E-04	3.61E-03	1.96E-07	2.55E-07	3.79E-07	4.39E-07
Cs-134	1.95E-06	1.40E-03	2.23E-02	1.18E-06	1.56E-06	2.35E-06	2.74E-06
Cs-137	0.170	122	1.94E+03	0.155	0.162	0.178	0.185
Ba-137m	0.161	115	1.84E+03	0.128	0.128	0.168	0.175
Sm-151	8.26E-03	5.92	94.3	4.54E-03	4.54E-03	9.61E-03	1.09E-02
Eu-152	2.91E-06	2.08E-03	3.32E-02	1.59E-06	1.59E-06	3.19E-06	3.47E-06
Eu-154	4.31E-04	0.309	4.91	1.64E-04	1.64E-04	5.27E-04	5.66E-04
Eu-155	1.73E-04	0.124	1.97	9.40E-05	9.40E-05	1.90E-04	2.07E-04
Ra-226	1.00E-10	7.17E-08	1.14E-06	6.70E-11	6.70E-11	1.12E-10	1.23E-10
Ra-228	8.00E-08	5.73E-05	9.12E-04	3.22E-08	5.56E-08	1.08E-07	1.38E-07
Ac-227	6.27E-10	4.50E-07	7.15E-06	4.36E-10	4.36E-10	6.97E-10	7.63E-10
Pa-231	2.85E-09	2.04E-06	3.25E-05	1.78E-09	1.78E-09	3.23E-09	3.60E-09
Th-229	1.89E-09	1.35E-06	2.15E-05	8.39E-10	1.35E-09	2.51E-09	3.17E-09
Th-232	5.26E-09	3.77E-06	6.00E-05	2.62E-09	3.91E-09	6.61E-09	7.90E-09
U-232	4.26E-07	3.05E-04	4.86E-03	2.35E-07	3.28E-07	5.39E-07	6.60E-07
U-233	1.63E-06	1.17E-03	1.86E-02	9.01E-07	1.26E-06	2.07E-06	2.53E-06
U-234	6.07E-07	4.35E-04	6.93E-03	5.88E-07	5.98E-07	6.18E-07	6.25E-07
U-235	2.50E-08	1.79E-05	2.85E-04	2.42E-08	2.46E-08	2.55E-08	2.58E-08
U-236	1.68E-08	1.21E-05	1.92E-04	1.63E-08	1.66E-08	1.71E-08	1.74E-08
U-238	6.92E-07	4.96E-04	7.89E-03	6.74E-07	6.83E-07	7.03E-07	7.09E-07
Np-237	5.95E-07	4.27E-04	6.79E-03	3.92E-07	4.91E-07	7.00E-07	8.01E-07
Pu-238	1.02E-06	7.29E-04	1.16E-02	7.79E-07	8.96E-07	1.14E-06	1.26E-06
Pu-239	3.58E-05	2.56E-02	0.408	2.96E-05	3.27E-05	3.89E-05	4.19E-05
Pu-240	5.93E-06	4.25E-03	6.76E-02	4.79E-06	5.35E-06	6.51E-06	7.07E-06
Pu-241	6.89E-05	4.93E-02	0.785	5.26E-05	6.05E-05	7.72E-05	8.52E-05
Pu-242	3.81E-10	2.73E-07	4.35E-06	2.84E-10	3.32E-10	4.31E-10	4.79E-10
Am-241	4.01E-05	2.87E-02	0.457	2.88E-05	3.43E-05	4.59E-05	5.14E-05
Am-243	1.50E-09	1.08E-06	1.71E-05	1.10E-09	1.29E-09	1.75E-09	1.97E-09
Cm-242	1.12E-07	8.04E-05	1.28E-03	5.80E-08	5.80E-08	1.23E-07	1.33E-07
Cm-243	1.04E-08	7.48E-06	1.19E-04	5.27E-09	5.27E-09	1.14E-08	1.23E-08
Cm-244	1.01E-07	7.22E-05	1.15E-03	4.74E-08	4.74E-08	1.19E-07	1.30E-07
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	4.58E-04 (g/L)	---	5.22E-03	3.42E-04	3.99E-04	5.16E-04	5.73E-04
U	7.11E-03	1.21E+03	19.3	6.88E-03	6.99E-03	7.24E-03	7.32E-03

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

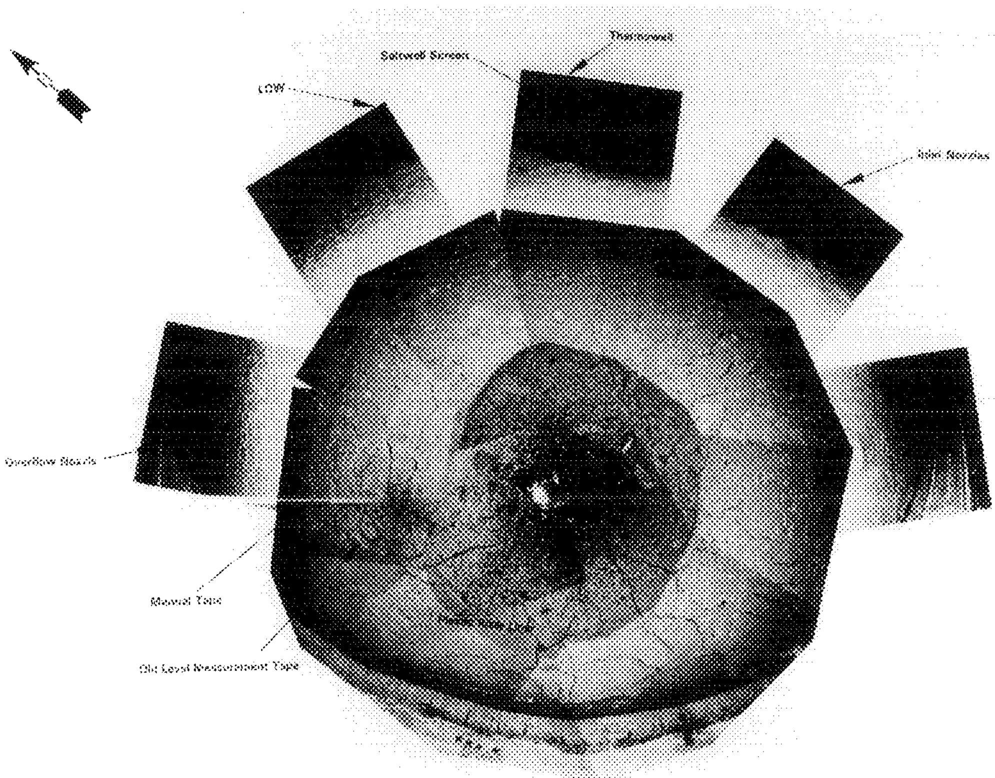
Single-Shell Tank 241-T-104 Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	2.30E+06 (kg)	(445 kgal)	----	----	----	----	----
Heat Load	0.239 (kW)	(818 BTU/hr)	----	0.179	0.210	0.270	0.299
Bulk Density†	1.37 (g/cc)	----	----	1.26	1.32	1.40	1.42
Water wt%†	64.8	----	----	61.1	62.8	67.8	72.4
TOC wt% C (w	4.98E-03	----	----	2.91E-03	3.92E-03	6.04E-03	7.07E-03
Radiological Constituents	**CI/L**	**µCi/g**	**Ci**	**-95 CI (CI/L)**	**-67 CI (CI/L)**	**+67 CI (CI/L)**	**+95 CI (CI/L)**
H-3	1.62E-06	1.19E-03	2.73	1.08E-06	1.08E-06	1.81E-06	2.02E-06
C-14	2.73E-07	2.00E-04	0.459	1.60E-07	1.60E-07	2.88E-07	3.02E-07
Ni-59	4.29E-08	3.14E-05	7.22E-02	3.43E-08	3.76E-08	7.57E-08	1.06E-07
Ni-63	3.94E-06	2.89E-03	6.64	3.16E-06	3.42E-06	6.94E-06	9.72E-06
Co-60	2.03E-07	1.49E-04	0.342	7.37E-08	7.37E-08	2.07E-07	2.11E-07
Se-79	4.04E-08	2.95E-05	6.80E-02	3.31E-08	3.31E-08	4.35E-08	4.66E-08
Sr-90	1.16E-02	8.49	1.95E+04	8.64E-03	1.02E-02	1.31E-02	1.45E-02
Y-90	1.16E-02	8.49	1.95E+04	8.64E-03	1.02E-02	1.31E-02	1.45E-02
Zr-93	1.94E-07	1.42E-04	0.327	1.58E-07	1.58E-07	2.09E-07	2.24E-07
Nb-93m	1.55E-07	1.13E-04	0.260	1.29E-07	1.29E-07	1.67E-07	1.79E-07
Tc-99	1.92E-06	1.40E-03	3.23	1.50E-06	1.70E-06	2.13E-06	2.34E-06
Ru-106	3.36E-11	2.46E-08	5.67E-05	1.69E-11	1.69E-11	3.74E-11	4.08E-11
Cd-113m	6.92E-07	5.06E-04	1.17	4.75E-07	4.75E-07	7.70E-07	8.45E-07
Sb-125	7.94E-07	5.81E-04	1.34	2.34E-07	2.34E-07	8.17E-07	8.38E-07
Sn-126	6.09E-08	4.45E-05	0.102	5.00E-08	5.00E-08	6.57E-08	7.03E-08
I-129	3.66E-09	2.68E-06	6.17E-03	2.85E-09	3.24E-09	4.08E-09	4.49E-09
Cs-134	1.43E-08	1.04E-05	2.40E-02	9.03E-09	1.16E-08	1.69E-08	1.96E-08
Cs-137	1.37E-02	10.00	2.30E+04	1.03E-02	1.20E-02	1.53E-02	1.70E-02
Ba-137m	1.29E-02	9.46	2.18E+04	9.73E-03	1.14E-02	1.45E-02	1.61E-02
Sm-151	1.47E-04	0.108	248	1.22E-04	1.22E-04	1.59E-04	1.70E-04
Eu-152	5.41E-08	3.96E-05	9.11E-02	4.52E-08	4.52E-08	5.60E-08	5.79E-08
Eu-154	3.40E-06	2.49E-03	5.72	1.59E-06	1.59E-06	4.05E-06	4.31E-06
Eu-155	3.78E-06	2.76E-03	6.36	3.24E-06	3.24E-06	3.89E-06	4.01E-06
Ra-226	7.35E-12	5.38E-09	1.24E-05	6.06E-12	6.72E-12	7.99E-12	8.62E-12
Ra-228	5.41E-10	3.96E-07	9.12E-04	2.18E-10	3.76E-10	7.33E-10	9.37E-10
Ac-227	3.83E-11	2.80E-08	6.45E-05	3.16E-11	3.51E-11	4.17E-11	4.49E-11
Pa-231	9.33E-11	6.83E-08	1.57E-04	7.82E-11	8.60E-11	1.01E-10	1.08E-10
Th-229	1.28E-11	9.37E-09	2.16E-05	5.71E-12	9.18E-12	1.70E-11	2.15E-11
Th-232	3.56E-11	2.61E-08	6.00E-05	1.77E-11	2.65E-11	4.47E-11	5.35E-11
U-232	3.17E-09	2.32E-06	5.33E-03	1.87E-09	2.50E-09	3.93E-09	4.75E-09
U-233	1.11E-08	8.11E-06	1.87E-02	6.12E-09	8.54E-09	1.40E-08	1.71E-08
U-234	1.51E-05	1.10E-02	25.4	1.38E-05	1.46E-05	1.53E-05	1.55E-05
U-235	6.71E-07	4.91E-04	1.13	6.13E-07	6.51E-07	6.82E-07	6.90E-07
U-236	1.29E-07	9.42E-05	0.217	1.15E-07	1.24E-07	1.31E-07	1.33E-07
U-238	1.53E-05	1.12E-02	25.8	1.40E-05	1.48E-05	1.56E-05	1.57E-05
Np-237	9.00E-09	6.59E-06	1.52E-02	7.62E-09	8.30E-09	9.71E-09	1.04E-08
Pu-238	2.87E-07	2.10E-04	0.483	6.39E-08	1.85E-07	3.77E-07	4.63E-07
Pu-239	3.92E-05	2.87E-02	66.1	1.16E-05	2.65E-05	5.04E-05	6.11E-05
Pu-240	3.58E-06	2.62E-03	6.02	8.74E-07	2.34E-06	4.67E-06	5.71E-06
Pu-241	1.20E-05	8.81E-03	20.3	2.25E-06	7.55E-06	1.60E-05	1.98E-05
Pu-242	5.50E-11	4.03E-08	9.27E-05	1.03E-11	3.46E-11	7.31E-11	9.04E-11
Am-241	4.95E-07	3.62E-04	0.833	4.15E-07	4.56E-07	5.35E-07	5.73E-07
Am-243	1.17E-11	8.59E-09	1.98E-05	9.01E-12	1.03E-11	1.34E-11	1.49E-11
Cm-242	1.39E-09	1.02E-06	2.34E-03	1.02E-09	1.02E-09	1.46E-09	1.53E-09
Cm-243	8.35E-11	6.11E-08	1.41E-04	4.85E-11	4.85E-11	9.01E-11	9.65E-11
Cm-244	7.19E-10	5.26E-07	1.21E-03	3.58E-10	3.58E-10	8.41E-10	9.19E-10
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	6.46E-04 (g/L)	----	1.09	1.89E-04	4.36E-04	8.31E-04	1.01E-03
U	0.192	3.35E+04	7.71E+04	0.176	0.187	0.196	0.198

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Volume average for density, mass average Water wt% and TOC wt% C.

241-T-104

Photo date: 6-29-89



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TANK 241-T-105 SUMMARY

TANK HISTORY	
Entered Service	3rd qtr 1946
Removed from Service	1976
Inactive	1976
Watch Lists	none
Integrity	Sound
Assumed Leaker	-
Interim Stabilization (IS)	June 1987
Partial Interim Isolation (PI)	Dec 1982
Intrusion Prevention (IP)	Sept 1988

TENTATIVELY AVAILABLE RISERS	
Riser Number	Size
5, 8	4 in
2, 3, 6, 7	12 in

TANK TEMPERATURE	
Average Tank Temperature	74°F
Maximum Temperature	93°F
Date	May 3, 1980
Elevation from tank bottom	unknown
Riser Number	4
Minimum Temperature	61°F
Date	June 8, 1977
Elevation from tank bottom	unknown
Riser Number	4

TANK DESCRIPTION	
Diameter	75 ft
Bottom Shape	Dish
Nominal Capacity	530,000 gal
Cascade Tank	to 241-T-106
Total Risers	9

WASTE VOLUME (HANLON 1996I)	
Total Waste Volume	98,000 gal
Waste Type	NCPLX
Drainable Interstitial Liquids	23,000 gal
Pumpable Liquids	17,000 gal
Saltcake	0 gal
Sludge	98,000 gal
Supernatant	0 gal

INTERIOR PHOTOGRAPHS	
Date	May 14, 1987
Montage Number	94080233-2CN
Photo Set Number	87-02966

WASTE SURFACE LEVEL	
Devices	Manual ENRAF
Max Level	41.55 in
Date	July 3, 1996
Min Level	29.61 in
Date	Aug 1 and 3, 1995

* Numerous dates in this time span.

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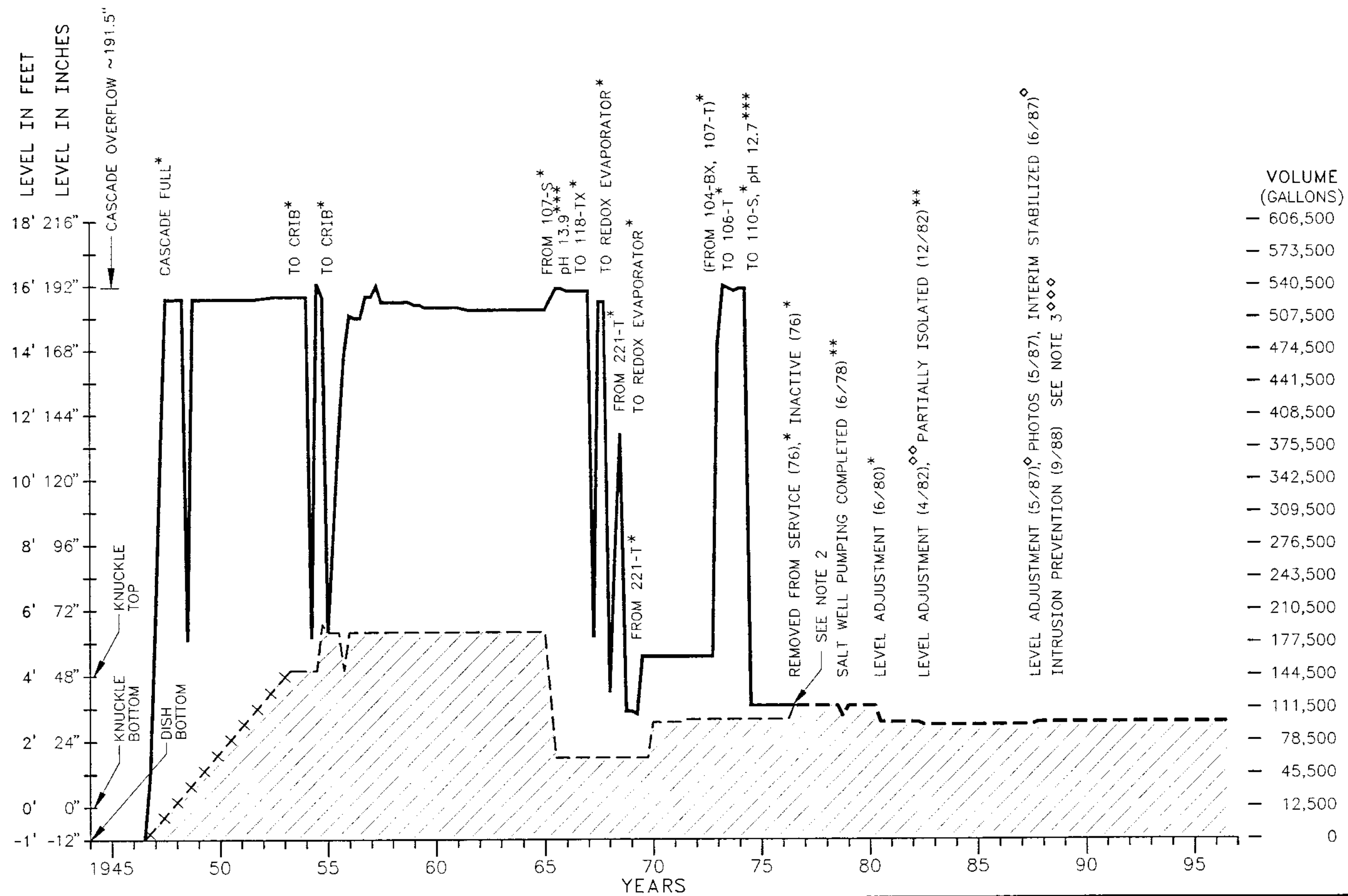
WASTE TYPES TIME LINE (ANDERSON 1990)	1C 2C	1C CW	1C HLO DW	BL DW IX
PRIMARY ADDITIONS TIME LINE (AGNEW 1995)	2C1	CWR1 WTR	DW	



TANK INFO:

CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 530,000 GAL
DISH BOTTOM, 4 FOOT RADIUS KNUCKLE
75 FOOT DIAMETER TANK

REFERENCES

- * ANDERSON 1990
- ** WELTY 1988
- *** BORSHEIM AND KIRCH 1991
- ◊ HANLON 1996l
- ◊◊ McCANN 1982b
- ◊◊◊ THURMAN 1988j

NOTES:

1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN.
3) IN JUNE 1993, INTERIM ISOLATION WAS REPLACED BY INTRUSION PREVENTION.

GLOSSARY OF WASTE TERMS:

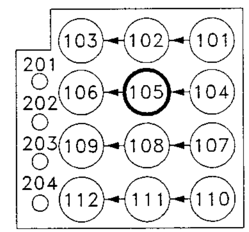
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A.

1C:	FIRST CYCLE DECONTAMINATION WASTE
2C:	SECOND CYCLE DECON WASTE
2C1:	SECOND CYCLE DECON WASTE 1944-49
BL:	B-PLANT LOW-LEVEL WASTE
CW:	COATING (CLADDING) WASTE
CWR1:	COATING (CLADDING WASTE) 1952-60
DW:	DECONTAMINATION WASTE
HLO:	HANFORD LAB OPERATIONS WASTE
IX:	ION EXCHANGE
WTR:	WATER

LEGEND

- TOTAL WASTE LEVEL (SUPERNATE)
- TOTAL WASTE LEVEL (SOLIDS)
- SOLIDS LEVEL
- ASSUMED SOLIDS LEVEL
- SOLIDS

T TANK FARM CASCADE



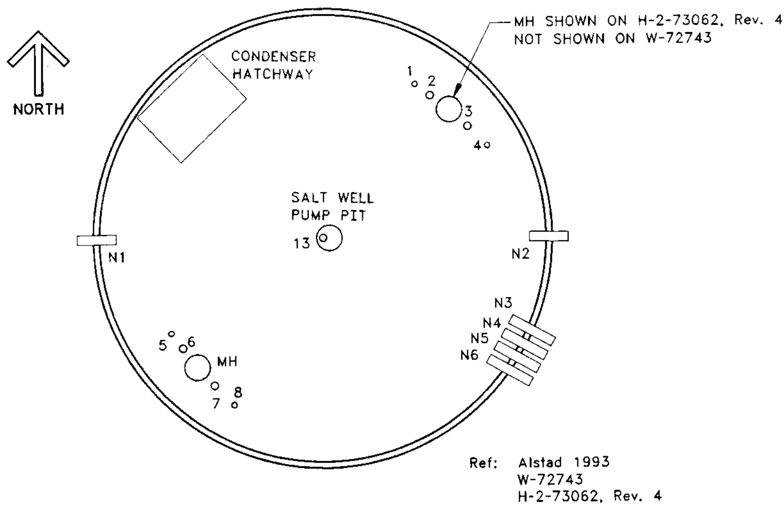
U.S. DEPARTMENT OF ENERGY
Richland Operations Office
FLUOR DANIEL NORTHWEST, INC.

241-T-105 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1946-1996
SOUND/STABILIZED TANK
WATCH LIST: N/A

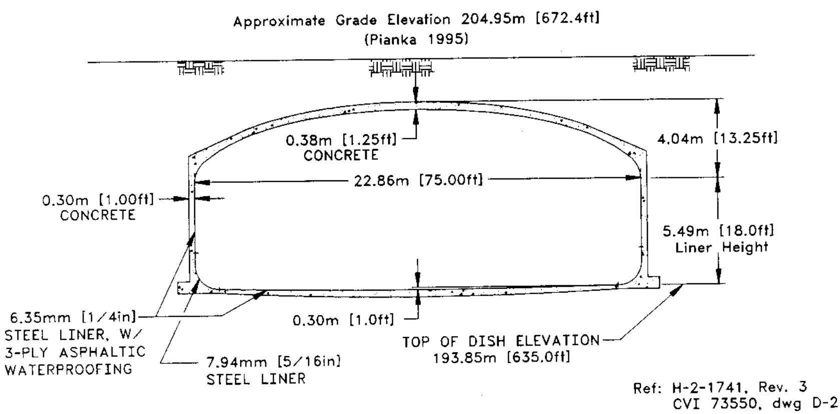
SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E98	1/97
SCALE NONE		JOB NO.	SHEET 1 OF 1

THIS PAGE INTENTIONALLY
LEFT BLANK

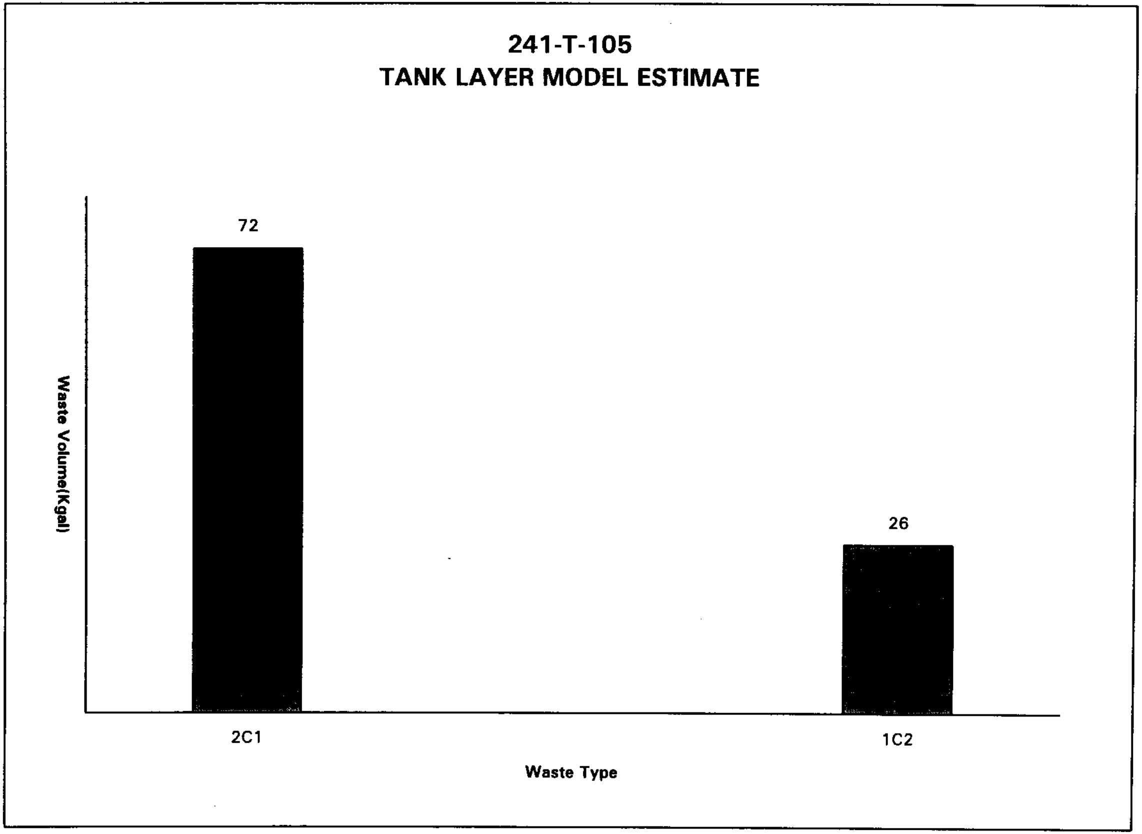
241-T-105



TANK RISER LOCATION



NOT TO SCALE



Tank Layer Model(TLM) Estimate from *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 4* (Agnew et al., 1997).

HDW Model Rev. 4

Single-Shell Tank 241-T-105							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	4.75E+05 (kg)	(98.0 kgal)	----	—	—	—	—
Heat Load	1.97E-02 (kW)	(67.3 BTU/hr)	----	1.36E-02	1.68E-02	2.27E-02	2.57E-02
Bulk Density	1.28 (g/cc)	—	—	1.18	1.23	1.33	1.36
Void Fraction	0.761	—	—	0.657	0.703	0.835	0.910
Water wt%	69.7	—	—	64.3	66.7	73.2	77.2
TOC wt% C (w	0	----	----	0	0	0	0
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	4.40	7.90E+04	3.75E+04	2.46	3.43	5.34	6.16
Al3+	0.115	2.43E+03	1.15E+03	0.115	0.115	0.115	0.115
Fe3+ (total Fe)	*0.502*	*2.19E+04*	*1.04E+04*	0.492	0.497	0.506	0.511
Cr3+	3.74E-03	152	72.0	3.24E-03	3.50E-03	3.98E-03	4.22E-03
Bi3+	8.37E-02	1.37E+04	6.49E+03	6.50E-02	7.58E-02	8.94E-02	9.37E-02
La3+	0	0	0	0	0	0	0
Hg2+	2.48E-05	3.89	1.85	5.54E-06	1.83E-05	2.87E-05	3.11E-05
Zr (as ZrO(OH)2	6.50E-05	4.63	2.20	4.07E-05	5.32E-05	7.72E-05	8.90E-05
Pb2+	0	0	0	0	0	0	0
Ni2+	1.24E-03	57.1	27.1	1.12E-03	1.19E-03	2.09E-03	3.99E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	0.125	3.91E+03	1.86E+03	8.30E-02	0.107	0.143	0.160
K+	5.59E-03	171	81.1	4.90E-03	5.26E-03	5.94E-03	6.27E-03
OH-	2.19	2.90E+04	1.38E+04	2.13	2.16	2.23	2.27
NO3-	0.958	4.64E+04	2.20E+04	0.870	0.923	0.993	1.03
NO2-	9.57E-02	3.44E+03	1.63E+03	4.69E-02	6.89E-02	0.128	0.164
CO32-	0.125	5.86E+03	2.78E+03	8.30E-02	0.107	0.143	0.160
PO43-	1.04	7.72E+04	3.67E+04	*0.443*	*0.750*	*1.26*	*1.41*
SO42-	4.27E-02	3.20E+03	1.52E+03	3.74E-02	4.01E-02	4.53E-02	4.79E-02
Si (as SiO32-)	0.102	2.23E+03	1.06E+03	6.27E-02	6.44E-02	0.188	0.271
F-	0.164	2.44E+03	1.16E+03	0.148	0.157	0.387	0.760
Cl-	2.57E-02	712	338	2.26E-02	2.42E-02	2.73E-02	2.88E-02
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	*0*	*0*	*0*	0	0	0	0
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	1.58E-02	210	99.9	1.02E-02	1.32E-02	1.85E-02	2.09E-02
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-105							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	0 (kg)	(1.70E-02 kgal)	----	----	---	----	---
Heat Load	0 (kW)	(0 BTU/hr)	----	0	0	0	0
Bulk Density*	0 (g/cc)	---	----	0	0	0	0
Water wt%	0	----	----	0	0	0	0
TOC wt% C (w	0	---	----	0	0	0	0
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	0	0	0	0	0	0	0
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	0	0	0	0	0	0	0
Cr3+	0	0	0	0	0	0	0
Bi3+	0	0	0	0	0	0	0
La3+	0	0	0	0	0	0	0
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	0	0	0	0	0	0	0
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	0	0	0	0	0	0	0
K+	0	0	0	0	0	0	0
OH-	0	0	0	0	0	0	0
NO3-	0	0	0	0	0	0	0
NO2-	0	0	0	0	0	0	0
CO32-	0	0	0	0	0	0	0
PO43-	0	0	0	0	0	0	0
SO42-	0	0	0	0	0	0	0
Si (as SiO32-)	0	0	0	0	0	0	0
F-	0	0	0	0	0	0	0
Cl-	0	0	0	0	0	0	0
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	0	0	0	0	0	0	0
Fe(CN)64-	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-105							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	4.75E+05 (kg)	(98.0 kgal)	---	---	---	---	---
Heat Load	1.97E-02 (kW)	(67.3 BTU/hr)	---	1.36E-02	1.68E-02	2.27E-02	2.57E-02
Bulk Density†	1.28 (g/cc)	---	---	1.18	1.23	1.33	1.36
Water wt%†	69.7	---	---	64.3	66.7	73.2	77.2
TOC wt% C (w	0	---	---	0	0	0	0
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	4.40	7.90E+04	3.75E+04	2.46	3.43	5.34	6.16
Al3+	0.115	2.43E+03	1.15E+03	0.115	0.115	0.115	0.115
Fe3+ (total Fe)	0.502	2.19E+04	1.04E+04	0.492	0.497	0.506	0.511
Cr3+	3.73E-03	152	72.0	3.24E-03	3.50E-03	3.98E-03	4.22E-03
Bi3+	8.37E-02	1.37E+04	6.49E+03	6.50E-02	7.58E-02	8.94E-02	9.37E-02
La3+	0	0	0	0	0	0	0
Hg2+	2.48E-05	3.89	1.85	5.54E-06	1.83E-05	2.87E-05	3.11E-05
Zr (as ZrO(OH)2	6.50E-05	4.63	2.20	4.07E-05	5.32E-05	7.72E-05	8.90E-05
Pb2+	0	0	0	0	0	0	0
Ni2+	1.24E-03	57.1	27.1	1.12E-03	1.19E-03	2.09E-03	3.99E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	0.125	3.91E+03	1.86E+03	8.30E-02	0.107	0.143	0.160
K+	5.59E-03	171	81.1	4.90E-03	5.26E-03	5.94E-03	6.27E-03
OH-	2.19	2.90E+04	1.38E+04	2.13	2.16	2.23	2.27
NO3-	0.958	4.64E+04	2.20E+04	0.870	0.923	0.993	1.03
NO2-	9.56E-02	3.44E+03	1.63E+03	4.69E-02	6.89E-02	0.128	0.164
CO32-	0.125	5.86E+03	2.78E+03	8.30E-02	0.107	0.143	0.160
PO43-	1.04	7.72E+04	3.67E+04	0.443	0.750	1.26	1.41
SO42-	4.26E-02	3.20E+03	1.52E+03	3.74E-02	4.01E-02	4.53E-02	4.79E-02
Si (as SiO32-)	0.102	2.23E+03	1.06E+03	6.27E-02	6.44E-02	0.188	0.271
F-	0.164	2.44E+03	1.16E+03	0.148	0.157	0.387	0.760
Cl-	2.57E-02	712	338	2.26E-02	2.42E-02	2.73E-02	2.88E-02
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	1.58E-02	210	99.9	1.02E-02	1.32E-02	1.85E-02	2.09E-02
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-105							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	4.75E+05 (kg)	(98.0 kgal)	----	----	----	----	----
Heat Load	1.97E-02 (kW)	(67.3 BTU/hr)	----	1.36E-02	1.68E-02	2.27E-02	2.57E-02
Bulk Density	1.28 (g/cc)	----	----	1.18	1.23	1.33	1.36
Void Fraction	0.761	----	----	0.657	0.703	0.835	0.910
Water wt%	69.7	----	----	64.3	66.7	73.2	77.2
TOC wt% C (w	0	----	----	0	0	0	0
Radiological Constituents	**CI/L**	**µCi/g**	**CI**	**-95 CI (CI/L)**	**-67 CI (CI/L)**	**+67 CI (CI/L)**	**+95 CI (CI/L)**
H-3	2.19E-07	1.71E-04	8.11E-02	9.45E-08	1.50E-07	3.06E-07	4.04E-07
C-14	4.56E-08	3.56E-05	1.69E-02	3.18E-08	3.89E-08	5.25E-08	5.91E-08
Ni-59	1.30E-08	1.01E-05	4.80E-03	9.03E-09	1.11E-08	2.81E-08	4.22E-08
Ni-63	1.17E-06	9.17E-04	0.435	8.16E-07	1.00E-06	2.56E-06	3.84E-06
Co-60	1.11E-08	8.70E-06	4.13E-03	7.42E-09	9.34E-09	1.30E-08	1.48E-08
Se-79	9.61E-09	7.51E-06	3.57E-03	6.70E-09	8.20E-09	1.11E-08	1.25E-08
Sr-90	4.40E-03	3.44	1.63E+03	3.05E-03	3.75E-03	5.08E-03	5.74E-03
Y-90	4.40E-03	3.44	1.63E+03	3.05E-03	3.75E-03	5.08E-03	5.74E-03
Zr-93	4.56E-08	3.57E-05	1.69E-02	3.18E-08	3.89E-08	5.25E-08	5.92E-08
Nb-93m	3.84E-08	3.00E-05	1.42E-02	2.68E-08	3.28E-08	4.41E-08	4.97E-08
Tc-99	3.16E-07	2.47E-04	0.117	2.21E-07	2.70E-07	3.64E-07	4.11E-07
Ru-106	5.07E-15	3.96E-12	1.88E-09	3.18E-15	4.16E-15	6.02E-15	6.94E-15
Cd-113m	1.15E-07	8.97E-05	4.26E-02	7.85E-08	9.72E-08	1.33E-07	1.51E-07
Sb-125	1.07E-08	8.40E-06	3.99E-03	6.97E-09	8.92E-09	1.26E-08	1.45E-08
Sn-126	1.45E-08	1.13E-05	5.38E-03	1.01E-08	1.24E-08	1.67E-08	1.88E-08
I-129	5.97E-10	4.67E-07	2.22E-04	4.16E-10	5.09E-10	6.88E-10	7.76E-10
Cs-134	4.62E-10	3.61E-07	1.71E-04	2.93E-10	3.80E-10	5.47E-10	6.28E-10
Cs-137	5.00E-03	3.91	1.86E+03	3.46E-03	4.26E-03	5.78E-03	6.52E-03
Ba-137m	4.73E-03	3.70	1.76E+03	3.28E-03	4.03E-03	5.46E-03	6.17E-03
Sm-151	3.57E-05	2.79E-02	13.2	2.49E-05	3.05E-05	4.11E-05	4.63E-05
Eu-152	1.58E-08	1.23E-05	5.86E-03	1.53E-08	1.56E-08	1.61E-08	1.63E-08
Eu-154	2.06E-07	1.61E-04	7.63E-02	1.35E-07	1.71E-07	2.41E-07	2.76E-07
Eu-155	1.19E-06	9.32E-04	0.443	1.16E-06	1.18E-06	1.21E-06	1.23E-06
Ra-226	2.36E-12	1.85E-09	8.76E-07	1.77E-12	2.08E-12	2.66E-12	2.94E-12
Ra-228	6.07E-17	4.74E-14	2.25E-11	5.92E-17	6.00E-17	6.14E-17	6.21E-17
Ac-227	1.21E-11	9.47E-09	4.49E-06	9.06E-12	1.06E-11	1.36E-11	1.51E-11
Pa-231	2.66E-11	2.08E-08	9.88E-06	1.98E-11	2.33E-11	3.01E-11	3.34E-11
Th-229	1.18E-14	9.20E-12	4.37E-09	1.15E-14	1.16E-14	1.19E-14	1.21E-14
Th-232	1.28E-17	9.99E-15	4.74E-12	9.01E-18	1.10E-17	1.47E-17	1.65E-17
U-232	9.70E-11	7.58E-08	3.60E-05	8.25E-11	9.21E-11	1.02E-10	1.06E-10
U-233	4.50E-12	3.51E-09	1.67E-06	3.83E-12	4.27E-12	4.82E-12	5.05E-12
U-234	4.20E-06	3.28E-03	1.56	3.59E-06	3.99E-06	4.65E-06	4.98E-06
U-235	1.86E-07	1.45E-04	6.88E-02	1.59E-07	1.77E-07	2.06E-07	2.21E-07
U-236	4.17E-08	3.26E-05	1.55E-02	3.56E-08	3.96E-08	4.46E-08	4.68E-08
U-238	4.26E-06	3.33E-03	1.58	3.65E-06	4.06E-06	4.72E-06	5.06E-06
Np-237	1.96E-09	1.53E-06	7.28E-04	1.36E-09	1.67E-09	2.26E-09	2.55E-09
Pu-238	2.86E-07	2.23E-04	0.106	1.43E-07	1.80E-07	3.91E-07	4.92E-07
Pu-239	6.70E-05	5.24E-02	24.9	2.24E-05	3.41E-05	1.00E-04	1.32E-04
Pu-240	4.52E-06	3.53E-03	1.68	1.89E-06	2.58E-06	6.47E-06	8.33E-06
Pu-241	7.19E-06	5.61E-03	2.66	2.67E-06	5.12E-06	9.01E-06	1.08E-05
Pu-242	2.99E-11	2.33E-08	1.11E-05	9.24E-12	2.04E-11	3.82E-11	4.62E-11
Am-241	1.00E-07	7.83E-05	3.72E-02	6.38E-08	8.26E-08	1.18E-07	1.36E-07
Am-243	7.11E-13	5.56E-10	2.64E-07	4.48E-13	5.84E-13	8.43E-13	9.71E-13
Cm-242	2.89E-10	2.26E-07	1.07E-04	2.79E-10	2.84E-10	2.94E-10	2.99E-10
Cm-243	5.92E-12	4.62E-09	2.19E-06	5.70E-12	5.81E-12	6.03E-12	6.13E-12
Cm-244	1.69E-11	1.32E-08	6.26E-06	1.06E-11	1.38E-11	2.00E-11	2.31E-11
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	1.10E-03 (g/L)	----	0.407	3.68E-04	5.60E-04	1.64E-03	2.16E-03
U	5.37E-02	9.98E+03	4.74E+03	4.60E-02	5.11E-02	5.94E-02	6.37E-02

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-105

SMM Composite Inventory Estimate

Physical Properties				-95 CI	-67 CI	+67 CI	+95 CI
Total SMM W	0 (kg)	(1.70E-02 kgal)	---	---	---	---	---
Heat Load	0 (kW)	(0 BTU/hr)	---	0	0	0	0
Bulk Density*	0 (g/cc)	---	---	0	0	0	0
Water wt%†	0	---	---	0	0	0	0
TOC wt% C (w	0	---	---	0	0	0	0

Radiological Constituents	Ci/L	µCi/g	Ci	-95 CI (Ci/L)	-67 CI (Ci/L)	+67 CI (Ci/L)	+95 CI (Ci/L)
H-3	0	0	0	0	0	0	0
C-14	0	0	0	0	0	0	0
Ni-59	0	0	0	0	0	0	0
Ni-63	0	0	0	0	0	0	0
Co-60	0	0	0	0	0	0	0
Se-79	0	0	0	0	0	0	0
Sr-90	0	0	0	0	0	0	0
Y-90	0	0	0	0	0	0	0
Zr-93	0	0	0	0	0	0	0
Nb-93m	0	0	0	0	0	0	0
Tc-99	0	0	0	0	0	0	0
Ru-106	0	0	0	0	0	0	0
Cd-113m	0	0	0	0	0	0	0
Sb-125	0	0	0	0	0	0	0
Sn-126	0	0	0	0	0	0	0
I-129	0	0	0	0	0	0	0
Cs-134	0	0	0	0	0	0	0
Cs-137	0	0	0	0	0	0	0
Ba-137m	0	0	0	0	0	0	0
Sm-151	0	0	0	0	0	0	0
Eu-152	0	0	0	0	0	0	0
Eu-154	0	0	0	0	0	0	0
Eu-155	0	0	0	0	0	0	0
Ra-226	0	0	0	0	0	0	0
Ra-228	0	0	0	0	0	0	0
Ac-227	0	0	0	0	0	0	0
Pa-231	0	0	0	0	0	0	0
Th-229	0	0	0	0	0	0	0
Th-232	0	0	0	0	0	0	0
U-232	0	0	0	0	0	0	0
U-233	0	0	0	0	0	0	0
U-234	0	0	0	0	0	0	0
U-235	0	0	0	0	0	0	0
U-236	0	0	0	0	0	0	0
U-238	0	0	0	0	0	0	0
Np-237	0	0	0	0	0	0	0
Pu-238	0	0	0	0	0	0	0
Pu-239	0	0	0	0	0	0	0
Pu-240	0	0	0	0	0	0	0
Pu-241	0	0	0	0	0	0	0
Pu-242	0	0	0	0	0	0	0
Am-241	0	0	0	0	0	0	0
Am-243	0	0	0	0	0	0	0
Cm-242	0	0	0	0	0	0	0
Cm-243	0	0	0	0	0	0	0
Cm-244	0	0	0	0	0	0	0

Totals	M	µg/g	kg	-95 CI (M or g/L)	-67 CI (M or g/L)	+67 CI (M or g/L)	+95 CI (M or g/L)
Pu	0 (g/L)	---	0	0	0	0	0
U	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

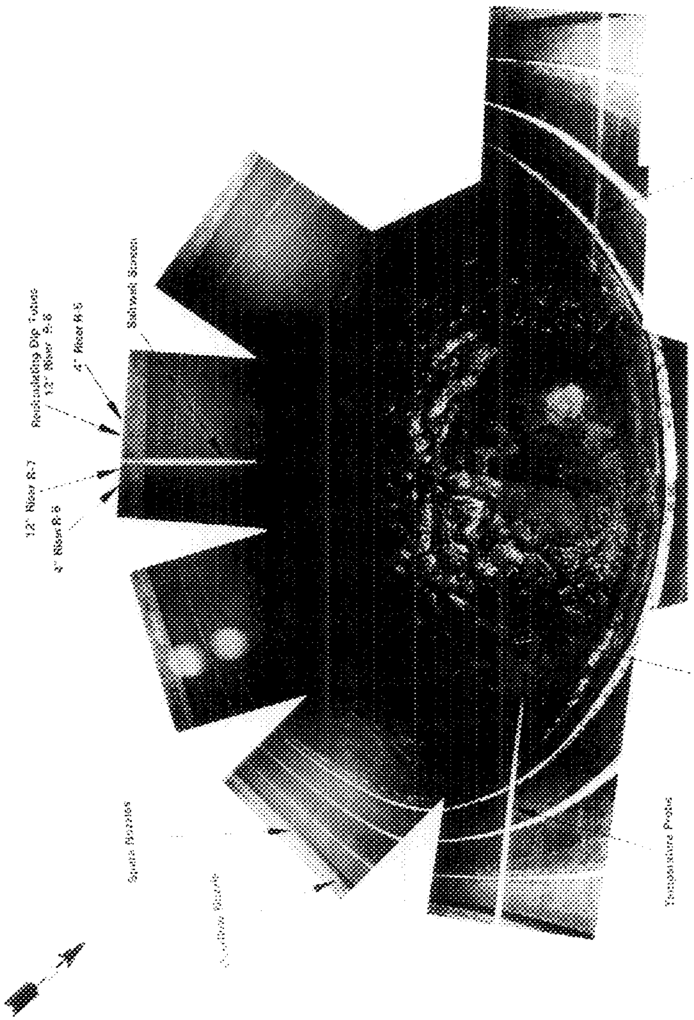
Single-Shell Tank 241-T-105							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	4.75E+05 (kg)	(98.0 kgal)	---	---	---	---	---
Heat Load	1.97E-02 (kW)	(67.3 BTU/hr)	---	1.36E-02	1.68E-02	2.27E-02	2.57E-02
Bulk Density†	1.28 (g/cc)	---	---	1.18	1.23	1.33	1.36
Water wt%†	69.7	---	---	64.3	66.7	73.2	77.2
TOC wt% C (w	0	---	---	0	0	0	0
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	2.19E-07	1.71E-04	8.11E-02	9.45E-08	1.50E-07	3.06E-07	4.04E-07
C-14	4.56E-08	3.56E-05	1.69E-02	3.18E-08	3.89E-08	5.25E-08	5.91E-08
Ni-59	1.30E-08	1.01E-05	4.80E-03	9.03E-09	1.11E-08	2.81E-08	4.22E-08
Ni-63	1.17E-06	9.17E-04	0.435	8.16E-07	1.00E-06	2.56E-06	3.84E-06
Co-60	1.11E-08	8.70E-06	4.13E-03	7.42E-09	9.34E-09	1.30E-08	1.48E-08
Se-79	9.61E-09	7.51E-06	3.57E-03	6.70E-09	8.20E-09	1.11E-08	1.25E-08
Sr-90	4.40E-03	3.44	1.63E+03	3.05E-03	3.75E-03	5.08E-03	5.74E-03
Y-90	4.40E-03	3.44	1.63E+03	3.05E-03	3.75E-03	5.08E-03	5.74E-03
Zr-93	4.56E-08	3.57E-05	1.69E-02	3.18E-08	3.89E-08	5.25E-08	5.92E-08
Nb-93m	3.84E-08	3.00E-05	1.42E-02	2.68E-08	3.28E-08	4.41E-08	4.97E-08
Tc-99	3.16E-07	2.47E-04	0.117	2.21E-07	2.70E-07	3.64E-07	4.11E-07
Ru-106	5.07E-15	3.96E-12	1.88E-09	3.18E-15	4.16E-15	6.02E-15	6.94E-15
Cd-113m	1.15E-07	8.97E-05	4.26E-02	7.85E-08	9.72E-08	1.33E-07	1.51E-07
Sb-125	1.07E-08	8.40E-06	3.99E-03	6.97E-09	8.92E-09	1.26E-08	1.45E-08
Sn-126	1.45E-08	1.13E-05	5.38E-03	1.01E-08	1.24E-08	1.67E-08	1.88E-08
I-129	5.97E-10	4.67E-07	2.22E-04	4.16E-10	5.09E-10	6.88E-10	7.76E-10
Cs-134	4.62E-10	3.61E-07	1.71E-04	2.93E-10	3.80E-10	5.47E-10	6.28E-10
Cs-137	5.00E-03	3.91	1.86E+03	3.46E-03	4.26E-03	5.78E-03	6.52E-03
Ba-137m	4.73E-03	3.70	1.76E+03	3.28E-03	4.03E-03	5.46E-03	6.17E-03
Sm-151	3.57E-05	2.79E-02	13.2	2.49E-05	3.05E-05	4.11E-05	4.63E-05
Eu-152	1.58E-08	1.23E-05	5.86E-03	1.53E-08	1.56E-08	1.61E-08	1.63E-08
Eu-154	2.06E-07	1.61E-04	7.63E-02	1.35E-07	1.71E-07	2.41E-07	2.76E-07
Eu-155	1.19E-06	9.32E-04	0.443	1.16E-06	1.18E-06	1.21E-06	1.23E-06
Ra-226	2.36E-12	1.85E-09	8.76E-07	1.77E-12	2.08E-12	2.66E-12	2.94E-12
Ra-228	6.07E-17	4.74E-14	2.25E-11	5.92E-17	6.00E-17	6.14E-17	6.21E-17
Ac-227	1.21E-11	9.47E-09	4.49E-06	9.06E-12	1.06E-11	1.36E-11	1.51E-11
Pa-231	2.66E-11	2.08E-08	9.88E-06	1.98E-11	2.33E-11	3.01E-11	3.34E-11
Th-229	1.18E-14	9.20E-12	4.37E-09	1.15E-14	1.16E-14	1.19E-14	1.21E-14
Th-232	1.28E-17	9.99E-15	4.74E-12	9.01E-18	1.10E-17	1.47E-17	1.65E-17
U-232	9.70E-11	7.58E-08	3.60E-05	8.25E-11	9.21E-11	1.02E-10	1.06E-10
U-233	4.49E-12	3.51E-09	1.67E-06	3.83E-12	4.27E-12	4.82E-12	5.05E-12
U-234	4.20E-06	3.28E-03	1.56	3.59E-06	3.99E-06	4.65E-06	4.98E-06
U-235	1.86E-07	1.45E-04	6.88E-02	1.59E-07	1.77E-07	2.06E-07	2.21E-07
U-236	4.17E-08	3.26E-05	1.55E-02	3.56E-08	3.96E-08	4.46E-08	4.68E-08
U-238	4.26E-06	3.33E-03	1.58	3.65E-06	4.06E-06	4.72E-06	5.06E-06
Np-237	1.96E-09	1.53E-06	7.28E-04	1.36E-09	1.67E-09	2.26E-09	2.55E-09
Pu-238	2.86E-07	2.23E-04	0.106	1.43E-07	1.80E-07	3.91E-07	4.92E-07
Pu-239	6.70E-05	5.24E-02	24.9	2.24E-05	3.41E-05	1.00E-04	1.32E-04
Pu-240	4.52E-06	3.53E-03	1.68	1.89E-06	2.58E-06	6.47E-06	8.33E-06
Pu-241	7.18E-06	5.61E-03	2.66	2.67E-06	5.12E-06	9.01E-06	1.08E-05
Pu-242	2.98E-11	2.33E-08	1.11E-05	9.24E-12	2.04E-11	3.82E-11	4.62E-11
Am-241	1.00E-07	7.83E-05	3.72E-02	6.38E-08	8.26E-08	1.18E-07	1.36E-07
Am-243	7.11E-13	5.56E-10	2.64E-07	4.48E-13	5.84E-13	8.43E-13	9.71E-13
Cm-242	2.89E-10	2.26E-07	1.07E-04	2.79E-10	2.84E-10	2.94E-10	2.99E-10
Cm-243	5.92E-12	4.62E-09	2.19E-06	5.70E-12	5.81E-12	6.03E-12	6.13E-12
Cm-244	1.69E-11	1.32E-08	6.26E-06	1.06E-11	1.38E-11	2.00E-11	2.31E-11
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	1.10E-03 (g/L)	---	0.407	3.68E-04	5.60E-04	1.64E-03	2.16E-03
U	5.37E-02	9.98E+03	4.74E+03	4.60E-02	5.11E-02	5.94E-02	6.37E-02

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Volume average for density, mass average Water wt% and TOC wt% C.

241-T-105

Photo date



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TANK 241-T-106 SUMMARY

TANK HISTORY	
Entered Service	2nd qtr 1947
Removed from Service	-
Inactive	1976
Watch Lists	none
Integrity	Assumed Leaker
Assumed Leaker	1973
Interim Stabilization (IS)	Aug 1981
Partial Interim Isolation (PI)	-
Intrusion Prevention (IP)	Aug 1981
TENTATIVELY AVAILABLE RISERS	
Riser Number	Size
4, 5	4 in
2, 3, 6, 7, 13	12 in
TANK TEMPERATURE	
Average Tank Temperature	64°F
Maximum Temperature	87°F
Date	Sept 8, 1979
Elevation from tank bottom	unknown
Riser Number	8
Minimum Temperature	54°F
Date	May 3, 1980
Elevation from tank bottom	unknown
Riser Number	8

TANK DESCRIPTION	
Diameter	75 ft
Bottom Shape	Dish
Nominal Capacity	530,000 gal
Cascade Tank	none
Total Risers	9
WASTE VOLUME (HANLON 1996I)	
Total Waste Volume	21,000 gal
Waste Type	NCPLX
Drainable Interstitial Liquids	0 gal
Pumpable Liquids	0 gal
Saltcake	0 gal
Sludge	19,000 gal
Supernatant	2,000 gal
INTERIOR PHOTOGRAPHS	
Date	June 29, 1989
Montage Number	94080233-46CN
Photo Set Number	89-062918
WASTE SURFACE LEVEL	
Devices	Manual ENRAF
Max Level	15.31 in
Date	Jan 2, 1996 - Oct 2, 1996*
Min Level	3.1 in
Date	Nov 20, 1991 - Aug 2, 1993*

* Numerous dates in this time span.

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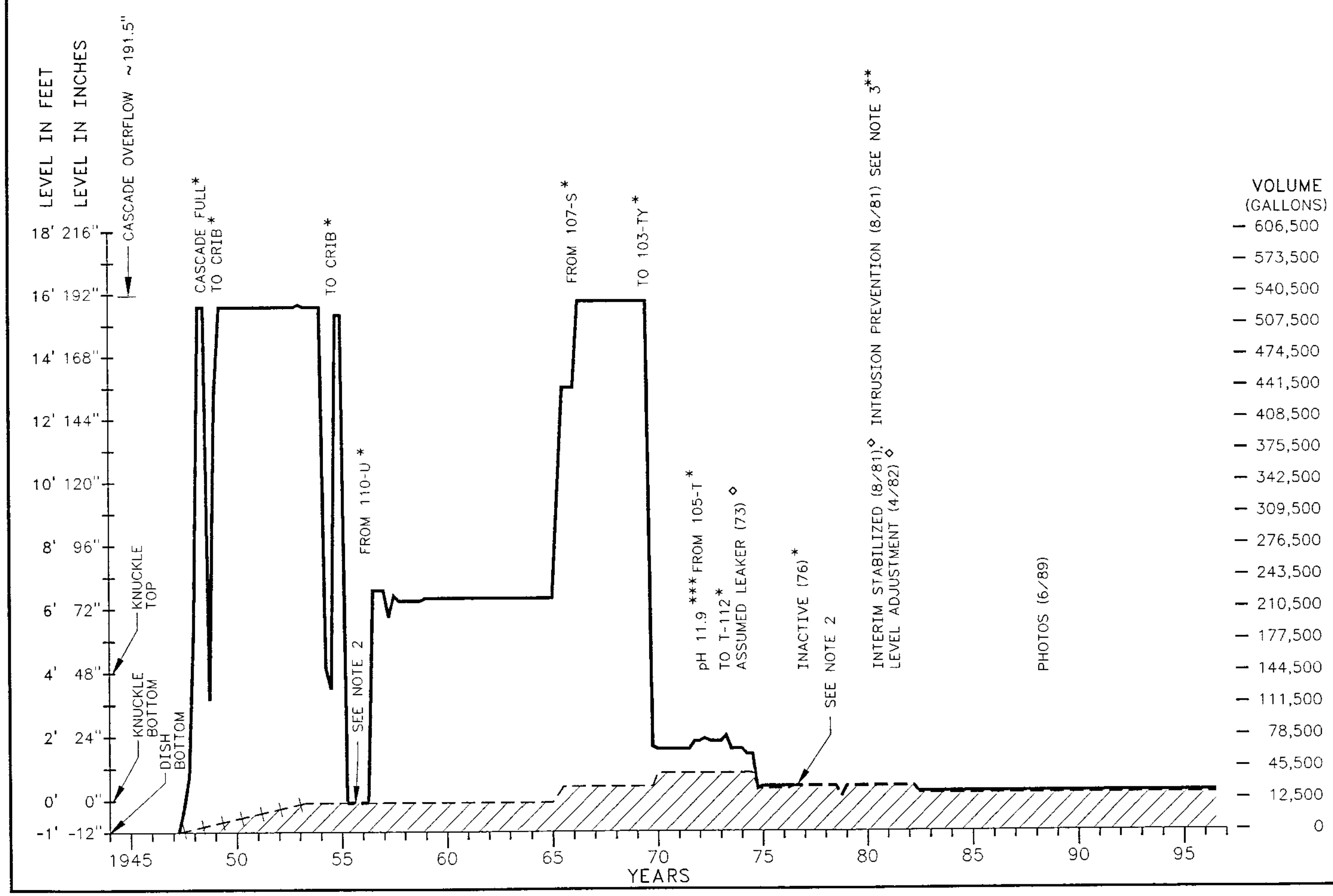
WASTE TYPES TIME LINE (ANDERSON 1990)	1C 2C	CW	BL CW DW IX
PRIMARY ADDITIONS TIME LINE (AGNEW 1995)		WTR	



TANK INFO:
CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 530,000 GAL
DISH BOTTOM, 4 FOOT RADIUS KNUCKLE
75 FOOT DIAMETER TANK

REFERENCES
* ANDERSON 1990
** WELTY 1988
*** BORSHEIM AND KIRCH 1991
◊ HANLON 1996I

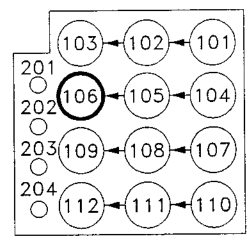
NOTES:
1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN.
3) IN JUNE 1993, INTERIM ISOLATION WAS REPLACED BY INTRUSION PREVENTION.

GLOSSARY OF WASTE TERMS:
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A.

1C:	FIRST CYCLE DECONTAMINATION WASTE
2C:	SECOND CYCLE DECON WASTE
BL:	B-PLANT LOW-LEVEL WASTE
CW:	COATING (CLADDING) WASTE
DW:	DECONTAMINATION WASTE
IX:	ION EXCHANGE
WTR:	WATER

LEGEND
TOTAL WASTE LEVEL (SUPERNATE)
TOTAL WASTE LEVEL (SOLIDS)
SOLIDS LEVEL
+++++ ASSUMED SOLIDS LEVEL
SOLIDS

T TANK FARM CASCADE



U.S. DEPARTMENT OF ENERGY
Richland Operations Office
FLUOR DANIEL NORTHWEST, INC.

241-T-106 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1947-1996
ASSUMED LEAKER/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E99	1/97
SCALE NONE		JOB NO.	SHEET 1 OF 1

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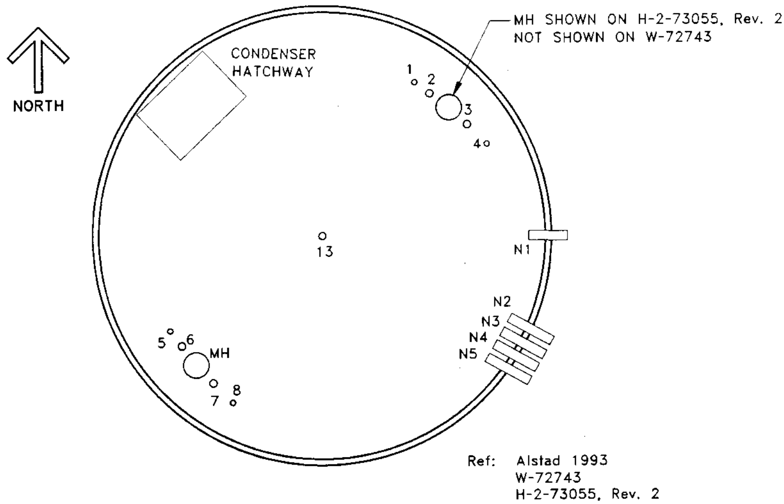
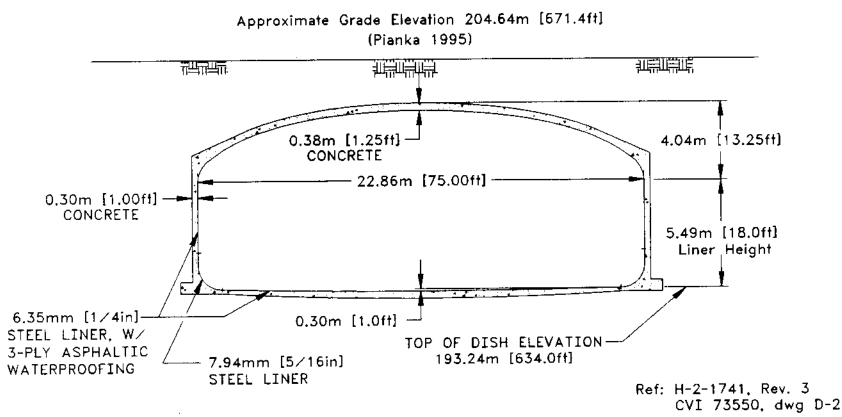
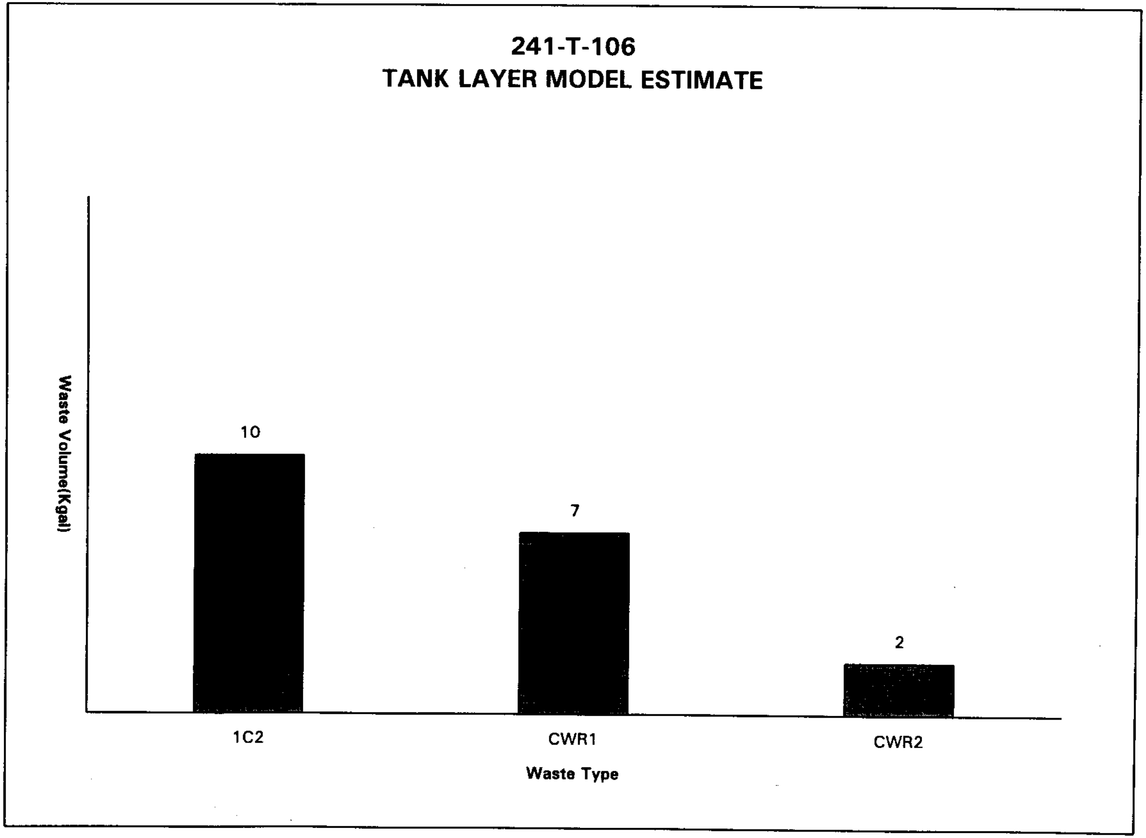
241-T-106



TANK RISER LOCATION



NOT TO SCALE



Tank Layer Model(TLM) Estimate from *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 4* (Agnew et al., 1997).

HDW Model Rev. 4

Single-Shell Tank 241-T-106							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	1.11E+05 (kg)	(19.0 kgal)	----	----	----	----	----
Heat Load	7.25E-03 (kW)	(24.8 BTU/hr)	----	4.92E-03	6.12E-03	8.41E-03	9.54E-03
Bulk Density	1.54 (g/cc)	----	----	1.43	1.47	1.59	1.63
Void Fraction	0.708	----	----	0.648	0.674	0.758	0.833
Water wt%	46.2	----	----	35.8	40.0	55.6	59.5
TOC wt% C (w	0	----	----	0	0	0	0
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	5.68	8.48E+04	9.39E+03	3.61	4.22	6.74	7.53
Al3+	4.97	8.71E+04	9.65E+03	3.00	3.53	6.01	6.76
Fe3+ (total Fe)	0.287	1.04E+04	1.15E+03	0.279	0.284	0.289	0.290
Cr3+	3.62E-03	122	13.5	2.63E-03	3.14E-03	4.11E-03	4.58E-03
Bi3+	3.16E-02	4.28E+03	474	1.63E-02	2.64E-02	3.46E-02	3.65E-02
La3+	0	0	0	0	0	0	0
Hg2+	2.71E-03	353	39.1	2.67E-03	2.70E-03	2.72E-03	2.72E-03
Zr (as ZrO(OH)2	1.29E-04	7.64	0.846	8.07E-05	1.06E-04	1.53E-04	1.77E-04
Pb2+	7.76E-02	1.04E+04	1.16E+03	7.41E-02	7.61E-02	7.92E-02	8.07E-02
Ni2+	1.14E-03	43.6	4.83	9.01E-04	1.03E-03	2.08E-03	2.94E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	0.117	3.05E+03	337	8.30E-02	0.105	0.125	0.132
K+	4.50E-03	114	12.6	3.13E-03	3.83E-03	5.18E-03	5.84E-03
OH-	19.6	2.16E+05	2.40E+04	11.6	13.8	23.8	26.8
NO3-	0.798	3.21E+04	3.56E+03	0.642	0.729	0.861	0.912
NO2-	0.536	1.60E+04	1.77E+03	0.439	0.483	0.600	0.672
CO32-	0.117	4.56E+03	505	8.30E-02	0.105	0.125	0.132
PO43-	0.584	3.60E+04	3.99E+03	8.61E-02	0.391	0.698	0.771
SO42-	3.22E-02	2.01E+03	222	2.17E-02	2.71E-02	3.74E-02	4.25E-02
Si (as SiO32-)	9.52E-02	1.74E+03	192	2.08E-02	5.12E-02	0.122	0.152
F-	7.50E-02	925	102	4.69E-02	6.14E-02	0.110	0.226
Cl-	2.07E-02	476	52.7	1.44E-02	1.76E-02	2.38E-02	2.69E-02
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	3.15E-02	348	38.5	2.03E-02	2.62E-02	3.67E-02	4.16E-02
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-106

SMM Composite Inventory Estimate

Physical Properties				-95 CI	-67 CI	+67 CI	+95 CI
Total SMM W	7.59E+03 (kg)	(2.01 kgal)	—	—	----	----	—
Heat Load	0 (kW)	(0 BTU/hr)	----	0	0	0	0
Bulk Density*	1.00 (g/cc)	—	—	1.00	1.00	1.00	1.00
Water wt%	100	----	----	100	100	100	100
TOC wt% C (w	0	—	—	0	0	0	0
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	0	0	0	0	0	0	0
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	0	0	0	0	0	0	0
Cr3+	0	0	0	0	0	0	0
Bi3+	0	0	0	0	0	0	0
La3+	0	0	0	0	0	0	0
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	0	0	0	0	0	0	0
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	0	0	0	0	0	0	0
K+	0	0	0	0	0	0	0
OH-	0	0	0	0	0	0	0
NO3-	0	0	0	0	0	0	0
NO2-	0	0	0	0	0	0	0
CO32-	0	0	0	0	0	0	0
PO43-	0	0	0	0	0	0	0
SO42-	0	0	0	0	0	0	0
Si (as SiO32-)	0	0	0	0	0	0	0
F-	0	0	0	0	0	0	0
Cl-	0	0	0	0	0	0	0
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	0	0	0	0	0	0	0
Fe(CN)64-	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-106							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	1.18E+05 (kg)	(21.0 kgal)	----	—	----	----	—
Heat Load	7.25E-03 (kW)	(24.8 BTU/hr)	----	4.92E-03	6.12E-03	8.41E-03	9.54E-03
Bulk Density†	1.49 (g/cc)	----	----	1.39	1.42	1.54	1.57
Water wt%†	49.7	----	----	39.7	43.8	58.6	62.2
TOC wt% C (w	0	----	----	0	0	0	0
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	5.14	7.93E+04	9.39E+03	3.26	3.82	6.10	6.81
Al3+	4.50	8.15E+04	9.65E+03	2.71	3.19	5.44	6.11
Fe3+ (total Fe)	0.259	9.73E+03	1.15E+03	0.252	0.257	0.261	0.263
Cr3+	3.27E-03	114	13.5	2.38E-03	2.84E-03	3.72E-03	4.15E-03
Bi3+	2.85E-02	4.01E+03	474	1.47E-02	2.39E-02	3.13E-02	3.30E-02
La3+	0	0	0	0	0	0	0
Hg2+	2.45E-03	331	39.1	2.42E-03	2.44E-03	2.46E-03	2.46E-03
Zr (as ZrO(OH)2	1.17E-04	7.15	0.846	7.30E-05	9.55E-05	1.39E-04	1.60E-04
Pb2+	7.02E-02	9.77E+03	1.16E+03	6.70E-02	6.88E-02	7.16E-02	7.30E-02
Ni2+	1.03E-03	40.8	4.83	8.15E-04	9.28E-04	1.88E-03	2.66E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	0.106	2.85E+03	337	7.51E-02	9.53E-02	0.113	0.119
K+	4.07E-03	107	12.6	2.83E-03	3.47E-03	4.69E-03	5.28E-03
OH-	17.7	2.02E+05	2.40E+04	10.5	12.5	21.5	24.2
NO3-	0.722	3.01E+04	3.56E+03	0.581	0.659	0.779	0.825
NO2-	0.485	1.50E+04	1.77E+03	0.397	0.437	0.543	0.608
CO32-	0.106	4.27E+03	505	7.51E-02	9.53E-02	0.113	0.119
PO43-	0.528	3.37E+04	3.99E+03	7.79E-02	0.353	0.632	0.697
SO42-	2.91E-02	1.88E+03	222	1.96E-02	2.45E-02	3.39E-02	3.85E-02
Si (as SiO32-)	8.61E-02	1.62E+03	192	1.88E-02	4.63E-02	0.111	0.138
F-	6.78E-02	866	102	4.24E-02	5.55E-02	9.95E-02	0.204
Cl-	1.87E-02	445	52.7	1.30E-02	1.60E-02	2.16E-02	2.43E-02
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	2.85E-02	325	38.5	1.84E-02	2.37E-02	3.32E-02	3.76E-02
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-106							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	1.11E+05 (kg)	(19.0 kgal)	----	----	----	----	----
Heat Load	7.25E-03 (kW)	(24.8 BTU/hr)	----	4.92E-03	6.12E-03	8.41E-03	9.54E-03
Bulk Density	1.54 (g/cc)	----	----	1.43	1.47	1.59	1.63
Void Fraction	0.708	----	----	0.648	0.674	0.758	0.833
Water wt%	46.2	----	----	35.8	40.0	55.6	59.5
TOC wt% C (w	0	----	----	0	0	0	0
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	8.83E-07	5.73E-04	6.35E-02	6.36E-07	7.45E-07	1.06E-06	1.25E-06
C-14	1.29E-07	8.35E-05	9.25E-03	1.01E-07	1.15E-07	1.42E-07	1.56E-07
Ni-59	3.65E-08	2.37E-05	2.63E-03	2.88E-08	3.28E-08	6.66E-08	9.45E-08
Ni-63	3.40E-06	2.21E-03	0.244	2.69E-06	3.05E-06	6.14E-06	8.69E-06
Co-60	5.48E-08	3.56E-05	3.94E-03	4.74E-08	5.12E-08	5.85E-08	6.21E-08
Se-79	2.82E-08	1.83E-05	2.03E-03	2.25E-08	2.54E-08	3.11E-08	3.39E-08
Sr-90	8.35E-03	5.42	600	5.66E-03	7.05E-03	9.69E-03	1.10E-02
Y-90	8.35E-03	5.42	601	5.67E-03	7.05E-03	9.70E-03	1.10E-02
Zr-93	1.34E-07	8.70E-05	9.64E-03	1.07E-07	1.21E-07	1.48E-07	1.61E-07
Nb-93m	1.09E-07	7.10E-05	7.87E-03	8.65E-08	9.83E-08	1.21E-07	1.32E-07
Tc-99	9.32E-07	6.05E-04	6.70E-02	7.42E-07	8.40E-07	1.03E-06	1.12E-06
Ru-106	5.09E-12	3.31E-09	3.66E-07	5.00E-12	5.05E-12	5.14E-12	5.18E-12
Cd-113m	3.98E-07	2.59E-04	2.86E-02	3.26E-07	3.63E-07	4.34E-07	4.69E-07
Sb-125	1.25E-07	8.10E-05	8.97E-03	1.17E-07	1.21E-07	1.29E-07	1.32E-07
Sn-126	4.24E-08	2.76E-05	3.05E-03	3.37E-08	3.82E-08	4.68E-08	5.10E-08
I-129	1.77E-09	1.15E-06	1.27E-04	1.41E-09	1.59E-09	1.95E-09	2.12E-09
Cs-134	5.36E-09	3.48E-06	3.85E-04	5.02E-09	5.19E-09	5.52E-09	5.69E-09
Cs-137	9.51E-03	6.18	684	6.45E-03	8.03E-03	1.10E-02	1.25E-02
Ba-137m	9.00E-03	5.84	647	6.11E-03	7.60E-03	1.04E-02	1.18E-02
Sm-151	1.03E-04	6.68E-02	7.39	8.15E-05	9.25E-05	1.14E-04	1.24E-04
Eu-152	2.31E-07	1.50E-04	1.66E-02	2.30E-07	2.31E-07	2.32E-07	2.32E-07
Eu-154	1.20E-06	7.82E-04	8.66E-02	1.06E-06	1.14E-06	1.28E-06	1.34E-06
Eu-155	1.32E-05	8.56E-03	0.948	1.31E-05	1.32E-05	1.32E-05	1.33E-05
Ra-226	4.48E-12	2.91E-09	3.22E-07	3.31E-12	3.91E-12	5.07E-12	5.63E-12
Ra-228	4.53E-16	2.94E-13	3.26E-11	4.51E-16	4.52E-16	4.55E-16	4.56E-16
Ac-227	2.30E-11	1.50E-08	1.66E-06	1.70E-11	2.01E-11	2.61E-11	2.90E-11
Pa-231	5.33E-11	3.46E-08	3.83E-06	3.96E-11	4.67E-11	6.02E-11	6.68E-11
Th-229	4.61E-14	3.00E-11	3.32E-09	4.56E-14	4.59E-14	4.64E-14	4.67E-14
Th-232	5.15E-17	3.34E-14	3.70E-12	4.40E-17	4.79E-17	5.53E-17	5.89E-17
U-232	8.15E-10	5.29E-07	5.86E-05	7.84E-10	8.02E-10	8.25E-10	8.31E-10
U-233	2.89E-11	1.87E-08	2.07E-06	2.75E-11	2.84E-11	2.92E-11	2.94E-11
U-234	1.90E-05	1.24E-02	1.37	1.78E-05	1.86E-05	1.93E-05	1.94E-05
U-235	7.94E-07	5.16E-04	5.71E-02	7.41E-07	7.76E-07	8.05E-07	8.11E-07
U-236	5.85E-07	3.80E-04	4.21E-02	5.69E-07	5.78E-07	5.90E-07	5.96E-07
U-238	1.72E-05	1.12E-02	1.24	1.60E-05	1.68E-05	1.74E-05	1.76E-05
Np-237	6.61E-09	4.29E-06	4.75E-04	5.43E-09	6.04E-09	7.21E-09	7.78E-09
Pu-238	2.92E-05	1.90E-02	2.10	2.84E-05	2.88E-05	2.96E-05	3.00E-05
Pu-239	1.17E-03	0.760	84.2	1.14E-03	1.16E-03	1.18E-03	1.20E-03
Pu-240	1.77E-04	0.115	12.7	1.73E-04	1.75E-04	1.79E-04	1.81E-04
Pu-241	1.33E-03	0.862	95.5	1.30E-03	1.31E-03	1.34E-03	1.36E-03
Pu-242	4.34E-09	2.82E-06	3.12E-04	4.25E-09	4.30E-09	4.39E-09	4.44E-09
Am-241	4.24E-07	2.75E-04	3.05E-02	3.52E-07	3.89E-07	4.60E-07	4.95E-07
Am-243	3.42E-12	2.22E-09	2.46E-07	2.90E-12	3.17E-12	3.68E-12	3.93E-12
Cm-242	3.30E-09	2.14E-06	2.37E-04	3.28E-09	3.29E-09	3.31E-09	3.32E-09
Cm-243	7.43E-11	4.82E-08	5.34E-06	7.39E-11	7.41E-11	7.45E-11	7.47E-11
Cm-244	1.01E-10	6.59E-08	7.30E-06	8.90E-11	9.54E-11	1.08E-10	1.14E-10
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	1.96E-02 (g/L)	—	1.41	1.92E-02	1.94E-02	1.98E-02	2.01E-02
U	0.217	3.35E+04	3.71E+03	0.201	0.211	0.220	0.222

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-106							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	7.59E+03 (kg)	(2.01 kgal)	----	----	----	----	----
Heat Load	0 (kW)	(0 BTU/hr)	----	0	0	0	0
Bulk Density*	1.00 (g/cc)	----	----	1.00	1.00	1.00	1.00
Water wt%†	100	----	----	100	100	100	100
TOC wt% C (w	0	----	----	0	0	0	0
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	0	0	0	0	0	0	0
C-14	0	0	0	0	0	0	0
Ni-59	0	0	0	0	0	0	0
Ni-63	0	0	0	0	0	0	0
Co-60	0	0	0	0	0	0	0
Se-79	0	0	0	0	0	0	0
Sr-90	0	0	0	0	0	0	0
Y-90	0	0	0	0	0	0	0
Zr-93	0	0	0	0	0	0	0
Nb-93m	0	0	0	0	0	0	0
Tc-99	0	0	0	0	0	0	0
Ru-106	0	0	0	0	0	0	0
Cd-113m	0	0	0	0	0	0	0
Sb-125	0	0	0	0	0	0	0
Sn-126	0	0	0	0	0	0	0
I-129	0	0	0	0	0	0	0
Cs-134	0	0	0	0	0	0	0
Cs-137	0	0	0	0	0	0	0
Ba-137m	0	0	0	0	0	0	0
Sm-151	0	0	0	0	0	0	0
Eu-152	0	0	0	0	0	0	0
Eu-154	0	0	0	0	0	0	0
Eu-155	0	0	0	0	0	0	0
Ra-226	0	0	0	0	0	0	0
Ra-228	0	0	0	0	0	0	0
Ac-227	0	0	0	0	0	0	0
Pa-231	0	0	0	0	0	0	0
Th-229	0	0	0	0	0	0	0
Th-232	0	0	0	0	0	0	0
U-232	0	0	0	0	0	0	0
U-233	0	0	0	0	0	0	0
U-234	0	0	0	0	0	0	0
U-235	0	0	0	0	0	0	0
U-236	0	0	0	0	0	0	0
U-238	0	0	0	0	0	0	0
Np-237	0	0	0	0	0	0	0
Pu-238	0	0	0	0	0	0	0
Pu-239	0	0	0	0	0	0	0
Pu-240	0	0	0	0	0	0	0
Pu-241	0	0	0	0	0	0	0
Pu-242	0	0	0	0	0	0	0
Am-241	0	0	0	0	0	0	0
Am-243	0	0	0	0	0	0	0
Cm-242	0	0	0	0	0	0	0
Cm-243	0	0	0	0	0	0	0
Cm-244	0	0	0	0	0	0	0
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	0 (g/L)	----	0	0	0	0	0
U	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

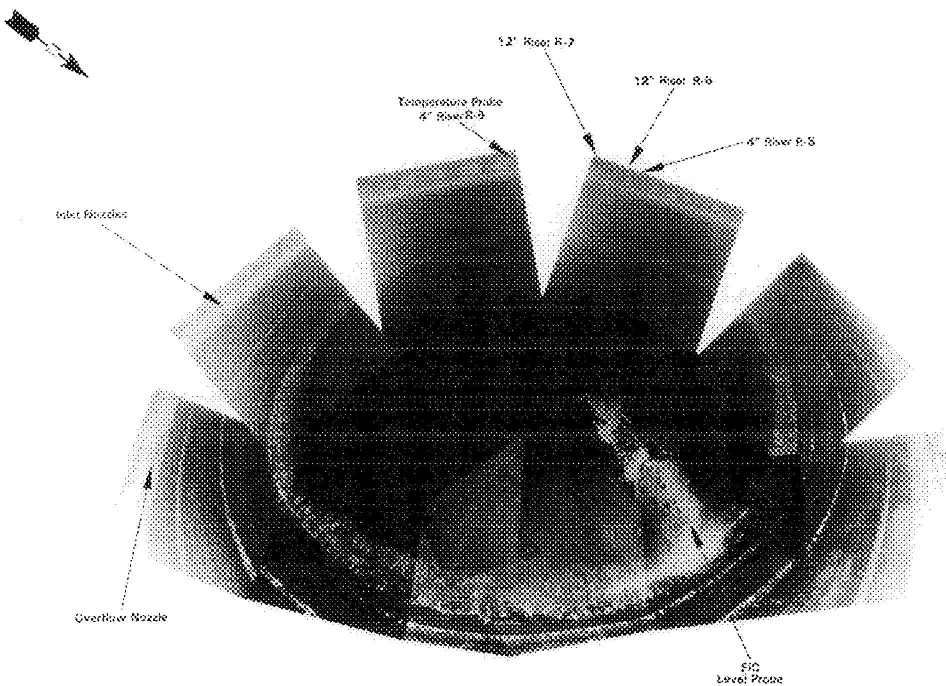
Single-Shell Tank 241-T-106							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	1.18E+05 (kg)	(21.0 kgal)	---	----	----	----	----
Heat Load	7.25E-03 (kW)	(24.8 BTU/hr)	---	4.92E-03	6.12E-03	8.41E-03	9.54E-03
Bulk Density†	1.49 (g/cc)	----	---	1.39	1.42	1.54	1.57
Water wt%†	49.7	----	---	39.7	43.8	58.6	62.2
TOC wt% C (w	0	----	---	0	0	0	0
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	7.98E-07	5.36E-04	6.35E-02	5.75E-07	6.74E-07	9.55E-07	1.13E-06
C-14	1.16E-07	7.82E-05	9.25E-03	9.17E-08	1.04E-07	1.29E-07	1.41E-07
Ni-59	3.30E-08	2.22E-05	2.63E-03	2.60E-08	2.96E-08	6.02E-08	8.55E-08
Ni-63	3.07E-06	2.06E-03	0.244	2.43E-06	2.76E-06	5.55E-06	7.86E-06
Co-60	4.96E-08	3.33E-05	3.94E-03	4.29E-08	4.64E-08	5.29E-08	5.61E-08
Se-79	2.55E-08	1.72E-05	2.03E-03	2.03E-08	2.30E-08	2.82E-08	3.07E-08
Sr-90	7.55E-03	5.07	600	5.12E-03	6.38E-03	8.77E-03	9.94E-03
Y-90	7.56E-03	5.07	601	5.13E-03	6.38E-03	8.77E-03	9.95E-03
Zr-93	1.21E-07	8.15E-05	9.64E-03	9.65E-08	1.09E-07	1.34E-07	1.46E-07
Nb-93m	9.90E-08	6.65E-05	7.87E-03	7.83E-08	8.89E-08	1.09E-07	1.19E-07
Tc-99	8.43E-07	5.66E-04	6.70E-02	6.71E-07	7.60E-07	9.29E-07	1.01E-06
Ru-106	4.61E-12	3.09E-09	3.66E-07	4.52E-12	4.56E-12	4.65E-12	4.69E-12
Cd-113m	3.60E-07	2.42E-04	2.86E-02	2.95E-07	3.29E-07	3.93E-07	4.24E-07
Sb-125	1.13E-07	7.58E-05	8.97E-03	1.06E-07	1.10E-07	1.16E-07	1.20E-07
Sn-126	3.84E-08	2.58E-05	3.05E-03	3.05E-08	3.46E-08	4.23E-08	4.62E-08
I-129	1.60E-09	1.07E-06	1.27E-04	1.27E-09	1.44E-09	1.76E-09	1.92E-09
Cs-134	4.84E-09	3.25E-06	3.85E-04	4.54E-09	4.70E-09	5.00E-09	5.14E-09
Cs-137	8.60E-03	5.78	684	5.84E-03	7.26E-03	9.99E-03	1.13E-02
Ba-137m	8.14E-03	5.47	647	5.52E-03	6.87E-03	9.45E-03	1.07E-02
Sm-151	9.30E-05	6.25E-02	7.39	7.37E-05	8.36E-05	1.03E-04	1.12E-04
Eu-152	2.09E-07	1.41E-04	1.66E-02	2.08E-07	2.09E-07	2.10E-07	2.10E-07
Eu-154	1.09E-06	7.32E-04	8.66E-02	9.62E-07	1.03E-06	1.15E-06	1.21E-06
Eu-155	1.19E-05	8.02E-03	0.948	1.19E-05	1.19E-05	1.20E-05	1.20E-05
Ra-226	4.05E-12	2.72E-09	3.22E-07	2.99E-12	3.54E-12	4.58E-12	5.10E-12
Ra-228	4.10E-16	2.75E-13	3.26E-11	4.08E-16	4.09E-16	4.11E-16	4.13E-16
Ac-227	2.08E-11	1.40E-08	1.66E-06	1.54E-11	1.82E-11	2.36E-11	2.62E-11
Pa-231	4.82E-11	3.24E-08	3.83E-06	3.59E-11	4.22E-11	5.44E-11	6.04E-11
Th-229	4.17E-14	2.80E-11	3.32E-09	4.12E-14	4.15E-14	4.20E-14	4.22E-14
Th-232	4.66E-17	3.13E-14	3.70E-12	3.98E-17	4.33E-17	5.00E-17	5.33E-17
U-232	7.37E-10	4.95E-07	5.86E-05	7.09E-10	7.26E-10	7.46E-10	7.52E-10
U-233	2.61E-11	1.75E-08	2.07E-06	2.49E-11	2.57E-11	2.64E-11	2.66E-11
U-234	1.72E-05	1.16E-02	1.37	1.61E-05	1.68E-05	1.74E-05	1.76E-05
U-235	7.18E-07	4.82E-04	5.71E-02	6.70E-07	7.02E-07	7.28E-07	7.34E-07
U-236	5.29E-07	3.55E-04	4.21E-02	5.15E-07	5.23E-07	5.34E-07	5.39E-07
U-238	1.56E-05	1.05E-02	1.24	1.45E-05	1.52E-05	1.58E-05	1.59E-05
Np-237	5.98E-09	4.02E-06	4.75E-04	4.91E-09	5.46E-09	6.52E-09	7.04E-09
Pu-238	2.64E-05	1.78E-02	2.10	2.57E-05	2.61E-05	2.68E-05	2.72E-05
Pu-239	1.06E-03	0.711	84.2	1.04E-03	1.05E-03	1.07E-03	1.08E-03
Pu-240	1.60E-04	0.108	12.7	1.57E-04	1.58E-04	1.62E-04	1.64E-04
Pu-241	1.20E-03	0.807	95.5	1.17E-03	1.19E-03	1.22E-03	1.23E-03
Pu-242	3.93E-09	2.64E-06	3.12E-04	3.84E-09	3.88E-09	3.97E-09	4.02E-09
Am-241	3.84E-07	2.58E-04	3.05E-02	3.18E-07	3.52E-07	4.17E-07	4.48E-07
Am-243	3.09E-12	2.08E-09	2.46E-07	2.62E-12	2.86E-12	3.33E-12	3.56E-12
Cm-242	2.98E-09	2.00E-06	2.37E-04	2.96E-09	2.97E-09	2.99E-09	3.00E-09
Cm-243	6.72E-11	4.51E-08	5.34E-06	6.68E-11	6.70E-11	6.74E-11	6.76E-11
Cm-244	9.18E-11	6.16E-08	7.30E-06	8.05E-11	8.63E-11	9.74E-11	1.03E-10
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	1.77E-02 (g/L)	---	1.41	1.74E-02	1.75E-02	1.80E-02	1.81E-02
U	0.196	3.13E+04	3.71E+03	0.182	0.191	0.199	0.200

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Volume average for density, mass average Water wt% and TOC wt% C.

241-T-106

Photo date: 6-29-89



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TANK 241-T-107 SUMMARY

TANK HISTORY	
Entered Service	1st qtr 1945
Removed from Service	1976
Inactive	1976
Watch Lists	none
Integrity	Assumed leaker
Assumed Leaker	1984
Interim Stabilization (IS)	May 1996
Partial Interim Isolation (PI)	Dec 1982
Intrusion Prevention (IP)	-

TENTATIVELY AVAILABLE RISERS	
Riser Number	Size
5, 8	4 in
2, 3, 6, 7	12 in

TANK TEMPERATURE	
Average Tank Temperature	64°F
Maximum Temperature	91°F
Date	Sept 3, 1978
Elevation from tank bottom	unknown
Riser Number	5
Minimum Temperature	52°F
Date	May 21, 1982
Elevation from tank bottom	unknown
Riser Number	5

TANK DESCRIPTION	
Diameter	75 ft
Bottom Shape	Dish
Nominal Capacity	530,000 gal
Cascade Tank	to 241-T-108
Total Risers	9

WASTE VOLUME (HANLON 1996I)	
Total Waste Volume	173,000 gal
Waste Type	NCPLX
Drainable Interstitial Liquids	22,000 gal
Pumpable Liquids	12,000 gal
Saltcake	0 gal
Sludge	173,000 gal
Supernatant	0 gal

INTERIOR PHOTOGRAPHS	
Date	July 12, 1984
Montage Number	94080233-32CN
Photo Set Number	84-04997

WASTE SURFACE LEVEL	
Devices	Auto and Manual ENRAF
Max Level	69.07 in
Date	Feb 7, 1996
Min Level	56.69 in
Date	Nov 20, 1995

* Numerous dates in this time span.

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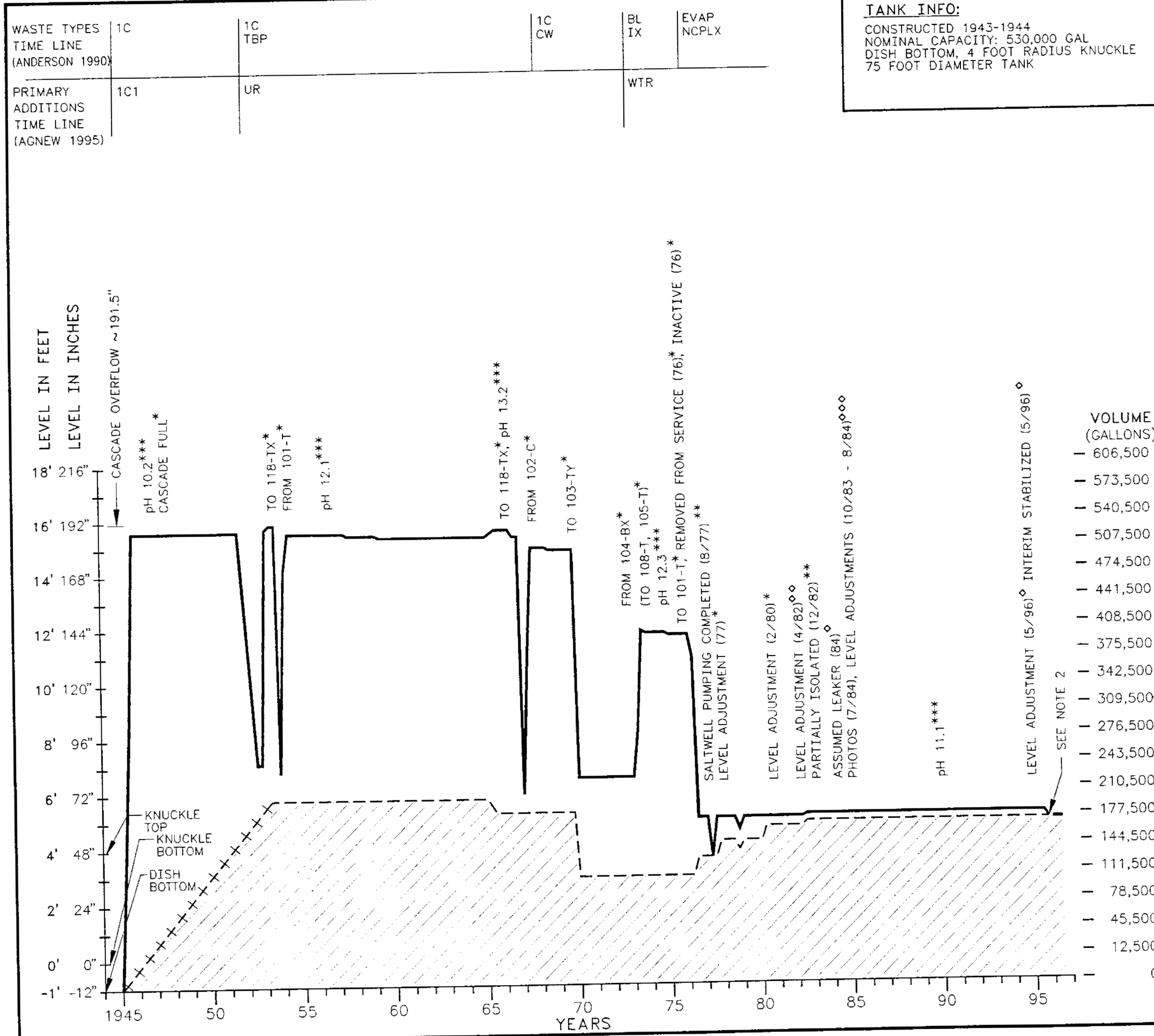


TANK INFO:

CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 530,000 GAL
DISH BOTTOM, 4 FOOT RADIUS KNUCKLE
75 FOOT DIAMETER TANK

REFERENCES

- * ANDERSON 1990
- ** WELTY 1988
- *** BORSHEIM AND KIRCH 1991
- ◇ HANLON 1996l
- ◇◇ McCANN 1982b
- ◇◇◇ McCANN (1983k, l and 1984a-i)

NOTES:

1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN.

GLOSSARY OF WASTE TERMS:

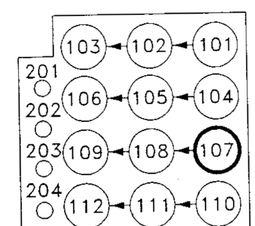
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A.

1C:	FIRST CYCLE DECONTAMINATION WASTE
1C1:	FIRST CYCLE DECON WASTE 1944-49
BL:	B-PLANT LOW-LEVEL WASTE
CW:	COATING (CLADDING) WASTE
EVAP:	EVAPORATOR FEED
IX:	ION EXCHANGE
NCPLX:	NON-COMPLEXED WASTE
TBP:	TRIBUTYL PHOSPHATE
UR:	URANIUM RECOVERY WASTE
WTR:	WATER

LEGEND

- ——— TOTAL WASTE LEVEL (SUPERNATE)
- — — — TOTAL WASTE LEVEL (SOLIDS)
- - - - - SOLIDS LEVEL
- +++++ ASSUMED SOLIDS LEVEL
- ////// SOLIDS

T TANK FARM CASCADE



U.S. DEPARTMENT OF ENERGY
Richland Operations Office
FLUOR DANIEL NORTHWEST, INC.

241-T-107 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1945-1996
ASSUMED LEAKER/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E100	1/97
SCALE NONE		JOB NO.	SHEET 1 OF 1

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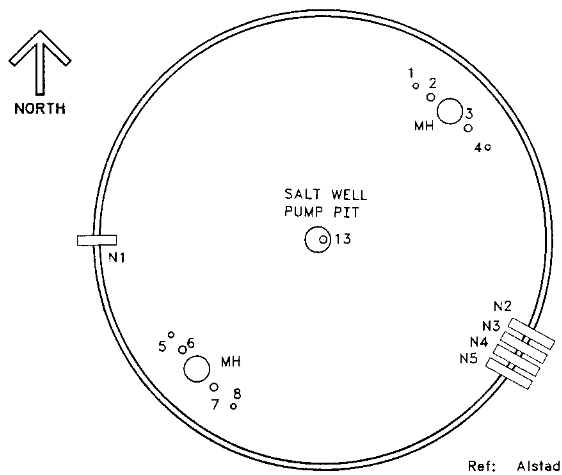
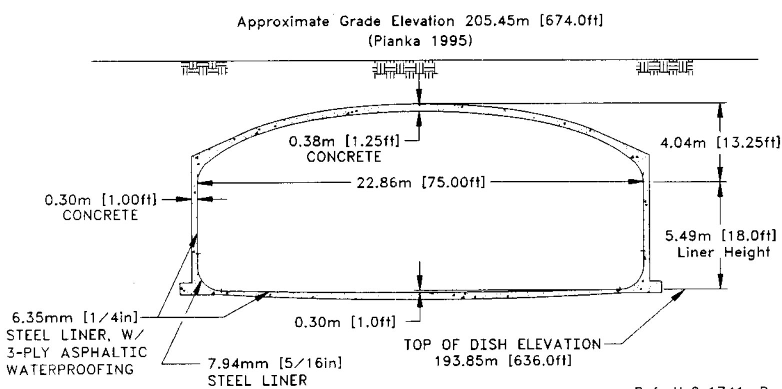
241-T-107



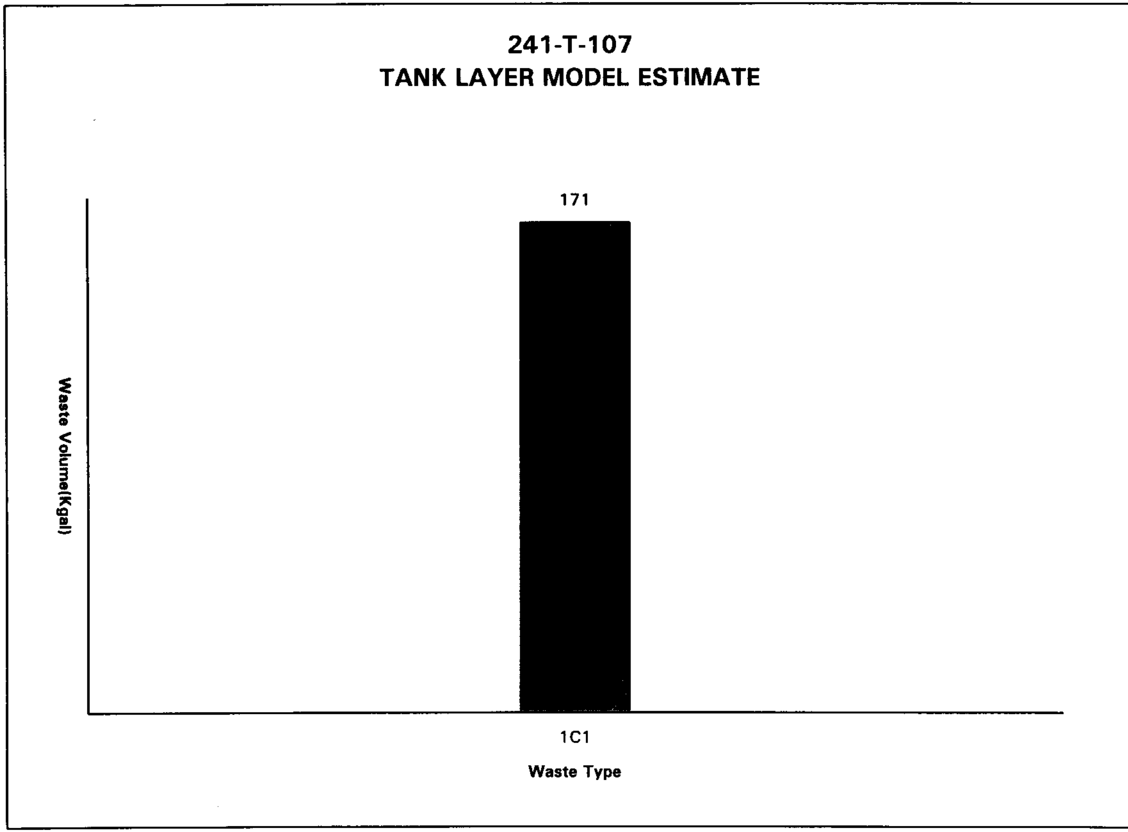
Ref: Alstad 1993
W-72743
H-2-73063, Rev. 3

TANK RISER LOCATION



Ref: H-2-1741, Rev. 3
CVI 73550, dwg D-2

NOT TO SCALE



Tank Layer Model(TLM) Estimate from *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 4* (Agnew et al., 1997).

HDW Model Rev. 4

Single-Shell Tank 241-T-107							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	8.94E+05 (kg)	(171 kgal)	----	----	----	----	----
Heat Load	5.92E-02 (kW)	(202 BTU/hr)	----	4.70E-02	5.29E-02	6.56E-02	7.17E-02
Bulk Density	1.38 (g/cc)	----	----	1.28	1.34	1.41	1.44
Void Fraction	0.718	----	----	0.650	0.680	0.771	0.842
Water wt%	64.0	----	----	60.0	61.9	66.8	70.6
TOC wt% C (w	0	----	----	0	0	0	0
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	5.23	8.70E+04	7.78E+04	3.30	4.38	5.89	6.50
Al3+	0.599	1.17E+04	1.05E+04	0.599	0.599	0.599	0.599
Fe3+ (total Fe)	0.352	1.43E+04	1.27E+04	0.346	0.349	0.355	0.358
Cr3+	4.86E-03	183	163	3.86E-03	4.34E-03	5.38E-03	5.89E-03
Bi3+	6.24E-02	9.44E+03	8.44E+03	4.95E-02	5.70E-02	6.63E-02	6.92E-02
La3+	0	0	0	0	0	0	0
Hg2+	1.06E-04	15.4	13.7	7.36E-05	9.22E-05	1.16E-04	1.23E-04
Zr (as ZrO(OH)2	2.39E-04	15.8	14.1	1.90E-04	2.14E-04	2.65E-04	2.90E-04
Pb2+	0	0	0	0	0	0	0
Ni2+	1.20E-03	50.8	45.4	9.50E-04	1.07E-03	2.11E-03	3.41E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	7.62E-02	2.21E+03	1.98E+03	4.74E-02	6.41E-02	8.75E-02	9.84E-02
K+	6.72E-03	190	170	5.34E-03	6.01E-03	7.45E-03	8.15E-03
OH-	4.06	5.00E+04	4.47E+04	3.97	4.03	4.10	4.12
NO3-	1.04	4.65E+04	4.16E+04	0.862	0.948	1.12	1.20
NO2-	0.236	7.86E+03	7.02E+03	0.148	0.188	0.289	0.346
CO32-	7.62E-02	3.31E+03	2.96E+03	4.74E-02	6.41E-02	8.75E-02	9.84E-02
PO43-	1.15	7.92E+04	7.07E+04	0.672	0.949	1.30	1.41
SO42-	5.20E-02	3.62E+03	3.23E+03	4.13E-02	4.65E-02	5.76E-02	6.30E-02
Si (as SiO32-)	0.224	4.55E+03	4.07E+03	0.115	0.170	0.278	0.330
F-	0.139	1.91E+03	1.71E+03	0.110	0.124	0.154	0.323
Cl-	3.09E-02	794	709	2.46E-02	2.77E-02	3.43E-02	3.75E-02
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	7.94E-02	978	874	6.45E-02	7.18E-02	8.70E-02	9.40E-02
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-107							
SMM Composite Inventory Estimate							
Physical Properties				-95 CI	-67 CI	+67 CI	+95 CI
Total SMM W	3.41E+04 (kg)	(9.01 kgal)	---	---	---	---	---
Heat Load	0 (kW)	(0 BTU/hr)	---	0	0	0	0
Bulk Density*	1.00 (g/cc)	---	---	1.00	1.00	1.00	1.00
Water wt%	100	---	---	100	100	100	100
TOC wt% C (w	0	---	---	0	0	0	0
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	0	0	0	0	0	0	0
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	0	0	0	0	0	0	0
Cr3+	0	0	0	0	0	0	0
Bi3+	0	0	0	0	0	0	0
La3+	0	0	0	0	0	0	0
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	0	0	0	0	0	0	0
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	0	0	0	0	0	0	0
K+	0	0	0	0	0	0	0
OH-	0	0	0	0	0	0	0
NO3-	0	0	0	0	0	0	0
NO2-	0	0	0	0	0	0	0
CO32-	0	0	0	0	0	0	0
PO43-	0	0	0	0	0	0	0
SO42-	0	0	0	0	0	0	0
Si (as SiO32-)	0	0	0	0	0	0	0
F-	0	0	0	0	0	0	0
Cl-	0	0	0	0	0	0	0
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	0	0	0	0	0	0	0
Fe(CN)64-	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-107							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	9.28E+05 (kg)	(180 kgal)	----	----	----	----	----
Heat Load	5.92E-02 (kW)	(202 BTU/hr)	----	4.70E-02	5.29E-02	6.56E-02	7.17E-02
Bulk Density†	1.36 (g/cc)	----	----	1.27	1.32	1.39	1.42
Water wt%†	65.3	----	----	61.4	63.2	68.1	71.8
TOC wt% C (w	0	----	----	0	0	0	0
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	4.96	8.38E+04	7.78E+04	3.13	4.16	5.59	6.18
Al3+	0.569	1.13E+04	1.05E+04	0.569	0.569	0.569	0.569
Fe3+ (total Fe)	0.335	1.37E+04	1.27E+04	0.329	0.332	0.337	0.340
Cr3+	4.61E-03	176	163	3.66E-03	4.13E-03	5.11E-03	5.59E-03
Bi3+	5.93E-02	9.10E+03	8.44E+03	4.71E-02	5.41E-02	6.30E-02	6.58E-02
La3+	0	0	0	0	0	0	0
Hg2+	1.00E-04	14.8	13.7	6.99E-05	8.76E-05	1.10E-04	1.17E-04
Zr (as ZrO(OH)2	2.27E-04	15.2	14.1	1.80E-04	2.03E-04	2.52E-04	2.75E-04
Pb2+	0	0	0	0	0	0	0
Ni2+	1.14E-03	49.0	45.4	9.02E-04	1.02E-03	2.01E-03	3.24E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	7.24E-02	2.13E+03	1.98E+03	4.50E-02	6.09E-02	8.32E-02	9.35E-02
K+	6.39E-03	183	170	5.07E-03	5.71E-03	7.08E-03	7.74E-03
OH-	3.86	4.82E+04	4.47E+04	3.77	3.82	3.89	3.91
NO3-	0.984	4.48E+04	4.16E+04	0.819	0.901	1.06	1.14
NO2-	0.224	7.57E+03	7.02E+03	0.141	0.179	0.275	0.328
CO32-	7.24E-02	3.19E+03	2.96E+03	4.50E-02	6.09E-02	8.32E-02	9.35E-02
PO43-	1.09	7.63E+04	7.07E+04	0.639	0.901	1.23	1.34
SO42-	4.94E-02	3.48E+03	3.23E+03	3.92E-02	4.42E-02	5.48E-02	5.99E-02
Si (as SiO32-)	0.212	4.38E+03	4.07E+03	0.109	0.161	0.264	0.313
F-	0.132	1.84E+03	1.71E+03	0.105	0.118	0.146	0.307
Cl-	2.94E-02	765	709	2.33E-02	2.63E-02	3.26E-02	3.56E-02
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	7.54E-02	942	874	6.13E-02	6.82E-02	8.26E-02	8.93E-02
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-107								
TLM Solids Composite Inventory Estimate*								
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	8.94E+05 (kg)	(171 kgal)	----	----	----	----	----
Heat Load	5.92E-02 (kW)	(202 BTU/hr)	----	4.70E-02	5.29E-02	6.56E-02	7.17E-02
Bulk Density	1.38 (g/cc)	----	----	1.28	1.34	1.41	1.44
Void Fraction	0.718	----	----	0.650	0.680	0.771	0.842
Water wt%	64.0	----	----	60.0	61.9	66.8	70.6
TOC wt% C (w	0	----	----	0	0	0	0
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	3.39E-07	2.45E-04	0.219	1.99E-07	2.62E-07	4.27E-07	5.20E-07
C-14	8.66E-08	6.27E-05	5.61E-02	6.88E-08	7.75E-08	9.60E-08	1.05E-07
Ni-59	2.47E-08	1.79E-05	1.60E-02	1.96E-08	2.21E-08	4.37E-08	7.05E-08
Ni-63	2.17E-06	1.57E-03	1.40	1.72E-06	1.94E-06	3.83E-06	6.19E-06
Co-60	1.21E-08	8.75E-06	7.82E-03	9.59E-09	1.08E-08	1.34E-08	1.46E-08
Se-79	1.82E-08	1.32E-05	1.18E-02	1.45E-08	1.63E-08	2.02E-08	2.21E-08
Sr-90	7.61E-03	5.51	4.92E+03	6.04E-03	6.80E-03	8.43E-03	9.22E-03
Y-90	7.61E-03	5.51	4.93E+03	6.04E-03	6.81E-03	8.44E-03	9.23E-03
Zr-93	8.69E-08	6.29E-05	5.62E-02	6.90E-08	7.77E-08	9.63E-08	1.05E-07
Nb-93m	7.49E-08	5.42E-05	4.85E-02	5.95E-08	6.69E-08	8.30E-08	9.07E-08
Tc-99	5.99E-07	4.34E-04	0.388	4.76E-07	5.36E-07	6.64E-07	7.26E-07
Ru-106	2.85E-16	2.06E-13	1.84E-10	2.26E-16	2.55E-16	3.15E-16	3.45E-16
Cd-113m	1.77E-07	1.28E-04	0.114	1.40E-07	1.58E-07	1.96E-07	2.14E-07
Sb-125	6.52E-09	4.72E-06	4.22E-03	5.18E-09	5.83E-09	7.22E-09	7.90E-09
Sn-126	2.71E-08	1.96E-05	1.75E-02	2.15E-08	2.42E-08	3.00E-08	3.28E-08
I-129	1.12E-09	8.08E-07	7.22E-04	8.86E-10	9.98E-10	1.24E-09	1.35E-09
Cs-134	1.03E-10	7.49E-08	6.69E-05	8.22E-11	9.25E-11	1.15E-10	1.25E-10
Cs-137	8.58E-03	6.21	5.55E+03	6.81E-03	7.67E-03	9.51E-03	1.04E-02
Ba-137m	8.11E-03	5.88	5.25E+03	6.44E-03	7.26E-03	8.99E-03	9.84E-03
Sm-151	6.89E-05	4.99E-02	44.6	5.47E-05	6.16E-05	7.64E-05	8.35E-05
Eu-152	8.46E-09	6.13E-06	5.47E-03	8.30E-09	8.37E-09	8.54E-09	8.62E-09
Eu-154	1.62E-07	1.18E-04	0.105	1.29E-07	1.45E-07	1.80E-07	1.97E-07
Eu-155	1.28E-06	9.26E-04	0.828	1.25E-06	1.27E-06	1.29E-06	1.30E-06
Ra-226	7.78E-12	5.63E-09	5.03E-06	6.18E-12	6.95E-12	8.62E-12	9.43E-12
Ra-228	1.15E-16	8.34E-14	7.45E-11	1.13E-16	1.14E-16	1.16E-16	1.17E-16
Ac-227	3.92E-11	2.84E-08	2.54E-05	3.11E-11	3.50E-11	4.34E-11	4.75E-11
Pa-231	8.16E-11	5.91E-08	5.28E-05	6.48E-11	7.30E-11	9.05E-11	9.89E-11
Th-229	2.22E-14	1.61E-11	1.44E-08	2.18E-14	2.20E-14	2.24E-14	2.26E-14
Th-232	2.69E-17	1.95E-14	1.74E-11	2.14E-17	2.41E-17	2.98E-17	3.26E-17
U-232	1.89E-10	1.37E-07	1.22E-04	1.77E-10	1.84E-10	1.93E-10	1.95E-10
U-233	1.13E-11	8.20E-09	7.33E-06	1.06E-11	1.10E-11	1.15E-11	1.17E-11
U-234	1.60E-05	1.16E-02	10.3	1.49E-05	1.55E-05	1.63E-05	1.65E-05
U-235	7.18E-07	5.20E-04	0.464	6.72E-07	6.98E-07	7.31E-07	7.42E-07
U-236	1.02E-07	7.38E-05	6.59E-02	9.54E-08	9.92E-08	1.04E-07	1.05E-07
U-238	1.62E-05	1.17E-02	10.5	1.51E-05	1.57E-05	1.65E-05	1.67E-05
Np-237	3.60E-09	2.61E-06	2.33E-03	2.86E-09	3.22E-09	3.99E-09	4.36E-09
Pu-238	5.36E-08	3.88E-05	3.47E-02	1.92E-08	2.16E-08	1.20E-07	1.83E-07
Pu-239	1.68E-05	1.22E-02	10.9	6.00E-06	6.76E-06	3.74E-05	5.72E-05
Pu-240	9.89E-07	7.16E-04	0.640	3.54E-07	3.98E-07	2.21E-06	3.37E-06
Pu-241	6.33E-07	4.59E-04	0.410	2.26E-07	2.55E-07	1.41E-06	2.16E-06
Pu-242	1.93E-12	1.40E-09	1.25E-06	6.92E-13	7.79E-13	4.31E-12	6.60E-12
Am-241	3.01E-08	2.18E-05	1.95E-02	2.39E-08	2.69E-08	3.34E-08	3.65E-08
Am-243	8.42E-14	6.09E-11	5.45E-08	6.68E-14	7.52E-14	9.33E-14	1.02E-13
Cm-242	3.39E-11	2.46E-08	2.20E-05	3.33E-11	3.36E-11	3.43E-11	3.46E-11
Cm-243	5.04E-13	3.65E-10	3.26E-07	4.94E-13	4.99E-13	5.09E-13	5.14E-13
Cm-244	1.29E-12	9.33E-10	8.34E-07	1.02E-12	1.15E-12	1.43E-12	1.56E-12
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	2.74E-04 (g/L)	—	0.178	9.81E-05	1.10E-04	6.12E-04	9.36E-04
U	0.203	3.50E+04	3.13E+04	0.190	0.198	0.207	0.210

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-107							
SMM Composite Inventory Estimate							
Physical Properties				-95 CI	-67 CI	+67 CI	+95 CI
Total SMM W	3.41E+04 (kg)	(9.01 kgal)	----	----	----	----	----
Heat Load	0 (kW)	(0 BTU/hr)	----	0	0	0	0
Bulk Density*	1.00 (g/cc)	----	----	1.00	1.00	1.00	1.00
Water wt%†	100	----	----	100	100	100	100
TOC wt% C (w	0	----	----	0	0	0	0
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	0	0	0	0	0	0	0
C-14	0	0	0	0	0	0	0
Ni-59	0	0	0	0	0	0	0
Ni-63	0	0	0	0	0	0	0
Co-60	0	0	0	0	0	0	0
Se-79	0	0	0	0	0	0	0
Sr-90	0	0	0	0	0	0	0
Y-90	0	0	0	0	0	0	0
Zr-93	0	0	0	0	0	0	0
Nb-93m	0	0	0	0	0	0	0
Tc-99	0	0	0	0	0	0	0
Ru-106	0	0	0	0	0	0	0
Cd-113m	0	0	0	0	0	0	0
Sb-125	0	0	0	0	0	0	0
Sn-126	0	0	0	0	0	0	0
I-129	0	0	0	0	0	0	0
Cs-134	0	0	0	0	0	0	0
Cs-137	0	0	0	0	0	0	0
Ba-137m	0	0	0	0	0	0	0
Sm-151	0	0	0	0	0	0	0
Eu-152	0	0	0	0	0	0	0
Eu-154	0	0	0	0	0	0	0
Eu-155	0	0	0	0	0	0	0
Ra-226	0	0	0	0	0	0	0
Ra-228	0	0	0	0	0	0	0
Ac-227	0	0	0	0	0	0	0
Pa-231	0	0	0	0	0	0	0
Th-229	0	0	0	0	0	0	0
Th-232	0	0	0	0	0	0	0
U-232	0	0	0	0	0	0	0
U-233	0	0	0	0	0	0	0
U-234	0	0	0	0	0	0	0
U-235	0	0	0	0	0	0	0
U-236	0	0	0	0	0	0	0
U-238	0	0	0	0	0	0	0
Np-237	0	0	0	0	0	0	0
Pu-238	0	0	0	0	0	0	0
Pu-239	0	0	0	0	0	0	0
Pu-240	0	0	0	0	0	0	0
Pu-241	0	0	0	0	0	0	0
Pu-242	0	0	0	0	0	0	0
Am-241	0	0	0	0	0	0	0
Am-243	0	0	0	0	0	0	0
Cm-242	0	0	0	0	0	0	0
Cm-243	0	0	0	0	0	0	0
Cm-244	0	0	0	0	0	0	0
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	0 (g/L)	----	0	0	0	0	0
U	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

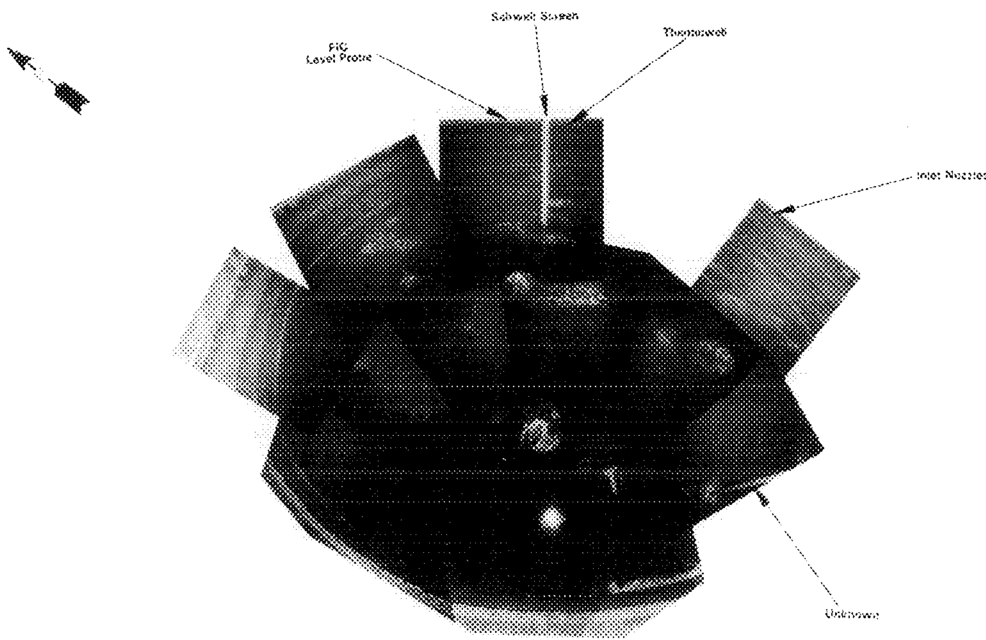
HDW Model Rev. 4

Single-Shell Tank 241-T-107							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	9.28E+05 (kg)	(180 kgal)	----	---	----	---	----
Heat Load	5.92E-02 (kW)	(202 BTU/hr)	---	4.70E-02	5.29E-02	6.56E-02	7.17E-02
Bulk Density†	1.36 (g/cc)	----	---	1.27	1.32	1.39	1.42
Water wt%†	65.3	---	----	61.4	63.2	68.1	71.8
TOC wt% C (w	0	---	----	0	0	0	0
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	3.22E-07	2.36E-04	0.219	1.89E-07	2.49E-07	4.06E-07	4.94E-07
C-14	8.23E-08	6.04E-05	5.61E-02	6.54E-08	7.36E-08	9.12E-08	9.98E-08
Ni-59	2.34E-08	1.72E-05	1.60E-02	1.86E-08	2.10E-08	4.15E-08	6.70E-08
Ni-63	2.06E-06	1.51E-03	1.40	1.63E-06	1.84E-06	3.64E-06	5.88E-06
Co-60	1.15E-08	8.42E-06	7.82E-03	9.11E-09	1.03E-08	1.27E-08	1.39E-08
Se-79	1.73E-08	1.27E-05	1.18E-02	1.38E-08	1.55E-08	1.92E-08	2.10E-08
Sr-90	7.23E-03	5.31	4.92E+03	5.74E-03	6.46E-03	8.01E-03	8.76E-03
Y-90	7.23E-03	5.31	4.93E+03	5.74E-03	6.46E-03	8.01E-03	8.76E-03
Zr-93	8.26E-08	6.06E-05	5.62E-02	6.56E-08	7.38E-08	9.15E-08	1.00E-07
Nb-93m	7.11E-08	5.22E-05	4.85E-02	5.65E-08	6.36E-08	7.88E-08	8.62E-08
Tc-99	5.69E-07	4.18E-04	0.388	4.52E-07	5.09E-07	6.31E-07	6.90E-07
Ru-106	2.70E-16	1.99E-13	1.84E-10	2.15E-16	2.42E-16	3.00E-16	3.28E-16
Cd-113m	1.68E-07	1.23E-04	0.114	1.33E-07	1.50E-07	1.86E-07	2.03E-07
Sb-125	6.19E-09	4.55E-06	4.22E-03	4.92E-09	5.54E-09	6.86E-09	7.51E-09
Sn-126	2.57E-08	1.89E-05	1.75E-02	2.04E-08	2.30E-08	2.85E-08	3.12E-08
I-129	1.06E-09	7.79E-07	7.22E-04	8.42E-10	9.48E-10	1.18E-09	1.29E-09
Cs-134	9.83E-11	7.22E-08	6.69E-05	7.80E-11	8.79E-11	1.09E-10	1.19E-10
Cs-137	8.15E-03	5.98	5.55E+03	6.47E-03	7.29E-03	9.03E-03	9.88E-03
Ba-137m	7.71E-03	5.66	5.25E+03	6.12E-03	6.89E-03	8.54E-03	9.34E-03
Sm-151	6.55E-05	4.81E-02	44.6	5.20E-05	5.85E-05	7.26E-05	7.94E-05
Eu-152	8.03E-09	5.90E-06	5.47E-03	7.88E-09	7.96E-09	8.12E-09	8.19E-09
Eu-154	1.54E-07	1.13E-04	0.105	1.23E-07	1.38E-07	1.71E-07	1.87E-07
Eu-155	1.21E-06	8.92E-04	0.828	1.19E-06	1.20E-06	1.23E-06	1.24E-06
Ra-226	7.39E-12	5.42E-09	5.03E-06	5.87E-12	6.60E-12	8.19E-12	8.95E-12
Ra-228	1.09E-16	8.03E-14	7.45E-11	1.07E-16	1.08E-16	1.10E-16	1.12E-16
Ac-227	3.72E-11	2.73E-08	2.54E-05	2.96E-11	3.33E-11	4.13E-11	4.51E-11
Pa-231	7.75E-11	5.69E-08	5.28E-05	6.16E-11	6.93E-11	8.59E-11	9.40E-11
Th-229	2.11E-14	1.55E-11	1.44E-08	2.07E-14	2.09E-14	2.13E-14	2.15E-14
Th-232	2.56E-17	1.88E-14	1.74E-11	2.03E-17	2.29E-17	2.84E-17	3.10E-17
U-232	1.80E-10	1.32E-07	1.22E-04	1.68E-10	1.75E-10	1.83E-10	1.86E-10
U-233	1.08E-11	7.90E-09	7.33E-06	1.01E-11	1.05E-11	1.10E-11	1.11E-11
U-234	1.52E-05	1.11E-02	10.3	1.42E-05	1.48E-05	1.54E-05	1.57E-05
U-235	6.82E-07	5.01E-04	0.464	6.39E-07	6.64E-07	6.95E-07	7.05E-07
U-236	9.68E-08	7.11E-05	6.59E-02	9.07E-08	9.42E-08	9.86E-08	1.00E-07
U-238	1.53E-05	1.13E-02	10.5	1.44E-05	1.49E-05	1.56E-05	1.59E-05
Np-237	3.42E-09	2.51E-06	2.33E-03	2.72E-09	3.06E-09	3.79E-09	4.14E-09
Pu-238	5.09E-08	3.74E-05	3.47E-02	1.82E-08	2.05E-08	1.14E-07	1.74E-07
Pu-239	1.59E-05	1.17E-02	10.9	5.70E-06	6.42E-06	3.56E-05	5.44E-05
Pu-240	9.39E-07	6.90E-04	0.640	3.36E-07	3.78E-07	2.10E-06	3.20E-06
Pu-241	6.01E-07	4.42E-04	0.410	2.15E-07	2.42E-07	1.34E-06	2.05E-06
Pu-242	1.84E-12	1.35E-09	1.25E-06	6.57E-13	7.40E-13	4.10E-12	6.27E-12
Am-241	2.86E-08	2.10E-05	1.95E-02	2.27E-08	2.56E-08	3.17E-08	3.47E-08
Am-243	7.99E-14	5.87E-11	5.45E-08	6.35E-14	7.15E-14	8.86E-14	9.69E-14
Cm-242	3.22E-11	2.37E-08	2.20E-05	3.16E-11	3.19E-11	3.26E-11	3.29E-11
Cm-243	4.78E-13	3.51E-10	3.26E-07	4.69E-13	4.74E-13	4.83E-13	4.88E-13
Cm-244	1.22E-12	8.99E-10	8.34E-07	9.72E-13	1.09E-12	1.36E-12	1.48E-12
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	2.61E-04 (g/L)	---	0.178	9.32E-05	1.05E-04	5.81E-04	8.89E-04
U	0.193	3.38E+04	3.13E+04	0.181	0.188	0.197	0.200

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).
†Volume average for density, mass average Water wt% and TOC wt% C.

241-T-107

Photo date: 7-12-84



TANK 241-T-108 SUMMARY

TANK HISTORY	
Entered Service	3rd qtr 1945
Removed from Service	1974
Inactive	1976
Watch Lists	-
Integrity	Assumed Leaker
Assumed Leaker	1974
Interim Stabilization (IS)	Nov 1978
Partial Interim Isolation (PI)	-
Intrusion Prevention (IP)	June 1981
TENTATIVELY AVAILABLE RISERS	
Riser Number	Size
5, 8	4 in
2, 3, 6, 7	12 in
TANK TEMPERATURE	
Average Tank Temperature	63°F
Maximum Temperature	80°F
Date	July 1, 1988
Elevation from tank bottom	unknown
Riser Number	4
Minimum Temperature	49.64°F
Date	Feb 13, 1995
Elevation from tank bottom	unknown
Riser Number	4

TANK DESCRIPTION	
Diameter	75 ft
Bottom Shape	Dish
Nominal Capacity	530,000 gal
Cascade Tank	to 241-T-109
Total Risers	10
WASTE VOLUME (HANLON 1996I)	
Total Waste Volume	44,000 gal
Waste Type	NCPLX
Drainable Interstitial Liquids	0 gal
Pumpable Liquids	0 gal
Saltcake	0 gal
Sludge	44,000 gal
Supernatant	0 gal
INTERIOR PHOTOGRAPHS	
Date	July 17, 1984
Montage Number	94080233-41CN
Photo Set Number	84-05053
WASTE SURFACE LEVEL	
Devices	Manual ENRAF
Max Level	14 in
Date	Sept 4, 1993 & Oct 8. 1994
Min Level	12.25 in
Date	Nov 1, 1993 - June 21, 1994*

* Numerous dates in this time span.

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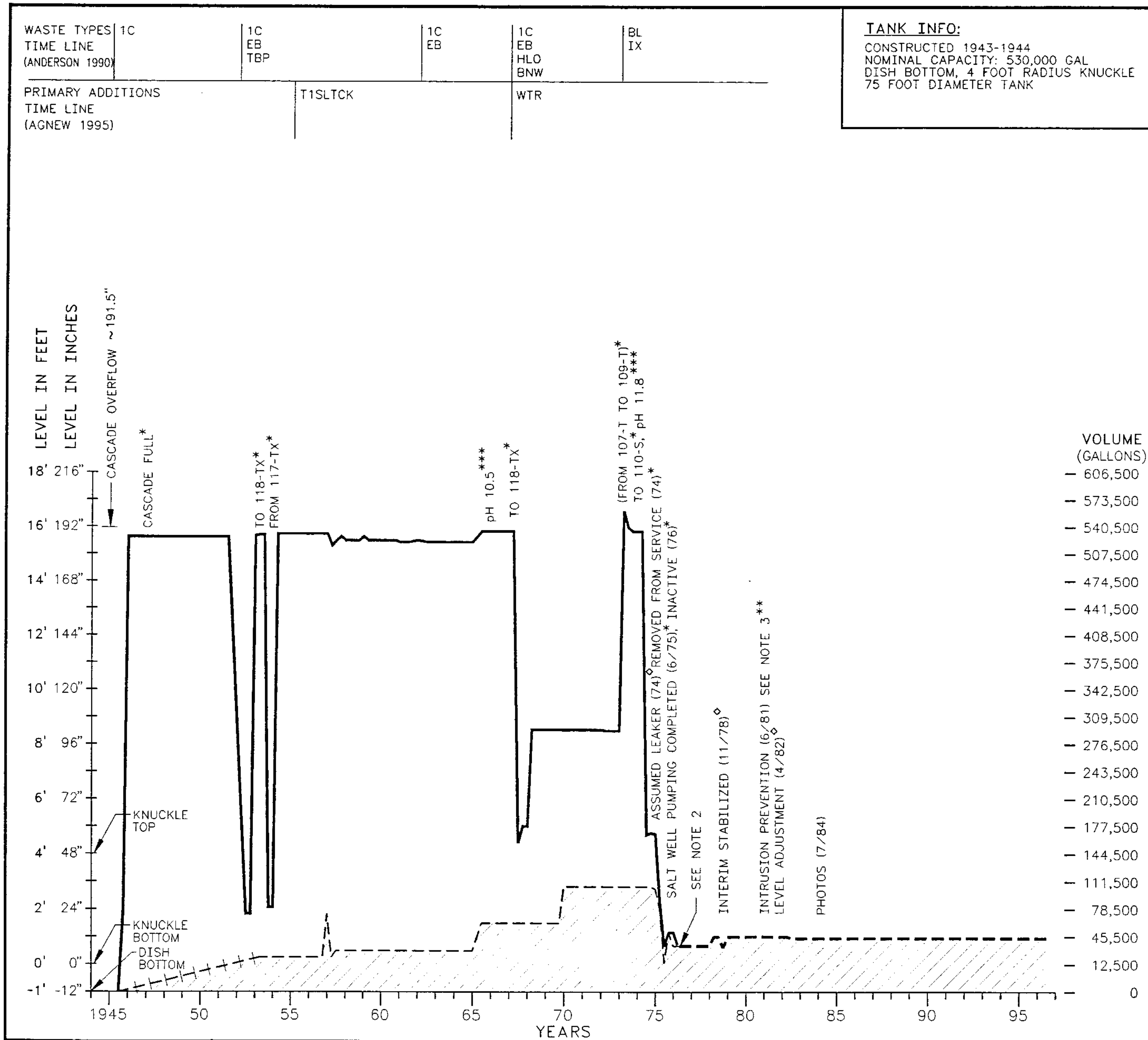


TANK INFO:

CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 530,000 GAL
DISH BOTTOM, 4 FOOT RADIUS KNUCKLE
75 FOOT DIAMETER TANK

REFERENCES

- * ANDERSON 1990
- ** WELTY 1988
- *** BORSHEIM AND KIRCH 1991
- ◇ HANLON 1996I

NOTES:

1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN.
3) IN JUNE 1993, INTERIM ISOLATION WAS REPLACED BY INTRUSION PREVENTION.

GLOSSARY OF WASTE TERMS:

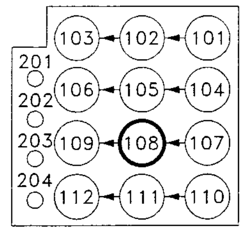
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A.

1C:	FIRST CYCLE DECONTAMINATION WASTE
BL:	B-PLANT LOW-LEVEL WASTE
BNW:	BATTELLE NW LABORATORY WASTE
EB:	EVAPORATOR BOTTOMS
HLO:	HANFORD LAB OPERATIONS WASTE
IX:	ION EXCHANGE
TBP:	TRIBUTYL PHOSPHATE
T1SLTCK:	SALTCAKE 1951-56
WTR:	WATER

LEGEND

- TOTAL WASTE LEVEL (SUPERNATE)
- TOTAL WASTE LEVEL (SOLIDS)
- SOLIDS LEVEL
- ASSUMED SOLIDS LEVEL
- SOLIDS

T TANK FARM CASCADE



U.S. DEPARTMENT OF ENERGY
Richland Operations Office
FLUOR DANIEL NORTHWEST, INC.

241-T-108 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1945-1996
ASSUMED LEAKER/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E101	1/97
SCALE NONE		JOB NO.	SHEET 1 OF 1

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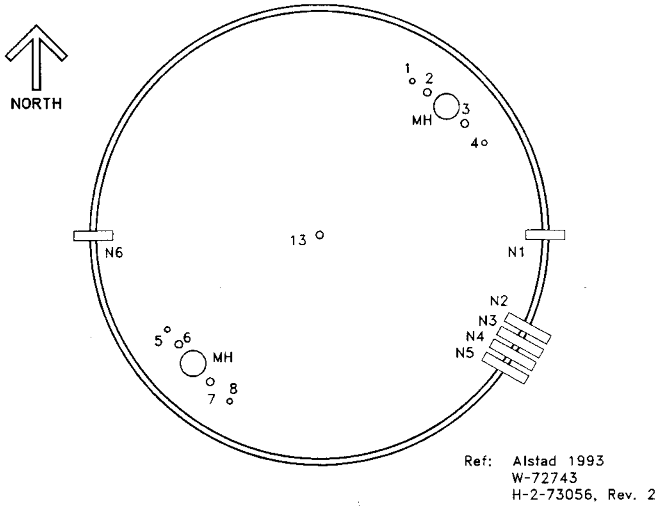
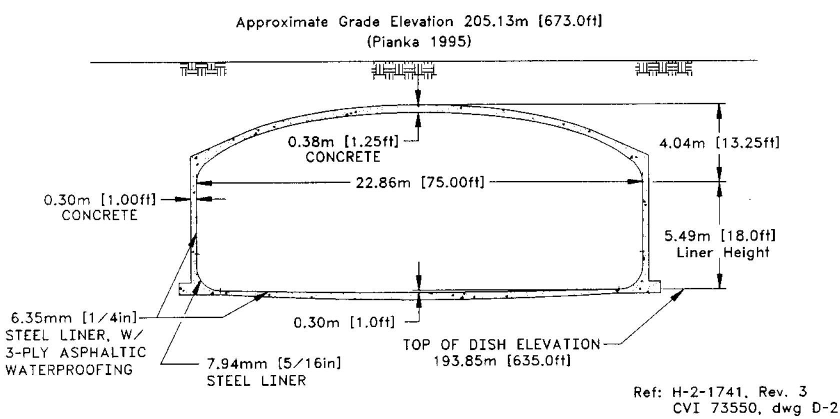
241-T-108



TANK RISER LOCATION



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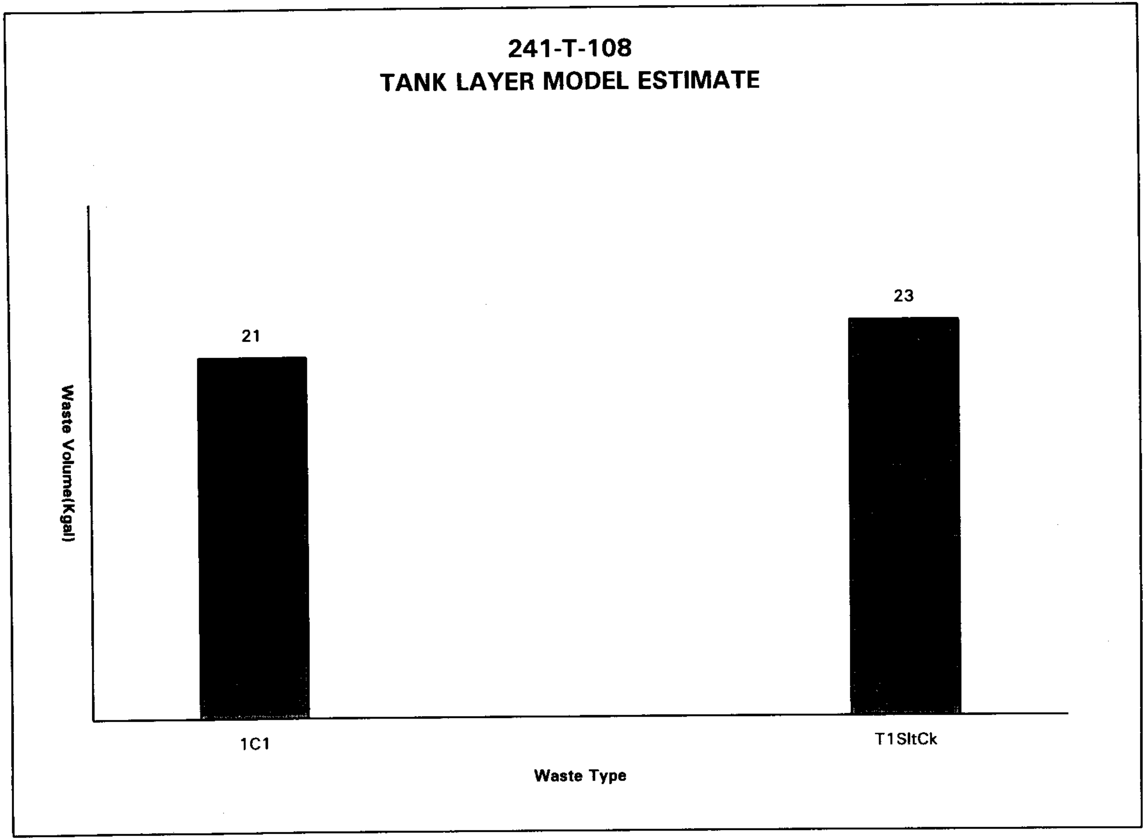

Tank Layer Model(TLM) Estimate from *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 4* (Agnew et al., 1997).

HDW Model Rev. 4

Single-Shell Tank 241-T-108							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	2.61E+05 (kg)	(44.0 kgal)	----	----	----	----	----
Heat Load	3.83E-02 (kW)	(131 BTU/hr)	----	1.39E-02	1.87E-02	5.38E-02	9.66E-02
Bulk Density	1.57 (g/cc)	----	----	1.22	1.29	1.61	1.66
Void Fraction	0.617	----	----	0.476	0.593	0.835	0.864
Water wt%	48.8	----	----	44.9	47.4	69.1	75.0
TOC wt% C (w	7.78E-05	----	----	1.77E-06	5.75E-05	1.27E-04	9.19E-05
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	9.85	1.44E+05	3.77E+04	3.36	4.66	10.6	11.5
Al3+	0.290	4.99E+03	1.30E+03	0.288	0.290	0.294	0.294
Fe3+ (total Fe)	0.234	8.33E+03	2.18E+03	0.225	0.233	0.235	0.237
Cr3+	4.57E-03	151	39.6	3.95E-03	4.33E-03	5.28E-03	5.06E-03
Bi3+	3.77E-02	5.01E+03	1.31E+03	3.15E-02	3.51E-02	3.95E-02	4.09E-02
La3+	0	0	0	0	0	0	0
Hg2+	5.32E-05	6.79	1.78	3.78E-05	4.67E-05	5.79E-05	6.13E-05
Zr (as ZrO(OH)2	3.06E-04	17.8	4.64	2.22E-04	2.94E-04	4.22E-04	4.19E-04
Pb2+	0	0	0	0	0	0	0
Ni2+	6.72E-03	251	65.7	1.10E-03	1.43E-03	8.17E-03	8.47E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	8.45E-02	2.16E+03	564	4.04E-02	7.04E-02	8.99E-02	9.50E-02
K+	9.50E-03	237	61.9	5.56E-03	8.56E-03	1.26E-02	1.05E-02
OH-	2.42	2.62E+04	6.85E+03	2.35	2.40	2.46	2.46
NO3-	5.40	2.13E+05	5.57E+04	0.909	1.47	5.44	5.71
NO2-	0.222	6.50E+03	1.70E+03	0.163	0.192	0.268	0.274
CO32-	0.140	5.35E+03	1.40E+03	5.01E-02	0.110	0.176	0.184
PO43-	1.23	7.42E+04	1.94E+04	0.616	0.814	1.33	1.35
SO42-	8.15E-02	4.99E+03	1.30E+03	4.65E-02	7.33E-02	0.109	0.434
Si (as SiO32-)	0.116	2.08E+03	543	6.40E-02	9.04E-02	0.142	0.167
F-	0.112	1.35E+03	354	9.48E-02	0.105	0.132	0.200
Cl-	5.01E-02	1.13E+03	296	2.57E-02	4.33E-02	0.224	0.250
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	8.48E-06	1.14	0.297	1.50E-07	5.15E-06	1.42E-05	1.00E-05
butanol	8.48E-06	0.400	0.105	1.50E-07	5.15E-06	1.42E-05	1.00E-05
NH3	5.76E-02	624	163	5.05E-02	5.40E-02	6.49E-02	6.45E-02
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-108							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	0 (kg)	(3.00E-03 kgal)	----	—	—	—	—
Heat Load	0 (kW)	(0 BTU/hr)	----	0	0	0	0
Bulk Density*	0 (g/cc)	----	----	0	0	0	0
Water wt%†	0	—	----	0	0	0	0
TOC wt% C (w	0	—	----	0	0	0	0
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na^+	0	0	0	0	0	0	0
Al^{3+}	0	0	0	0	0	0	0
Fe^{3+} (total Fe)	0	0	0	0	0	0	0
Cr^{3+}	0	0	0	0	0	0	0
Bi^{3+}	0	0	0	0	0	0	0
La^{3+}	0	0	0	0	0	0	0
Hg^{2+}	0	0	0	0	0	0	0
Zr (as $ZrO(OH)_2$	0	0	0	0	0	0	0
Pb^{2+}	0	0	0	0	0	0	0
Ni^{2+}	0	0	0	0	0	0	0
Sr^{2+}	0	0	0	0	0	0	0
Mn^{4+}	0	0	0	0	0	0	0
Ca^{2+}	0	0	0	0	0	0	0
K^+	0	0	0	0	0	0	0
OH^-	0	0	0	0	0	0	0
NO_3^-	0	0	0	0	0	0	0
NO_2^-	0	0	0	0	0	0	0
CO_3^{2-}	0	0	0	0	0	0	0
PO_4^{3-}	0	0	0	0	0	0	0
SO_4^{2-}	0	0	0	0	0	0	0
Si (as SiO_3^{2-})	0	0	0	0	0	0	0
F^-	0	0	0	0	0	0	0
Cl^-	0	0	0	0	0	0	0
$C_6H_5O_7^{3-}$	0	0	0	0	0	0	0
$EDTA^{4-}$	0	0	0	0	0	0	0
$HEDTA^{3-}$	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH_3	0	0	0	0	0	0	0
$Fe(CN)_6^{4-}$	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-108							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	2.61E+05 (kg)	(44.0 kgal)	----	----	----	----	----
Heat Load	3.83E-02 (kW)	(131 BTU/hr)	----	1.39E-02	1.87E-02	5.38E-02	9.66E-02
Bulk Density†	1.57 (g/cc)	----	----	1.22	1.29	1.61	1.66
Water wt%†	48.8	----	----	44.9	47.4	69.1	75.0
TOC wt% C (w	7.78E-05	----	----	1.77E-06	5.75E-05	1.27E-04	9.19E-05
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	9.85	1.44E+05	3.77E+04	3.36	4.66	10.6	11.5
Al3+	0.290	4.99E+03	1.30E+03	0.288	0.290	0.294	0.294
Fe3+ (total Fe)	0.234	8.33E+03	2.18E+03	0.225	0.233	0.235	0.237
Cr3+	4.57E-03	151	39.6	3.95E-03	4.33E-03	5.28E-03	5.06E-03
Bi3+	3.76E-02	5.01E+03	1.31E+03	3.15E-02	3.51E-02	3.95E-02	4.09E-02
La3+	0	0	0	0	0	0	0
Hg2+	5.32E-05	6.79	1.78	3.78E-05	4.67E-05	5.79E-05	6.13E-05
Zr (as ZrO(OH)2	3.06E-04	17.8	4.64	2.22E-04	2.94E-04	4.22E-04	4.19E-04
Pb2+	0	0	0	0	0	0	0
Ni2+	6.72E-03	251	65.7	1.10E-03	1.43E-03	8.17E-03	8.47E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	8.45E-02	2.16E+03	564	4.04E-02	7.04E-02	8.99E-02	9.50E-02
K+	9.50E-03	237	61.9	5.56E-03	8.56E-03	1.26E-02	1.05E-02
OH-	2.42	2.62E+04	6.85E+03	2.35	2.40	2.46	2.46
NO3-	5.40	2.13E+05	5.57E+04	0.909	1.47	5.44	5.71
NO2-	0.222	6.50E+03	1.70E+03	0.163	0.192	0.268	0.274
CO32-	0.140	5.35E+03	1.40E+03	5.01E-02	0.110	0.176	0.184
PO43-	1.23	7.42E+04	1.94E+04	0.616	0.814	1.33	1.35
SO42-	8.15E-02	4.99E+03	1.30E+03	4.65E-02	7.33E-02	0.109	0.434
Si (as SiO32-)	0.116	2.08E+03	543	6.40E-02	9.04E-02	0.142	0.167
F-	0.112	1.35E+03	354	9.48E-02	0.105	0.132	0.200
Cl-	5.01E-02	1.13E+03	296	2.57E-02	4.33E-02	0.224	0.250
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	8.48E-06	1.14	0.297	1.50E-07	5.15E-06	1.42E-05	1.00E-05
butanol	8.48E-06	0.400	0.105	1.50E-07	5.15E-06	1.42E-05	1.00E-05
NH3	5.76E-02	624	163	5.05E-02	5.40E-02	6.49E-02	6.45E-02
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-108							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	2.61E+05 (kg)	(44.0 kgal)	----	----	----	—	----
Heat Load	3.83E-02 (kW)	(131 BTU/hr)	----	1.39E-02	1.87E-02	5.38E-02	9.66E-02
Bulk Density	1.57 (g/cc)	----	----	1.22	1.29	1.61	1.66
Void Fraction	0.617	----	----	0.476	0.593	0.835	0.864
Water wt%	48.8	----	----	44.9	47.4	69.1	75.0
TOC wt% C (w	7.78E-05	----	----	1.77E-06	5.75E-05	1.27E-04	9.19E-05
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	1.72E-06	1.10E-03	0.287	1.62E-07	1.62E-07	1.82E-06	2.08E-06
C-14	2.74E-07	1.75E-04	4.57E-02	4.13E-08	4.13E-08	2.79E-07	3.09E-07
Ni-59	4.85E-07	3.09E-04	8.07E-02	1.18E-08	1.18E-08	5.11E-07	5.28E-07
Ni-63	4.36E-05	2.78E-02	7.26	1.03E-06	1.03E-06	4.59E-05	4.75E-05
Co-60	5.83E-08	3.72E-05	9.71E-03	5.76E-09	5.76E-09	5.89E-08	6.62E-08
Se-79	5.88E-08	3.74E-05	9.78E-03	8.70E-09	8.70E-09	5.97E-08	6.63E-08
Sr-90	9.47E-03	6.04	1.58E+03	6.92E-03	9.09E-03	1.18E-02	4.02E-02
Y-90	9.48E-03	6.04	1.58E+03	3.63E-03	3.63E-03	9.87E-03	1.04E-02
Zr-93	2.79E-07	1.78E-04	4.65E-02	4.15E-08	4.15E-08	2.84E-07	3.15E-07
Nb-93m	2.37E-07	1.51E-04	3.94E-02	3.57E-08	3.57E-08	2.41E-07	2.67E-07
Tc-99	1.93E-06	1.23E-03	0.322	7.18E-07	1.55E-06	2.84E-06	2.18E-06
Ru-106	2.09E-14	1.33E-11	3.49E-09	1.36E-16	1.36E-16	2.12E-14	2.40E-14
Cd-113m	6.57E-07	4.19E-04	0.109	8.43E-08	8.43E-08	6.67E-07	7.44E-07
Sb-125	5.07E-08	3.23E-05	8.45E-03	3.11E-09	3.11E-09	5.13E-08	5.79E-08
Sn-126	8.81E-08	5.62E-05	1.47E-02	1.29E-08	1.29E-08	8.95E-08	9.95E-08
I-129	3.63E-09	2.31E-06	6.05E-04	1.34E-09	2.92E-09	5.35E-09	4.10E-09
Cs-134	2.26E-09	1.44E-06	3.76E-04	4.94E-11	4.94E-11	2.44E-09	2.63E-09
Cs-137	3.55E-02	22.6	5.90E+03	7.81E-03	1.06E-02	5.20E-02	6.60E-02
Ba-137m	3.35E-02	21.4	5.59E+03	3.87E-03	3.87E-03	3.59E-02	3.85E-02
Sm-151	2.19E-04	0.140	36.5	3.29E-05	3.29E-05	2.23E-04	2.47E-04
Eu-152	6.30E-08	4.01E-05	1.05E-02	4.04E-09	4.04E-09	6.34E-08	6.39E-08
Eu-154	1.01E-06	6.45E-04	0.169	7.75E-08	7.75E-08	1.02E-06	1.15E-06
Eu-155	5.13E-06	3.27E-03	0.854	6.10E-07	6.10E-07	5.16E-06	5.20E-06
Ra-226	1.78E-11	1.13E-08	2.96E-06	3.71E-12	3.71E-12	5.73E-11	4.66E-11
Ra-228	2.90E-16	1.85E-13	4.83E-11	5.50E-17	5.50E-17	2.92E-16	2.93E-16
Ac-227	9.12E-11	5.81E-08	1.52E-05	1.87E-11	1.87E-11	2.03E-10	2.43E-10
Pa-231	1.96E-10	1.25E-07	3.27E-05	3.90E-11	3.90E-11	2.01E-10	2.20E-10
Th-229	5.62E-14	3.58E-11	9.35E-09	1.06E-14	1.06E-14	5.65E-14	5.69E-14
Th-232	8.10E-17	5.16E-14	1.35E-11	1.29E-17	1.29E-17	8.24E-17	9.13E-17
U-232	1.52E-10	9.70E-08	2.53E-05	1.33E-10	1.42E-10	1.62E-10	1.69E-10
U-233	8.35E-12	5.32E-09	1.39E-06	7.43E-12	7.88E-12	8.84E-12	9.16E-12
U-234	1.05E-05	6.70E-03	1.75	9.61E-06	1.01E-05	1.10E-05	1.14E-05
U-235	4.72E-07	3.00E-04	7.85E-02	4.31E-07	4.51E-07	4.94E-07	5.09E-07
U-236	7.59E-08	4.83E-05	1.26E-02	6.73E-08	7.16E-08	8.04E-08	8.34E-08
U-238	1.07E-05	6.80E-03	1.78	9.74E-06	1.02E-05	1.12E-05	1.15E-05
Np-237	1.19E-08	7.56E-06	1.97E-03	4.35E-09	9.51E-09	1.75E-08	1.34E-08
Pu-238	2.19E-07	1.39E-04	3.64E-02	4.32E-08	8.65E-08	3.16E-07	3.26E-07
Pu-239	4.01E-05	2.56E-02	6.68	1.13E-05	1.87E-05	5.52E-05	5.94E-05
Pu-240	3.08E-06	1.97E-03	0.514	7.24E-07	1.32E-06	4.36E-06	4.50E-06
Pu-241	7.41E-06	4.72E-03	1.23	8.83E-07	2.44E-06	1.12E-05	1.16E-05
Pu-242	3.26E-11	2.08E-08	5.43E-06	3.47E-12	1.04E-11	4.95E-11	5.15E-11
Am-241	4.40E-07	2.80E-04	7.33E-02	9.32E-08	3.20E-07	6.92E-07	5.04E-07
Am-243	2.98E-12	1.90E-09	4.97E-07	5.53E-13	2.13E-12	4.74E-12	3.42E-12
Cm-242	9.89E-10	6.30E-07	1.65E-04	1.62E-11	1.62E-11	9.98E-10	1.01E-09
Cm-243	2.01E-11	1.28E-08	3.35E-06	2.40E-13	2.40E-13	2.03E-11	2.05E-11
Cm-244	6.56E-11	4.18E-08	1.09E-05	6.15E-13	6.15E-13	6.63E-11	7.52E-11
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	6.59E-04 (g/L)	—	0.110	1.86E-04	3.07E-04	9.07E-04	9.75E-04
U	0.134	2.04E+04	5.32E+03	0.123	0.128	0.141	0.145

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-108

SMM Composite Inventory Estimate

Physical Properties				-95 CI	-67 CI	+67 CI	+95 CI
Total SMM W	0 (kg)	(3.00E-03 kgal)	—	----	—	----	—
Heat Load	0 (kW)	(0 BTU/hr)	—	0	0	0	0
Bulk Density*	0 (g/cc)	----	----	0	0	0	0
Water wt%†	0	----	—	0	0	0	0
TOC wt% C (w	0	----	—	0	0	0	0

Radiological Constituents	Ci/L	µCi/g	Ci	-95 CI (Ci/L)	-67 CI (Ci/L)	+67 CI (Ci/L)	+95 CI (Ci/L)
H-3	0	0	0	0	0	0	0
C-14	0	0	0	0	0	0	0
Ni-59	0	0	0	0	0	0	0
Ni-63	0	0	0	0	0	0	0
Co-60	0	0	0	0	0	0	0
Se-79	0	0	0	0	0	0	0
Sr-90	0	0	0	0	0	0	0
Y-90	0	0	0	0	0	0	0
Zr-93	0	0	0	0	0	0	0
Nb-93m	0	0	0	0	0	0	0
Tc-99	0	0	0	0	0	0	0
Ru-106	0	0	0	0	0	0	0
Cd-113m	0	0	0	0	0	0	0
Sb-125	0	0	0	0	0	0	0
Sn-126	0	0	0	0	0	0	0
I-129	0	0	0	0	0	0	0
Cs-134	0	0	0	0	0	0	0
Cs-137	0	0	0	0	0	0	0
Ba-137m	0	0	0	0	0	0	0
Sm-151	0	0	0	0	0	0	0
Eu-152	0	0	0	0	0	0	0
Eu-154	0	0	0	0	0	0	0
Eu-155	0	0	0	0	0	0	0
Ra-226	0	0	0	0	0	0	0
Ra-228	0	0	0	0	0	0	0
Ac-227	0	0	0	0	0	0	0
Pa-231	0	0	0	0	0	0	0
Th-229	0	0	0	0	0	0	0
Th-232	0	0	0	0	0	0	0
U-232	0	0	0	0	0	0	0
U-233	0	0	0	0	0	0	0
U-234	0	0	0	0	0	0	0
U-235	0	0	0	0	0	0	0
U-236	0	0	0	0	0	0	0
U-238	0	0	0	0	0	0	0
Np-237	0	0	0	0	0	0	0
Pu-238	0	0	0	0	0	0	0
Pu-239	0	0	0	0	0	0	0
Pu-240	0	0	0	0	0	0	0
Pu-241	0	0	0	0	0	0	0
Pu-242	0	0	0	0	0	0	0
Am-241	0	0	0	0	0	0	0
Am-243	0	0	0	0	0	0	0
Cm-242	0	0	0	0	0	0	0
Cm-243	0	0	0	0	0	0	0
Cm-244	0	0	0	0	0	0	0

Totals	M	µg/g	kg	-95 CI (M or g/L)	-67 CI (M or g/L)	+67 CI (M or g/L)	+95 CI (M or g/L)
Pu	0 (g/L)	----	0	0	0	0	0
U	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-108							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	2.61E+05 (kg)	(44.0 kgal)	---	---	---	---	---
Heat Load	3.83E-02 (kW)	(131 BTU/hr)	---	1.39E-02	1.87E-02	5.38E-02	9.66E-02
Bulk Density†	1.57 (g/cc)	---	---	1.22	1.29	1.61	1.66
Water wt%†	48.8	---	---	44.9	47.4	69.1	75.0
TOC wt% C (w	7.78E-05	---	---	1.77E-06	5.75E-05	1.27E-04	9.19E-05
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	1.72E-06	1.10E-03	0.287	1.62E-07	1.62E-07	1.82E-06	2.08E-06
C-14	2.74E-07	1.75E-04	4.57E-02	4.13E-08	4.13E-08	2.79E-07	3.09E-07
Ni-59	4.85E-07	3.09E-04	8.07E-02	1.18E-08	1.18E-08	5.11E-07	5.28E-07
Ni-63	4.36E-05	2.78E-02	7.26	1.03E-06	1.03E-06	4.59E-05	4.75E-05
Co-60	5.83E-08	3.72E-05	9.71E-03	5.76E-09	5.76E-09	5.89E-08	6.62E-08
Se-79	5.87E-08	3.74E-05	9.78E-03	8.70E-09	8.70E-09	5.97E-08	6.63E-08
Sr-90	9.47E-03	6.04	1.58E+03	6.92E-03	9.09E-03	1.18E-02	4.02E-02
Y-90	9.48E-03	6.04	1.58E+03	3.63E-03	3.63E-03	9.87E-03	1.04E-02
Zr-93	2.79E-07	1.78E-04	4.65E-02	4.15E-08	4.15E-08	2.84E-07	3.15E-07
Nb-93m	2.37E-07	1.51E-04	3.94E-02	3.57E-08	3.57E-08	2.41E-07	2.67E-07
Tc-99	1.93E-06	1.23E-03	0.322	7.18E-07	1.55E-06	2.84E-06	2.18E-06
Ru-106	2.09E-14	1.33E-11	3.49E-09	1.36E-16	1.36E-16	2.12E-14	2.40E-14
Cd-113m	6.57E-07	4.19E-04	0.109	8.43E-08	8.43E-08	6.67E-07	7.44E-07
Sb-125	5.07E-08	3.23E-05	8.45E-03	3.11E-09	3.11E-09	5.13E-08	5.79E-08
Sn-126	8.81E-08	5.62E-05	1.47E-02	1.29E-08	1.29E-08	8.95E-08	9.95E-08
I-129	3.63E-09	2.31E-06	6.05E-04	1.34E-09	2.92E-09	5.35E-09	4.10E-09
Cs-134	2.26E-09	1.44E-06	3.76E-04	4.94E-11	4.94E-11	2.44E-09	2.63E-09
Cs-137	3.55E-02	22.6	5.90E+03	7.81E-03	1.06E-02	5.20E-02	6.60E-02
Ba-137m	3.35E-02	21.4	5.59E+03	3.87E-03	3.87E-03	3.59E-02	3.85E-02
Sm-151	2.19E-04	0.140	36.5	3.29E-05	3.29E-05	2.23E-04	2.47E-04
Eu-152	6.30E-08	4.01E-05	1.05E-02	4.04E-09	4.04E-09	6.34E-08	6.39E-08
Eu-154	1.01E-06	6.45E-04	0.169	7.75E-08	7.75E-08	1.02E-06	1.15E-06
Eu-155	5.13E-06	3.27E-03	0.854	6.10E-07	6.10E-07	5.16E-06	5.20E-06
Ra-226	1.78E-11	1.13E-08	2.96E-06	3.71E-12	3.71E-12	5.73E-11	4.66E-11
Ra-228	2.90E-16	1.85E-13	4.83E-11	5.50E-17	5.50E-17	2.92E-16	2.93E-16
Ac-227	9.12E-11	5.81E-08	1.52E-05	1.87E-11	1.87E-11	2.03E-10	2.43E-10
Pa-231	1.96E-10	1.25E-07	3.27E-05	3.90E-11	3.90E-11	2.01E-10	2.20E-10
Th-229	5.62E-14	3.58E-11	9.35E-09	1.06E-14	1.06E-14	5.65E-14	5.69E-14
Th-232	8.10E-17	5.16E-14	1.35E-11	1.29E-17	1.29E-17	8.24E-17	9.13E-17
U-232	1.52E-10	9.70E-08	2.53E-05	1.33E-10	1.42E-10	1.62E-10	1.69E-10
U-233	8.35E-12	5.32E-09	1.39E-06	7.43E-12	7.88E-12	8.84E-12	9.16E-12
U-234	1.05E-05	6.70E-03	1.75	9.61E-06	1.01E-05	1.10E-05	1.14E-05
U-235	4.71E-07	3.00E-04	7.85E-02	4.31E-07	4.51E-07	4.94E-07	5.09E-07
U-236	7.59E-08	4.83E-05	1.26E-02	6.73E-08	7.16E-08	8.04E-08	8.34E-08
U-238	1.07E-05	6.80E-03	1.78	9.74E-06	1.02E-05	1.12E-05	1.15E-05
Np-237	1.19E-08	7.56E-06	1.97E-03	4.35E-09	9.51E-09	1.75E-08	1.34E-08
Pu-238	2.19E-07	1.39E-04	3.64E-02	4.32E-08	8.65E-08	3.16E-07	3.26E-07
Pu-239	4.01E-05	2.56E-02	6.68	1.13E-05	1.87E-05	5.52E-05	5.94E-05
Pu-240	3.08E-06	1.97E-03	0.514	7.24E-07	1.32E-06	4.36E-06	4.50E-06
Pu-241	7.41E-06	4.72E-03	1.23	8.83E-07	2.44E-06	1.12E-05	1.16E-05
Pu-242	3.26E-11	2.08E-08	5.43E-06	3.47E-12	1.04E-11	4.95E-11	5.15E-11
Am-241	4.40E-07	2.80E-04	7.33E-02	9.32E-08	3.20E-07	6.92E-07	5.04E-07
Am-243	2.98E-12	1.90E-09	4.97E-07	5.53E-13	2.13E-12	4.74E-12	3.42E-12
Cm-242	9.89E-10	6.30E-07	1.65E-04	1.62E-11	1.62E-11	9.98E-10	1.01E-09
Cm-243	2.01E-11	1.28E-08	3.35E-06	2.40E-13	2.40E-13	2.03E-11	2.05E-11
Cm-244	6.56E-11	4.18E-08	1.09E-05	6.15E-13	6.15E-13	6.63E-11	7.52E-11
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	6.59E-04 (g/L)	---	0.110	1.86E-04	3.07E-04	9.07E-04	9.75E-04
U	0.134	2.04E+04	5.32E+03	0.123	0.128	0.141	0.145

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Volume average for density, mass average Water wt% and TOC wt% C.

TANK 241-T-109 SUMMARY

TANK HISTORY	
Entered Service	4th qtr 1945
Removed from Service	1974
Inactive	1976
Watch Lists	-
Integrity	Assumed Leaker
Assumed Leaker	1974
Interim Stabilization (IS)	Dec 1984
Partial Interim Isolation (PI)	Dec 1982
Intrusion Prevention (IP)	Sept 1988
TENTATIVELY AVAILABLE RISERS	
Riser Number	Size
4, 5	4 in
2, 3, 6, 7	12 in
TANK TEMPERATURE	
Average Tank Temperature	64°F
Maximum Temperature	90°F
Date	Sept 3, 1978
Elevation from tank bottom	unknown
Riser Number	8
Minimum Temperature	52.88°F
Date	March 1 and 25, 1996
Elevation from tank bottom	unknown
Riser Number	8

TANK DESCRIPTION	
Diameter	75 ft
Bottom Shape	Dish
Nominal Capacity	530,000 gal
Cascade Tank	none
Total Risers	9
WASTE VOLUME (HANLON 1996I)	
Total Waste Volume	58,000 gal
Waste Type	NCPLX
Drainable Interstitial Liquids	0 gal
Pumpable Liquids	0 gal
Saltcake	0 gal
Sludge	58,000 gal
Supernatant	0 gal
INTERIOR PHOTOGRAPHS	
Date	Feb 25, 1993
Montage Number	94080233-38CN
Photo Set Number	93-022509
WASTE SURFACE LEVEL	
Devices	Manual ENRAF
Max Level	30.2 in
Date	Sept 26 - Nov 17, 1996*
Min Level	14.9 in
Date	Feb 8, 1993

* Numerous dates in this time span.

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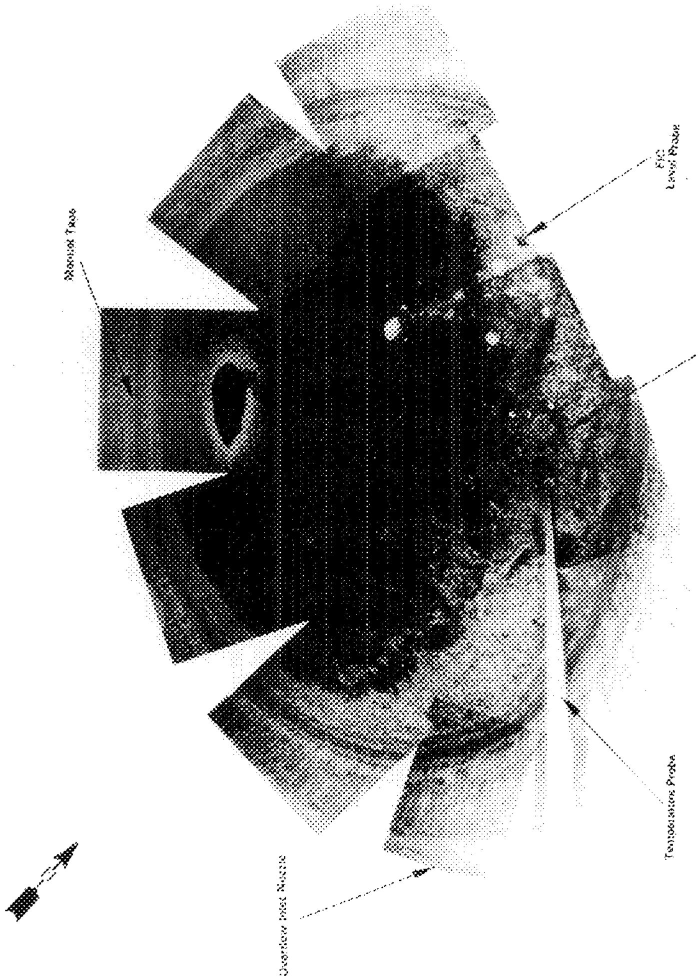
241-T-108


FIC Level Probe
Debris
Temperature Probe
Overflow Inlet Nozzle

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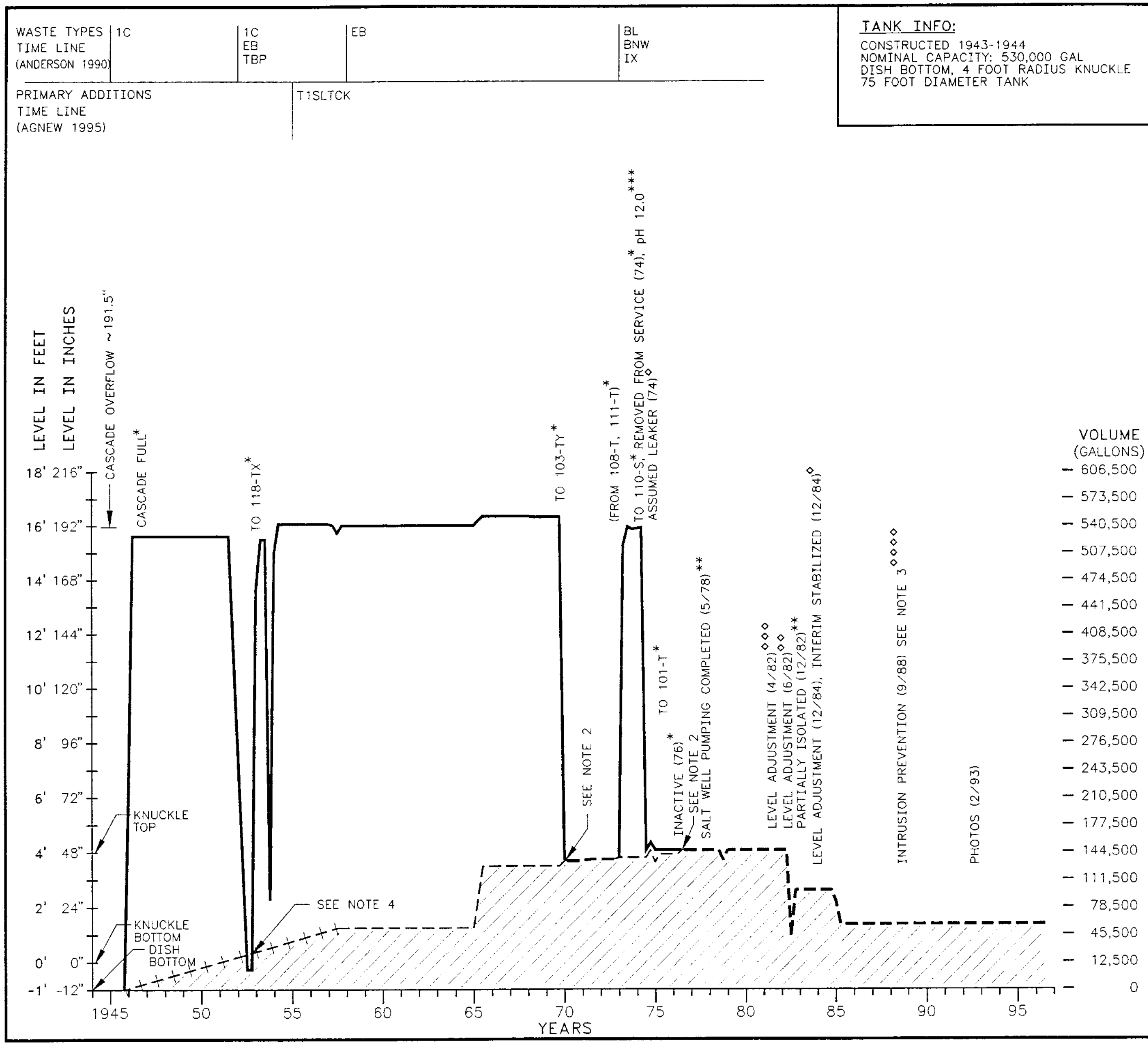


TANK INFO:

CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 530,000 GAL
DISH BOTTOM, 4 FOOT RADIUS KNUCKLE
75 FOOT DIAMETER TANK

REFERENCES

* ANDERSON 1990
** WELTY 1988
*** BORSHEIM AND KIRCH 1991
◇ HANLON 1996i
◇◇ McCANN 1982e
◇◇◇ McCANN 1982b
◇◇◇◇ THURMAN 1988j

NOTES:

1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN.
3) IN JUNE 1993, INTERIM ISOLATION WAS REPLACED BY INTRUSION PREVENTION.
4) SOLIDS EXCEEDS TOTAL WASTE DUE TO ASSUMPTION.

GLOSSARY OF WASTE TERMS:

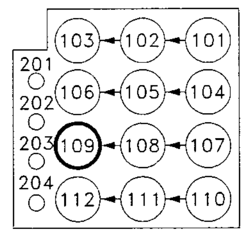
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A.

1C: FIRST CYCLE DECONTAMINATION WASTE
BL: B-PLANT LOW-LEVEL WASTE
BNW: BATTELLE NW LABORATORY WASTE
EB: EVAPORATOR BOTTOMS
IX: ION EXCHANGE
TBP: TRIBUTYL PHOSPHATE
T1SLTCK: SALTCAKE 1951-56

LEGEND

——— TOTAL WASTE LEVEL (SUPERNATE)
– – – TOTAL WASTE LEVEL (SOLIDS)
- - - - SOLIDS LEVEL
+++++ ASSUMED SOLIDS LEVEL
/////// SOLIDS

T TANK FARM
CASCADE



U.S. DEPARTMENT OF ENERGY
Richland Operations Office
FLUOR DANIEL NORTHWEST, INC.

241-T-109 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1945-1996
ASSUMED LEAKER/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E102	1/97
SCALE NONE		JOB NO.	SHEET 1 OF 1

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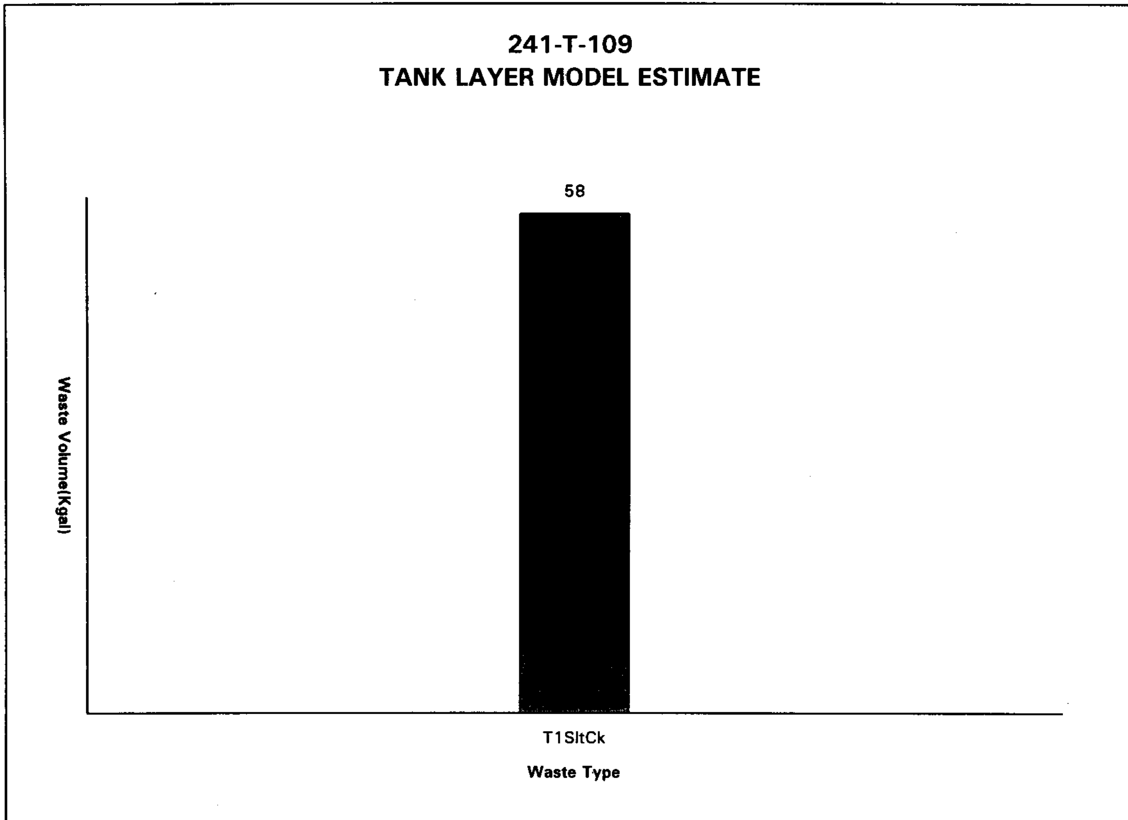
HDW Model Rev. 4

Single-Shell Tank 241-T-109							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	3.82E+05 (kg)	(58.0 kgal)	----	—	—	----	—
Heat Load	7.82E-02 (kW)	(267 BTU/hr)	—	1.66E-02	2.89E-02	0.117	0.225
Bulk Density†	1.74 (g/cc)	—	—	1.07	1.21	1.81	1.92
Water wt%†	37.7	----	----	32.3	35.8	74.4	88.0
TOC wt% C (w	1.34E-04	—	----	3.87E-06	1.18E-04	2.15E-04	1.62E-04
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	2.99E-06	1.72E-03	0.656	0	0	3.18E-06	3.66E-06
C-14	4.46E-07	2.56E-04	9.78E-02	0	0	4.51E-07	5.12E-07
Ni-59	9.05E-07	5.19E-04	0.199	0	0	9.54E-07	9.87E-07
Ni-63	8.14E-05	4.67E-02	17.9	0	0	8.58E-05	8.88E-05
Co-60	1.01E-07	5.77E-05	2.21E-02	0	0	1.02E-07	1.16E-07
Se-79	9.57E-08	5.50E-05	2.10E-02	0	0	9.68E-08	1.10E-07
Sr-90	1.12E-02	6.42	2.45E+03	6.28E-03	1.09E-02	1.56E-02	7.00E-02
Y-90	1.12E-02	6.42	2.45E+03	0	0	1.13E-02	1.29E-02
Zr-93	4.55E-07	2.61E-04	9.99E-02	0	0	4.60E-07	5.23E-07
Nb-93m	3.85E-07	2.21E-04	8.44E-02	0	0	3.89E-07	4.42E-07
Tc-99	3.15E-06	1.81E-03	0.692	8.26E-07	2.42E-06	4.89E-06	3.62E-06
Ru-106	3.98E-14	2.28E-11	8.74E-09	0	0	4.03E-14	4.57E-14
Cd-113m	1.10E-06	6.29E-04	0.241	0	0	1.11E-06	1.26E-06
Sb-125	9.11E-08	5.23E-05	2.00E-02	0	0	9.22E-08	1.05E-07
Sn-126	1.44E-07	8.26E-05	3.16E-02	0	0	1.46E-07	1.66E-07
I-129	5.93E-09	3.40E-06	1.30E-03	1.55E-09	4.56E-09	9.22E-09	6.82E-09
Cs-134	4.23E-09	2.43E-06	9.28E-04	0	0	4.56E-09	4.94E-09
Cs-137	6.00E-02	34.4	1.32E+04	7.11E-03	1.24E-02	9.17E-02	0.118
Ba-137m	5.68E-02	32.6	1.25E+04	0	0	6.12E-02	6.62E-02
Sm-151	3.57E-04	0.205	78.3	0	0	3.61E-04	4.11E-04
Eu-152	1.13E-07	6.47E-05	2.47E-02	0	0	1.14E-07	1.15E-07
Eu-154	1.79E-06	1.03E-03	0.392	0	0	1.81E-06	2.06E-06
Eu-155	8.64E-06	4.96E-03	1.90	0	0	8.71E-06	8.77E-06
Ra-226	2.69E-11	1.55E-08	5.91E-06	0	0	1.03E-10	8.20E-11
Ra-228	4.49E-16	2.58E-13	9.87E-11	0	0	4.53E-16	4.56E-16
Ac-227	1.39E-10	7.96E-08	3.04E-05	0	0	3.53E-10	4.29E-10
Pa-231	3.01E-10	1.73E-07	6.61E-05	0	0	3.05E-10	3.47E-10
Th-229	8.72E-14	5.00E-11	1.91E-08	0	0	8.79E-14	8.85E-14
Th-232	1.30E-16	7.49E-14	2.86E-11	0	0	1.32E-16	1.50E-16
U-232	1.18E-10	6.80E-08	2.60E-05	8.15E-11	9.99E-11	1.38E-10	1.51E-10
U-233	5.64E-12	3.24E-09	1.24E-06	3.87E-12	4.74E-12	6.58E-12	7.19E-12
U-234	5.57E-06	3.20E-03	1.22	3.82E-06	4.67E-06	6.54E-06	7.17E-06
U-235	2.47E-07	1.42E-04	5.42E-02	1.69E-07	2.07E-07	2.90E-07	3.18E-07
U-236	5.21E-08	2.99E-05	1.14E-02	3.58E-08	4.39E-08	6.09E-08	6.65E-08
U-238	5.65E-06	3.25E-03	1.24	3.88E-06	4.74E-06	6.64E-06	7.28E-06
Np-237	1.94E-08	1.11E-05	4.26E-03	5.04E-09	1.49E-08	3.02E-08	2.23E-08
Pu-238	3.69E-07	2.12E-04	8.11E-02	3.38E-08	1.16E-07	5.55E-07	5.76E-07
Pu-239	6.14E-05	3.53E-02	13.5	6.39E-06	2.05E-05	9.03E-05	9.32E-05
Pu-240	5.00E-06	2.87E-03	1.10	4.83E-07	1.61E-06	7.44E-06	7.70E-06
Pu-241	1.36E-05	7.80E-03	2.98	1.11E-06	4.10E-06	2.08E-05	2.16E-05
Pu-242	6.07E-11	3.48E-08	1.33E-05	4.87E-12	1.82E-11	9.30E-11	9.68E-11
Am-241	8.14E-07	4.67E-04	0.179	1.51E-07	5.85E-07	1.30E-06	9.36E-07
Am-243	5.63E-12	3.23E-09	1.24E-06	9.81E-13	4.00E-12	8.98E-12	6.47E-12
Cm-242	1.86E-09	1.07E-06	4.08E-04	0	0	1.88E-09	1.90E-09
Cm-243	3.80E-11	2.18E-08	8.35E-06	0	0	3.84E-11	3.88E-11
Cm-244	1.24E-10	7.13E-08	2.73E-05	0	0	1.26E-10	1.43E-10
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	1.01E-03 (g/L)	—	0.222	1.05E-04	3.36E-04	1.49E-03	1.53E-03
U	7.12E-02	9.72E+03	3.72E+03	4.88E-02	5.97E-02	8.36E-02	9.16E-02

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Volume average for density, mass average Water wt% and TOC wt% C.



Tank Layer Model(TLM) Estimate from *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 4* (Agnew et al., 1997).

HDW Model Rev. 4

Single-Shell Tank 241-T-109							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	3.82E+05 (kg)	(58.0 kgal)	—	—	----	—	—
Heat Load	7.82E-02 (kW)	(267 BTU/hr)	—	1.66E-02	2.89E-02	0.117	0.225
Bulk Density	1.74 (g/cc)	—	—	1.07	1.21	1.81	1.92
Void Fraction	0.525	—	—	0.256	0.479	0.941	0.997
Water wt%	37.7	—	—	32.3	35.8	74.4	88.0
TOC wt% C (w	1.34E-04	----	—	3.87E-06	1.18E-04	2.15E-04	1.62E-04
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	2.99E-06	1.72E-03	0.656	0	0	3.18E-06	3.66E-06
C-14	4.46E-07	2.56E-04	9.78E-02	0	0	4.51E-07	5.12E-07
Ni-59	9.05E-07	5.19E-04	0.199	0	0	9.54E-07	9.87E-07
Ni-63	8.14E-05	4.67E-02	17.9	0	0	8.58E-05	8.88E-05
Co-60	1.01E-07	5.77E-05	2.21E-02	0	0	1.02E-07	1.16E-07
Se-79	9.57E-08	5.50E-05	2.10E-02	0	0	9.68E-08	1.10E-07
Sr-90	1.12E-02	6.42	2.45E+03	6.28E-03	1.09E-02	1.56E-02	7.00E-02
Y-90	1.12E-02	6.42	2.45E+03	0	0	1.13E-02	1.29E-02
Zr-93	4.55E-07	2.61E-04	9.99E-02	0	0	4.60E-07	5.23E-07
Nb-93m	3.85E-07	2.21E-04	8.44E-02	0	0	3.89E-07	4.42E-07
Tc-99	3.15E-06	1.81E-03	0.692	8.26E-07	2.42E-06	4.89E-06	3.62E-06
Ru-106	3.98E-14	2.28E-11	8.74E-09	0	0	4.03E-14	4.57E-14
Cd-113m	1.10E-06	6.29E-04	0.241	0	0	1.11E-06	1.26E-06
Sb-125	9.11E-08	5.23E-05	2.00E-02	0	0	9.22E-08	1.05E-07
Sn-126	1.44E-07	8.26E-05	3.16E-02	0	0	1.46E-07	1.66E-07
I-129	5.93E-09	3.40E-06	1.30E-03	1.55E-09	4.56E-09	9.22E-09	6.82E-09
Cs-134	4.23E-09	2.43E-06	9.28E-04	0	0	4.56E-09	4.94E-09
Cs-137	6.00E-02	34.4	1.32E+04	7.11E-03	1.24E-02	9.17E-02	0.118
Ba-137m	5.68E-02	32.6	1.25E+04	0	0	6.12E-02	6.62E-02
Sm-151	3.57E-04	0.205	78.3	0	0	3.61E-04	4.11E-04
Eu-152	1.13E-07	6.47E-05	2.47E-02	0	0	1.14E-07	1.15E-07
Eu-154	1.79E-06	1.03E-03	0.392	0	0	1.81E-06	2.06E-06
Eu-155	8.64E-06	4.96E-03	1.90	0	0	8.71E-06	8.77E-06
Ra-226	2.69E-11	1.55E-08	5.91E-06	0	0	1.03E-10	8.20E-11
Ra-228	4.49E-16	2.58E-13	9.87E-11	0	0	4.53E-16	4.56E-16
Ac-227	1.39E-10	7.96E-08	3.04E-05	0	0	3.53E-10	4.29E-10
Pa-231	3.01E-10	1.73E-07	6.61E-05	0	0	3.05E-10	3.47E-10
Th-229	8.72E-14	5.00E-11	1.91E-08	0	0	8.79E-14	8.85E-14
Th-232	1.30E-16	7.49E-14	2.86E-11	0	0	1.32E-16	1.50E-16
U-232	1.18E-10	6.80E-08	2.60E-05	8.15E-11	9.99E-11	1.38E-10	1.51E-10
U-233	5.64E-12	3.24E-09	1.24E-06	3.87E-12	4.74E-12	6.58E-12	7.19E-12
U-234	5.57E-06	3.20E-03	1.22	3.82E-06	4.67E-06	6.54E-06	7.17E-06
U-235	2.47E-07	1.42E-04	5.42E-02	1.69E-07	2.07E-07	2.90E-07	3.18E-07
U-236	5.21E-08	2.99E-05	1.14E-02	3.58E-08	4.39E-08	6.09E-08	6.65E-08
U-238	5.65E-06	3.25E-03	1.24	3.88E-06	4.74E-06	6.64E-06	7.28E-06
Np-237	1.94E-08	1.11E-05	4.26E-03	5.04E-09	1.49E-08	3.02E-08	2.23E-08
Pu-238	3.69E-07	2.12E-04	8.11E-02	3.38E-08	1.16E-07	5.55E-07	5.76E-07
Pu-239	6.14E-05	3.53E-02	13.5	6.39E-06	2.05E-05	9.03E-05	9.32E-05
Pu-240	5.00E-06	2.87E-03	1.10	4.83E-07	1.61E-06	7.44E-06	7.70E-06
Pu-241	1.36E-05	7.80E-03	2.98	1.11E-06	4.10E-06	2.08E-05	2.16E-05
Pu-242	6.07E-11	3.48E-08	1.33E-05	4.87E-12	1.82E-11	9.30E-11	9.68E-11
Am-241	8.14E-07	4.67E-04	0.179	1.51E-07	5.85E-07	1.30E-06	9.36E-07
Am-243	5.63E-12	3.23E-09	1.24E-06	9.81E-13	4.00E-12	8.98E-12	6.47E-12
Cm-242	1.86E-09	1.07E-06	4.08E-04	0	0	1.88E-09	1.90E-09
Cm-243	3.80E-11	2.18E-08	8.35E-06	0	0	3.84E-11	3.88E-11
Cm-244	1.24E-10	7.13E-08	2.73E-05	0	0	1.26E-10	1.43E-10
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	1.01E-03 (g/L)	----	0.222	1.05E-04	3.36E-04	1.49E-03	1.53E-03
U	7.12E-02	9.72E+03	3.72E+03	4.88E-02	5.97E-02	8.36E-02	9.16E-02

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-109							
SMM Composite Inventory Estimate							
Physical Properties				-95 CI	-67 CI	+67 CI	+95 CI
Total SMM W	0 (kg)	(0 kgal)	----	—	—	—	—
Heat Load	0 (kW)	(0 BTU/hr)	----	0	0	0	0
Bulk Density*	0 (g/cc)	----	----	0	0	0	0
Water wt%	0	—	----	0	0	0	0
TOC wt% C (w	0	—	----	0	0	0	0
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	0	0	0	0	0	0	0
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	0	0	0	0	0	0	0
Cr3+	0	0	0	0	0	0	0
Bi3+	0	0	0	0	0	0	0
La3+	0	0	0	0	0	0	0
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	0	0	0	0	0	0	0
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	0	0	0	0	0	0	0
K+	0	0	0	0	0	0	0
OH-	0	0	0	0	0	0	0
NO3-	0	0	0	0	0	0	0
NO2-	0	0	0	0	0	0	0
CO32-	0	0	0	0	0	0	0
PO43-	0	0	0	0	0	0	0
SO42-	0	0	0	0	0	0	0
Si (as SiO32-)	0	0	0	0	0	0	0
F-	0	0	0	0	0	0	0
Cl-	0	0	0	0	0	0	0
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	0	0	0	0	0	0	0
Fe(CN)64-	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-109							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	0 (kg)	(0 kgal)	----	---	----	----	---
Heat Load	0 (kW)	(0 BTU/hr)	----	0	0	0	0
Bulk Density*	0 (g/cc)	----	----	0	0	0	0
Water wt%	0	---	----	0	0	0	0
TOC wt% C (w	0	---	---	0	0	0	0
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	0	0	0	0	0	0	0
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	0	0	0	0	0	0	0
Cr3+	0	0	0	0	0	0	0
Bi3+	0	0	0	0	0	0	0
La3+	0	0	0	0	0	0	0
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	0	0	0	0	0	0	0
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	0	0	0	0	0	0	0
K+	0	0	0	0	0	0	0
OH-	0	0	0	0	0	0	0
NO3-	0	0	0	0	0	0	0
NO2-	0	0	0	0	0	0	0
CO32-	0	0	0	0	0	0	0
PO43-	0	0	0	0	0	0	0
SO42-	0	0	0	0	0	0	0
Si (as SiO32-)	0	0	0	0	0	0	0
F-	0	0	0	0	0	0	0
Cl-	0	0	0	0	0	0	0
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	0	0	0	0	0	0	0
Fe(CN)64-	0	0	0	0	0	0	0

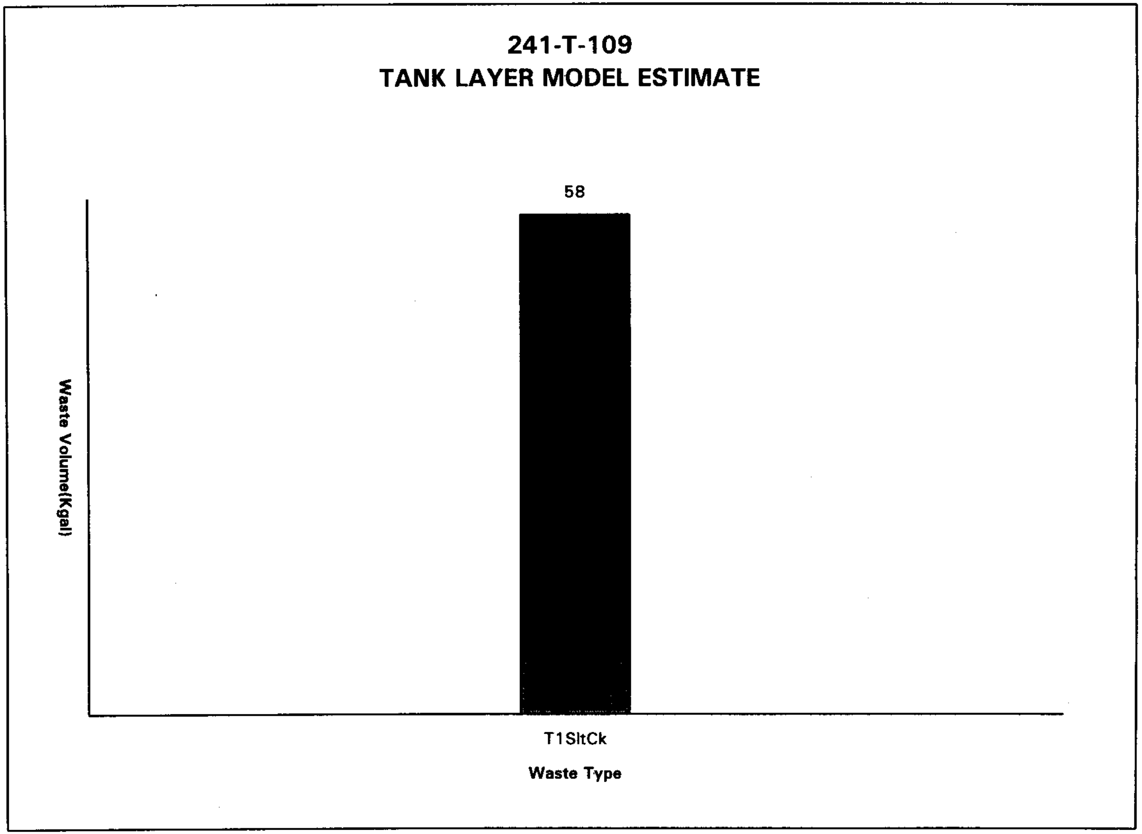
*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-109							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	3.82E+05 (kg)	(58.0 kgal)	----	----	----	----	----
Heat Load	7.82E-02 (kW)	(267 BTU/hr)	----	1.66E-02	2.89E-02	0.117	0.225
Bulk Density	1.74 (g/cc)	----	----	1.07	1.21	1.81	1.92
Void Fraction	0.525	----	----	0.256	0.479	0.941	0.997
Water wt%	37.7	----	----	32.3	35.8	74.4	88.0
TOC wt% C (w	1.34E-04	----	----	3.87E-06	1.18E-04	2.15E-04	1.62E-04
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	2.99E-06	1.72E-03	0.656	0	0	3.18E-06	3.66E-06
C-14	4.46E-07	2.56E-04	9.78E-02	0	0	4.51E-07	5.12E-07
Ni-59	9.05E-07	5.19E-04	0.199	0	0	9.54E-07	9.87E-07
Ni-63	8.14E-05	4.67E-02	17.9	0	0	8.58E-05	8.88E-05
Co-60	1.01E-07	5.77E-05	2.21E-02	0	0	1.02E-07	1.16E-07
Se-79	9.57E-08	5.50E-05	2.10E-02	0	0	9.68E-08	1.10E-07
Sr-90	1.12E-02	6.42	2.45E+03	6.28E-03	1.09E-02	1.56E-02	7.00E-02
Y-90	1.12E-02	6.42	2.45E+03	0	0	1.13E-02	1.29E-02
Zr-93	4.55E-07	2.61E-04	9.99E-02	0	0	4.60E-07	5.23E-07
Nb-93m	3.85E-07	2.21E-04	8.44E-02	0	0	3.89E-07	4.42E-07
Tc-99	3.15E-06	1.81E-03	0.692	8.26E-07	2.42E-06	4.89E-06	3.62E-06
Ru-106	3.98E-14	2.28E-11	8.74E-09	0	0	4.03E-14	4.57E-14
Cd-113m	1.10E-06	6.29E-04	0.241	0	0	1.11E-06	1.26E-06
Sb-125	9.11E-08	5.23E-05	2.00E-02	0	0	9.22E-08	1.05E-07
Sn-126	1.44E-07	8.26E-05	3.16E-02	0	0	1.46E-07	1.66E-07
I-129	5.93E-09	3.40E-06	1.30E-03	1.55E-09	4.56E-09	9.22E-09	6.82E-09
Cs-134	4.23E-09	2.43E-06	9.28E-04	0	0	4.56E-09	4.94E-09
Cs-137	6.00E-02	34.4	1.32E+04	7.11E-03	1.24E-02	9.17E-02	0.118
Ba-137m	5.68E-02	32.6	1.25E+04	0	0	6.12E-02	6.62E-02
Sm-151	3.57E-04	0.205	78.3	0	0	3.61E-04	4.11E-04
Eu-152	1.13E-07	6.47E-05	2.47E-02	0	0	1.14E-07	1.15E-07
Eu-154	1.79E-06	1.03E-03	0.392	0	0	1.81E-06	2.06E-06
Eu-155	8.64E-06	4.96E-03	1.90	0	0	8.71E-06	8.77E-06
Ra-226	2.69E-11	1.55E-08	5.91E-06	0	0	1.03E-10	8.20E-11
Ra-228	4.49E-16	2.58E-13	9.87E-11	0	0	4.53E-16	4.56E-16
Ac-227	1.39E-10	7.96E-08	3.04E-05	0	0	3.53E-10	4.29E-10
Pa-231	3.01E-10	1.73E-07	6.61E-05	0	0	3.05E-10	3.47E-10
Th-229	8.72E-14	5.00E-11	1.91E-08	0	0	8.79E-14	8.85E-14
Th-232	1.30E-16	7.49E-14	2.86E-11	0	0	1.32E-16	1.50E-16
U-232	1.18E-10	6.80E-08	2.60E-05	8.15E-11	9.99E-11	1.38E-10	1.51E-10
U-233	5.64E-12	3.24E-09	1.24E-06	3.87E-12	4.74E-12	6.58E-12	7.19E-12
U-234	5.57E-06	3.20E-03	1.22	3.82E-06	4.67E-06	6.54E-06	7.17E-06
U-235	2.47E-07	1.42E-04	5.42E-02	1.69E-07	2.07E-07	2.90E-07	3.18E-07
U-236	5.21E-08	2.99E-05	1.14E-02	3.58E-08	4.39E-08	6.09E-08	6.65E-08
U-238	5.65E-06	3.25E-03	1.24	3.88E-06	4.74E-06	6.64E-06	7.28E-06
Np-237	1.94E-08	1.11E-05	4.26E-03	5.04E-09	1.49E-08	3.02E-08	2.23E-08
Pu-238	3.69E-07	2.12E-04	8.11E-02	3.38E-08	1.16E-07	5.55E-07	5.76E-07
Pu-239	6.14E-05	3.53E-02	13.5	6.39E-06	2.05E-05	9.03E-05	9.32E-05
Pu-240	5.00E-06	2.87E-03	1.10	4.83E-07	1.61E-06	7.44E-06	7.70E-06
Pu-241	1.36E-05	7.80E-03	2.98	1.11E-06	4.10E-06	2.08E-05	2.16E-05
Pu-242	6.07E-11	3.48E-08	1.33E-05	4.87E-12	1.82E-11	9.30E-11	9.68E-11
Am-241	8.14E-07	4.67E-04	0.179	1.51E-07	5.85E-07	1.30E-06	9.36E-07
Am-243	5.63E-12	3.23E-09	1.24E-06	9.81E-13	4.00E-12	8.98E-12	6.47E-12
Cm-242	1.86E-09	1.07E-06	4.08E-04	0	0	1.88E-09	1.90E-09
Cm-243	3.80E-11	2.18E-08	8.35E-06	0	0	3.84E-11	3.88E-11
Cm-244	1.24E-10	7.13E-08	2.73E-05	0	0	1.26E-10	1.43E-10
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	1.01E-03 (g/L)	----	0.222	1.05E-04	3.36E-04	1.49E-03	1.53E-03
U	7.12E-02	9.72E+03	3.72E+03	4.88E-02	5.97E-02	8.36E-02	9.16E-02

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).



Tank Layer Model(TLM) Estimate from *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 4* (Agnew et al., 1997).

HDW Model Rev. 4

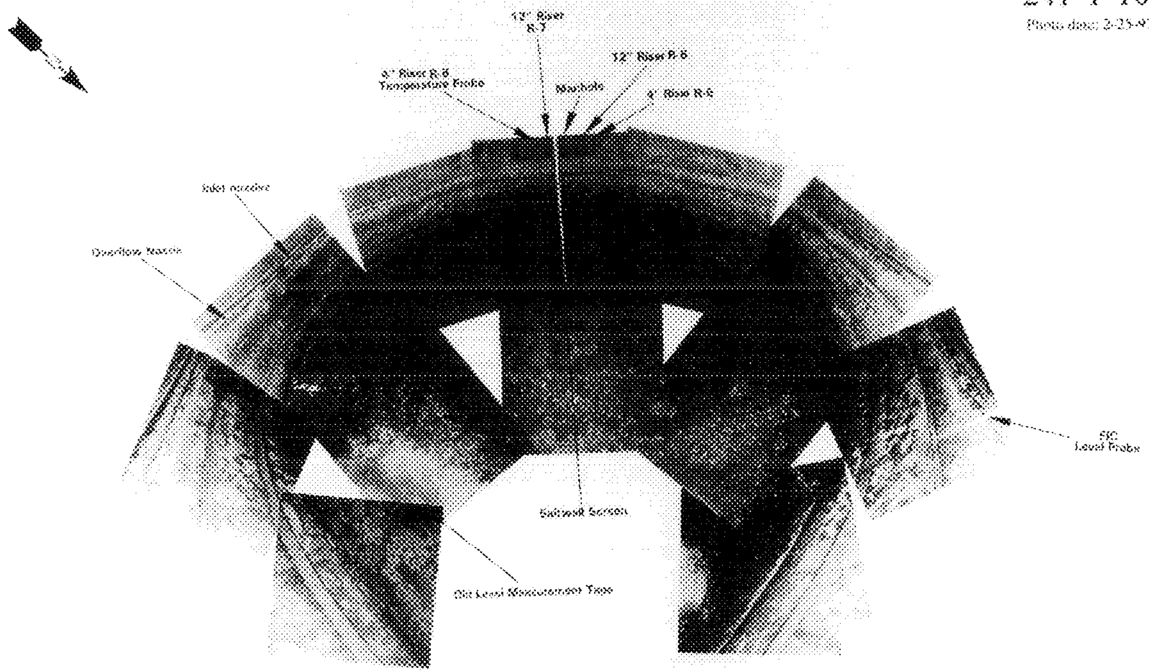
Single-Shell Tank 241-T-109							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	3.82E+05 (kg)	(58.0 kgal)	----	----	----	----	----
Heat Load	7.82E-02 (kW)	(267 BTU/hr)	----	1.66E-02	2.89E-02	0.117	0.225
Bulk Density†	1.74 (g/cc)	----	----	1.07	1.21	1.81	1.92
Water wt%†	37.7	----	----	32.3	35.8	74.4	88.0
TOC wt% C (w	1.34E-04	----	----	3.87E-06	1.18E-04	2.15E-04	1.62E-04
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	2.99E-06	1.72E-03	0.656	0	0	3.18E-06	3.66E-06
C-14	4.46E-07	2.56E-04	9.78E-02	0	0	4.51E-07	5.12E-07
Ni-59	9.05E-07	5.19E-04	0.199	0	0	9.54E-07	9.87E-07
Ni-63	8.14E-05	4.67E-02	17.9	0	0	8.58E-05	8.88E-05
Co-60	1.01E-07	5.77E-05	2.21E-02	0	0	1.02E-07	1.16E-07
Se-79	9.57E-08	5.50E-05	2.10E-02	0	0	9.68E-08	1.10E-07
Sr-90	1.12E-02	6.42	2.45E+03	6.28E-03	1.09E-02	1.56E-02	7.00E-02
Y-90	1.12E-02	6.42	2.45E+03	0	0	1.13E-02	1.29E-02
Zr-93	4.55E-07	2.61E-04	9.99E-02	0	0	4.60E-07	5.23E-07
Nb-93m	3.85E-07	2.21E-04	8.44E-02	0	0	3.89E-07	4.42E-07
Tc-99	3.15E-06	1.81E-03	0.692	8.26E-07	2.42E-06	4.89E-06	3.62E-06
Ru-106	3.98E-14	2.28E-11	8.74E-09	0	0	4.03E-14	4.57E-14
Cd-113m	1.10E-06	6.29E-04	0.241	0	0	1.11E-06	1.26E-06
Sb-125	9.11E-08	5.23E-05	2.00E-02	0	0	9.22E-08	1.05E-07
Sn-126	1.44E-07	8.26E-05	3.16E-02	0	0	1.46E-07	1.66E-07
I-129	5.93E-09	3.40E-06	1.30E-03	1.55E-09	4.56E-09	9.22E-09	6.82E-09
Cs-134	4.23E-09	2.43E-06	9.28E-04	0	0	4.56E-09	4.94E-09
Cs-137	6.00E-02	34.4	1.32E+04	7.11E-03	1.24E-02	9.17E-02	0.118
Ba-137m	5.68E-02	32.6	1.25E+04	0	0	6.12E-02	6.62E-02
Sm-151	3.57E-04	0.205	78.3	0	0	3.61E-04	4.11E-04
Eu-152	1.13E-07	6.47E-05	2.47E-02	0	0	1.14E-07	1.15E-07
Eu-154	1.79E-06	1.03E-03	0.392	0	0	1.81E-06	2.06E-06
Eu-155	8.64E-06	4.96E-03	1.90	0	0	8.71E-06	8.77E-06
Ra-226	2.69E-11	1.55E-08	5.91E-06	0	0	1.03E-10	8.20E-11
Ra-228	4.49E-16	2.58E-13	9.87E-11	0	0	4.53E-16	4.56E-16
Ac-227	1.39E-10	7.96E-08	3.04E-05	0	0	3.53E-10	4.29E-10
Pa-231	3.01E-10	1.73E-07	6.61E-05	0	0	3.05E-10	3.47E-10
Th-229	8.72E-14	5.00E-11	1.91E-08	0	0	8.79E-14	8.85E-14
Th-232	1.30E-16	7.49E-14	2.86E-11	0	0	1.32E-16	1.50E-16
U-232	1.18E-10	6.80E-08	2.60E-05	8.15E-11	9.99E-11	1.38E-10	1.51E-10
U-233	5.64E-12	3.24E-09	1.24E-06	3.87E-12	4.74E-12	6.58E-12	7.19E-12
U-234	5.57E-06	3.20E-03	1.22	3.82E-06	4.67E-06	6.54E-06	7.17E-06
U-235	2.47E-07	1.42E-04	5.42E-02	1.69E-07	2.07E-07	2.90E-07	3.18E-07
U-236	5.21E-08	2.99E-05	1.14E-02	3.58E-08	4.39E-08	6.09E-08	6.65E-08
U-238	5.65E-06	3.25E-03	1.24	3.88E-06	4.74E-06	6.64E-06	7.28E-06
Np-237	1.94E-08	1.11E-05	4.26E-03	5.04E-09	1.49E-08	3.02E-08	2.23E-08
Pu-238	3.69E-07	2.12E-04	8.11E-02	3.38E-08	1.16E-07	5.55E-07	5.76E-07
Pu-239	6.14E-05	3.53E-02	13.5	6.39E-06	2.05E-05	9.03E-05	9.32E-05
Pu-240	5.00E-06	2.87E-03	1.10	4.83E-07	1.61E-06	7.44E-06	7.70E-06
Pu-241	1.36E-05	7.80E-03	2.98	1.11E-06	4.10E-06	2.08E-05	2.16E-05
Pu-242	6.07E-11	3.48E-08	1.33E-05	4.87E-12	1.82E-11	9.30E-11	9.68E-11
Am-241	8.14E-07	4.67E-04	0.179	1.51E-07	5.85E-07	1.30E-06	9.36E-07
Am-243	5.63E-12	3.23E-09	1.24E-06	9.81E-13	4.00E-12	8.98E-12	6.47E-12
Cm-242	1.86E-09	1.07E-06	4.08E-04	0	0	1.88E-09	1.90E-09
Cm-243	3.80E-11	2.18E-08	8.35E-06	0	0	3.84E-11	3.88E-11
Cm-244	1.24E-10	7.13E-08	2.73E-05	0	0	1.26E-10	1.43E-10
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	1.01E-03 (g/L)	----	0.222	1.05E-04	3.36E-04	1.49E-03	1.53E-03
U	7.12E-02	9.72E+03	3.72E+03	4.88E-02	5.97E-02	8.36E-02	9.16E-02

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Volume average for density, mass average Water wt% and TOC wt% C.

241-T-109

Photo date: 2-25-93



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TANK 241-T-110 SUMMARY

TANK HISTORY	
Entered Service	1st qtr 1945
Removed from Service	1976
Inactive	1976
Watch Lists	Hydrogen
Integrity	Sound
Assumed Leaker	-
Interim Stabilization (IS)	-
Partial Interim Isolation (PI)	Dec 1982
Intrusion Prevention (IP)	-
TENTATIVELY AVAILABLE RISERS	
Riser Number	Size
2, 3, 6	12 in
TANK TEMPERATURE	
Average Tank Temperature	63°F
Maximum Temperature	84°F
Date	June 7, 1981
Elevation from tank bottom	unknown
Riser Number	8
Minimum Temperature	49.3°F
Date	March 14, 1994
Elevation from tank bottom	unknown
Riser Number	8

TANK DESCRIPTION	
Diameter	75 ft
Bottom Shape	Dish
Nominal Capacity	530,000 gal
Cascade Tank	to 241-T-111
Total Risers	9
WASTE VOLUME (HANLON 1996l)	
Total Waste Volume	379,000 gal
Waste Type	NCPLX
Drainable Interstitial Liquids	39,000 gal
Pumpable Liquids	60,000 gal
Saltcake	0 gal
Sludge	376,000 gal
Supernatant	3,000 gal
INTERIOR PHOTOGRAPHS	
Date	July 12, 1984
Montage Number	94080233-40CN
Photo Set Number	84-04997
WASTE SURFACE LEVEL	
Devices	Manual ENRAF
Max Level	159.63 in
Date	Oct 2, 1996
Min Level	145.4 in
Date	July 8 and 22, 1991

* Numerous dates in this time span.

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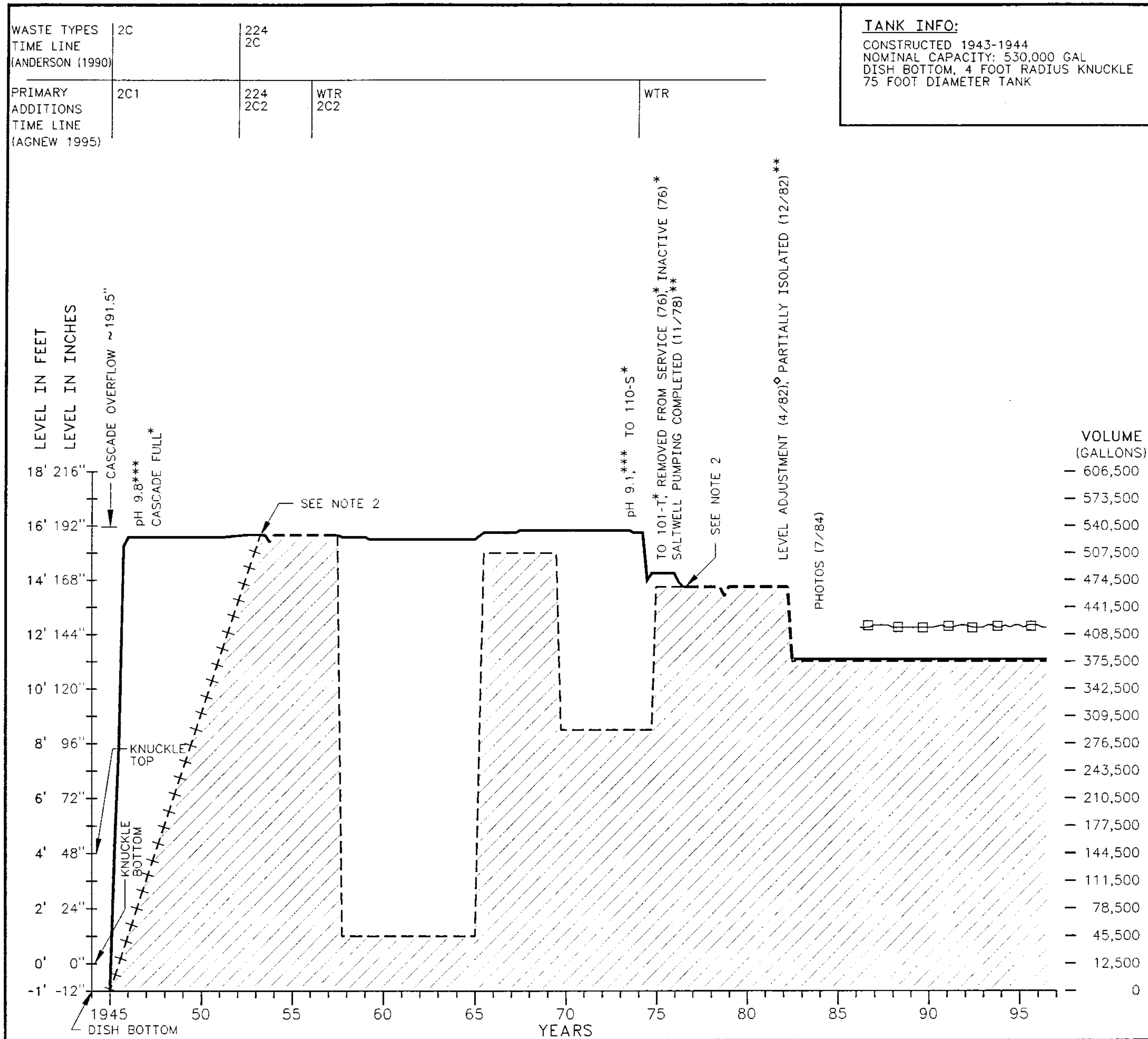


TANK INFO:

CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 530,000 GAL
DISH BOTTOM, 4 FOOT RADIUS KNUCKLE
75 FOOT DIAMETER TANK

REFERENCES

* ANDERSON 1990
** WELTY 1988
*** BORSHEIM AND KIRCH 1991
◇ HANLON 1996I

NOTES:

1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN.

GLOSSARY OF WASTE TERMS:

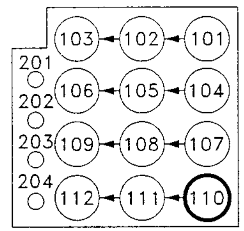
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A.

224:	224-U WASTE
2C:	SECOND CYCLE DECON WASTE
2C1:	SECOND CYCLE DECON WASTE 1944-49
2C2:	SECOND CYCLE DECON WASTE 1950-56
WTR:	WATER

LEGEND

TOTAL WASTE LEVEL (SUPERNATE)
TOTAL WASTE LEVEL (SOLIDS)
SOLIDS LEVEL
ASSUMED SOLIDS LEVEL
INTERSTITIAL LIQUID LEVEL
SOLIDS

T TANK FARM CASCADE



U.S. DEPARTMENT OF ENERGY
Richland Operations Office
FLUOR DANIEL NORTHWEST, INC.

241-T-110 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1945-1996
SOUND/NON-STABILIZED TANK
WATCH LIST: HYDROGEN

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E103	1/97
SCALE NONE		JOB NO.	SHEET 1 OF 1

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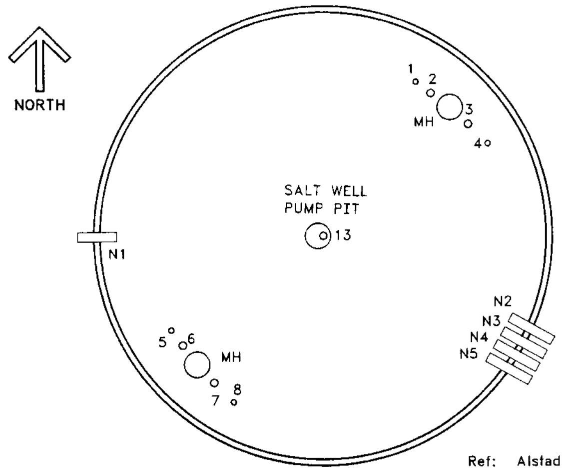
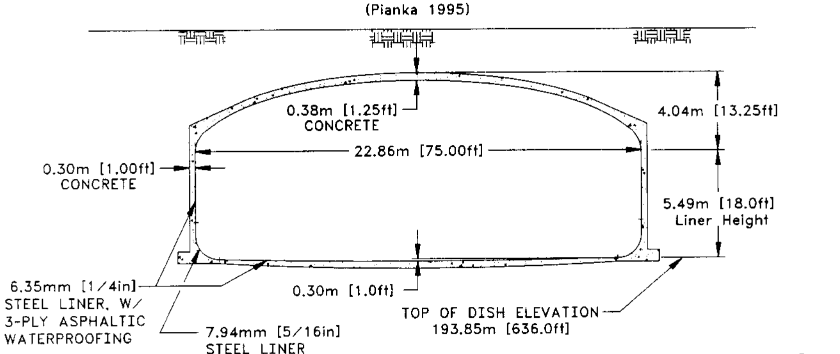
241-T-110



Ref: Alstad 1993
W-72743
H-2-73064, Rev. 4

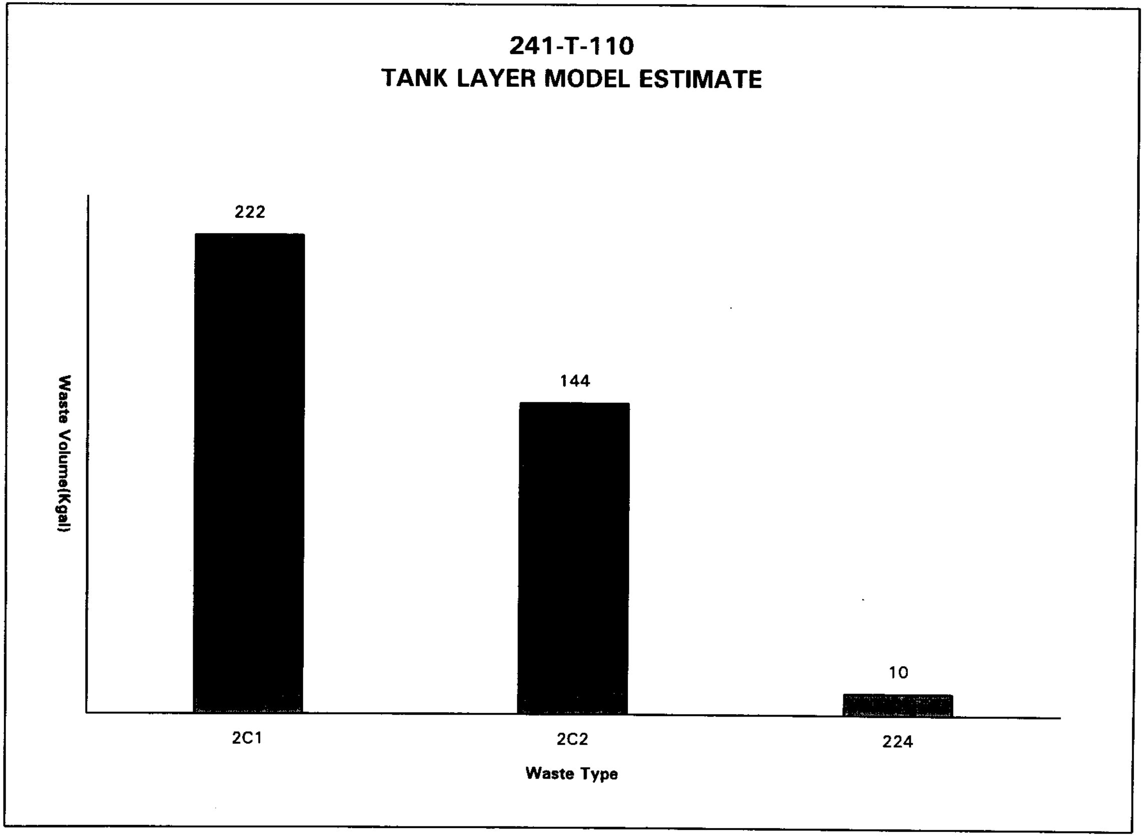
TANK RISER LOCATION

Approximate Grade Elevation 205.37m [673.8ft]
(Pianka 1995)



Ref: H-2-1741, Rev. 3
CVI 73550, dwg D-2

NOT TO SCALE



Tank Layer Model(TLM) Estimate from *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 4* (Agnew et al., 1997).

HDW Model Rev. 4

Single-Shell Tank 241-T-110							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	1.71E+06 (kg)	(376 kgal)	—	—	----	—	—
Heat Load	1.92E-02 (kW)	(65.5 BTU/hr)	—	1.72E-02	1.82E-02	2.02E-02	2.12E-02
Bulk Density	1.20 (g/cc)	----	—	1.12	1.16	1.24	1.27
Void Fraction	0.840	—	—	0.756	0.793	0.899	0.959
Water wt%	74.8	—	----	69.9	72.1	78.0	81.5
TOC wt% C (w	5.63E-02	—	----	5.34E-02	5.47E-02	5.83E-02	6.05E-02
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	3.04	5.81E+04	9.94E+04	1.48	2.26	3.79	4.45
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	0.641	2.98E+04	5.10E+04	0.632	0.636	0.646	0.651
Cr3+	4.06E-03	176	300	3.59E-03	3.82E-03	4.30E-03	4.52E-03
Bi3+	7.17E-02	1.25E+04	2.13E+04	5.67E-02	6.52E-02	7.67E-02	8.06E-02
La3+	8.98E-05	10.4	17.8	6.72E-05	7.89E-05	1.01E-04	1.11E-04
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	1.36E-03	66.2	113	1.22E-03	1.29E-03	2.03E-03	3.56E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	1.21E-04	5.51	9.43	9.01E-05	1.06E-04	1.35E-04	1.49E-04
Ca2+	0.197	6.57E+03	1.12E+04	0.159	0.178	0.217	0.235
K+	9.81E-03	319	546	8.43E-03	9.15E-03	1.05E-02	1.11E-02
OH-	1.98	2.80E+04	4.80E+04	1.95	1.96	2.02	2.05
NO3-	0.839	4.32E+04	7.40E+04	0.768	0.809	0.868	0.896
NO2-	1.80E-02	687	1.18E+03	1.36E-02	1.59E-02	2.01E-02	2.21E-02
CO32-	0.197	9.83E+03	1.68E+04	0.159	0.178	0.217	0.235
PO43-	0.656	5.18E+04	8.87E+04	0.176	0.423	0.829	0.956
SO42-	3.27E-02	2.61E+03	4.47E+03	2.97E-02	3.15E-02	3.39E-02	3.50E-02
Si (as SiO32-)	5.31E-02	1.24E+03	2.12E+03	2.19E-02	2.33E-02	0.122	0.189
F-	0.170	2.69E+03	4.61E+03	0.148	0.149	0.350	0.650
Cl-	2.07E-02	609	1.04E+03	1.88E-02	1.99E-02	2.14E-02	2.21E-02
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	2.82E-02	2.07E+03	3.54E+03	2.69E-02	2.77E-02	2.87E-02	2.90E-02
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	4.98E-06	7.03E-02	0.120	3.90E-06	4.39E-06	5.64E-06	6.37E-06
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-110							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	1.20E+04 (kg)	(3.07 kgal)	----	---	---	---	---
Heat Load	1.18E-04 (kW)	(0.401 BTU/hr)	----	8.84E-05	1.03E-04	1.32E-04	1.47E-04
Bulk Density*	1.03 (g/cc)	---	----	1.02	1.03	1.03	1.04
Water wt%	94.4	----	----	93.0	93.7	95.0	95.7
TOC wt% C (w	3.71E-12	----	----	3.28E-12	3.49E-12	3.92E-12	4.13E-12
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	0.799	1.78E+04	214	0.601	0.698	0.900	0.997
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	1.26E-03	68.3	0.817	6.96E-04	9.72E-04	1.55E-03	1.82E-03
Cr3+	3.41E-03	172	2.06	2.57E-03	2.98E-03	3.84E-03	4.26E-03
Bi3+	2.52E-03	511	6.11	2.13E-03	2.32E-03	2.72E-03	2.91E-03
La3+	1.21E-12	1.64E-07	1.96E-09	8.79E-13	1.04E-12	1.39E-12	1.55E-12
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	1.01E-03	57.5	0.688	7.59E-04	8.82E-04	1.13E-03	1.13E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	1.63E-12	8.70E-08	1.04E-09	1.18E-12	1.40E-12	1.86E-12	2.08E-12
Ca2+	5.67E-03	221	2.64	3.46E-03	4.54E-03	6.79E-03	7.87E-03
K+	2.33E-03	88.4	1.06	1.75E-03	2.03E-03	2.62E-03	2.91E-03
OH-	4.77E-02	788	9.42	3.68E-02	4.22E-02	5.33E-02	5.83E-02
NO3-	0.433	2.61E+04	312	0.326	0.378	0.487	0.539
NO2-	4.30E-03	192	2.30	2.44E-03	3.28E-03	5.45E-03	6.69E-03
CO32-	5.67E-03	330	3.95	3.46E-03	4.54E-03	6.79E-03	7.87E-03
PO43-	6.89E-02	6.35E+03	76.0	5.24E-02	6.05E-02	7.73E-02	8.53E-02
SO42-	1.69E-02	1.58E+03	18.9	1.27E-02	1.48E-02	1.91E-02	2.11E-02
Si (as SiO32-)	1.23E-02	335	4.01	9.24E-03	1.07E-02	1.38E-02	1.53E-02
F-	7.30E-02	1.35E+03	16.1	5.49E-02	6.38E-02	8.22E-02	9.11E-02
Cl-	1.07E-02	369	4.41	8.06E-03	9.36E-03	1.21E-02	1.34E-02
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	1.59E-12	1.36E-07	1.63E-09	1.41E-12	1.50E-12	1.68E-12	1.77E-12
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	2.03E-06	3.36E-02	4.02E-04	8.67E-07	1.36E-06	2.90E-06	3.94E-06
Fe(CN)64-	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-110							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	1.72E+06 (kg)	(379 kgal)	----	----	----	----	----
Heat Load	1.93E-02 (kW)	(65.9 BTU/hr)	----	1.73E-02	1.83E-02	2.03E-02	2.13E-02
Bulk Density†	1.20 (g/cc)	----	----	1.12	1.16	1.24	1.27
Water wt%†	75.0	----	----	70.1	72.3	78.1	81.6
TOC wt% C (w	5.59E-02	----	----	5.30E-02	5.43E-02	5.79E-02	6.00E-02
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	3.02	5.78E+04	9.96E+04	1.48	2.25	3.77	4.42
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	0.636	2.96E+04	5.10E+04	0.627	0.631	0.641	0.646
Cr3+	4.05E-03	176	302	3.59E-03	3.82E-03	4.29E-03	4.52E-03
Bi3+	7.11E-02	1.24E+04	2.13E+04	5.62E-02	6.47E-02	7.61E-02	8.00E-02
La3+	8.91E-05	10.3	17.8	6.66E-05	7.83E-05	9.97E-05	1.10E-04
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	1.35E-03	66.1	114	1.21E-03	1.28E-03	2.02E-03	3.54E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	1.20E-04	5.47	9.43	8.94E-05	1.05E-04	1.34E-04	1.47E-04
Ca2+	0.196	6.52E+03	1.12E+04	0.158	0.176	0.215	0.233
K+	9.75E-03	317	547	8.39E-03	9.09E-03	1.04E-02	1.10E-02
OH-	1.97	2.78E+04	4.80E+04	1.93	1.95	2.00	2.03
NO3-	0.835	4.31E+04	7.43E+04	0.765	0.806	0.865	0.893
NO2-	1.79E-02	684	1.18E+03	1.35E-02	1.58E-02	1.99E-02	2.20E-02
CO32-	0.196	9.77E+03	1.68E+04	0.158	0.176	0.215	0.233
PO43-	0.652	5.15E+04	8.88E+04	0.175	0.420	0.822	0.949
SO42-	3.26E-02	2.61E+03	4.49E+03	2.96E-02	3.14E-02	3.38E-02	3.49E-02
Si (as SiO32-)	5.28E-02	1.23E+03	2.13E+03	2.18E-02	2.32E-02	0.122	0.188
F-	0.170	2.68E+03	4.62E+03	0.148	0.149	0.347	0.645
Cl-	2.06E-02	607	1.05E+03	1.88E-02	1.98E-02	2.13E-02	2.20E-02
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	2.80E-02	2.05E+03	3.54E+03	2.67E-02	2.74E-02	2.84E-02	2.87E-02
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	4.95E-06	7.01E-02	0.121	3.89E-06	4.37E-06	5.62E-06	6.34E-06
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-110							
TLM Solids Composite Inventory Estimate*							
Physical Properties				-95 CI	-67 CI	+67 CI	+95 CI
Total TLM Wa	1.71E+06 (kg)	(376 kgal)	---	---	---	---	---
Heat Load	1.92E-02 (kW)	(65.5 BTU/hr)	---	1.72E-02	1.82E-02	2.02E-02	2.12E-02
Bulk Density	1.20 (g/cc)	---	---	1.12	1.16	1.24	1.27
Void Fraction	0.840	---	---	0.756	0.793	0.899	0.959
Water wt%	74.8	---	---	69.9	72.1	78.0	81.5
TOC wt% C (w	5.63E-02	---	---	5.34E-02	5.47E-02	5.83E-02	6.05E-02
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	3.47E-08	2.88E-05	4.94E-02	2.68E-08	3.09E-08	3.84E-08	4.19E-08
C-14	1.18E-08	9.85E-06	1.69E-02	1.07E-08	1.13E-08	1.24E-08	1.30E-08
Ni-59	3.37E-09	2.80E-06	4.80E-03	3.05E-09	3.21E-09	5.20E-09	9.36E-09
Ni-63	3.01E-07	2.50E-04	0.428	2.71E-07	2.86E-07	4.61E-07	8.26E-07
Co-60	2.28E-09	1.90E-06	3.24E-03	1.97E-09	2.12E-09	2.44E-09	2.59E-09
Se-79	2.50E-09	2.08E-06	3.55E-03	2.26E-09	2.37E-09	2.62E-09	2.74E-09
Sr-90	1.12E-03	0.931	1.59E+03	1.01E-03	1.06E-03	1.18E-03	1.23E-03
Y-90	1.12E-03	0.932	1.59E+03	1.01E-03	1.06E-03	1.18E-03	1.23E-03
Zr-93	1.19E-08	9.87E-06	1.69E-02	1.07E-08	1.13E-08	1.25E-08	1.30E-08
Nb-93m	1.01E-08	8.40E-06	1.44E-02	9.16E-09	9.62E-09	1.06E-08	1.11E-08
Tc-99	8.21E-08	6.83E-05	0.117	7.42E-08	7.81E-08	8.61E-08	9.00E-08
Ru-106	6.88E-16	5.72E-13	9.78E-10	5.32E-16	6.08E-16	7.67E-16	8.43E-16
Cd-113m	2.70E-08	2.25E-05	3.85E-02	2.40E-08	2.55E-08	2.86E-08	3.00E-08
Sb-125	1.85E-09	1.54E-06	2.64E-03	1.54E-09	1.69E-09	2.01E-09	2.16E-09
Sn-126	3.74E-09	3.11E-06	5.32E-03	3.37E-09	3.55E-09	3.92E-09	4.10E-09
I-129	1.54E-10	1.28E-07	2.19E-04	1.39E-10	1.46E-10	1.62E-10	1.69E-10
Cs-134	6.94E-11	5.77E-08	9.87E-05	5.51E-11	6.21E-11	7.67E-11	8.37E-11
Cs-137	1.27E-03	1.05	1.80E+03	1.14E-03	1.20E-03	1.33E-03	1.40E-03
Ba-137m	1.20E-03	0.998	1.71E+03	1.08E-03	1.14E-03	1.26E-03	1.32E-03
Sm-151	9.35E-06	7.78E-03	13.3	8.47E-06	8.90E-06	9.80E-06	1.02E-05
Eu-152	7.15E-09	5.95E-06	1.02E-02	7.11E-09	7.13E-09	7.18E-09	7.20E-09
Eu-154	3.80E-08	3.16E-05	5.40E-02	3.21E-08	3.50E-08	4.09E-08	4.38E-08
Eu-155	5.88E-07	4.89E-04	0.836	5.85E-07	5.86E-07	5.89E-07	5.90E-07
Ra-226	8.38E-13	6.96E-10	1.19E-06	7.55E-13	8.05E-13	8.69E-13	8.99E-13
Ra-228	3.35E-17	2.78E-14	4.76E-11	3.33E-17	3.34E-17	3.35E-17	3.36E-17
Ac-227	4.25E-12	3.53E-09	6.05E-06	3.83E-12	4.08E-12	4.41E-12	4.56E-12
Pa-231	9.04E-12	7.51E-09	1.29E-05	8.16E-12	8.69E-12	9.36E-12	9.68E-12
Th-229	6.48E-15	5.39E-12	9.22E-09	6.46E-15	6.47E-15	6.49E-15	6.51E-15
Th-232	3.50E-18	2.91E-15	4.98E-12	3.19E-18	3.34E-18	3.66E-18	3.81E-18
U-232	4.60E-12	3.82E-09	6.54E-06	3.04E-12	3.18E-12	8.91E-12	1.21E-11
U-233	2.54E-13	2.11E-10	3.61E-07	1.61E-13	1.69E-13	5.12E-13	7.02E-13
U-234	3.23E-07	2.69E-04	0.460	1.92E-07	2.04E-07	6.88E-07	9.55E-07
U-235	1.45E-08	1.21E-05	2.06E-02	8.59E-09	9.12E-09	3.09E-08	4.29E-08
U-236	2.31E-09	1.92E-06	3.28E-03	1.47E-09	1.54E-09	4.63E-09	6.34E-09
U-238	3.28E-07	2.73E-04	0.466	1.95E-07	2.07E-07	6.96E-07	9.67E-07
Np-237	5.01E-10	4.17E-07	7.13E-04	4.52E-10	4.76E-10	5.26E-10	5.50E-10
Pu-238	3.80E-07	3.16E-04	0.541	1.60E-07	1.67E-07	6.64E-07	9.37E-07
Pu-239	7.26E-05	6.03E-02	103	3.67E-05	4.61E-05	1.08E-04	1.42E-04
Pu-240	5.46E-06	4.54E-03	7.77	2.78E-06	2.88E-06	8.90E-06	1.22E-05
Pu-241	1.24E-05	1.03E-02	17.6	2.70E-06	3.04E-06	2.48E-05	3.68E-05
Pu-242	5.42E-11	4.51E-08	7.71E-05	9.93E-12	1.15E-11	1.11E-10	1.66E-10
Am-241	1.51E-08	1.26E-05	2.15E-02	1.21E-08	1.36E-08	1.67E-08	1.81E-08
Am-243	9.87E-14	8.21E-11	1.40E-07	7.70E-14	8.76E-14	1.10E-13	1.20E-13
Cm-242	1.22E-10	1.02E-07	1.74E-04	1.21E-10	1.22E-10	1.23E-10	1.23E-10
Cm-243	2.49E-12	2.07E-09	3.54E-06	2.47E-12	2.48E-12	2.50E-12	2.50E-12
Cm-244	2.30E-12	1.91E-09	3.27E-06	1.78E-12	2.03E-12	2.56E-12	2.81E-12
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	1.19E-03 (g/L)	---	1.70	6.05E-04	7.55E-04	1.77E-03	2.33E-03
U	4.13E-03	816	1.40E+03	2.45E-03	2.60E-03	8.77E-03	1.22E-02

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-110							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	1.20E+04 (kg)	(3.07 kgal)	----	----	----	----	----
Heat Load	1.18E-04 (kW)	(0.401 BTU/hr)	----	8.84E-05	1.03E-04	1.32E-04	1.47E-04
Bulk Density*	1.03 (g/cc)	----	----	1.02	1.03	1.03	1.04
Water wt%†	94.4	----	----	93.0	93.7	95.0	95.7
TOC wt% C (w	3.71E-12	----	----	3.28E-12	3.49E-12	3.92E-12	4.13E-12
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	2.12E-08	2.06E-05	2.46E-04	1.20E-08	1.62E-08	2.69E-08	3.30E-08
C-14	8.31E-09	8.07E-06	9.65E-05	6.25E-09	7.26E-09	9.36E-09	1.04E-08
Ni-59	2.36E-09	2.29E-06	2.74E-05	1.78E-09	2.06E-09	2.65E-09	2.65E-09
Ni-63	2.15E-07	2.09E-04	2.50E-03	1.62E-07	1.88E-07	2.42E-07	2.42E-07
Co-60	2.24E-09	2.18E-06	2.60E-05	1.69E-09	1.96E-09	2.52E-09	2.79E-09
Se-79	1.75E-09	1.70E-06	2.04E-05	1.32E-09	1.53E-09	1.98E-09	2.19E-09
Sr-90	8.38E-04	0.814	9.74	6.31E-04	7.32E-04	9.44E-04	1.05E-03
Y-90	8.38E-04	0.814	9.74	6.31E-04	7.32E-04	9.44E-04	1.05E-03
Zr-93	8.32E-09	8.08E-06	9.67E-05	6.26E-09	7.27E-09	9.37E-09	1.04E-08
Nb-93m	6.95E-09	6.75E-06	8.08E-05	5.23E-09	6.08E-09	7.83E-09	8.68E-09
Tc-99	5.78E-08	5.61E-05	6.71E-04	4.35E-08	5.05E-08	6.51E-08	7.21E-08
Ru-106	1.14E-15	1.11E-12	1.32E-11	8.57E-16	9.95E-16	1.28E-15	1.42E-15
Cd-113m	2.19E-08	2.13E-05	2.54E-04	1.65E-08	1.91E-08	2.47E-08	2.73E-08
Sb-125	2.28E-09	2.21E-06	2.65E-05	1.71E-09	1.99E-09	2.57E-09	2.84E-09
Sn-126	2.65E-09	2.58E-06	3.08E-05	2.00E-09	2.32E-09	2.99E-09	3.31E-09
I-129	1.09E-10	1.06E-07	1.27E-06	8.23E-11	9.56E-11	1.23E-10	1.37E-10
Cs-134	1.05E-10	1.02E-07	1.22E-06	7.87E-11	9.14E-11	1.18E-10	1.31E-10
Cs-137	9.54E-04	0.927	11.1	7.18E-04	8.34E-04	1.07E-03	1.19E-03
Ba-137m	9.03E-04	0.877	10.5	6.79E-04	7.89E-04	1.02E-03	1.13E-03
Sm-151	6.48E-06	6.30E-03	7.54E-02	4.88E-06	5.67E-06	7.30E-06	8.09E-06
Eu-152	3.17E-10	3.08E-07	3.69E-06	2.39E-10	2.77E-10	3.57E-10	3.96E-10
Eu-154	4.28E-08	4.15E-05	4.97E-04	3.22E-08	3.74E-08	4.82E-08	5.34E-08
Eu-155	2.13E-08	2.07E-05	2.47E-04	1.60E-08	1.86E-08	2.40E-08	2.66E-08
Ra-226	3.56E-13	3.46E-10	4.14E-09	2.68E-13	3.11E-13	4.01E-13	4.44E-13
Ra-228	8.76E-19	8.51E-16	1.02E-14	6.59E-19	7.65E-19	9.87E-19	1.09E-18
Ac-227	1.84E-12	1.79E-09	2.14E-08	1.39E-12	1.61E-12	2.07E-12	2.30E-12
Pa-231	4.15E-12	4.03E-09	4.83E-08	3.13E-12	3.63E-12	4.68E-12	5.18E-12
Th-229	1.71E-16	1.66E-13	1.98E-12	1.28E-16	1.49E-16	1.92E-16	2.13E-16
Th-232	2.27E-18	2.21E-15	2.64E-14	1.71E-18	1.98E-18	2.56E-18	2.84E-18
U-232	2.60E-12	2.52E-09	3.02E-08	1.96E-12	2.27E-12	2.93E-12	3.24E-12
U-233	1.19E-13	1.16E-10	1.38E-09	8.95E-14	1.04E-13	1.34E-13	1.48E-13
U-234	1.08E-07	1.05E-04	1.25E-03	8.13E-08	9.43E-08	1.22E-07	1.35E-07
U-235	4.77E-09	4.63E-06	5.54E-05	3.59E-09	4.17E-09	5.37E-09	5.95E-09
U-236	1.11E-09	1.07E-06	1.29E-05	8.32E-10	9.67E-10	1.25E-09	1.38E-09
U-238	1.10E-07	1.07E-04	1.28E-03	8.26E-08	9.59E-08	1.24E-07	1.37E-07
Np-237	3.61E-10	3.50E-07	4.19E-06	2.71E-10	3.15E-10	4.06E-10	4.50E-10
Pu-238	4.54E-08	4.41E-05	5.28E-04	1.32E-08	2.90E-08	5.77E-08	5.77E-08
Pu-239	5.64E-06	5.48E-03	6.55E-02	1.64E-06	3.60E-06	7.17E-06	7.17E-06
Pu-240	5.51E-07	5.35E-04	6.40E-03	1.60E-07	3.51E-07	7.00E-07	7.00E-07
Pu-241	1.99E-06	1.94E-03	2.32E-02	5.80E-07	1.27E-06	2.53E-06	2.53E-06
Pu-242	9.11E-12	8.85E-09	1.06E-07	2.65E-12	5.81E-12	1.16E-11	1.16E-11
Am-241	2.19E-08	2.13E-05	2.55E-04	1.65E-08	1.92E-08	2.47E-08	2.74E-08
Am-243	1.59E-13	1.54E-10	1.84E-09	1.19E-13	1.39E-13	1.79E-13	1.98E-13
Cm-242	6.30E-12	6.12E-09	7.32E-08	4.74E-12	5.50E-12	7.09E-12	7.86E-12
Cm-243	1.30E-13	1.26E-10	1.51E-09	9.76E-14	1.13E-13	1.46E-13	1.62E-13
Cm-244	3.78E-12	3.67E-09	4.39E-08	2.85E-12	3.30E-12	4.26E-12	4.72E-12
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	9.32E-05 (g/L)	----	1.08E-03	2.71E-05	5.95E-05	1.18E-04	1.18E-04
U	1.38E-03	319	3.82	1.04E-03	1.21E-03	1.56E-03	1.72E-03

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

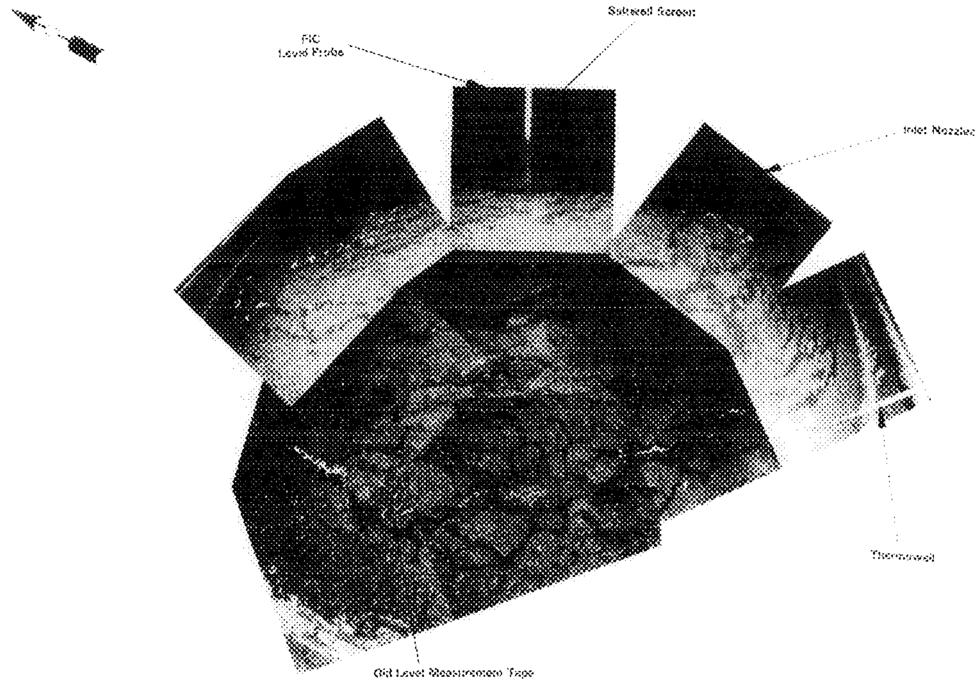
Single-Shell Tank 241-T-110							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	1.72E+06 (kg)	(379 kgal)	---	---	---	---	---
Heat Load	1.93E-02 (kW)	(65.9 BTU/hr)	---	1.73E-02	1.83E-02	2.03E-02	2.13E-02
Bulk Density†	1.20 (g/cc)	---	---	1.12	1.16	1.24	1.27
Water wt%†	75.0	---	---	70.1	72.3	78.1	81.6
TOC wt% C (w	5.59E-02	---	---	5.30E-02	5.43E-02	5.79E-02	6.00E-02
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	3.46E-08	2.88E-05	4.96E-02	2.68E-08	3.08E-08	3.82E-08	4.17E-08
C-14	1.18E-08	9.84E-06	1.70E-02	1.07E-08	1.12E-08	1.24E-08	1.30E-08
Ni-59	3.36E-09	2.80E-06	4.82E-03	3.04E-09	3.20E-09	5.18E-09	9.30E-09
Ni-63	3.00E-07	2.50E-04	0.430	2.70E-07	2.85E-07	4.59E-07	8.21E-07
Co-60	2.28E-09	1.90E-06	3.27E-03	1.97E-09	2.12E-09	2.44E-09	2.59E-09
Se-79	2.49E-09	2.07E-06	3.57E-03	2.25E-09	2.37E-09	2.61E-09	2.73E-09
Sr-90	1.12E-03	0.931	1.60E+03	1.00E-03	1.06E-03	1.18E-03	1.23E-03
Y-90	1.12E-03	0.931	1.60E+03	1.00E-03	1.06E-03	1.18E-03	1.23E-03
Zr-93	1.18E-08	9.86E-06	1.70E-02	1.07E-08	1.13E-08	1.24E-08	1.30E-08
Nb-93m	1.01E-08	8.39E-06	1.45E-02	9.12E-09	9.59E-09	1.06E-08	1.10E-08
Tc-99	8.19E-08	6.82E-05	0.117	7.40E-08	7.79E-08	8.60E-08	8.98E-08
Ru-106	6.91E-16	5.75E-13	9.91E-10	5.35E-16	6.11E-16	7.71E-16	8.48E-16
Cd-113m	2.70E-08	2.25E-05	3.87E-02	2.40E-08	2.55E-08	2.85E-08	3.00E-08
Sb-125	1.86E-09	1.55E-06	2.66E-03	1.54E-09	1.70E-09	2.02E-09	2.17E-09
Sn-126	3.73E-09	3.10E-06	5.35E-03	3.36E-09	3.54E-09	3.91E-09	4.09E-09
I-129	1.54E-10	1.28E-07	2.20E-04	1.39E-10	1.46E-10	1.61E-10	1.69E-10
Cs-134	6.97E-11	5.80E-08	1.00E-04	5.53E-11	6.24E-11	7.70E-11	8.41E-11
Cs-137	1.27E-03	1.05	1.82E+03	1.13E-03	1.20E-03	1.33E-03	1.40E-03
Ba-137m	1.20E-03	0.997	1.72E+03	1.07E-03	1.13E-03	1.26E-03	1.32E-03
Sm-151	9.33E-06	7.77E-03	13.4	8.44E-06	8.87E-06	9.78E-06	1.02E-05
Eu-152	7.10E-09	5.91E-06	1.02E-02	7.06E-09	7.08E-09	7.12E-09	7.14E-09
Eu-154	3.80E-08	3.16E-05	5.45E-02	3.21E-08	3.50E-08	4.10E-08	4.39E-08
Eu-155	5.83E-07	4.85E-04	0.836	5.80E-07	5.81E-07	5.84E-07	5.86E-07
Ra-226	8.34E-13	6.94E-10	1.20E-06	7.51E-13	8.01E-13	8.65E-13	8.94E-13
Ra-228	3.32E-17	2.76E-14	4.76E-11	3.31E-17	3.31E-17	3.33E-17	3.33E-17
Ac-227	4.23E-12	3.52E-09	6.07E-06	3.81E-12	4.07E-12	4.38E-12	4.53E-12
Pa-231	9.00E-12	7.49E-09	1.29E-05	8.13E-12	8.65E-12	9.32E-12	9.63E-12
Th-229	6.43E-15	5.35E-12	9.23E-09	6.41E-15	6.42E-15	6.44E-15	6.45E-15
Th-232	3.49E-18	2.91E-15	5.01E-12	3.18E-18	3.33E-18	3.65E-18	3.80E-18
U-232	4.58E-12	3.81E-09	6.57E-06	3.04E-12	3.17E-12	8.86E-12	1.20E-11
U-233	2.53E-13	2.10E-10	3.63E-07	1.60E-13	1.69E-13	5.09E-13	6.97E-13
U-234	3.22E-07	2.68E-04	0.461	1.91E-07	2.03E-07	6.83E-07	9.48E-07
U-235	1.44E-08	1.20E-05	2.07E-02	8.56E-09	9.09E-09	3.07E-08	4.26E-08
U-236	2.30E-09	1.91E-06	3.29E-03	1.46E-09	1.54E-09	4.60E-09	6.30E-09
U-238	3.26E-07	2.71E-04	0.468	1.94E-07	2.06E-07	6.92E-07	9.60E-07
Np-237	5.00E-10	4.16E-07	7.17E-04	4.51E-10	4.75E-10	5.25E-10	5.50E-10
Pu-238	3.78E-07	3.14E-04	0.542	1.59E-07	1.67E-07	6.59E-07	9.29E-07
Pu-239	7.20E-05	6.00E-02	103	3.64E-05	4.58E-05	1.07E-04	1.41E-04
Pu-240	5.42E-06	4.51E-03	7.77	2.77E-06	2.86E-06	8.83E-06	1.21E-05
Pu-241	1.23E-05	1.02E-02	17.6	2.69E-06	3.04E-06	2.47E-05	3.65E-05
Pu-242	5.38E-11	4.48E-08	7.72E-05	9.92E-12	1.15E-11	1.10E-10	1.65E-10
Am-241	1.52E-08	1.26E-05	2.18E-02	1.22E-08	1.37E-08	1.67E-08	1.82E-08
Am-243	9.92E-14	8.26E-11	1.42E-07	7.74E-14	8.81E-14	1.10E-13	1.21E-13
Cm-242	1.21E-10	1.01E-07	1.74E-04	1.20E-10	1.21E-10	1.22E-10	1.22E-10
Cm-243	2.47E-12	2.05E-09	3.54E-06	2.45E-12	2.46E-12	2.48E-12	2.49E-12
Cm-244	2.31E-12	1.92E-09	3.31E-06	1.79E-12	2.04E-12	2.57E-12	2.83E-12
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	1.18E-03 (g/L)	---	1.70	6.01E-04	7.50E-04	1.76E-03	2.31E-03
U	4.10E-03	813	1.40E+03	2.44E-03	2.59E-03	8.71E-03	1.21E-02

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Volume average for density, mass average Water wt% and TOC wt% C.

241-T-110

Photo date: 7-13-84



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TANK 241-T-111 SUMMARY

TANK HISTORY	
Entered Service	4th qtr 1945
Removed from Service	1974
Inactive	1976
Watch Lists	Organics
Integrity	Assumed Leaker
Assumed Leaker	1979
Interim Stabilization (IS)	Feb 1995
Partial Interim Isolation (PI)	Dec 1982
Intrusion Prevention (IP)	-
TENTATIVELY AVAILABLE RISERS	
Riser Number	Size
2, 3, 6	12 in
TANK TEMPERATURE	
Average Tank Temperature	64°F
Maximum Temperature	87°F
Date	Aug 5, 1976
Elevation from tank bottom	unknown
Riser Number	5
Minimum Temperature	47.9°F
Date	March 14, 1994
Elevation from tank bottom	unknown
Riser Number	5

TANK DESCRIPTION	
Diameter	75 ft
Bottom Shape	Dish
Nominal Capacity	530,000 gal
Cascade Tank	to 241-T-112
Total Risers	9
WASTE VOLUME (HANLON 1996I)	
Total Waste Volume	446,000 gal
Waste Type	NCPLX
Drainable Interstitial Liquids	34,000 gal
Pumpable Liquids	29,000 gal
Saltcake	0 gal
Sludge	446,000 gal
Supernatant	0 gal
INTERIOR PHOTOGRAPHS	
Date	April 13, 1994
Montage Number	94050041-1CN
Photo Set Number	94-040153
WASTE SURFACE LEVEL	
Devices	Manual ENRAF
Max Level	169.41 in
Date	Nov 4 - 17, 1996*
Min Level	157 in
Date	June 16, 1995

* Numerous dates in this time span.

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WASTE TYPES TIME LINE (ANDERSON 1990)	2C	2C 224
PRIMARY ADDITIONS TIME LINE (AGNEW 1995)	NONE	

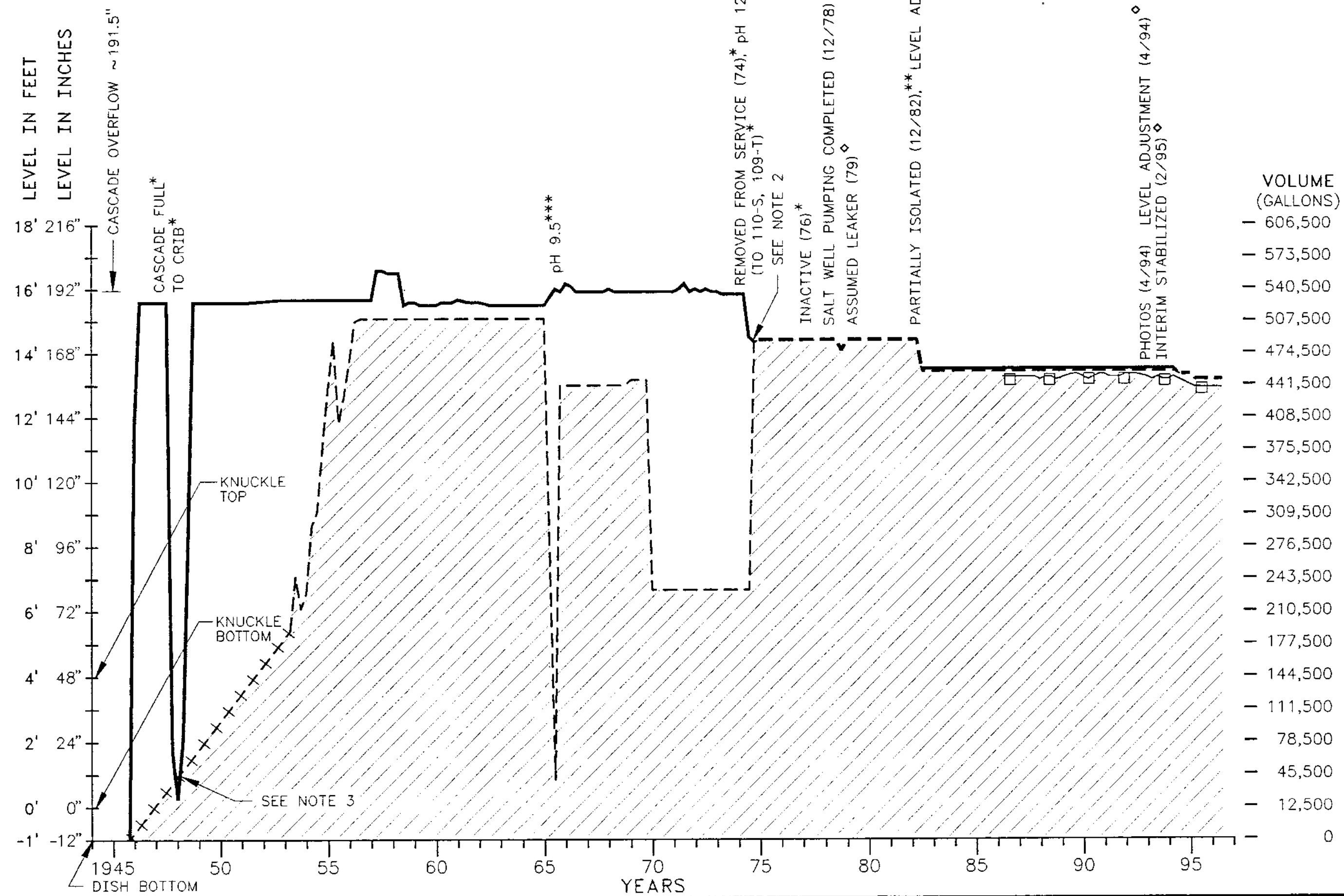
TANK INFO:
CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 530,000 GAL
DISH BOTTOM, 4 FOOT RADIUS KNUCKLE
75 FOOT DIAMETER TANK

REFERENCES
* ANDERSON 1990
** WELTY 1988
*** BORSHEIM AND KIRCH 1991
◇ HANLON 1996l
◇◇ McCANN 1982b

NOTES:
1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN.
3) SOLIDS EXCEEDS TOTAL WASTE DUE TO ASSUMPTIONS.

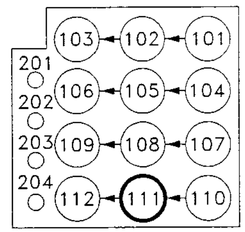
GLOSSARY OF WASTE TERMS:
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A.

224: 224-U WASTE
2C: SECOND CYCLE DECON WASTE



LEGEND
TOTAL WASTE LEVEL (SUPERNATE)
TOTAL WASTE LEVEL (SOLIDS)
SOLIDS LEVEL
ASSUMED SOLIDS LEVEL
INTERSTITIAL LIQUID LEVEL
SOLIDS

T TANK FARM CASCADE



U.S. DEPARTMENT OF ENERGY
Richland Operations Office
FLUOR DANIEL NORTHWEST, INC.

241-T-111 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1945-1996
ASSUMED LEAKER/STABILIZED TANK
WATCH LIST: ORGANICS

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E104	1/97
SCALE NONE		JOB NO.	SHEET 1 OF 1

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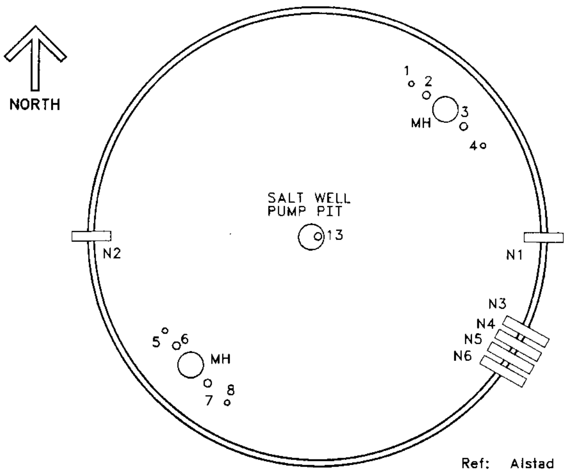
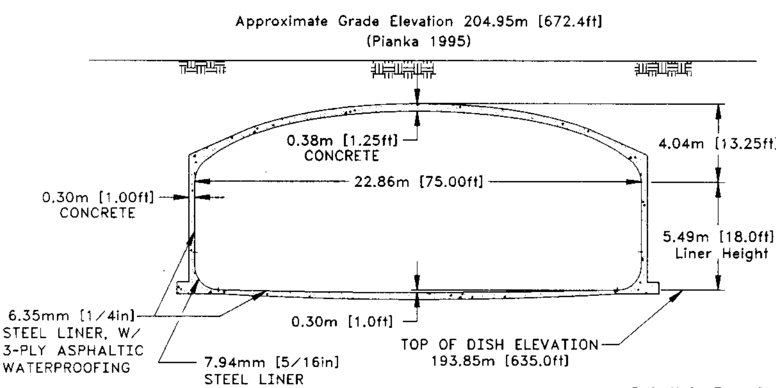
241-T-111



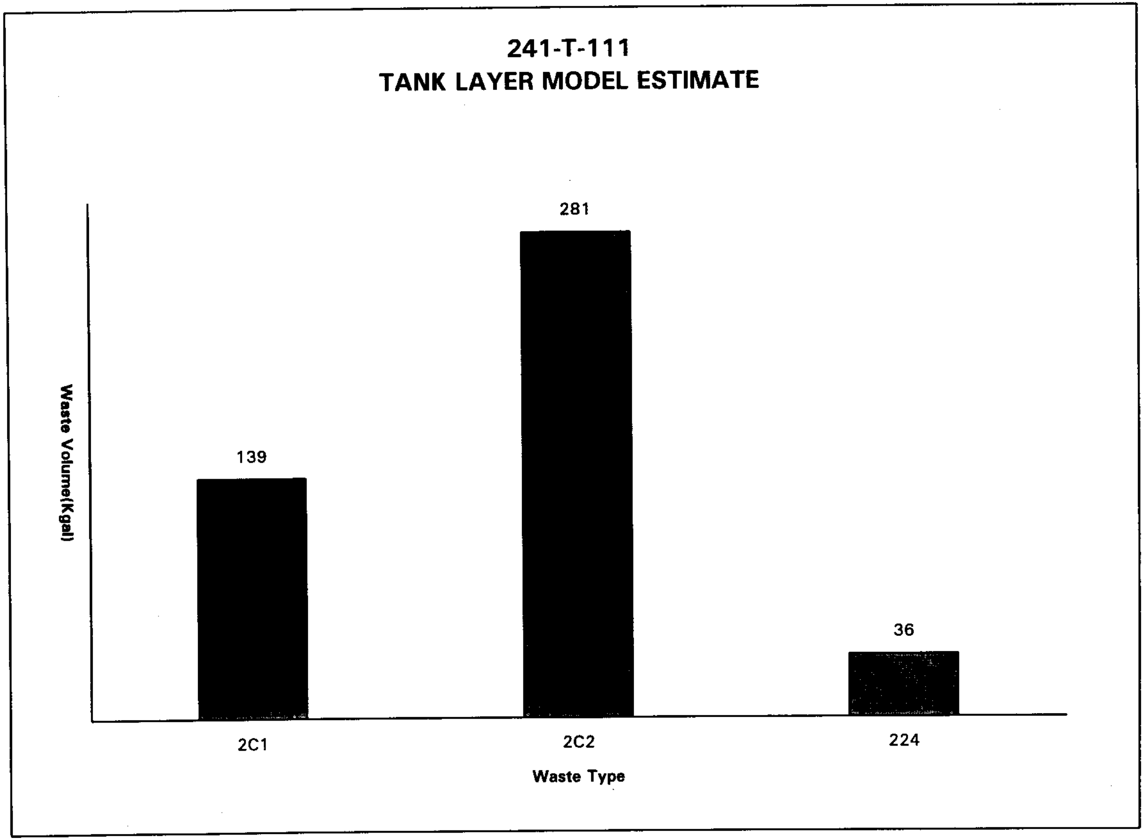
Ref: Alstad 1993
W-72743
H-2-73058, Rev. 5

TANK RISER LOCATION



Ref: H-2-1741, Rev. 3
CVI 73550, dwg D-2

NOT TO SCALE



Tank Layer Model(TLM) Estimate from *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 4* (Agnew et al., 1997).

HDW Model Rev. 4

Single-Shell Tank 241-T-111

TLM Solids Composite Inventory Estimate*

Physical Properties				-95 CI	-67 CI	+67 CI	+95 CI
Total TLM Wa	2.02E+06 (kg)	(456 kgal)	----	----	----	----	----
Heat Load	2.32E-02 (kW)	(79.2 BTU/hr)	----	1.94E-02	2.12E-02	2.52E-02	2.70E-02
Bulk Density	1.17 (g/cc)	----	----	1.13	1.15	1.19	1.20
Void Fraction	0.886	----	----	0.843	0.862	0.917	0.948
Water wt%	77.1	----	----	74.3	75.6	78.7	80.6
TOC wt% C (w	0.172	----	----	0.165	0.169	0.175	0.178
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	2.35	4.61E+04	9.31E+04	1.54	1.94	2.74	3.08
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	0.683	3.26E+04	6.59E+04	0.668	0.675	0.691	0.699
Cr3+	4.63E-03	206	416	3.88E-03	4.25E-03	5.01E-03	5.38E-03
Bi3+	5.78E-02	1.03E+04	2.08E+04	3.48E-02	4.73E-02	6.59E-02	7.22E-02
La3+	2.67E-04	31.7	64.0	1.99E-04	2.34E-04	2.98E-04	3.29E-04
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	1.43E-03	71.5	144	1.20E-03	1.31E-03	1.77E-03	4.44E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	3.58E-04	16.8	34.0	2.68E-04	3.14E-04	4.01E-04	4.42E-04
Ca2+	0.233	7.99E+03	1.61E+04	0.172	0.202	0.265	0.295
K+	1.99E-02	665	1.34E+03	1.58E-02	1.79E-02	2.18E-02	2.37E-02
OH-	2.11	3.06E+04	6.19E+04	2.06	2.09	2.13	2.16
NO3-	0.782	4.14E+04	8.37E+04	0.689	0.735	0.829	0.874
NO2-	1.47E-02	578	1.17E+03	1.15E-02	1.29E-02	1.67E-02	1.88E-02
CO32-	0.233	1.20E+04	2.42E+04	0.172	0.202	0.265	0.295
PO43-	0.403	3.27E+04	6.61E+04	0.155	0.282	0.492	0.558
SO42-	2.77E-02	2.27E+03	4.59E+03	2.40E-02	2.58E-02	2.96E-02	3.14E-02
Si (as SiO32-)	3.51E-02	843	1.70E+03	1.90E-02	1.97E-02	7.09E-02	0.105
F-	0.200	3.24E+03	6.55E+03	0.134	0.137	0.292	0.447
Cl-	1.89E-02	573	1.16E+03	1.66E-02	1.77E-02	2.01E-02	2.13E-02
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	8.38E-02	6.30E+03	1.27E+04	8.00E-02	8.22E-02	8.51E-02	8.60E-02
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	4.21E-06	6.11E-02	0.123	2.88E-06	3.44E-06	5.17E-06	6.32E-06
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-111							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	7.95E+03 (kg)	(2.06 kgal)	—	—	—	—	—
Heat Load	4.83E-05 (kW)	(0.165 BTU/hr)	—	3.64E-05	4.22E-05	5.44E-05	6.03E-05
Bulk Density*	1.02 (g/cc)	—	—	1.01	1.02	1.02	1.02
Water wt%	96.5	—	—	95.7	96.1	96.9	97.3
TOC wt% C (w	5.10E-12	—	—	4.52E-12	4.80E-12	5.40E-12	5.68E-12
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	0.489	1.10E+04	87.8	0.368	0.427	0.551	0.610
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	7.70E-04	42.2	0.336	4.25E-04	5.94E-04	9.46E-04	1.11E-03
Cr3+	2.09E-03	107	0.848	1.57E-03	1.82E-03	2.35E-03	2.60E-03
Bi3+	1.54E-03	316	2.51	1.30E-03	1.42E-03	1.66E-03	1.78E-03
La3+	1.65E-12	2.25E-07	1.79E-09	1.20E-12	1.42E-12	1.89E-12	2.11E-12
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	6.17E-04	35.6	0.283	4.64E-04	5.39E-04	6.93E-04	6.93E-04
Sr2+	0	0	0	0	0	0	0
Mn4+	2.22E-12	1.20E-07	9.51E-10	1.61E-12	1.90E-12	2.53E-12	2.83E-12
Ca2+	3.47E-03	136	1.09	2.11E-03	2.78E-03	4.15E-03	4.81E-03
K+	1.42E-03	54.7	0.435	1.07E-03	1.24E-03	1.60E-03	1.78E-03
OH-	2.92E-02	487	3.87	2.25E-02	2.58E-02	3.26E-02	3.57E-02
NO3-	0.265	1.61E+04	128	0.200	0.231	0.298	0.329
NO2-	2.63E-03	119	0.945	1.49E-03	2.01E-03	3.33E-03	4.09E-03
CO32-	3.47E-03	204	1.63	2.11E-03	2.78E-03	4.15E-03	4.81E-03
PO43-	4.21E-02	3.93E+03	31.3	3.21E-02	3.70E-02	4.73E-02	5.22E-02
SO42-	1.04E-02	977	7.77	7.79E-03	9.05E-03	1.17E-02	1.29E-02
Si (as SiO32-)	7.51E-03	207	1.65	5.65E-03	6.56E-03	8.46E-03	9.37E-03
F-	4.46E-02	833	6.63	3.36E-02	3.90E-02	5.03E-02	5.57E-02
Cl-	6.55E-03	228	1.81	4.93E-03	5.72E-03	7.38E-03	8.17E-03
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	2.16E-12	1.87E-07	1.49E-09	1.92E-12	2.04E-12	2.29E-12	2.41E-12
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	1.24E-06	2.08E-02	1.65E-04	5.30E-07	8.30E-07	1.78E-06	2.41E-06
Fe(CN)64-	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-111							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	2.03E+06 (kg)	(458 kgal)	----	---	---	---	---
Heat Load	2.32E-02 (kW)	(79.4 BTU/hr)	----	1.94E-02	2.13E-02	2.52E-02	2.71E-02
Bulk Density†	1.17 (g/cc)	---	----	1.13	1.15	1.19	1.20
Water wt%†	77.1	---	----	74.4	75.6	78.8	80.6
TOC wt% C (w	0.171	---	----	0.164	0.168	0.174	0.178
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	2.34	4.59E+04	9.32E+04	1.54	1.94	2.73	3.06
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	0.680	3.25E+04	6.59E+04	0.665	0.672	0.688	0.696
Cr3+	4.62E-03	205	416	3.87E-03	4.24E-03	5.00E-03	5.37E-03
Bi3+	5.76E-02	1.03E+04	2.09E+04	3.47E-02	4.71E-02	6.56E-02	7.18E-02
La3+	2.66E-04	31.5	64.0	1.99E-04	2.33E-04	2.97E-04	3.28E-04
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	1.42E-03	71.4	145	1.20E-03	1.31E-03	1.77E-03	4.42E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	3.56E-04	16.7	34.0	2.66E-04	3.13E-04	3.99E-04	4.40E-04
Ca2+	0.232	7.96E+03	1.61E+04	0.171	0.201	0.264	0.293
K+	1.98E-02	663	1.34E+03	1.58E-02	1.79E-02	2.18E-02	2.36E-02
OH-	2.10	3.05E+04	6.19E+04	2.05	2.08	2.12	2.15
NO3-	0.780	4.13E+04	8.38E+04	0.687	0.732	0.826	0.871
NO2-	1.46E-02	576	1.17E+03	1.14E-02	1.29E-02	1.66E-02	1.87E-02
CO32-	0.232	1.19E+04	2.42E+04	0.171	0.201	0.264	0.293
PO43-	0.402	3.26E+04	6.61E+04	0.155	0.281	0.490	0.555
SO42-	2.76E-02	2.27E+03	4.60E+03	2.39E-02	2.57E-02	2.95E-02	3.13E-02
Si (as SiO32-)	3.50E-02	841	1.70E+03	1.90E-02	1.97E-02	7.07E-02	0.105
F-	0.199	3.23E+03	6.55E+03	0.134	0.136	0.291	0.445
Cl-	1.89E-02	572	1.16E+03	1.65E-02	1.77E-02	2.01E-02	2.12E-02
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	8.34E-02	6.28E+03	1.27E+04	7.96E-02	8.18E-02	8.47E-02	8.56E-02
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	4.19E-06	6.09E-02	0.124	2.87E-06	3.43E-06	5.16E-06	6.30E-06
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-111							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	2.02E+06 (kg)	(456 kgal)	---	---	---	---	---
Heat Load	2.32E-02 (kW)	(79.2 BTU/hr)	---	1.94E-02	2.12E-02	2.52E-02	2.70E-02
Bulk Density	1.17 (g/cc)	---	---	1.13	1.15	1.19	1.20
Void Fraction	0.886	---	---	0.843	0.862	0.917	0.948
Water wt%	77.1	---	---	74.3	75.6	78.7	80.6
TOC wt% C (w	0.172	---	---	0.165	0.169	0.175	0.178
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	3.15E-08	2.69E-05	5.44E-02	2.32E-08	2.70E-08	3.67E-08	4.22E-08
C-14	1.14E-08	9.77E-06	1.97E-02	9.61E-09	1.05E-08	1.24E-08	1.33E-08
Ni-59	3.25E-09	2.78E-06	5.61E-03	2.73E-09	2.99E-09	4.20E-09	1.03E-08
Ni-63	2.93E-07	2.51E-04	0.506	2.46E-07	2.69E-07	3.76E-07	9.36E-07
Co-60	2.62E-09	2.24E-06	4.52E-03	2.13E-09	2.37E-09	2.87E-09	3.11E-09
Se-79	2.41E-09	2.06E-06	4.16E-03	2.03E-09	2.22E-09	2.61E-09	2.80E-09
Sr-90	1.12E-03	0.953	1.92E+03	9.31E-04	1.02E-03	1.21E-03	1.30E-03
Y-90	1.12E-03	0.953	1.93E+03	9.32E-04	1.02E-03	1.21E-03	1.30E-03
Zr-93	1.15E-08	9.79E-06	1.98E-02	9.63E-09	1.05E-08	1.24E-08	1.33E-08
Nb-93m	9.67E-09	8.26E-06	1.67E-02	8.14E-09	8.89E-09	1.04E-08	1.12E-08
Tc-99	7.94E-08	6.78E-05	0.137	6.67E-08	7.29E-08	8.58E-08	9.21E-08
Ru-106	1.10E-15	9.36E-13	1.89E-09	8.45E-16	9.68E-16	1.22E-15	1.35E-15
Cd-113m	2.80E-08	2.39E-05	4.83E-02	2.32E-08	2.55E-08	3.04E-08	3.28E-08
Sb-125	2.43E-09	2.07E-06	4.19E-03	1.93E-09	2.17E-09	2.68E-09	2.93E-09
Sn-126	3.63E-09	3.10E-06	6.26E-03	3.05E-09	3.33E-09	3.93E-09	4.21E-09
I-129	1.50E-10	1.28E-07	2.58E-04	1.26E-10	1.37E-10	1.62E-10	1.74E-10
Cs-134	1.03E-10	8.82E-08	1.78E-04	8.02E-11	9.15E-11	1.15E-10	1.26E-10
Cs-137	1.27E-03	1.08	2.19E+03	1.06E-03	1.16E-03	1.37E-03	1.48E-03
Ba-137m	1.20E-03	1.02	2.07E+03	1.00E-03	1.10E-03	1.30E-03	1.40E-03
Sm-151	8.98E-06	7.67E-03	15.5	7.56E-06	8.26E-06	9.71E-06	1.04E-05
Eu-152	1.02E-08	8.71E-06	1.76E-02	1.01E-08	1.02E-08	1.02E-08	1.03E-08
Eu-154	4.70E-08	4.01E-05	8.11E-02	3.76E-08	4.22E-08	5.18E-08	5.64E-08
Eu-155	7.42E-07	6.34E-04	1.28	7.38E-07	7.40E-07	7.45E-07	7.47E-07
Ra-226	6.61E-13	5.65E-10	1.14E-06	5.83E-13	6.21E-13	7.01E-13	7.39E-13
Ra-228	3.52E-17	3.01E-14	6.08E-11	3.50E-17	3.51E-17	3.53E-17	3.54E-17
Ac-227	3.38E-12	2.88E-09	5.83E-06	2.97E-12	3.17E-12	3.58E-12	3.78E-12
Pa-231	7.33E-12	6.26E-09	1.27E-05	6.42E-12	6.87E-12	7.80E-12	8.24E-12
Th-229	6.85E-15	5.85E-12	1.18E-08	6.81E-15	6.83E-15	6.86E-15	6.88E-15
Th-232	3.26E-18	2.79E-15	5.63E-12	2.76E-18	3.01E-18	3.52E-18	3.76E-18
U-232	4.04E-12	3.45E-09	6.97E-06	3.23E-12	3.30E-12	6.26E-12	7.90E-12
U-233	2.07E-13	1.77E-10	3.58E-07	1.59E-13	1.63E-13	3.41E-13	4.39E-13
U-234	2.36E-07	2.02E-04	0.408	1.69E-07	1.75E-07	4.24E-07	5.62E-07
U-235	1.05E-08	9.01E-06	1.82E-02	7.50E-09	7.77E-09	1.90E-08	2.52E-08
U-236	1.90E-09	1.62E-06	3.28E-03	1.47E-09	1.50E-09	3.10E-09	3.98E-09
U-238	2.40E-07	2.05E-04	0.414	1.71E-07	1.77E-07	4.30E-07	5.70E-07
Np-237	4.90E-10	4.18E-07	8.45E-04	4.11E-10	4.49E-10	5.30E-10	5.69E-10
Pu-238	4.65E-07	3.98E-04	0.803	1.10E-07	1.23E-07	9.22E-07	1.36E-06
Pu-239	7.09E-05	6.06E-02	122	2.68E-05	2.84E-05	1.28E-04	1.82E-04
Pu-240	6.08E-06	5.19E-03	10.5	1.77E-06	1.93E-06	1.16E-05	1.69E-05
Pu-241	1.82E-05	1.55E-02	31.4	2.61E-06	3.17E-06	3.83E-05	5.75E-05
Pu-242	8.19E-11	7.00E-08	1.41E-04	1.07E-11	1.32E-11	1.74E-10	2.62E-10
Am-241	2.18E-08	1.86E-05	3.76E-02	1.70E-08	1.94E-08	2.43E-08	2.66E-08
Am-243	1.52E-13	1.30E-10	2.63E-07	1.18E-13	1.35E-13	1.70E-13	1.87E-13
Cm-242	1.92E-10	1.64E-07	3.32E-04	1.91E-10	1.91E-10	1.93E-10	1.94E-10
Cm-243	3.95E-12	3.37E-09	6.81E-06	3.92E-12	3.93E-12	3.96E-12	3.98E-12
Cm-244	3.61E-12	3.08E-09	6.22E-06	2.78E-12	3.18E-12	4.03E-12	4.44E-12
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	1.17E-03 (g/L)	---	2.01	4.39E-04	4.65E-04	2.10E-03	3.00E-03
U	3.02E-03	614	1.24E+03	2.15E-03	2.23E-03	5.41E-03	7.17E-03

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-111							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	7.95E+03 (kg)	(2.06 kgal)	----	----	----	----	----
Heat Load	4.83E-05 (kW)	(0.165 BTU/hr)	—	3.64E-05	4.22E-05	5.44E-05	6.03E-05
Bulk Density*	1.02 (g/cc)	----	----	1.01	1.02	1.02	1.02
Water wt%†	96.5	----	----	95.7	96.1	96.9	97.3
TOC wt% C (w	5.10E-12	----	—	4.52E-12	4.80E-12	5.40E-12	5.68E-12
Radiological Constituents	**CI/L**	**µCi/g**	**CI**	**-95 CI (CI/L)**	**-67 CI (CI/L)**	**+67 CI (CI/L)**	**+95 CI (CI/L)**
H-3	1.29E-08	1.27E-05	1.01E-04	7.33E-09	9.88E-09	1.64E-08	2.02E-08
C-14	5.08E-09	4.99E-06	3.97E-05	3.82E-09	4.44E-09	5.72E-09	6.34E-09
Ni-59	1.44E-09	1.42E-06	1.13E-05	1.09E-09	1.26E-09	1.62E-09	1.62E-09
Ni-63	1.32E-07	1.29E-04	1.03E-03	9.91E-08	1.15E-07	1.48E-07	1.48E-07
Co-60	1.37E-09	1.35E-06	1.07E-05	1.03E-09	1.20E-09	1.54E-09	1.71E-09
Se-79	1.07E-09	1.05E-06	8.38E-06	8.07E-10	9.37E-10	1.21E-09	1.34E-09
Sr-90	5.12E-04	0.503	4.00	3.86E-04	4.48E-04	5.77E-04	6.40E-04
Y-90	5.13E-04	0.504	4.00	3.86E-04	4.48E-04	5.77E-04	6.40E-04
Zr-93	5.09E-09	5.00E-06	3.97E-05	3.83E-09	4.45E-09	5.73E-09	6.35E-09
Nb-93m	4.25E-09	4.18E-06	3.32E-05	3.20E-09	3.72E-09	4.79E-09	5.31E-09
Tc-99	3.53E-08	3.47E-05	2.76E-04	2.66E-08	3.09E-08	3.98E-08	4.41E-08
Ru-106	6.97E-16	6.84E-13	5.44E-12	5.24E-16	6.09E-16	7.85E-16	8.69E-16
Cd-113m	1.34E-08	1.32E-05	1.05E-04	1.01E-08	1.17E-08	1.51E-08	1.67E-08
Sb-125	1.39E-09	1.37E-06	1.09E-05	1.05E-09	1.22E-09	1.57E-09	1.74E-09
Sn-126	1.62E-09	1.59E-06	1.27E-05	1.22E-09	1.42E-09	1.83E-09	2.03E-09
I-129	6.69E-11	6.57E-08	5.23E-07	5.03E-11	5.84E-11	7.54E-11	8.35E-11
Cs-134	6.40E-11	6.29E-08	5.00E-07	4.82E-11	5.59E-11	7.21E-11	7.99E-11
Cs-137	5.84E-04	0.573	4.56	4.39E-04	5.10E-04	6.57E-04	7.28E-04
Ba-137m	5.52E-04	0.542	4.31	4.15E-04	4.82E-04	6.22E-04	6.89E-04
Sm-151	3.97E-06	3.90E-03	3.10E-02	2.98E-06	3.46E-06	4.47E-06	4.95E-06
Eu-152	1.94E-10	1.91E-07	1.52E-06	1.46E-10	1.69E-10	2.19E-10	2.42E-10
Eu-154	2.61E-08	2.57E-05	2.04E-04	1.97E-08	2.28E-08	2.95E-08	3.26E-08
Eu-155	1.30E-08	1.28E-05	1.02E-04	9.80E-09	1.14E-08	1.47E-08	1.63E-08
Ra-226	2.18E-13	2.14E-10	1.70E-09	1.64E-13	1.90E-13	2.45E-13	2.72E-13
Ra-228	5.36E-19	5.26E-16	4.18E-15	4.03E-19	4.68E-19	6.03E-19	6.68E-19
Ac-227	1.13E-12	1.11E-09	8.80E-09	8.48E-13	9.84E-13	1.27E-12	1.41E-12
Pa-231	2.54E-12	2.50E-09	1.98E-08	1.91E-12	2.22E-12	2.86E-12	3.17E-12
Th-229	1.04E-16	1.02E-13	8.15E-13	7.85E-17	9.11E-17	1.18E-16	1.30E-16
Th-232	1.39E-18	1.36E-15	1.09E-14	1.05E-18	1.21E-18	1.57E-18	1.73E-18
U-232	1.59E-12	1.56E-09	1.24E-08	1.20E-12	1.39E-12	1.79E-12	1.98E-12
U-233	7.28E-14	7.15E-11	5.68E-10	5.47E-14	6.36E-14	8.20E-14	9.08E-14
U-234	6.60E-08	6.49E-05	5.16E-04	4.97E-08	5.77E-08	7.44E-08	8.24E-08
U-235	2.92E-09	2.86E-06	2.28E-05	2.19E-09	2.55E-09	3.29E-09	3.64E-09
U-236	6.77E-10	6.65E-07	5.29E-06	5.09E-10	5.91E-10	7.62E-10	8.44E-10
U-238	6.71E-08	6.59E-05	5.25E-04	5.05E-08	5.87E-08	7.56E-08	8.38E-08
Np-237	2.21E-10	2.17E-07	1.72E-06	1.66E-10	1.93E-10	2.49E-10	2.75E-10
Pu-238	2.78E-08	2.73E-05	2.17E-04	8.08E-09	1.77E-08	3.53E-08	3.53E-08
Pu-239	3.45E-06	3.39E-03	2.69E-02	1.00E-06	2.20E-06	4.38E-06	4.38E-06
Pu-240	3.37E-07	3.31E-04	2.63E-03	9.80E-08	2.15E-07	4.28E-07	4.28E-07
Pu-241	1.22E-06	1.20E-03	9.52E-03	3.55E-07	7.78E-07	1.55E-06	1.55E-06
Pu-242	5.57E-12	5.47E-09	4.35E-08	1.62E-12	3.56E-12	7.08E-12	7.08E-12
Am-241	1.34E-08	1.32E-05	1.05E-04	1.01E-08	1.17E-08	1.51E-08	1.67E-08
Am-243	9.70E-14	9.53E-11	7.58E-10	7.30E-14	8.48E-14	1.09E-13	1.21E-13
Cm-242	3.85E-12	3.78E-09	3.01E-08	2.90E-12	3.37E-12	4.34E-12	4.81E-12
Cm-243	7.94E-14	7.79E-11	6.20E-10	5.97E-14	6.93E-14	8.94E-14	9.90E-14
Cm-244	2.31E-12	2.27E-09	1.81E-08	1.74E-12	2.02E-12	2.61E-12	2.89E-12
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	5.70E-05 (g/L)	—	4.45E-04	1.66E-05	3.64E-05	7.24E-05	7.24E-05
U	8.45E-04	198	1.57	6.36E-04	7.38E-04	9.52E-04	1.05E-03

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

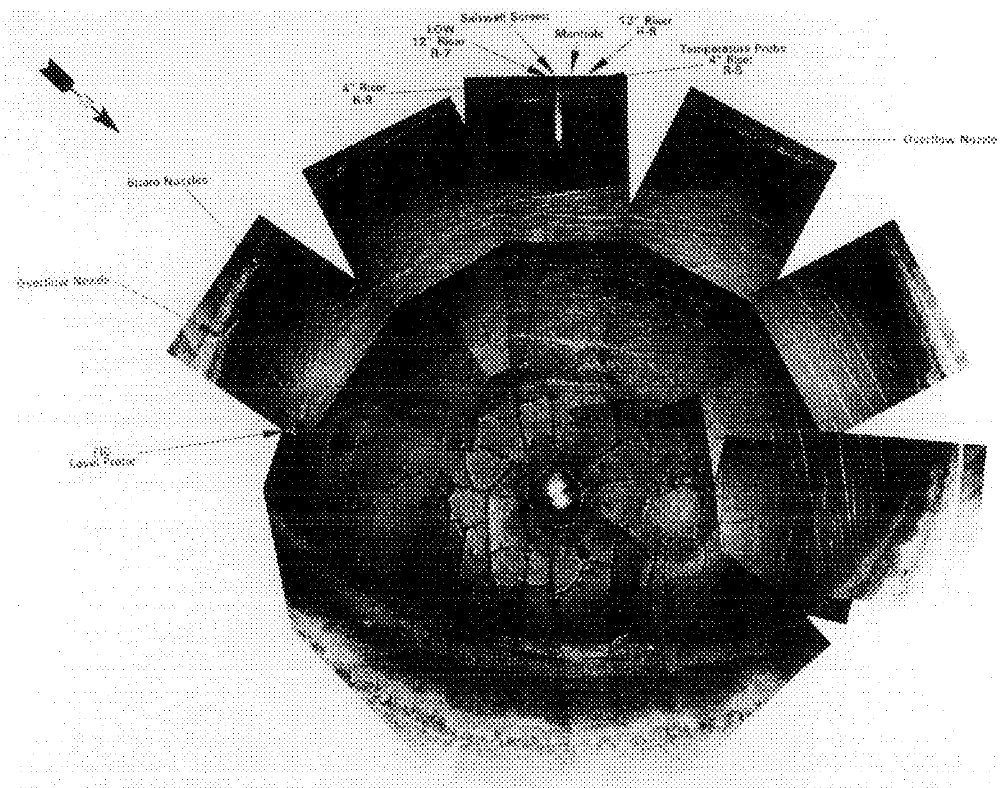
Single-Shell Tank 241-T-111							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	2.03E+06 (kg)	(458 kgal)	---	---	---	---	---
Heat Load	2.32E-02 (kW)	(79.4 BTU/hr)	---	1.94E-02	2.13E-02	2.52E-02	2.71E-02
Bulk Density†	1.17 (g/cc)	---	---	1.13	1.15	1.19	1.20
Water wt%†	77.1	---	---	74.4	75.6	78.8	80.6
TOC wt% C (w	0.171	---	---	0.164	0.168	0.174	0.178
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	3.15E-08	2.69E-05	5.45E-02	2.31E-08	2.69E-08	3.66E-08	4.21E-08
C-14	1.14E-08	9.75E-06	1.98E-02	9.59E-09	1.05E-08	1.23E-08	1.32E-08
Ni-59	3.24E-09	2.77E-06	5.62E-03	2.73E-09	2.98E-09	4.18E-09	1.03E-08
Ni-63	2.92E-07	2.50E-04	0.507	2.45E-07	2.68E-07	3.75E-07	9.32E-07
Co-60	2.61E-09	2.23E-06	4.53E-03	2.12E-09	2.36E-09	2.86E-09	3.10E-09
Se-79	2.41E-09	2.06E-06	4.17E-03	2.02E-09	2.21E-09	2.60E-09	2.79E-09
Sr-90	1.11E-03	0.951	1.93E+03	9.29E-04	1.02E-03	1.21E-03	1.30E-03
Y-90	1.11E-03	0.951	1.93E+03	9.29E-04	1.02E-03	1.21E-03	1.30E-03
Zr-93	1.14E-08	9.77E-06	1.98E-02	9.61E-09	1.05E-08	1.24E-08	1.33E-08
Nb-93m	9.64E-09	8.25E-06	1.67E-02	8.12E-09	8.87E-09	1.04E-08	1.12E-08
Tc-99	7.92E-08	6.77E-05	0.137	6.65E-08	7.27E-08	8.56E-08	9.18E-08
Ru-106	1.09E-15	9.35E-13	1.90E-09	8.44E-16	9.66E-16	1.22E-15	1.34E-15
Cd-113m	2.79E-08	2.39E-05	4.84E-02	2.31E-08	2.55E-08	3.04E-08	3.27E-08
Sb-125	2.42E-09	2.07E-06	4.20E-03	1.92E-09	2.17E-09	2.68E-09	2.92E-09
Sn-126	3.62E-09	3.09E-06	6.27E-03	3.04E-09	3.32E-09	3.92E-09	4.20E-09
I-129	1.49E-10	1.28E-07	2.59E-04	1.25E-10	1.37E-10	1.61E-10	1.73E-10
Cs-134	1.03E-10	8.81E-08	1.79E-04	8.01E-11	9.13E-11	1.15E-10	1.26E-10
Cs-137	1.26E-03	1.08	2.19E+03	1.05E-03	1.16E-03	1.37E-03	1.47E-03
Ba-137m	1.19E-03	1.02	2.07E+03	9.97E-04	1.09E-03	1.30E-03	1.39E-03
Sm-151	8.96E-06	7.66E-03	15.5	7.54E-06	8.23E-06	9.68E-06	1.04E-05
Eu-152	1.01E-08	8.68E-06	1.76E-02	1.01E-08	1.01E-08	1.02E-08	1.02E-08
Eu-154	4.69E-08	4.01E-05	8.13E-02	3.75E-08	4.21E-08	5.17E-08	5.63E-08
Eu-155	7.39E-07	6.32E-04	1.28	7.35E-07	7.37E-07	7.42E-07	7.44E-07
Ra-226	6.59E-13	5.63E-10	1.14E-06	5.81E-13	6.19E-13	6.99E-13	7.37E-13
Ra-228	3.51E-17	3.00E-14	6.08E-11	3.49E-17	3.50E-17	3.52E-17	3.53E-17
Ac-227	3.37E-12	2.88E-09	5.83E-06	2.96E-12	3.16E-12	3.57E-12	3.77E-12
Pa-231	7.31E-12	6.25E-09	1.27E-05	6.40E-12	6.85E-12	7.78E-12	8.22E-12
Th-229	6.82E-15	5.83E-12	1.18E-08	6.78E-15	6.80E-15	6.83E-15	6.85E-15
Th-232	3.25E-18	2.78E-15	5.64E-12	2.76E-18	3.00E-18	3.51E-18	3.75E-18
U-232	4.03E-12	3.44E-09	6.98E-06	3.22E-12	3.30E-12	6.24E-12	7.87E-12
U-233	2.07E-13	1.77E-10	3.58E-07	1.59E-13	1.63E-13	3.39E-13	4.37E-13
U-234	2.36E-07	2.01E-04	0.408	1.68E-07	1.74E-07	4.23E-07	5.60E-07
U-235	1.05E-08	8.99E-06	1.82E-02	7.48E-09	7.75E-09	1.89E-08	2.51E-08
U-236	1.89E-09	1.62E-06	3.28E-03	1.46E-09	1.50E-09	3.09E-09	3.97E-09
U-238	2.39E-07	2.04E-04	0.414	1.71E-07	1.77E-07	4.28E-07	5.68E-07
Np-237	4.89E-10	4.18E-07	8.47E-04	4.09E-10	4.48E-10	5.29E-10	5.68E-10
Pu-238	4.63E-07	3.96E-04	0.803	1.10E-07	1.22E-07	9.18E-07	1.35E-06
Pu-239	7.06E-05	6.03E-02	122	2.67E-05	2.82E-05	1.27E-04	1.81E-04
Pu-240	6.05E-06	5.18E-03	10.5	1.77E-06	1.92E-06	1.16E-05	1.69E-05
Pu-241	1.81E-05	1.55E-02	31.4	2.61E-06	3.16E-06	3.81E-05	5.72E-05
Pu-242	8.16E-11	6.98E-08	1.41E-04	1.07E-11	1.32E-11	1.73E-10	2.60E-10
Am-241	2.18E-08	1.86E-05	3.78E-02	1.70E-08	1.93E-08	2.42E-08	2.66E-08
Am-243	1.52E-13	1.30E-10	2.64E-07	1.17E-13	1.34E-13	1.70E-13	1.87E-13
Cm-242	1.91E-10	1.64E-07	3.32E-04	1.90E-10	1.91E-10	1.92E-10	1.93E-10
Cm-243	3.93E-12	3.36E-09	6.81E-06	3.90E-12	3.91E-12	3.94E-12	3.96E-12
Cm-244	3.60E-12	3.08E-09	6.24E-06	2.77E-12	3.18E-12	4.02E-12	4.43E-12
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	1.16E-03 (g/L)	---	2.01	4.37E-04	4.63E-04	2.10E-03	2.99E-03
U	3.01E-03	612	1.24E+03	2.15E-03	2.22E-03	5.39E-03	7.14E-03

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Volume average for density, mass average Water wt% and TOC wt% C.

241-T-111

Photo date: 4-13-94



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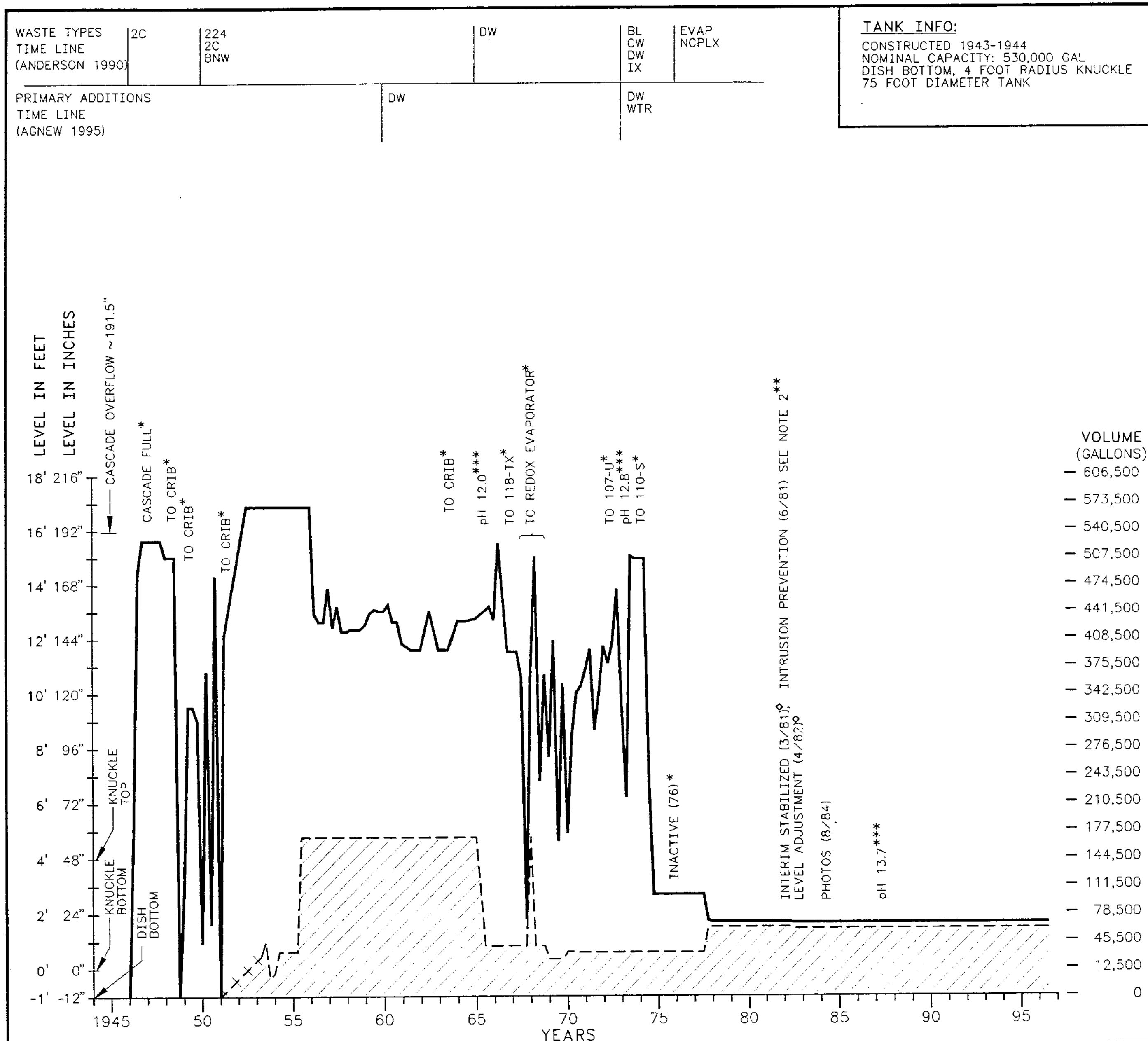
TANK 241-T-112 SUMMARY

TANK HISTORY	
Entered Service	1st qtr 1946
Removed from Service	-
Inactive	1976
Watch Lists	none
Integrity	Sound
Assumed Leaker	-
Interim Stabilization (IS)	March 1981
Partial Interim Isolation (PI)	-
Intrusion Prevention (IP)	June 1981
TENTATIVELY AVAILABLE RISERS	
Riser Number	Size
4, 5	4 in
2, 3, 6, 7, 13	12 in
TANK TEMPERATURE	
Average Tank Temperature	64°F
Maximum Temperature	83°F
Date	Dec 4, 1976
Elevation from tank bottom	unknown
Riser Number	8
Minimum Temperature	54°F
Date	June 7, 1981 and May 3, 1980
Elevation from tank bottom	unknown
Riser Number	8

TANK DESCRIPTION	
Diameter	75 ft
Bottom Shape	Dish
Nominal Capacity	530,000 gal
Cascade Tank	none
Total Risers	10
WASTE VOLUME (HANLON 1996I)	
Total Waste Volume	67,000 gal
Waste Type	NCPLX
Drainable Interstitial Liquids	0 gal
Pumpable Liquids	7,000 gal
Saltcake	0 gal
Sludge	60,000 gal
Supernatant	7,000 gal
INTERIOR PHOTOGRAPHS	
Date	Aug 1, 1984
Montage Number	94080233-37CN
Photo Set Number	84-05331
WASTE SURFACE LEVEL	
Devices	Manual ENRAF
Max Level	31.77 in
Date	Oct 29, 1996 - Nov 17, 1996*
Min Level	20.2 in
Date	Nov 4, 1991 - Sept 15, 1995*

* Numerous dates in this time span.



TANK INFO:
CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 530,000 GAL
DISH BOTTOM, 4 FOOT RADIUS KNUCKLE
75 FOOT DIAMETER TANK

REFERENCES
* ANDERSON 1990
** WELTY 1988
*** BORSHEIM AND KIRCH 1991
◇ HANLON 1996I

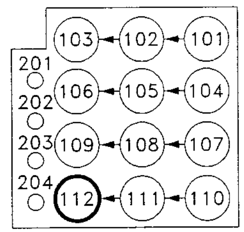
NOTES:
1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) IN JUNE 1993, INTERIM ISOLATION WAS REPLACED BY INTRUSION PREVENTION.

GLOSSARY OF WASTE TERMS:
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A.

224:	224-U WASTE
2C:	SECOND CYCLE DECON WASTE
BL:	B-PLANT LOW-LEVEL WASTE
BNW:	BATTELLE NW LABORATORY WASTE
CW:	COATING (CLADDING) WASTE
DW:	DECONTAMINATION WASTE
EVAP:	EVAPORATOR FEED
IX:	ION EXCHANGE
NCPLX:	NON-COMPLEXED WASTE
WTR:	WATER

LEGEND
TOTAL WASTE LEVEL (SUPERNATE)
TOTAL WASTE LEVEL (SOLIDS)
SOLIDS LEVEL
ASSUMED SOLIDS LEVEL
SOLIDS

T TANK FARM CASCADE



U.S. DEPARTMENT OF ENERGY
Richland Operations Office
FLUOR DANIEL NORTHWEST, INC.

241-T-112 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1946-1996
SOUND/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E105	1/97
SCALE NONE		JOB NO.	SHEET 1 OF 1

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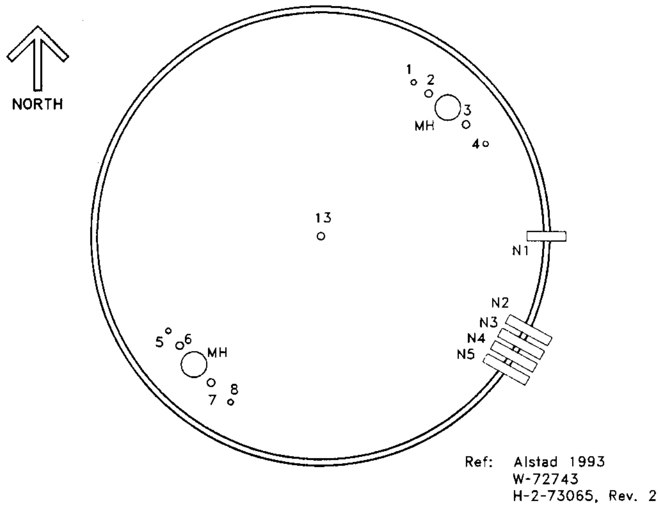
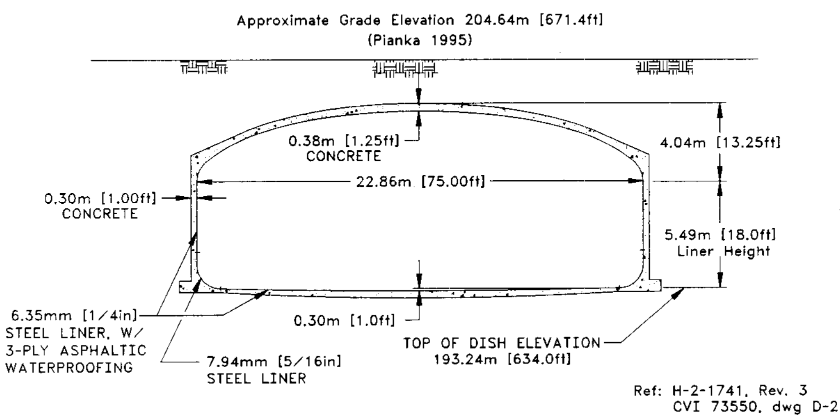
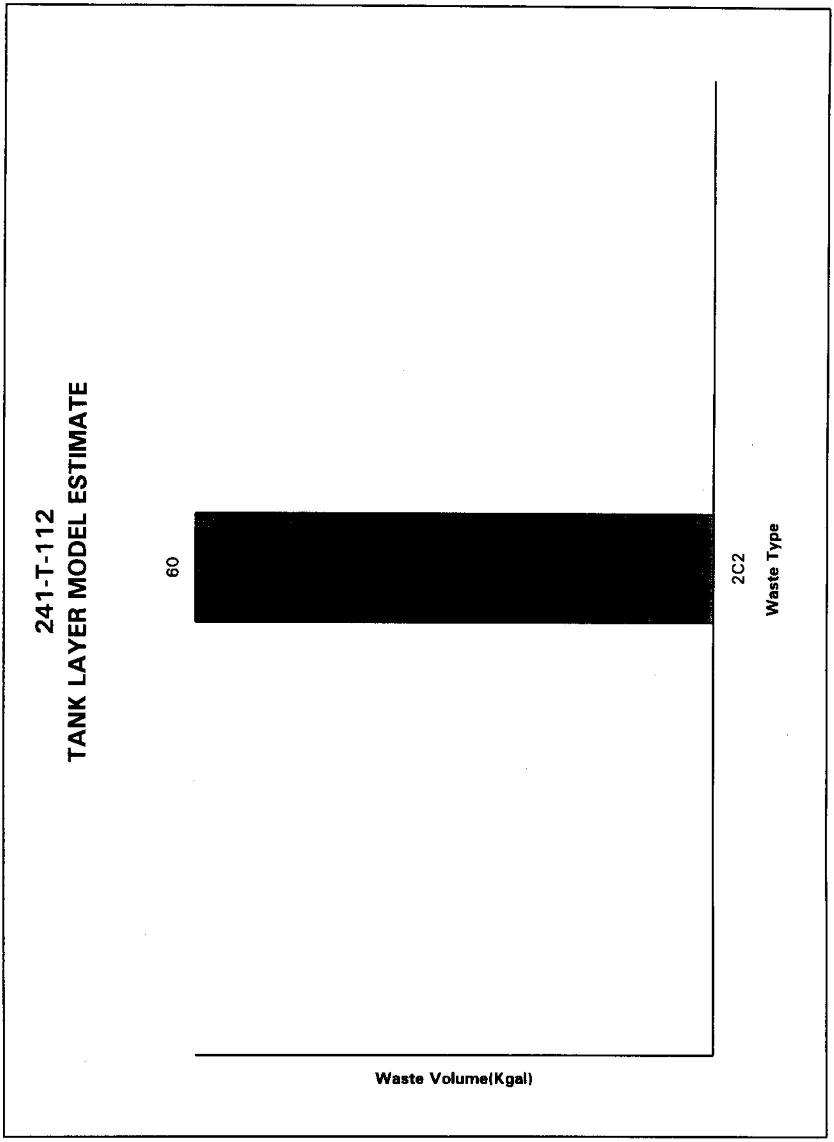
241-T-112



TANK RISER LOCATION



NOT TO SCALE



Tank Layer Model(TLM) Estimate from *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 4* (Agnew et al., 1997).

HDW Model Rev. 4

Single-Shell Tank 241-T-112							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	2.55E+05 (kg)	(60.0 kgal)	----	----	---	----	---
Heat Load	3.44E-03 (kW)	(11.8 BTU/hr)	----	2.62E-03	3.03E-03	3.86E-03	4.26E-03
Bulk Density	1.12 (g/cc)	----	----	1.10	1.11	1.14	1.15
Void Fraction	0.944	----	----	0.932	0.938	0.950	0.956
Water wt%	81.4	----	----	78.8	80.0	83.0	84.8
TOC wt% C (w	0	----	----	0	0	0	0
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	1.20	2.45E+04	6.25E+03	0.914	1.05	1.34	1.48
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	0.785	3.90E+04	9.95E+03	0.760	0.772	0.798	0.811
Cr3+	5.11E-03	236	60.4	3.90E-03	4.49E-03	5.74E-03	6.33E-03
Bi3+	4.11E-02	7.63E+03	1.95E+03	3.79E-03	2.41E-02	5.43E-02	6.44E-02
La3+	0	0	0	0	0	0	0
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	1.51E-03	79.0	20.2	1.15E-03	1.33E-03	1.85E-03	6.40E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	0.276	9.84E+03	2.51E+03	0.177	0.225	0.327	0.376
K+	3.49E-03	121	31.0	2.66E-03	3.07E-03	3.91E-03	4.32E-03
OH-	2.42	3.66E+04	9.34E+03	2.34	2.38	2.46	2.50
NO3-	0.643	3.54E+04	9.04E+03	0.492	0.566	0.719	0.792
NO2-	1.25E-02	510	130	7.21E-03	9.61E-03	1.57E-02	1.91E-02
CO32-	0.276	1.47E+04	3.76E+03	0.177	0.225	0.327	0.376
PO43-	0.141	1.19E+04	3.03E+03	7.96E-02	0.112	0.166	0.187
SO42-	2.54E-02	2.17E+03	554	1.94E-02	2.23E-02	2.85E-02	3.14E-02
Si (as SiO32-)	1.84E-02	460	117	1.40E-02	1.62E-02	2.06E-02	8.40E-02
F-	0.109	1.85E+03	472	8.34E-02	9.62E-02	0.123	0.135
Cl-	1.61E-02	506	129	1.22E-02	1.41E-02	1.80E-02	1.99E-02
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	3.89E-06	5.88E-02	1.50E-02	1.75E-06	2.66E-06	5.46E-06	7.32E-06
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-112							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	2.66E+04 (kg)	(7.03 kgal)	----	----	----	----	----
Heat Load	0 (kW)	(0 BTU/hr)	----	0	0	0	0
Bulk Density*	1.00 (g/cc)	----	----	1.00	1.00	1.00	1.00
Water wt%	100	----	----	100	100	100	100
TOC wt% C (w	0	----	----	0	0	0	0
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	0	0	0	0	0	0	0
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	0	0	0	0	0	0	0
Cr3+	0	0	0	0	0	0	0
Bi3+	0	0	0	0	0	0	0
La3+	0	0	0	0	0	0	0
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	0	0	0	0	0	0	0
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	0	0	0	0	0	0	0
K+	0	0	0	0	0	0	0
OH-	0	0	0	0	0	0	0
NO3-	0	0	0	0	0	0	0
NO2-	0	0	0	0	0	0	0
CO32-	0	0	0	0	0	0	0
PO43-	0	0	0	0	0	0	0
SO42-	0	0	0	0	0	0	0
Si (as SiO32-)	0	0	0	0	0	0	0
F-	0	0	0	0	0	0	0
Cl-	0	0	0	0	0	0	0
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	0	0	0	0	0	0	0
Fe(CN)64-	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-112							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	2.82E+05 (kg)	(67.0 kgal)	—	—	—	—	—
Heat Load	3.44E-03 (kW)	(11.8 BTU/hr)	—	2.62E-03	3.03E-03	3.86E-03	4.26E-03
Bulk Density†	1.11 (g/cc)	—	—	1.09	1.10	1.12	1.13
Water wt%†	83.1	—	—	80.7	81.9	84.6	86.2
TOC wt% C (w	0	—	—	0	0	0	0
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	1.07	2.22E+04	6.25E+03	0.818	0.942	1.20	1.33
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	0.703	3.53E+04	9.95E+03	0.680	0.691	0.714	0.725
Cr3+	4.58E-03	214	60.4	3.49E-03	4.02E-03	5.13E-03	5.67E-03
Bi3+	3.68E-02	6.91E+03	1.95E+03	3.39E-03	2.16E-02	4.86E-02	5.76E-02
La3+	0	0	0	0	0	0	0
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	1.35E-03	71.5	20.2	1.03E-03	1.19E-03	1.65E-03	5.73E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	0.247	8.91E+03	2.51E+03	0.158	0.202	0.293	0.337
K+	3.12E-03	110	31.0	2.38E-03	2.75E-03	3.50E-03	3.87E-03
OH-	2.17	3.31E+04	9.34E+03	2.10	2.13	2.20	2.24
NO3-	0.575	3.21E+04	9.04E+03	0.441	0.507	0.643	0.709
NO2-	1.12E-02	462	130	6.46E-03	8.60E-03	1.40E-02	1.71E-02
CO32-	0.247	1.33E+04	3.76E+03	0.158	0.202	0.293	0.337
PO43-	0.126	1.07E+04	3.03E+03	7.13E-02	9.98E-02	0.148	0.168
SO42-	2.27E-02	1.96E+03	554	1.73E-02	2.00E-02	2.55E-02	2.81E-02
Si (as SiO32-)	1.65E-02	416	117	1.26E-02	1.45E-02	1.85E-02	7.52E-02
F-	9.79E-02	1.67E+03	472	7.47E-02	8.61E-02	0.110	0.121
Cl-	1.44E-02	458	129	1.10E-02	1.26E-02	1.61E-02	1.78E-02
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	3.48E-06	5.33E-02	1.50E-02	1.56E-06	2.38E-06	4.89E-06	6.55E-06
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-112							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	2.55E+05 (kg)	(60.0 kgal)	----	---	---	---	----
Heat Load	3.44E-03 (kW)	(11.8 BTU/hr)	----	2.62E-03	3.03E-03	3.86E-03	4.26E-03
Bulk Density	1.12 (g/cc)	---	----	1.10	1.11	1.14	1.15
Void Fraction	0.944	---	----	0.932	0.938	0.950	0.956
Water wt%	81.4	----	----	78.8	80.0	83.0	84.8
TOC wt% C (w	0	----	----	0	0	0	0
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	3.17E-08	2.82E-05	7.20E-03	1.82E-08	2.44E-08	4.01E-08	4.90E-08
C-14	1.25E-08	1.11E-05	2.83E-03	9.50E-09	1.09E-08	1.40E-08	1.54E-08
Ni-59	3.54E-09	3.15E-06	8.03E-04	2.70E-09	3.11E-09	4.32E-09	1.50E-08
Ni-63	3.23E-07	2.87E-04	7.33E-02	2.46E-07	2.84E-07	3.94E-07	1.37E-06
Co-60	3.36E-09	2.98E-06	7.62E-04	2.56E-09	2.95E-09	3.76E-09	4.16E-09
Se-79	2.63E-09	2.34E-06	5.97E-04	2.01E-09	2.31E-09	2.95E-09	3.26E-09
Sr-90	1.26E-03	1.12	285	9.58E-04	1.10E-03	1.41E-03	1.55E-03
Y-90	1.26E-03	1.12	285	9.58E-04	1.10E-03	1.41E-03	1.56E-03
Zr-93	1.25E-08	1.11E-05	2.83E-03	9.51E-09	1.10E-08	1.40E-08	1.54E-08
Nb-93m	1.04E-08	9.27E-06	2.37E-03	7.95E-09	9.16E-09	1.17E-08	1.29E-08
Tc-99	8.66E-08	7.70E-05	1.97E-02	6.60E-08	7.61E-08	9.71E-08	1.07E-07
Ru-106	1.71E-15	1.52E-12	3.88E-10	1.30E-15	1.50E-15	1.91E-15	2.11E-15
Cd-113m	3.28E-08	2.92E-05	7.45E-03	2.50E-08	2.88E-08	3.68E-08	4.06E-08
Sb-125	3.41E-09	3.04E-06	7.75E-04	2.60E-09	3.00E-09	3.83E-09	4.23E-09
Sn-126	3.98E-09	3.54E-06	9.03E-04	3.03E-09	3.50E-09	4.46E-09	4.93E-09
I-129	1.64E-10	1.46E-07	3.72E-05	1.25E-10	1.44E-10	1.84E-10	2.03E-10
Cs-134	1.57E-10	1.39E-07	3.56E-05	1.20E-10	1.38E-10	1.76E-10	1.94E-10
Cs-137	1.43E-03	1.27	325	1.09E-03	1.26E-03	1.60E-03	1.77E-03
Ba-137m	1.35E-03	1.20	307	1.03E-03	1.19E-03	1.52E-03	1.67E-03
Sm-151	9.72E-06	8.64E-03	2.21	7.41E-06	8.54E-06	1.09E-05	1.20E-05
Eu-152	1.53E-08	1.36E-05	3.47E-03	1.52E-08	1.52E-08	1.53E-08	1.54E-08
Eu-154	6.41E-08	5.70E-05	1.45E-02	4.89E-08	5.63E-08	7.19E-08	7.93E-08
Eu-155	1.03E-06	9.11E-04	0.233	1.02E-06	1.02E-06	1.03E-06	1.03E-06
Ra-226	5.34E-13	4.74E-10	1.21E-07	4.07E-13	4.69E-13	5.98E-13	6.61E-13
Ra-228	4.22E-17	3.75E-14	9.57E-12	4.18E-17	4.20E-17	4.23E-17	4.25E-17
Ac-227	2.76E-12	2.45E-09	6.27E-07	2.11E-12	2.43E-12	3.10E-12	3.42E-12
Pa-231	6.23E-12	5.54E-09	1.41E-06	4.75E-12	5.47E-12	6.98E-12	7.71E-12
Th-229	8.21E-15	7.30E-12	1.86E-09	8.15E-15	8.18E-15	8.24E-15	8.27E-15
Th-232	3.41E-18	3.03E-15	7.73E-13	2.60E-18	2.99E-18	3.82E-18	4.22E-18
U-232	3.90E-12	3.46E-09	8.84E-07	2.97E-12	3.42E-12	4.37E-12	4.82E-12
U-233	1.78E-13	1.59E-10	4.05E-08	1.36E-13	1.57E-13	2.00E-13	2.21E-13
U-234	1.62E-07	1.44E-04	3.67E-02	1.23E-07	1.42E-07	1.82E-07	2.00E-07
U-235	7.15E-09	6.36E-06	1.62E-03	5.45E-09	6.28E-09	8.02E-09	8.85E-09
U-236	1.66E-09	1.47E-06	3.76E-04	1.26E-09	1.46E-09	1.86E-09	2.05E-09
U-238	1.65E-07	1.46E-04	3.74E-02	1.25E-07	1.45E-07	1.85E-07	2.04E-07
Np-237	5.41E-10	4.81E-07	1.23E-04	4.12E-10	4.75E-10	6.07E-10	6.69E-10
Pu-238	6.42E-07	5.71E-04	0.146	6.60E-08	8.65E-08	1.38E-06	2.10E-06
Pu-239	7.97E-05	7.09E-02	18.1	8.19E-06	1.07E-05	1.72E-04	2.60E-04
Pu-240	7.79E-06	6.92E-03	1.77	8.00E-07	1.05E-06	1.68E-05	2.54E-05
Pu-241	2.82E-05	2.51E-02	6.40	2.90E-06	3.80E-06	6.07E-05	9.20E-05
Pu-242	1.29E-10	1.15E-07	2.92E-05	1.32E-11	1.74E-11	2.78E-10	4.20E-10
Am-241	3.29E-08	2.92E-05	7.47E-03	2.51E-08	2.89E-08	3.69E-08	4.07E-08
Am-243	2.38E-13	2.11E-10	5.40E-08	1.81E-13	2.09E-13	2.67E-13	2.94E-13
Cm-242	3.03E-10	2.70E-07	6.88E-05	3.01E-10	3.02E-10	3.04E-10	3.05E-10
Cm-243	6.25E-12	5.55E-09	1.42E-06	6.20E-12	6.22E-12	6.27E-12	6.29E-12
Cm-244	5.67E-12	5.04E-09	1.29E-06	4.32E-12	4.98E-12	6.36E-12	7.02E-12
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	1.32E-03 (g/L)	---	0.299	1.35E-04	1.78E-04	2.84E-03	4.30E-03
U	2.07E-03	438	112	1.58E-03	1.82E-03	2.32E-03	2.56E-03

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-112							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	2.66E+04 (kg)	(7.03 kgal)	----	----	----	----	----
Heat Load	0 (kW)	(0 BTU/hr)	----	0	0	0	0
Bulk Density*	1.00 (g/cc)	----	----	1.00	1.00	1.00	1.00
Water wt%†	100	----	----	100	100	100	100
TOC wt% C (w	0	----	----	0	0	0	0
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	0	0	0	0	0	0	0
C-14	0	0	0	0	0	0	0
Ni-59	0	0	0	0	0	0	0
Ni-63	0	0	0	0	0	0	0
Co-60	0	0	0	0	0	0	0
Se-79	0	0	0	0	0	0	0
Sr-90	0	0	0	0	0	0	0
Y-90	0	0	0	0	0	0	0
Zr-93	0	0	0	0	0	0	0
Nb-93m	0	0	0	0	0	0	0
Tc-99	0	0	0	0	0	0	0
Ru-106	0	0	0	0	0	0	0
Cd-113m	0	0	0	0	0	0	0
Sb-125	0	0	0	0	0	0	0
Sn-126	0	0	0	0	0	0	0
I-129	0	0	0	0	0	0	0
Cs-134	0	0	0	0	0	0	0
Cs-137	0	0	0	0	0	0	0
Ba-137m	0	0	0	0	0	0	0
Sm-151	0	0	0	0	0	0	0
Eu-152	0	0	0	0	0	0	0
Eu-154	0	0	0	0	0	0	0
Eu-155	0	0	0	0	0	0	0
Ra-226	0	0	0	0	0	0	0
Ra-228	0	0	0	0	0	0	0
Ac-227	0	0	0	0	0	0	0
Pa-231	0	0	0	0	0	0	0
Th-229	0	0	0	0	0	0	0
Th-232	0	0	0	0	0	0	0
U-232	0	0	0	0	0	0	0
U-233	0	0	0	0	0	0	0
U-234	0	0	0	0	0	0	0
U-235	0	0	0	0	0	0	0
U-236	0	0	0	0	0	0	0
U-238	0	0	0	0	0	0	0
Np-237	0	0	0	0	0	0	0
Pu-238	0	0	0	0	0	0	0
Pu-239	0	0	0	0	0	0	0
Pu-240	0	0	0	0	0	0	0
Pu-241	0	0	0	0	0	0	0
Pu-242	0	0	0	0	0	0	0
Am-241	0	0	0	0	0	0	0
Am-243	0	0	0	0	0	0	0
Cm-242	0	0	0	0	0	0	0
Cm-243	0	0	0	0	0	0	0
Cm-244	0	0	0	0	0	0	0
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	0 (g/L)	----	0	0	0	0	0
U	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

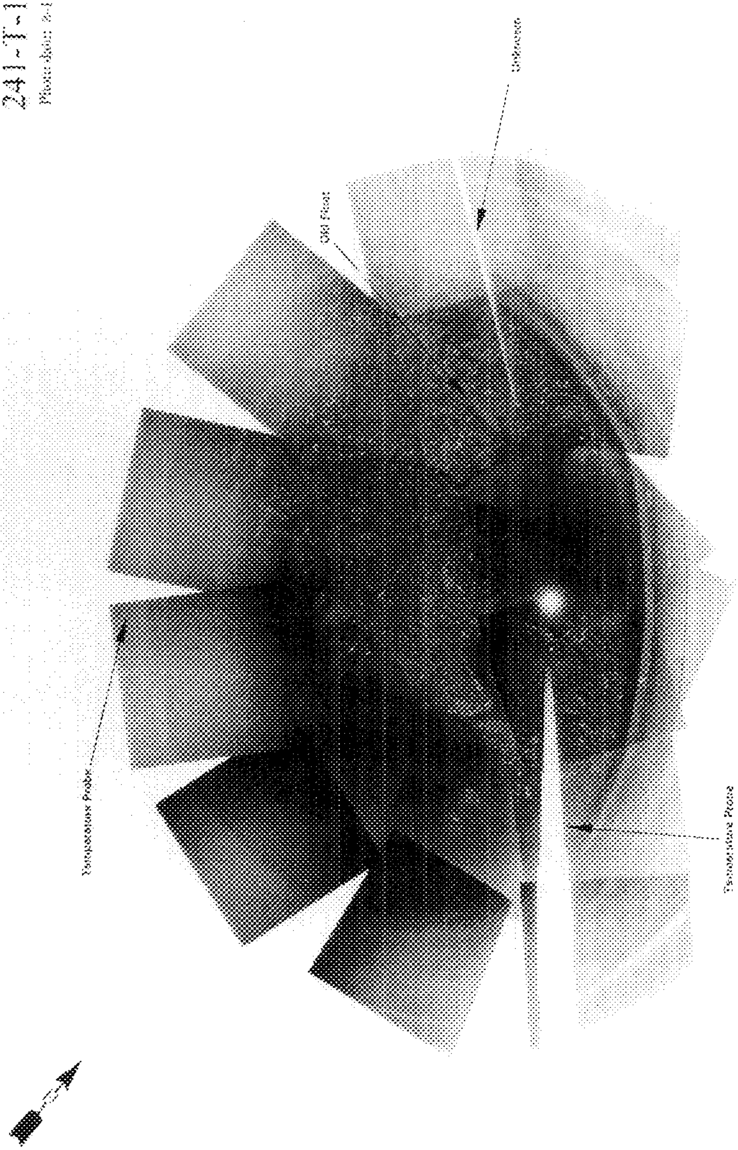
Single-Shell Tank 241-T-112							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	2.82E+05 (kg)	(67.0 kgal)	----	—	----	—	----
Heat Load	3.44E-03 (kW)	(11.8 BTU/hr)	----	2.62E-03	3.03E-03	3.86E-03	4.26E-03
Bulk Density†	1.11 (g/cc)	----	----	1.09	1.10	1.12	1.13
Water wt%†	83.1	----	----	80.7	81.9	84.6	86.2
TOC wt% C (w	0	----	----	0	0	0	0
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	2.84E-08	2.55E-05	7.20E-03	1.63E-08	2.18E-08	3.59E-08	4.39E-08
C-14	1.11E-08	1.00E-05	2.83E-03	8.50E-09	9.80E-09	1.25E-08	1.38E-08
Ni-59	3.17E-09	2.85E-06	8.03E-04	2.42E-09	2.78E-09	3.87E-09	1.34E-08
Ni-63	2.89E-07	2.60E-04	7.33E-02	2.20E-07	2.54E-07	3.53E-07	1.22E-06
Co-60	3.01E-09	2.70E-06	7.62E-04	2.29E-09	2.64E-09	3.37E-09	3.72E-09
Se-79	2.35E-09	2.12E-06	5.97E-04	1.79E-09	2.07E-09	2.64E-09	2.91E-09
Sr-90	1.12E-03	1.01	285	8.57E-04	9.88E-04	1.26E-03	1.39E-03
Y-90	1.12E-03	1.01	285	8.58E-04	9.88E-04	1.26E-03	1.39E-03
Zr-93	1.12E-08	1.00E-05	2.83E-03	8.51E-09	9.81E-09	1.25E-08	1.38E-08
Nb-93m	9.33E-09	8.39E-06	2.37E-03	7.11E-09	8.20E-09	1.05E-08	1.15E-08
Tc-99	7.75E-08	6.97E-05	1.97E-02	5.91E-08	6.81E-08	8.69E-08	9.59E-08
Ru-106	1.53E-15	1.37E-12	3.88E-10	1.17E-15	1.34E-15	1.71E-15	1.89E-15
Cd-113m	2.94E-08	2.64E-05	7.45E-03	2.24E-08	2.58E-08	3.29E-08	3.64E-08
Sb-125	3.06E-09	2.75E-06	7.75E-04	2.33E-09	2.69E-09	3.43E-09	3.78E-09
Sn-126	3.56E-09	3.20E-06	9.03E-04	2.72E-09	3.13E-09	3.99E-09	4.41E-09
I-129	1.47E-10	1.32E-07	3.72E-05	1.12E-10	1.29E-10	1.65E-10	1.82E-10
Cs-134	1.40E-10	1.26E-07	3.56E-05	1.07E-10	1.23E-10	1.57E-10	1.74E-10
Cs-137	1.28E-03	1.15	325	9.76E-04	1.13E-03	1.44E-03	1.58E-03
Ba-137m	1.21E-03	1.09	307	9.23E-04	1.06E-03	1.36E-03	1.50E-03
Sm-151	8.70E-06	7.83E-03	2.21	6.63E-06	7.65E-06	9.76E-06	1.08E-05
Eu-152	1.37E-08	1.23E-05	3.47E-03	1.36E-08	1.36E-08	1.37E-08	1.38E-08
Eu-154	5.74E-08	5.16E-05	1.45E-02	4.37E-08	5.04E-08	6.43E-08	7.10E-08
Eu-155	9.18E-07	8.25E-04	0.233	9.11E-07	9.14E-07	9.21E-07	9.24E-07
Ra-226	4.78E-13	4.30E-10	1.21E-07	3.64E-13	4.20E-13	5.36E-13	5.91E-13
Ra-228	3.77E-17	3.39E-14	9.57E-12	3.75E-17	3.76E-17	3.79E-17	3.80E-17
Ac-227	2.47E-12	2.22E-09	6.27E-07	1.88E-12	2.17E-12	2.77E-12	3.06E-12
Pa-231	5.57E-12	5.01E-09	1.41E-06	4.25E-12	4.90E-12	6.25E-12	6.90E-12
Th-229	7.35E-15	6.61E-12	1.86E-09	7.29E-15	7.32E-15	7.38E-15	7.40E-15
Th-232	3.05E-18	2.74E-15	7.73E-13	2.32E-18	2.68E-18	3.42E-18	3.77E-18
U-232	3.49E-12	3.14E-09	8.84E-07	2.66E-12	3.06E-12	3.91E-12	4.32E-12
U-233	1.60E-13	1.44E-10	4.05E-08	1.22E-13	1.40E-13	1.79E-13	1.98E-13
U-234	1.45E-07	1.30E-04	3.67E-02	1.10E-07	1.27E-07	1.62E-07	1.79E-07
U-235	6.40E-09	5.76E-06	1.62E-03	4.88E-09	5.62E-09	7.18E-09	7.92E-09
U-236	1.48E-09	1.34E-06	3.76E-04	1.13E-09	1.30E-09	1.66E-09	1.84E-09
U-238	1.47E-07	1.33E-04	3.74E-02	1.12E-07	1.29E-07	1.65E-07	1.82E-07
Np-237	4.84E-10	4.35E-07	1.23E-04	3.69E-10	4.25E-10	5.43E-10	5.99E-10
Pu-238	5.75E-07	5.17E-04	0.146	5.91E-08	7.75E-08	1.24E-06	1.88E-06
Pu-239	7.14E-05	6.42E-02	18.1	7.33E-06	9.62E-06	1.54E-04	2.33E-04
Pu-240	6.97E-06	6.27E-03	1.77	7.16E-07	9.39E-07	1.50E-05	2.27E-05
Pu-241	2.52E-05	2.27E-02	6.40	2.59E-06	3.40E-06	5.44E-05	8.23E-05
Pu-242	1.15E-10	1.04E-07	2.92E-05	1.18E-11	1.55E-11	2.48E-10	3.76E-10
Am-241	2.94E-08	2.65E-05	7.47E-03	2.25E-08	2.59E-08	3.30E-08	3.64E-08
Am-243	2.13E-13	1.91E-10	5.40E-08	1.62E-13	1.87E-13	2.39E-13	2.63E-13
Cm-242	2.71E-10	2.44E-07	6.88E-05	2.69E-10	2.70E-10	2.72E-10	2.73E-10
Cm-243	5.59E-12	5.03E-09	1.42E-06	5.55E-12	5.57E-12	5.61E-12	5.63E-12
Cm-244	5.07E-12	4.56E-09	1.29E-06	3.87E-12	4.46E-12	5.69E-12	6.28E-12
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	1.18E-03 (g/L)	—	0.299	1.21E-04	1.59E-04	2.54E-03	3.85E-03
U	1.85E-03	397	112	1.41E-03	1.63E-03	2.08E-03	2.29E-03

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Volume average for density, mass average Water wt% and TOC wt% C.

241-T-112

Photo date: 8-1-88



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TANK 241-T-201 SUMMARY

TANK HISTORY	
Entered Service	2nd qtr 1952
Removed from Service	1976
Inactive	1976
Watch Lists	none
Integrity	Sound
Assumed Leaker	-
Interim Stabilization (IS)	April 1981
Partial Interim Isolation (PI)	-
Intrusion Prevention (IP)	Aug 1981
TENTATIVELY AVAILABLE RISERS	
Riser Number	Size
8	4 in
3, 6, 7	12 in
TANK TEMPERATURE	
Average Tank Temperature	63°F
Maximum Temperature	81°F
Date	Oct 3, 1976
Elevation from tank bottom	unknown
Riser Number	5
Minimum Temperature	50°F
Date	Feb 28 and May 3, 1980
Elevation from tank bottom	unknown
Riser Number	5

TANK DESCRIPTION	
Diameter	20 ft
Bottom Shape	Dish
Nominal Capacity	55,000 gal
Cascade Tank	none
Total Risers	8
WASTE VOLUME (HANLON 1996I)	
Total Waste Volume	29,000 gal
Waste Type	NCPLX
Drainable Interstitial Liquids	3,000 gal
Pumpable Liquids	*0 gal*
Saltcake	0 gal
Sludge	28,000 gal
Supernatant	1,000 gal
INTERIOR PHOTOGRAPHS	
Date	April 15, 1986
Montage Number	94080233-33CN
Photo Set Number	86-01936
WASTE SURFACE LEVEL	
Devices	Manual Tape
Max Level	162 in
Date	June 5, 1996
Min Level	151 in
Date	July 1, 1991 and April 6, 1994

* Numerous dates in this time span.

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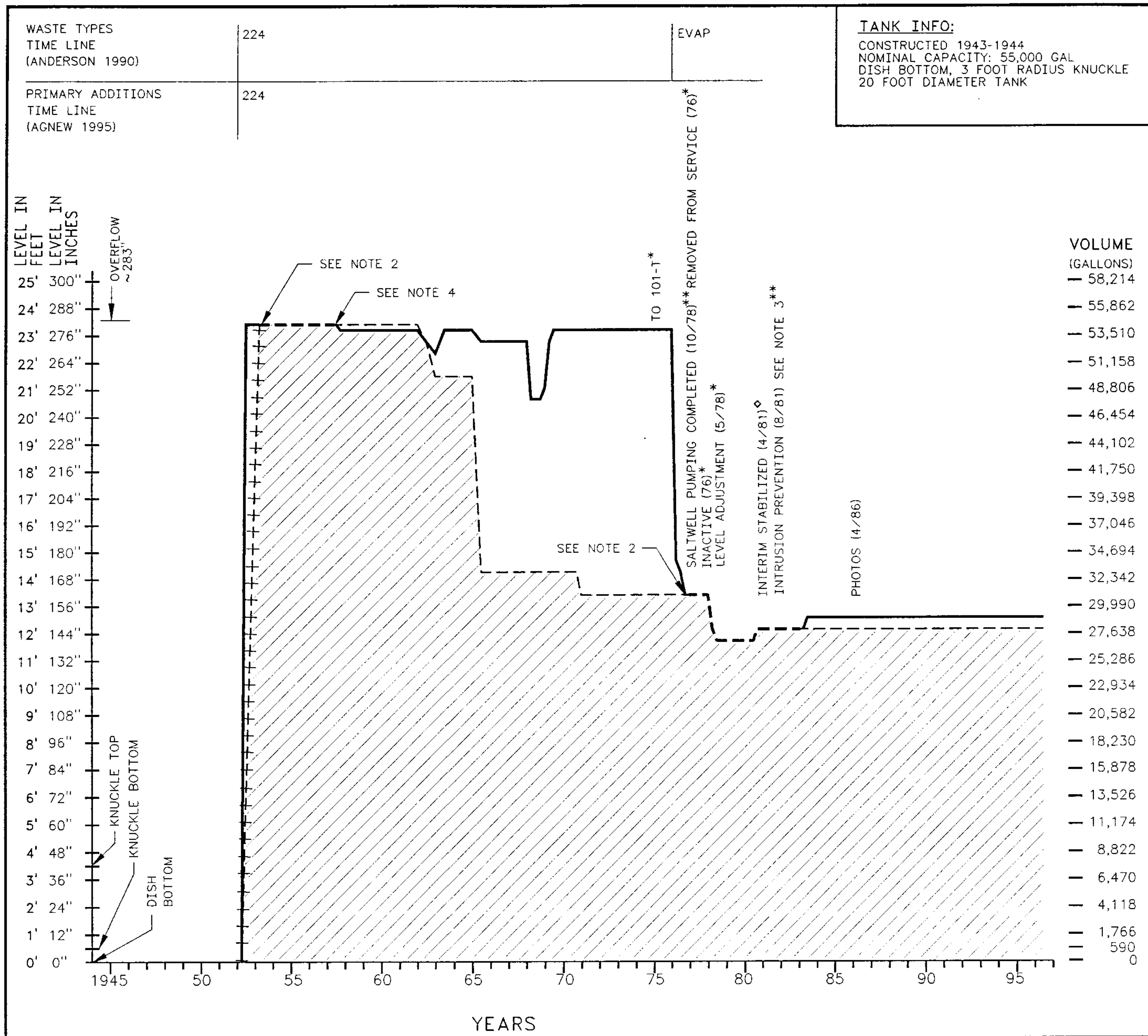


TANK INFO:

CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 55,000 GAL
DISH BOTTOM, 3 FOOT RADIUS KNUCKLE
20 FOOT DIAMETER TANK

REFERENCES

* ANDERSON 1990
** WELTY 1988
*** BORSHEIM AND KIRCH 1991
◇ HANLON 1996I

NOTES:

1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN.
3) IN JUNE 1993, INTERIM ISOLATION WAS REPLACED BY INTRUSION PREVENTION.
4) DATA IS QUESTIONABLE BECAUSE ANDERSON 1990 INDICATES SOLIDS WASTE IS GREATER THAN TOTAL WASTE.

GLOSSARY OF WASTE TERMS:

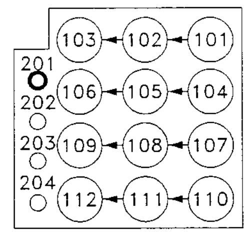
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A.

224: 224-U WASTE
EVAP: EVAPORATOR FEED

LEGEND

——— TOTAL WASTE LEVEL (SUPERNATE)
– – – TOTAL WASTE LEVEL (SOLIDS)
- - - - SOLIDS LEVEL
+++++ ASSUMED SOLIDS LEVEL
//// SOLIDS

T TANK FARM CASCADE



U.S. DEPARTMENT OF ENERGY
Richland Operations Office
FLUOR DANIEL NORTHWEST, INC.

241-T-201 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1952-1996
SOUND/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E106	1/97
SCALE NONE		JOB NO.	SHEET 1 OF 1

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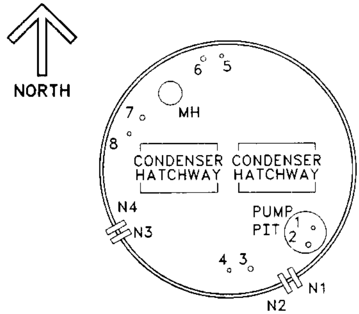
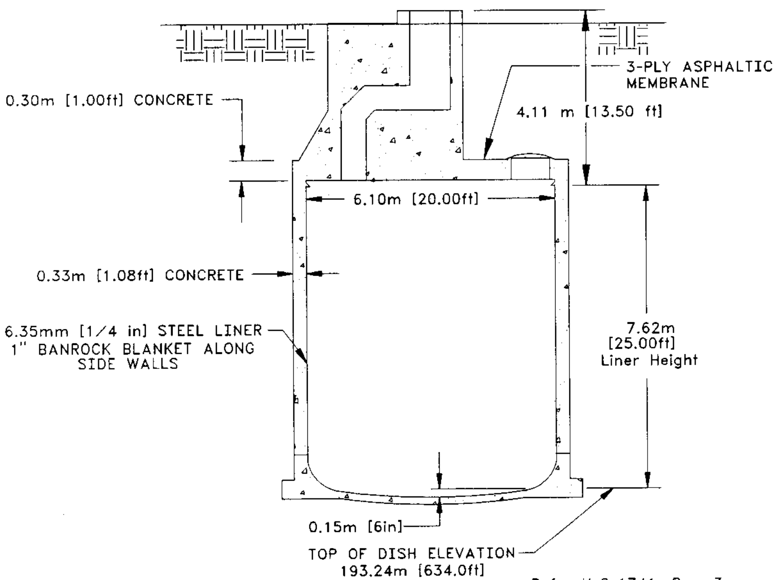
241-T-201



Ref: Alstad 1993
H-2-73066, Rev. 2

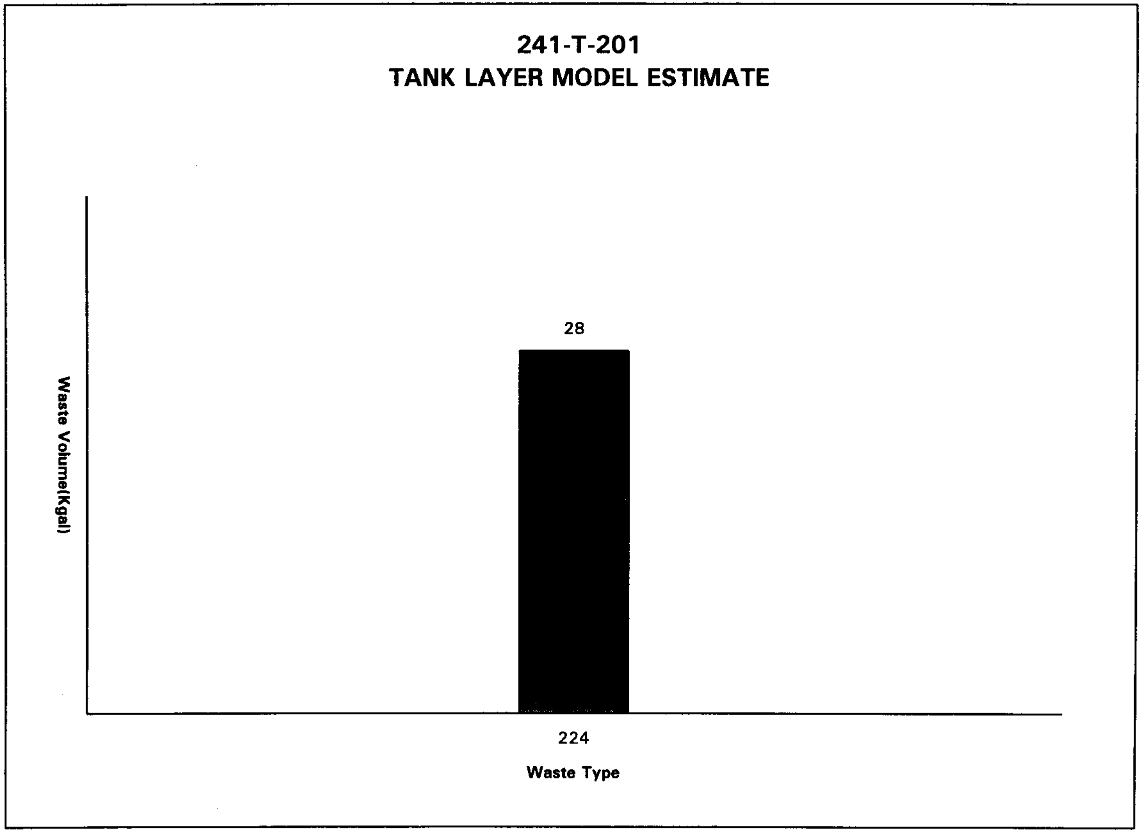
TANK RISER LOCATION

Approximate Grade Elevation 204.52m [671.0ft]



Ref: H-2-1741, Rev. 3
CVI-73550, dwg D-20
H-2-73066, Rev. 2

NOT TO SCALE



Tank Layer Model(TLM) Estimate from *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 4* (Agnew et al., 1997).

HDW Model Rev. 4

Single-Shell Tank 241-T-201							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	1.28E+05 (kg)	(28.0 kgal)	----	---	---	---	----
Heat Load	2.20E-04 (kW)	(0.750 BTU/hr)	---	1.64E-04	1.93E-04	2.46E-04	2.71E-04
Bulk Density	1.21 (g/cc)	----	---	1.15	1.17	1.24	1.26
Void Fraction	0.885	----	---	0.853	0.868	0.905	0.914
Water wt%	68.6	----	---	62.1	64.9	72.8	75.2
TOC wt% C (w	2.11	----	---	2.03	2.07	2.14	2.14
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	4.23	8.06E+04	1.03E+04	3.03	3.26	5.17	6.08
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	0.363	1.68E+04	2.15E+03	0.341	0.352	0.374	0.385
Cr3+	6.05E-03	260	33.3	4.52E-03	5.31E-03	6.77E-03	7.46E-03
Bi3+	5.55E-02	9.61E+03	1.23E+03	1.66E-02	3.87E-02	6.83E-02	7.77E-02
La3+	3.38E-03	389	49.8	2.53E-03	2.97E-03	3.78E-03	4.17E-03
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	1.42E-03	69.2	8.85	1.06E-03	1.25E-03	2.37E-03	6.61E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	4.54E-03	206	26.4	3.39E-03	3.98E-03	5.07E-03	5.59E-03
Ca2+	0.244	8.11E+03	1.04E+03	0.157	0.200	0.289	0.332
K+	0.205	6.65E+03	851	0.154	0.180	0.230	0.253
OH-	1.10	1.55E+04	1.99E+03	1.04	1.07	1.14	1.17
NO3-	1.23	6.29E+04	8.05E+03	0.917	1.08	1.37	1.51
NO2-	3.20E-03	122	15.6	1.76E-03	2.44E-03	4.05E-03	4.97E-03
CO32-	0.244	1.21E+04	1.55E+03	0.157	0.200	0.289	0.332
PO43-	8.40E-02	6.61E+03	846	3.79E-02	6.37E-02	0.100	0.113
SO42-	2.67E-03	212	27.2	1.99E-03	2.34E-03	2.98E-03	3.29E-03
Si (as SiO32-)	0	0	0	0	0	0	0
F-	1.01	1.59E+04	2.03E+03	0.180	0.211	1.97	2.89
Cl-	2.37E-02	696	89.1	1.77E-02	2.08E-02	2.65E-02	2.93E-02
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	1.06	7.74E+04	9.90E+03	1.01	1.04	1.08	1.09
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	1.23E-07	1.73E-03	2.21E-04	5.23E-08	8.43E-08	1.69E-07	2.25E-07
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-201 SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	3.79E+03 (kg)	(1.00 kgal)	---	---	---	---	---
Heat Load	0 (kW)	(0 BTU/hr)	---	0	0	0	0
Bulk Density*	1.00 (g/cc)	---	---	1.00	1.00	1.00	1.00
Water wt%	100	---	---	100	100	100	100
TOC wt% C (w	0	---	---	0	0	0	0
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	0	0	0	0	0	0	0
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	0	0	0	0	0	0	0
Cr3+	0	0	0	0	0	0	0
Bi3+	0	0	0	0	0	0	0
La3+	0	0	0	0	0	0	0
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	0	0	0	0	0	0	0
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	0	0	0	0	0	0	0
K+	0	0	0	0	0	0	0
OH-	0	0	0	0	0	0	0
NO3-	0	0	0	0	0	0	0
NO2-	0	0	0	0	0	0	0
CO32-	0	0	0	0	0	0	0
PO43-	0	0	0	0	0	0	0
SO42-	0	0	0	0	0	0	0
Si (as SiO32-)	0	0	0	0	0	0	0
F-	0	0	0	0	0	0	0
Cl-	0	0	0	0	0	0	0
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	0	0	0	0	0	0	0
Fe(CN)64-	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-201							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	1.32E+05 (kg)	(29.0 kgal)	----	---	---	---	----
Heat Load	2.20E-04 (kW)	(0.750 BTU/hr)	---	1.64E-04	1.93E-04	2.46E-04	2.71E-04
Bulk Density†	1.20 (g/cc)	---	---	1.15	1.17	1.23	1.26
Water wt%†	69.5	----	---	63.2	65.9	73.6	75.9
TOC wt% C (w	2.05	----	----	1.98	2.01	2.08	2.08
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	4.09	7.83E+04	1.03E+04	2.92	3.15	4.99	5.87
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	0.350	1.63E+04	2.15E+03	0.329	0.339	0.361	0.372
Cr3+	5.84E-03	253	33.3	4.37E-03	5.13E-03	6.53E-03	7.20E-03
Bi3+	5.36E-02	9.34E+03	1.23E+03	1.60E-02	3.74E-02	6.59E-02	7.50E-02
La3+	3.26E-03	378	49.8	2.44E-03	2.87E-03	3.65E-03	4.02E-03
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	1.37E-03	67.2	8.85	1.03E-03	1.21E-03	2.28E-03	6.38E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	4.38E-03	200	26.4	3.27E-03	3.85E-03	4.90E-03	5.40E-03
Ca2+	0.236	7.88E+03	1.04E+03	0.152	0.193	0.279	0.320
K+	0.198	6.46E+03	851	0.148	0.174	0.222	0.245
OH-	1.06	1.51E+04	1.99E+03	1.000	1.03	1.10	1.13
NO3-	1.18	6.11E+04	8.05E+03	0.885	1.04	1.32	1.46
NO2-	3.09E-03	119	15.6	1.70E-03	2.36E-03	3.91E-03	4.79E-03
CO32-	0.236	1.18E+04	1.55E+03	0.152	0.193	0.279	0.320
PO43-	8.11E-02	6.42E+03	846	3.66E-02	6.15E-02	9.66E-02	0.109
SO42-	2.58E-03	206	27.2	1.93E-03	2.26E-03	2.88E-03	3.18E-03
Si (as SiO32-)	0	0	0	0	0	0	0
F-	0.975	1.54E+04	2.03E+03	0.173	0.204	1.90	2.79
Cl-	2.29E-02	676	89.1	1.71E-02	2.01E-02	2.56E-02	2.83E-02
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	1.03	7.52E+04	9.90E+03	0.978	1.00	1.04	1.05
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	1.18E-07	1.68E-03	2.21E-04	5.05E-08	8.13E-08	1.64E-07	2.17E-07
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-201

TLM Solids Composite Inventory Estimate*

Physical Properties				-95 CI	-67 CI	+67 CI	+95 CI
Total TLM Wa	1.28E+05 (kg)	(28.0 kgal)	----	----	—	—	----
Heat Load	2.20E-04 (kW)	(0.750 BTU/hr)	----	1.64E-04	1.93E-04	2.46E-04	2.71E-04
Bulk Density	1.21 (g/cc)	—	—	1.15	1.17	1.24	1.26
Void Fraction	0.885	----	----	0.853	0.868	0.905	0.914
Water wt%	68.6	—	----	62.1	64.9	72.8	75.2
TOC wt% C (w	2.11	—	—	2.03	2.07	2.14	2.14

Radiological Constituents	Ci/L	µCi/g	Ci	-95 CI (Ci/L)	-67 CI (Ci/L)	+67 CI (Ci/L)	+95 CI (Ci/L)
H-3	5.31E-09	4.40E-06	5.63E-04	2.94E-09	4.10E-09	6.65E-09	8.07E-09
C-14	1.65E-09	1.36E-06	1.75E-04	1.23E-09	1.45E-09	1.84E-09	2.03E-09
Ni-59	4.68E-10	3.88E-07	4.96E-05	3.50E-10	4.11E-10	7.78E-10	2.17E-09
Ni-63	4.32E-08	3.57E-05	4.57E-03	3.23E-08	3.79E-08	7.17E-08	2.01E-07
Co-60	5.29E-10	4.38E-07	5.60E-05	3.95E-10	4.64E-10	5.91E-10	6.52E-10
Se-79	3.47E-10	2.88E-07	3.68E-05	2.60E-10	3.05E-10	3.89E-10	4.28E-10
Sr-90	1.72E-04	0.142	18.2	1.29E-04	1.51E-04	1.92E-04	2.12E-04
Y-90	1.72E-04	0.142	18.2	1.29E-04	1.51E-04	1.92E-04	2.12E-04
Zr-93	1.65E-09	1.37E-06	1.75E-04	1.23E-09	1.45E-09	1.84E-09	2.03E-09
Nb-93m	1.36E-09	1.13E-06	1.45E-04	1.02E-09	1.20E-09	1.53E-09	1.68E-09
Tc-99	1.14E-08	9.47E-06	1.21E-03	8.55E-09	1.00E-08	1.28E-08	1.41E-08
Ru-106	3.96E-16	3.28E-13	4.20E-11	2.96E-16	3.48E-16	4.43E-16	4.89E-16
Cd-113m	4.62E-09	3.82E-06	4.89E-04	3.45E-09	4.05E-09	5.16E-09	5.69E-09
Sb-125	6.10E-10	5.05E-07	6.46E-05	4.56E-10	5.35E-10	6.82E-10	7.52E-10
Sn-126	5.24E-10	4.34E-07	5.55E-05	3.92E-10	4.60E-10	5.86E-10	6.46E-10
I-129	2.16E-11	1.79E-08	2.29E-06	1.61E-11	1.90E-11	2.41E-11	2.66E-11
Cs-134	2.63E-11	2.17E-08	2.78E-06	1.96E-11	2.31E-11	2.94E-11	3.24E-11
Cs-137	1.95E-04	0.162	20.7	1.46E-04	1.71E-04	2.18E-04	2.41E-04
Ba-137m	1.85E-04	0.153	19.6	1.38E-04	1.62E-04	2.06E-04	2.28E-04
Sm-151	1.31E-06	1.09E-03	0.139	9.82E-07	1.15E-06	1.47E-06	1.62E-06
Eu-152	1.72E-09	1.42E-06	1.82E-04	1.71E-09	1.71E-09	1.73E-09	1.73E-09
Eu-154	8.48E-09	7.02E-06	8.99E-04	6.34E-09	7.45E-09	9.49E-09	1.05E-08
Eu-155	1.55E-07	1.29E-04	1.64E-02	1.54E-07	1.55E-07	1.56E-07	1.56E-07
Ra-226	7.76E-14	6.42E-11	8.22E-09	5.80E-14	6.81E-14	8.68E-14	9.56E-14
Ra-228	4.99E-18	4.13E-15	5.28E-13	4.94E-18	4.97E-18	5.01E-18	5.03E-18
Ac-227	4.09E-13	3.39E-10	4.34E-08	3.06E-13	3.59E-13	4.58E-13	5.05E-13
Pa-231	9.44E-13	7.82E-10	1.00E-07	7.06E-13	8.29E-13	1.06E-12	1.16E-12
Th-229	9.65E-16	7.99E-13	1.02E-10	9.57E-16	9.61E-16	9.68E-16	9.72E-16
Th-232	4.36E-19	3.61E-16	4.62E-14	3.26E-19	3.83E-19	4.88E-19	5.37E-19
U-232	5.06E-13	4.19E-10	5.36E-08	3.78E-13	4.44E-13	5.66E-13	6.24E-13
U-233	2.31E-14	1.91E-11	2.45E-09	1.72E-14	2.03E-14	2.58E-14	2.85E-14
U-234	2.52E-08	2.09E-05	2.67E-03	1.89E-08	2.21E-08	2.82E-08	3.11E-08
U-235	1.12E-09	9.29E-07	1.19E-04	8.39E-10	9.85E-10	1.26E-09	1.38E-09
U-236	2.20E-10	1.82E-07	2.33E-05	1.64E-10	1.93E-10	2.46E-10	2.71E-10
U-238	2.56E-08	2.12E-05	2.71E-03	1.91E-08	2.25E-08	2.86E-08	3.16E-08
Np-237	7.09E-11	5.87E-08	7.51E-06	5.30E-11	6.22E-11	7.93E-11	8.74E-11
Pu-238	3.03E-09	2.51E-06	3.21E-04	2.26E-09	2.66E-09	3.38E-09	3.73E-09
Pu-239	4.38E-07	3.63E-04	4.64E-02	3.27E-07	3.85E-07	4.90E-07	5.40E-07
Pu-240	3.84E-08	3.18E-05	4.07E-03	2.87E-08	3.38E-08	4.30E-08	4.74E-08
Pu-241	1.27E-07	1.05E-04	1.35E-02	9.50E-08	1.12E-07	1.42E-07	1.57E-07
Pu-242	5.88E-13	4.87E-10	6.23E-08	4.39E-13	5.16E-13	6.58E-13	7.25E-13
Am-241	3.58E-09	2.97E-06	3.80E-04	2.68E-09	3.15E-09	4.01E-09	4.42E-09
Am-243	2.91E-14	2.41E-11	3.08E-09	2.18E-14	2.56E-14	3.26E-14	3.59E-14
Cm-242	3.50E-11	2.89E-08	3.70E-06	3.47E-11	3.48E-11	3.51E-11	3.52E-11
Cm-243	7.53E-13	6.24E-10	7.98E-08	7.47E-13	7.50E-13	7.56E-13	7.59E-13
Cm-244	7.40E-13	6.13E-10	7.84E-08	5.53E-13	6.50E-13	8.28E-13	9.12E-13

Totals	M	µg/g	kg	-95 CI (M or g/L)	-67 CI (M or g/L)	+67 CI (M or g/L)	+95 CI (M or g/L)
Pu	7.22E-06 (g/L)	----	7.65E-04	5.39E-06	6.34E-06	8.07E-06	8.90E-06
U	3.22E-04	63.5	8.13	2.41E-04	2.83E-04	3.60E-04	3.97E-04

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-201							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	3.79E+03 (kg)	(1.00 kgal)	----	----	----	----	----
Heat Load	0 (kW)	(0 BTU/hr)	----	0	0	0	0
Bulk Density*	1.00 (g/cc)	----	----	1.00	1.00	1.00	1.00
Water wt%†	100	----	----	100	100	100	100
TOC wt% C (w	0	----	----	0	0	0	0
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	0	0	0	0	0	0	0
C-14	0	0	0	0	0	0	0
Ni-59	0	0	0	0	0	0	0
Ni-63	0	0	0	0	0	0	0
Co-60	0	0	0	0	0	0	0
Se-79	0	0	0	0	0	0	0
Sr-90	0	0	0	0	0	0	0
Y-90	0	0	0	0	0	0	0
Zr-93	0	0	0	0	0	0	0
Nb-93m	0	0	0	0	0	0	0
Tc-99	0	0	0	0	0	0	0
Ru-106	0	0	0	0	0	0	0
Cd-113m	0	0	0	0	0	0	0
Sb-125	0	0	0	0	0	0	0
Sn-126	0	0	0	0	0	0	0
I-129	0	0	0	0	0	0	0
Cs-134	0	0	0	0	0	0	0
Cs-137	0	0	0	0	0	0	0
Ba-137m	0	0	0	0	0	0	0
Sm-151	0	0	0	0	0	0	0
Eu-152	0	0	0	0	0	0	0
Eu-154	0	0	0	0	0	0	0
Eu-155	0	0	0	0	0	0	0
Ra-226	0	0	0	0	0	0	0
Ra-228	0	0	0	0	0	0	0
Ac-227	0	0	0	0	0	0	0
Pa-231	0	0	0	0	0	0	0
Th-229	0	0	0	0	0	0	0
Th-232	0	0	0	0	0	0	0
U-232	0	0	0	0	0	0	0
U-233	0	0	0	0	0	0	0
U-234	0	0	0	0	0	0	0
U-235	0	0	0	0	0	0	0
U-236	0	0	0	0	0	0	0
U-238	0	0	0	0	0	0	0
Np-237	0	0	0	0	0	0	0
Pu-238	0	0	0	0	0	0	0
Pu-239	0	0	0	0	0	0	0
Pu-240	0	0	0	0	0	0	0
Pu-241	0	0	0	0	0	0	0
Pu-242	0	0	0	0	0	0	0
Am-241	0	0	0	0	0	0	0
Am-243	0	0	0	0	0	0	0
Cm-242	0	0	0	0	0	0	0
Cm-243	0	0	0	0	0	0	0
Cm-244	0	0	0	0	0	0	0
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	0 (g/L)	----	0	0	0	0	0
U	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

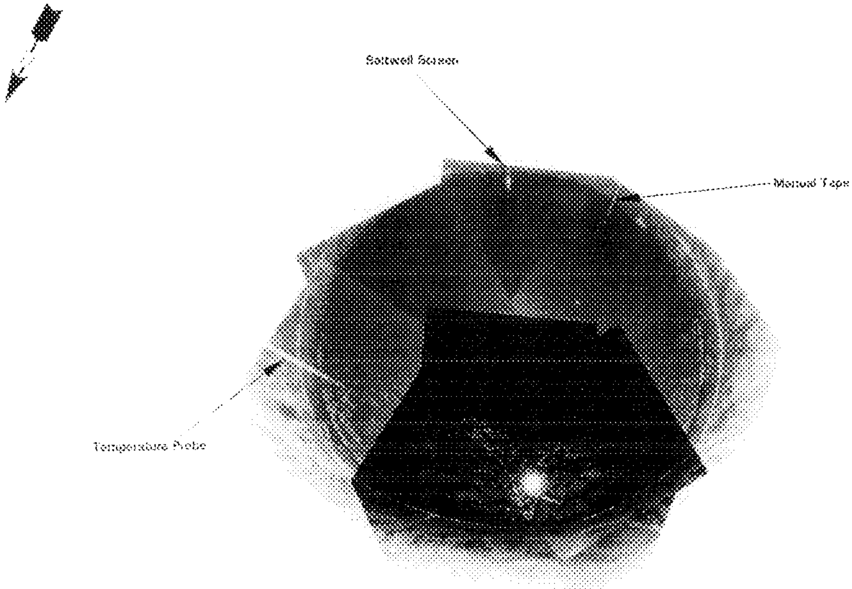
Single-Shell Tank 241-T-201							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	1.32E+05 (kg)	(29.0 kgal)	---	---	---	---	---
Heat Load	2.20E-04 (kW)	(0.750 BTU/hr)	---	1.64E-04	1.93E-04	2.46E-04	2.71E-04
Bulk Density†	1.20 (g/cc)	---	---	1.15	1.17	1.23	1.26
Water wt%†	69.5	---	---	63.2	65.9	73.6	75.9
TOC wt% C (w	2.05	---	---	1.98	2.01	2.08	2.08
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	5.13E-09	4.27E-06	5.63E-04	2.84E-09	3.95E-09	6.42E-09	7.79E-09
C-14	1.59E-09	1.32E-06	1.75E-04	1.19E-09	1.40E-09	1.78E-09	1.96E-09
Ni-59	4.52E-10	3.76E-07	4.96E-05	3.38E-10	3.97E-10	7.51E-10	2.10E-09
Ni-63	4.17E-08	3.47E-05	4.57E-03	3.11E-08	3.66E-08	6.93E-08	1.94E-07
Co-60	5.10E-10	4.25E-07	5.60E-05	3.82E-10	4.48E-10	5.71E-10	6.29E-10
Se-79	3.35E-10	2.79E-07	3.68E-05	2.51E-10	2.95E-10	3.75E-10	4.14E-10
Sr-90	1.66E-04	0.138	18.2	1.24E-04	1.46E-04	1.86E-04	2.05E-04
Y-90	1.66E-04	0.138	18.2	1.24E-04	1.46E-04	1.86E-04	2.05E-04
Zr-93	1.59E-09	1.33E-06	1.75E-04	1.19E-09	1.40E-09	1.78E-09	1.96E-09
Nb-93m	1.32E-09	1.10E-06	1.45E-04	9.85E-10	1.16E-09	1.47E-09	1.62E-09
Tc-99	1.10E-08	9.20E-06	1.21E-03	8.25E-09	9.69E-09	1.23E-08	1.36E-08
Ru-106	3.83E-16	3.19E-13	4.20E-11	2.86E-16	3.36E-16	4.28E-16	4.72E-16
Cd-113m	4.46E-09	3.71E-06	4.89E-04	3.33E-09	3.91E-09	4.99E-09	5.50E-09
Sb-125	5.88E-10	4.90E-07	6.46E-05	4.40E-10	5.17E-10	6.58E-10	7.26E-10
Sn-126	5.06E-10	4.21E-07	5.55E-05	3.78E-10	4.44E-10	5.66E-10	6.24E-10
I-129	2.08E-11	1.74E-08	2.29E-06	1.56E-11	1.83E-11	2.33E-11	2.57E-11
Cs-134	2.54E-11	2.11E-08	2.78E-06	1.90E-11	2.23E-11	2.84E-11	3.13E-11
Cs-137	1.88E-04	0.157	20.7	1.41E-04	1.65E-04	2.11E-04	2.32E-04
Ba-137m	1.78E-04	0.148	19.6	1.33E-04	1.56E-04	1.99E-04	2.20E-04
Sm-151	1.27E-06	1.06E-03	0.139	9.49E-07	1.11E-06	1.42E-06	1.56E-06
Eu-152	1.66E-09	1.38E-06	1.82E-04	1.65E-09	1.65E-09	1.67E-09	1.67E-09
Eu-154	8.19E-09	6.82E-06	8.99E-04	6.12E-09	7.19E-09	9.16E-09	1.01E-08
Eu-155	1.50E-07	1.25E-04	1.64E-02	1.49E-07	1.49E-07	1.50E-07	1.51E-07
Ra-226	7.49E-14	6.24E-11	8.22E-09	5.60E-14	6.58E-14	8.38E-14	9.23E-14
Ra-228	4.81E-18	4.01E-15	5.28E-13	4.77E-18	4.80E-18	4.83E-18	4.85E-18
Ac-227	3.95E-13	3.29E-10	4.34E-08	2.95E-13	3.47E-13	4.42E-13	4.87E-13
Pa-231	9.12E-13	7.60E-10	1.00E-07	6.82E-13	8.01E-13	1.02E-12	1.12E-12
Th-229	9.31E-16	7.76E-13	1.02E-10	9.23E-16	9.28E-16	9.35E-16	9.39E-16
Th-232	4.21E-19	3.51E-16	4.62E-14	3.15E-19	3.70E-19	4.71E-19	5.19E-19
U-232	4.88E-13	4.07E-10	5.36E-08	3.65E-13	4.29E-13	5.46E-13	6.02E-13
U-233	2.23E-14	1.86E-11	2.45E-09	1.67E-14	1.96E-14	2.49E-14	2.75E-14
U-234	2.43E-08	2.03E-05	2.67E-03	1.82E-08	2.14E-08	2.72E-08	3.00E-08
U-235	1.08E-09	9.02E-07	1.19E-04	8.10E-10	9.51E-10	1.21E-09	1.34E-09
U-236	2.12E-10	1.77E-07	2.33E-05	1.59E-10	1.86E-10	2.37E-10	2.62E-10
U-238	2.47E-08	2.06E-05	2.71E-03	1.85E-08	2.17E-08	2.76E-08	3.05E-08
Np-237	6.84E-11	5.70E-08	7.51E-06	5.11E-11	6.01E-11	7.65E-11	8.44E-11
Pu-238	2.92E-09	2.43E-06	3.21E-04	2.18E-09	2.56E-09	3.27E-09	3.60E-09
Pu-239	4.23E-07	3.52E-04	4.64E-02	3.16E-07	3.71E-07	4.73E-07	5.21E-07
Pu-240	3.71E-08	3.09E-05	4.07E-03	2.77E-08	3.26E-08	4.15E-08	4.58E-08
Pu-241	1.23E-07	1.02E-04	1.35E-02	9.17E-08	1.08E-07	1.37E-07	1.51E-07
Pu-242	5.67E-13	4.73E-10	6.23E-08	4.24E-13	4.98E-13	6.35E-13	7.00E-13
Am-241	3.46E-09	2.88E-06	3.80E-04	2.59E-09	3.04E-09	3.87E-09	4.26E-09
Am-243	2.81E-14	2.34E-11	3.08E-09	2.10E-14	2.47E-14	3.14E-14	3.47E-14
Cm-242	3.38E-11	2.81E-08	3.70E-06	3.35E-11	3.36E-11	3.39E-11	3.40E-11
Cm-243	7.27E-13	6.06E-10	7.98E-08	7.21E-13	7.24E-13	7.30E-13	7.33E-13
Cm-244	7.14E-13	5.95E-10	7.84E-08	5.34E-13	6.27E-13	7.99E-13	8.81E-13
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	6.97E-06 (g/L)	----	7.65E-04	5.21E-06	6.12E-06	7.79E-06	8.59E-06
U	3.11E-04	61.7	8.13	2.33E-04	2.73E-04	3.48E-04	3.84E-04

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Volume average for density, mass average Water wt% and TOC wt% C.

241-T-201

Photo date, 4-15-86



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TANK 241-T-202 SUMMARY

TANK HISTORY		TANK DESCRIPTION	
Entered Service	2nd qtr 1952	Diameter	20 ft
Removed from Service	1976	Bottom Shape	Dish
Inactive	1976	Nominal Capacity	55,000 gal
Watch Lists	none	Cascade Tank	none
Integrity	Sound	Total Risers	8
Assumed Leaker	-	**WASTE VOLUME (HANLON 1996I)**	
Interim Stabilization (IS)	Aug 1981	Total Waste Volume	21,000 gal
Partial Interim Isolation (PI)	-	Waste Type	NCPLX
Intrusion Prevention (IP)	Aug 1981	Drainable Interstitial Liquids	2,000 gal
TENTATIVELY AVAILABLE RISERS		Pumpable Liquids	0 gal
Riser Number	Size	Saltcake	0 gal
8	4 in	Sludge	21,000 gal
3, 6, 7	12 in	Supernatant	0 gal
TANK TEMPERATURE		**INTERIOR PHOTOGRAPHS**	
Average Tank Temperature	63°F	Date	July 6, 1989
Maximum Temperature	72.5°F	Montage Number	94080233-42CN
Date	Oct 10, 1994	Photo Set Number	89-070622
Elevation from tank bottom	unknown	**WASTE SURFACE LEVEL**	
Riser Number	5	Devices	Manual Tape
Minimum Temperature	50.54°F	Max Level	107 in
Date	June 7, 1994	Date	Dec 15, 1993
Elevation from tank bottom	unknown	Min Level	99.5 in
Riser Number	5	Date	Jan 4, 1991 - Jan 4, 1993*

* Numerous dates in this time span.

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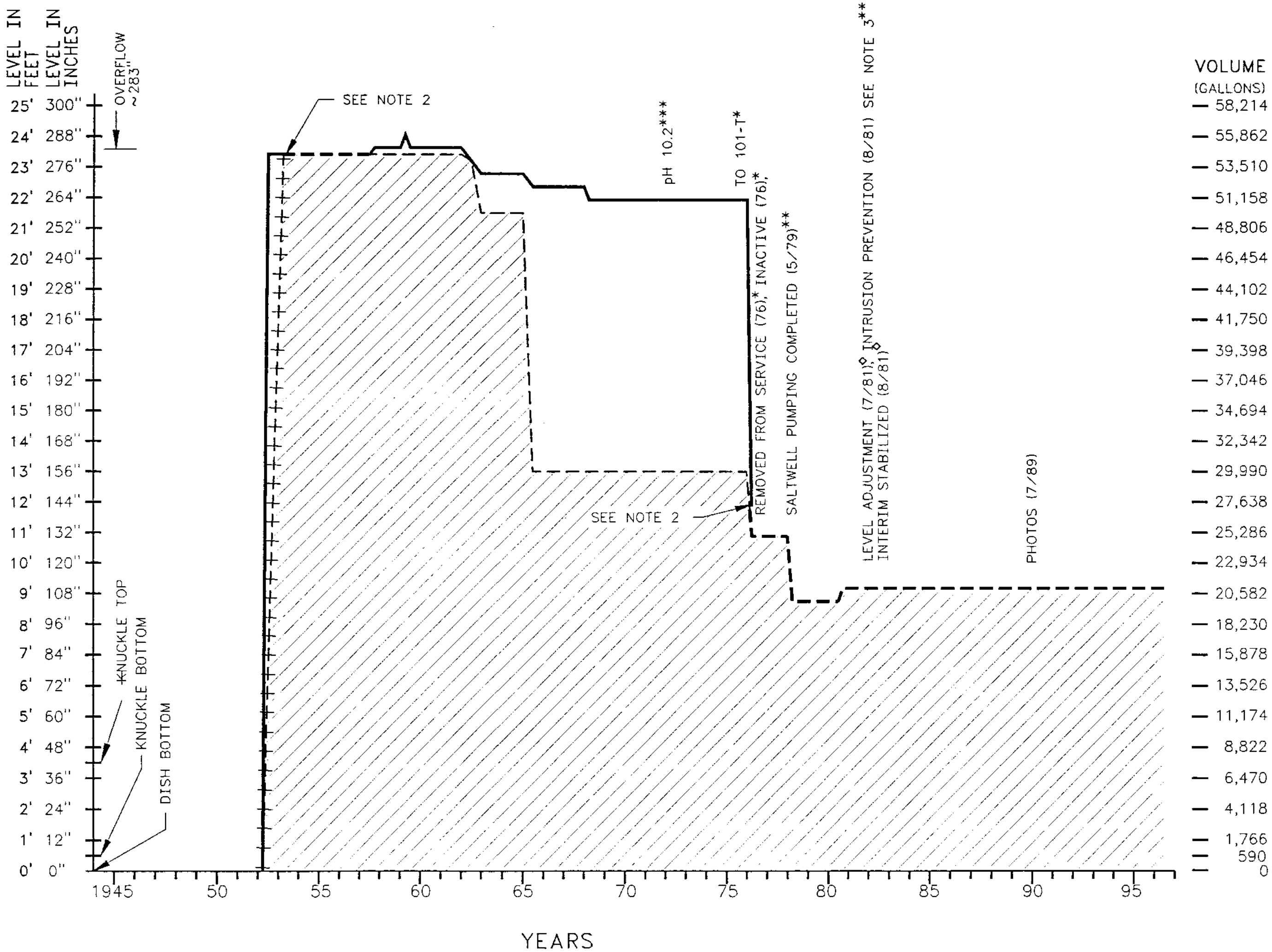
WASTE TYPES TIME LINE (ANDERSON 1990)	224
PRIMARY ADDITIONS TIME LINE (AGNEW 1995)	NONE



TANK INFO:

CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 55,000 GAL
DISH BOTTOM, 3 FOOT RADIUS KNUCKLE
20 FOOT DIAMETER TANK

REFERENCES

* ANDERSON 1990
** WELTY 1988
*** BORSHEIM AND KIRCH 1991
◇ HANLON 1996l

NOTES:

1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN.
3) IN JUNE 1993, INTERIM ISOLATION WAS REPLACED BY INTRUSION PREVENTION.

GLOSSARY OF WASTE TERMS:

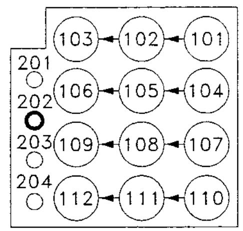
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A.

224: 224-U WASTE

LEGEND

- TOTAL WASTE LEVEL (SUPERNATE)
- TOTAL WASTE LEVEL (SOLIDS)
- SOLIDS LEVEL
- ASSUMED SOLIDS LEVEL
- SOLIDS

T TANK FARM CASCADE



U.S. DEPARTMENT OF ENERGY
Richland Operations Office
FLUOR DANIEL NORTHWEST, INC.

241-T-202 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1952-1996
SOUND/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E107	1/97
SCALE NONE		JOB NO.	SHEET 1 OF 1

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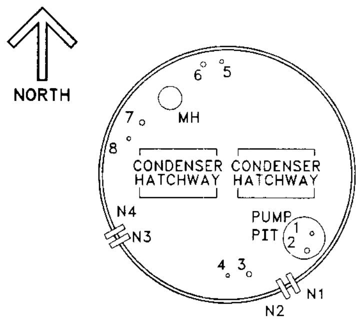
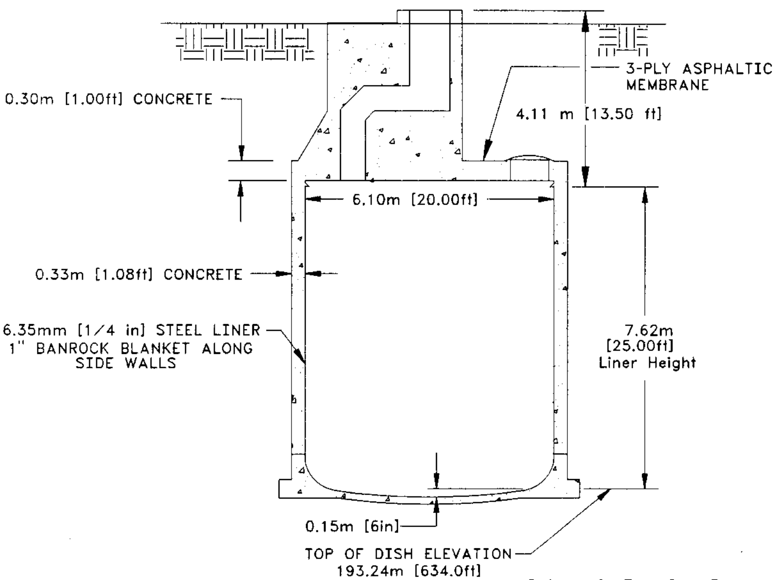
241-T-202



Ref: Alstad 1993
H-2-73067, Rev. 2

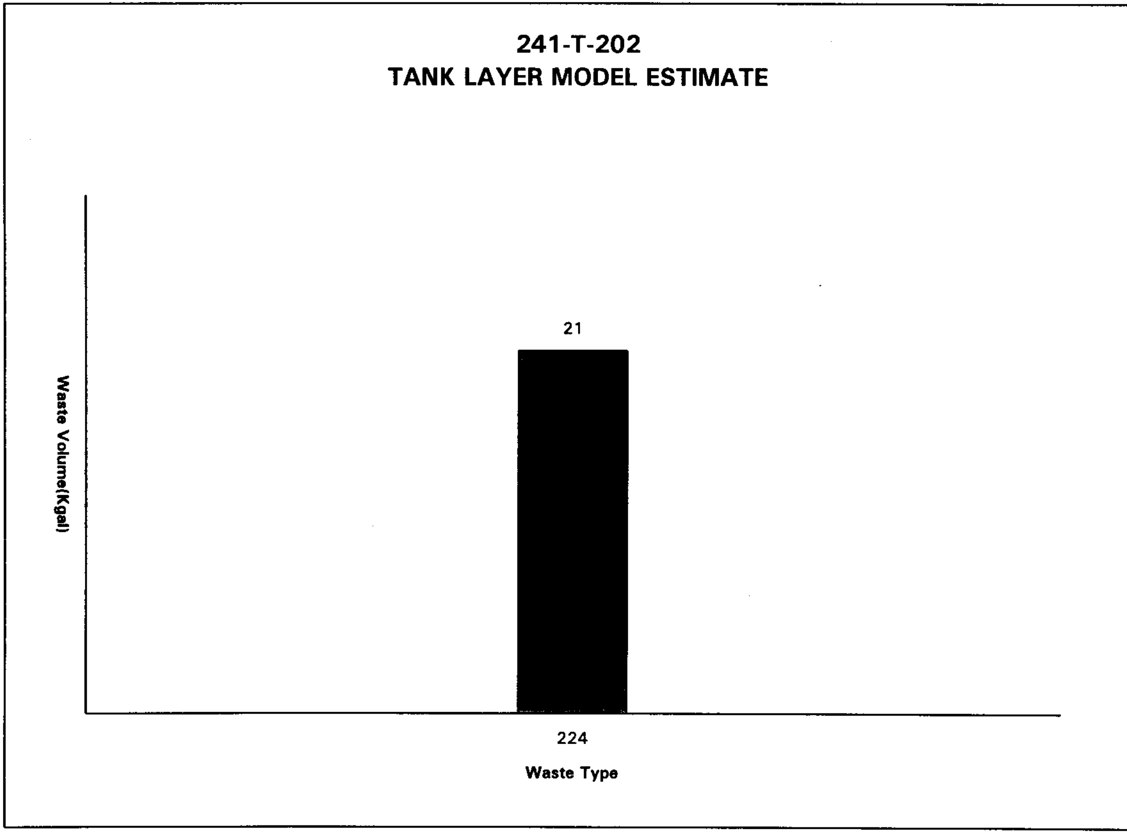
TANK RISER LOCATION

Approximate Grade Elevation 204.22m [670.0ft]



Ref: H-2-1741, Rev. 3
CVI-73550, dwg D-20
H-2-73067, Rev. 2

NOT TO SCALE



Tank Layer Model(TLM) Estimate from *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 4* (Agnew et al., 1997).

HDW Model Rev. 4

Single-Shell Tank 241-T-202							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	9.60E+04 (kg)	(21.0 kgal)	---	---	---	---	---
Heat Load	1.65E-04 (kW)	(0.563 BTU/hr)	---	1.23E-04	1.45E-04	1.84E-04	2.03E-04
Bulk Density	1.21 (g/cc)	---	---	1.15	1.17	1.24	1.26
Void Fraction	0.885	---	---	0.853	0.868	0.905	0.914
Water wt%	68.6	---	---	62.1	64.9	72.8	75.2
TOC wt% C (w	2.11	---	---	2.03	2.07	2.14	2.14
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	4.23	8.06E+04	7.74E+03	3.03	3.26	5.17	6.08
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	0.363	1.68E+04	1.61E+03	0.341	0.352	0.374	0.385
Cr3+	6.05E-03	260	25.0	4.52E-03	5.31E-03	6.77E-03	7.46E-03
Bi3+	5.55E-02	9.61E+03	923	1.66E-02	3.87E-02	6.83E-02	7.77E-02
La3+	3.38E-03	389	37.3	2.53E-03	2.97E-03	3.78E-03	4.17E-03
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	1.42E-03	69.2	6.64	1.06E-03	1.25E-03	2.37E-03	6.61E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	4.54E-03	206	19.8	3.39E-03	3.98E-03	5.07E-03	5.59E-03
Ca2+	0.244	8.11E+03	779	0.157	0.200	0.289	0.332
K+	0.205	6.65E+03	638	0.154	0.180	0.230	0.253
OH-	1.10	1.55E+04	1.49E+03	1.04	1.07	1.14	1.17
NO3-	1.23	6.29E+04	6.04E+03	0.917	1.08	1.37	1.51
NO2-	3.20E-03	122	11.7	1.76E-03	2.44E-03	4.05E-03	4.97E-03
CO32-	0.244	1.21E+04	1.17E+03	0.157	0.200	0.289	0.332
PO43-	8.40E-02	6.61E+03	634	3.79E-02	6.37E-02	0.100	0.113
SO42-	2.67E-03	212	20.4	1.99E-03	2.34E-03	2.98E-03	3.29E-03
Si (as SiO32-)	0	0	0	0	0	0	0
F-	1.01	1.59E+04	1.53E+03	0.180	0.211	1.97	2.89
Cl-	2.37E-02	696	66.8	1.77E-02	2.08E-02	2.65E-02	2.93E-02
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	1.06	7.74E+04	7.43E+03	1.01	1.04	1.08	1.09
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	1.23E-07	1.73E-03	1.66E-04	5.23E-08	8.43E-08	1.69E-07	2.25E-07
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-202							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	0 (kg)	(0 kgal)	---	---	---	---	---
Heat Load	0 (kW)	(0 BTU/hr)	---	0	0	0	0
Bulk Density*	0 (g/cc)	---	---	0	0	0	0
Water wt%	0	---	---	0	0	0	0
TOC wt% C (w	0	---	---	0	0	0	0
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	0	0	0	0	0	0	0
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	0	0	0	0	0	0	0
Cr3+	0	0	0	0	0	0	0
Bi3+	0	0	0	0	0	0	0
La3+	0	0	0	0	0	0	0
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	0	0	0	0	0	0	0
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	0	0	0	0	0	0	0
K+	0	0	0	0	0	0	0
OH-	0	0	0	0	0	0	0
NO3-	0	0	0	0	0	0	0
NO2-	0	0	0	0	0	0	0
CO32-	0	0	0	0	0	0	0
PO43-	0	0	0	0	0	0	0
SO42-	0	0	0	0	0	0	0
Si (as SiO32-)	0	0	0	0	0	0	0
F-	0	0	0	0	0	0	0
Cl-	0	0	0	0	0	0	0
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	0	0	0	0	0	0	0
Fe(CN)64-	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-202							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	9.60E+04 (kg)	(21.0 kgal)	----	----	----	----	----
Heat Load	1.65E-04 (kW)	(0.563 BTU/hr)	----	1.23E-04	1.45E-04	1.84E-04	2.03E-04
Bulk Density†	1.21 (g/cc)	----	----	1.15	1.17	1.24	1.26
Water wt%†	68.6	----	----	62.1	64.9	72.8	75.2
TOC wt% C (w	2.11	----	----	2.03	2.07	2.14	2.14
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	4.23	8.06E+04	7.74E+03	3.03	3.26	5.17	6.08
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	0.363	1.68E+04	1.61E+03	0.341	0.352	0.374	0.385
Cr3+	6.05E-03	260	25.0	4.52E-03	5.31E-03	6.77E-03	7.46E-03
Bi3+	5.55E-02	9.61E+03	923	1.66E-02	3.87E-02	6.83E-02	7.77E-02
La3+	3.38E-03	389	37.3	2.53E-03	2.97E-03	3.78E-03	4.17E-03
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	1.42E-03	69.2	6.64	1.06E-03	1.25E-03	2.37E-03	6.61E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	4.54E-03	206	19.8	3.39E-03	3.98E-03	5.07E-03	5.59E-03
Ca2+	0.244	8.11E+03	779	0.157	0.200	0.289	0.332
K+	0.205	6.65E+03	638	0.154	0.180	0.230	0.253
OH-	1.10	1.55E+04	1.49E+03	1.04	1.07	1.14	1.17
NO3-	1.23	6.29E+04	6.04E+03	0.917	1.08	1.37	1.51
NO2-	3.20E-03	122	11.7	1.76E-03	2.44E-03	4.05E-03	4.97E-03
CO32-	0.244	1.21E+04	1.17E+03	0.157	0.200	0.289	0.332
PO43-	8.40E-02	6.61E+03	634	3.79E-02	6.37E-02	0.100	0.113
SO42-	2.67E-03	212	20.4	1.99E-03	2.34E-03	2.98E-03	3.29E-03
Si (as SiO32-)	0	0	0	0	0	0	0
F-	1.01	1.59E+04	1.53E+03	0.180	0.211	1.97	2.89
Cl-	2.37E-02	696	66.8	1.77E-02	2.08E-02	2.65E-02	2.93E-02
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	1.06	7.74E+04	7.43E+03	1.01	1.04	1.08	1.09
DBP	0	0	0	0	0	0	0
butanol	*0*	*0*	*0*	0	0	0	0
NH3	1.23E-07	1.73E-03	1.66E-04	5.23E-08	8.43E-08	1.69E-07	2.25E-07
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-202							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	9.60E+04 (kg)	(21.0 kgal)	----	----	----	----	----
Heat Load	1.65E-04 (kW)	(0.563 BTU/hr)	----	1.23E-04	1.45E-04	1.84E-04	2.03E-04
Bulk Density	1.21 (g/cc)	----	----	1.15	1.17	1.24	1.26
Void Fraction	0.885	----	----	0.853	0.868	0.905	0.914
Water wt%	68.6	----	----	62.1	64.9	72.8	75.2
TOC wt% C (w	2.11	----	----	2.03	2.07	2.14	2.14
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	5.31E-09	4.40E-06	4.22E-04	2.94E-09	4.10E-09	6.65E-09	8.07E-09
C-14	1.65E-09	1.36E-06	1.31E-04	1.23E-09	1.45E-09	1.84E-09	2.03E-09
Ni-59	4.68E-10	3.88E-07	3.72E-05	3.50E-10	4.11E-10	7.78E-10	2.17E-09
Ni-63	4.32E-08	3.57E-05	3.43E-03	3.23E-08	3.79E-08	7.17E-08	2.01E-07
Co-60	5.29E-10	4.38E-07	4.20E-05	3.95E-10	4.64E-10	5.91E-10	6.52E-10
Se-79	3.47E-10	2.88E-07	2.76E-05	2.60E-10	3.05E-10	3.89E-10	4.28E-10
Sr-90	1.72E-04	0.142	13.7	1.29E-04	1.51E-04	1.92E-04	2.12E-04
Y-90	1.72E-04	0.142	13.7	1.29E-04	1.51E-04	1.92E-04	2.12E-04
Zr-93	1.65E-09	1.37E-06	1.31E-04	1.23E-09	1.45E-09	1.84E-09	2.03E-09
Nb-93m	1.36E-09	1.13E-06	1.08E-04	1.02E-09	1.20E-09	1.53E-09	1.68E-09
Tc-99	1.14E-08	9.47E-06	9.09E-04	8.55E-09	1.00E-08	1.28E-08	1.41E-08
Ru-106	3.96E-16	3.28E-13	3.15E-11	2.96E-16	3.48E-16	4.43E-16	4.89E-16
Cd-113m	4.62E-09	3.82E-06	3.67E-04	3.45E-09	4.05E-09	5.16E-09	5.69E-09
Sb-125	6.10E-10	5.05E-07	4.84E-05	4.56E-10	5.35E-10	6.82E-10	7.52E-10
Sn-126	5.24E-10	4.34E-07	4.16E-05	3.92E-10	4.60E-10	5.86E-10	6.46E-10
I-129	2.16E-11	1.79E-08	1.72E-06	1.61E-11	1.90E-11	2.41E-11	2.66E-11
Cs-134	2.63E-11	2.17E-08	2.09E-06	1.96E-11	2.31E-11	2.94E-11	3.24E-11
Cs-137	1.95E-04	0.162	15.5	1.46E-04	1.71E-04	2.18E-04	2.41E-04
Ba-137m	1.85E-04	0.153	14.7	1.38E-04	1.62E-04	2.06E-04	2.28E-04
Sm-151	1.31E-06	1.09E-03	0.104	9.82E-07	1.15E-06	1.47E-06	1.62E-06
Eu-152	1.72E-09	1.42E-06	1.37E-04	1.71E-09	1.71E-09	1.73E-09	1.73E-09
Eu-154	8.48E-09	7.02E-06	6.74E-04	6.34E-09	7.45E-09	9.49E-09	1.05E-08
Eu-155	1.55E-07	1.29E-04	1.23E-02	1.54E-07	1.55E-07	1.56E-07	1.56E-07
Ra-226	7.76E-14	6.42E-11	6.16E-09	5.80E-14	6.81E-14	8.68E-14	9.56E-14
Ra-228	4.99E-18	4.13E-15	3.96E-13	4.94E-18	4.97E-18	5.01E-18	5.03E-18
Ac-227	4.09E-13	3.39E-10	3.25E-08	3.06E-13	3.59E-13	4.58E-13	5.05E-13
Pa-231	9.44E-13	7.82E-10	7.51E-08	7.06E-13	8.29E-13	1.06E-12	1.16E-12
Th-229	9.65E-16	7.99E-13	7.67E-11	9.57E-16	9.61E-16	9.68E-16	9.72E-16
Th-232	4.36E-19	3.61E-16	3.46E-14	3.26E-19	3.83E-19	4.88E-19	5.37E-19
U-232	5.06E-13	4.19E-10	4.02E-08	3.78E-13	4.44E-13	5.66E-13	6.24E-13
U-233	2.31E-14	1.91E-11	1.83E-09	1.72E-14	2.03E-14	2.58E-14	2.85E-14
U-234	2.52E-08	2.09E-05	2.00E-03	1.89E-08	2.21E-08	2.82E-08	3.11E-08
U-235	1.12E-09	9.29E-07	8.92E-05	8.39E-10	9.85E-10	1.26E-09	1.38E-09
U-236	2.20E-10	1.82E-07	1.75E-05	1.64E-10	1.93E-10	2.46E-10	2.71E-10
U-238	2.56E-08	2.12E-05	2.03E-03	1.91E-08	2.25E-08	2.86E-08	3.16E-08
Np-237	7.09E-11	5.87E-08	5.63E-06	5.30E-11	6.22E-11	7.93E-11	8.74E-11
Pu-238	3.03E-09	2.51E-06	2.40E-04	2.26E-09	2.66E-09	3.38E-09	3.73E-09
Pu-239	4.38E-07	3.63E-04	3.48E-02	3.27E-07	3.85E-07	4.90E-07	5.40E-07
Pu-240	3.84E-08	3.18E-05	3.06E-03	2.87E-08	3.38E-08	4.30E-08	4.74E-08
Pu-241	1.27E-07	1.05E-04	1.01E-02	9.50E-08	1.12E-07	1.42E-07	1.57E-07
Pu-242	5.88E-13	4.87E-10	4.67E-08	4.39E-13	5.16E-13	6.58E-13	7.25E-13
Am-241	3.58E-09	2.97E-06	2.85E-04	2.68E-09	3.15E-09	4.01E-09	4.42E-09
Am-243	2.91E-14	2.41E-11	2.31E-09	2.18E-14	2.56E-14	3.26E-14	3.59E-14
Cm-242	3.50E-11	2.89E-08	2.78E-06	3.47E-11	3.48E-11	3.51E-11	3.52E-11
Cm-243	7.53E-13	6.24E-10	5.99E-08	7.47E-13	7.50E-13	7.56E-13	7.59E-13
Cm-244	7.40E-13	6.13E-10	5.88E-08	5.53E-13	6.50E-13	8.28E-13	9.12E-13
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	7.22E-06 (g/L)	----	5.74E-04	5.39E-06	6.34E-06	8.07E-06	8.90E-06
U	3.22E-04	63.5	6.09	2.41E-04	2.83E-04	3.60E-04	3.97E-04

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-202							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	0 (kg)	(0 kgal)	----	----	----	----	----
Heat Load	0 (kW)	(0 BTU/hr)	----	0	0	0	0
Bulk Density*	0 (g/cc)	----	----	0	0	0	0
Water wt%†	0	----	----	0	0	0	0
TOC wt% C (w	0	----	----	0	0	0	0
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	0	0	0	0	0	0	0
C-14	0	0	0	0	0	0	0
Ni-59	0	0	0	0	0	0	0
Ni-63	0	0	0	0	0	0	0
Co-60	0	0	0	0	0	0	0
Se-79	0	0	0	0	0	0	0
Sr-90	0	0	0	0	0	0	0
Y-90	0	0	0	0	0	0	0
Zr-93	0	0	0	0	0	0	0
Nb-93m	0	0	0	0	0	0	0
Tc-99	0	0	0	0	0	0	0
Ru-106	0	0	0	0	0	0	0
Cd-113m	0	0	0	0	0	0	0
Sb-125	0	0	0	0	0	0	0
Sn-126	0	0	0	0	0	0	0
I-129	0	0	0	0	0	0	0
Cs-134	0	0	0	0	0	0	0
Cs-137	0	0	0	0	0	0	0
Ba-137m	0	0	0	0	0	0	0
Sm-151	0	0	0	0	0	0	0
Eu-152	0	0	0	0	0	0	0
Eu-154	0	0	0	0	0	0	0
Eu-155	0	0	0	0	0	0	0
Ra-226	0	0	0	0	0	0	0
Ra-228	0	0	0	0	0	0	0
Ac-227	0	0	0	0	0	0	0
Pa-231	0	0	0	0	0	0	0
Th-229	0	0	0	0	0	0	0
Th-232	0	0	0	0	0	0	0
U-232	0	0	0	0	0	0	0
U-233	0	0	0	0	0	0	0
U-234	0	0	0	0	0	0	0
U-235	0	0	0	0	0	0	0
U-236	0	0	0	0	0	0	0
U-238	0	0	0	0	0	0	0
Np-237	0	0	0	0	0	0	0
Pu-238	0	0	0	0	0	0	0
Pu-239	0	0	0	0	0	0	0
Pu-240	0	0	0	0	0	0	0
Pu-241	0	0	0	0	0	0	0
Pu-242	0	0	0	0	0	0	0
Am-241	0	0	0	0	0	0	0
Am-243	0	0	0	0	0	0	0
Cm-242	0	0	0	0	0	0	0
Cm-243	0	0	0	0	0	0	0
Cm-244	0	0	0	0	0	0	0
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	0 (g/L)	----	0	0	0	0	0
U	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

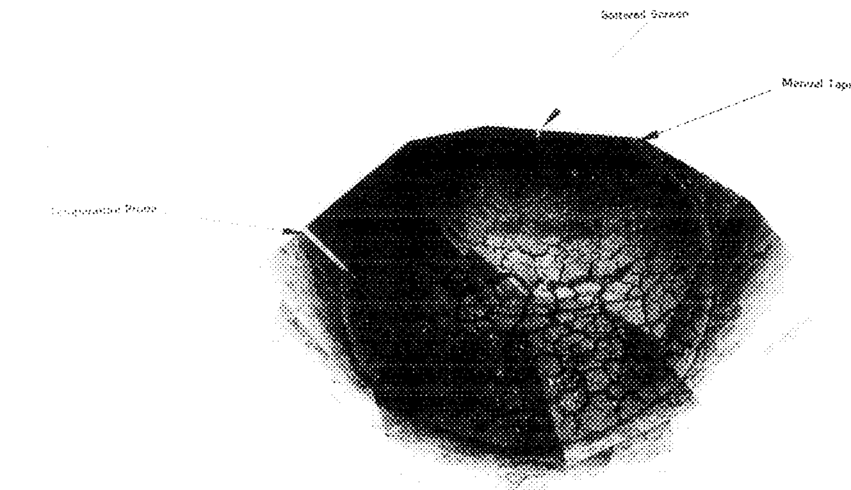
Single-Shell Tank 241-T-202							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	9.60E+04 (kg)	(21.0 kgal)	---	---	---	---	---
Heat Load	1.65E-04 (kW)	(0.563 BTU/hr)	---	1.23E-04	1.45E-04	1.84E-04	2.03E-04
Bulk Density†	1.21 (g/cc)	---	---	1.15	1.17	1.24	1.26
Water wt%†	68.6	---	---	62.1	64.9	72.8	75.2
TOC wt% C (w	2.11	---	---	2.03	2.07	2.14	2.14
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	5.31E-09	4.40E-06	4.22E-04	2.94E-09	4.10E-09	6.65E-09	8.07E-09
C-14	1.65E-09	1.36E-06	1.31E-04	1.23E-09	1.45E-09	1.84E-09	2.03E-09
Ni-59	4.68E-10	3.88E-07	3.72E-05	3.50E-10	4.11E-10	7.78E-10	2.17E-09
Ni-63	4.32E-08	3.57E-05	3.43E-03	3.23E-08	3.79E-08	7.17E-08	2.01E-07
Co-60	5.29E-10	4.38E-07	4.20E-05	3.95E-10	4.64E-10	5.91E-10	6.52E-10
Se-79	3.47E-10	2.88E-07	2.76E-05	2.60E-10	3.05E-10	3.89E-10	4.28E-10
Sr-90	1.72E-04	0.142	13.7	1.29E-04	1.51E-04	1.92E-04	2.12E-04
Y-90	1.72E-04	0.142	13.7	1.29E-04	1.51E-04	1.92E-04	2.12E-04
Zr-93	1.65E-09	1.37E-06	1.31E-04	1.23E-09	1.45E-09	1.84E-09	2.03E-09
Nb-93m	1.36E-09	1.13E-06	1.08E-04	1.02E-09	1.20E-09	1.53E-09	1.68E-09
Tc-99	1.14E-08	9.47E-06	9.09E-04	8.55E-09	1.00E-08	1.28E-08	1.41E-08
Ru-106	3.96E-16	3.28E-13	3.15E-11	2.96E-16	3.48E-16	4.43E-16	4.89E-16
Cd-113m	4.62E-09	3.82E-06	3.67E-04	3.45E-09	4.05E-09	5.16E-09	5.69E-09
Sb-125	6.10E-10	5.05E-07	4.84E-05	4.56E-10	5.35E-10	6.82E-10	7.52E-10
Sn-126	5.24E-10	4.34E-07	4.16E-05	3.92E-10	4.60E-10	5.86E-10	6.46E-10
I-129	2.16E-11	1.79E-08	1.72E-06	1.61E-11	1.90E-11	2.41E-11	2.66E-11
Cs-134	2.63E-11	2.17E-08	2.09E-06	1.96E-11	2.31E-11	2.94E-11	3.24E-11
Cs-137	1.95E-04	0.162	15.5	1.46E-04	1.71E-04	2.18E-04	2.41E-04
Ba-137m	1.85E-04	0.153	14.7	1.38E-04	1.62E-04	2.06E-04	2.28E-04
Sm-151	1.31E-06	1.09E-03	0.104	9.82E-07	1.15E-06	1.47E-06	1.62E-06
Eu-152	1.72E-09	1.42E-06	1.37E-04	1.71E-09	1.71E-09	1.73E-09	1.73E-09
Eu-154	8.48E-09	7.02E-06	6.74E-04	6.34E-09	7.45E-09	9.49E-09	1.05E-08
Eu-155	1.55E-07	1.29E-04	1.23E-02	1.54E-07	1.55E-07	1.56E-07	1.56E-07
Ra-226	7.76E-14	6.42E-11	6.16E-09	5.80E-14	6.81E-14	8.68E-14	9.56E-14
Ra-228	4.99E-18	4.13E-15	3.96E-13	4.94E-18	4.97E-18	5.01E-18	5.03E-18
Ac-227	4.09E-13	3.39E-10	3.25E-08	3.06E-13	3.59E-13	4.58E-13	5.05E-13
Pa-231	9.44E-13	7.82E-10	7.51E-08	7.06E-13	8.29E-13	1.06E-12	1.16E-12
Th-229	9.65E-16	7.99E-13	7.67E-11	9.57E-16	9.61E-16	9.68E-16	9.72E-16
Th-232	4.36E-19	3.61E-16	3.46E-14	3.26E-19	3.83E-19	4.88E-19	5.37E-19
U-232	5.06E-13	4.19E-10	4.02E-08	3.78E-13	4.44E-13	5.66E-13	6.24E-13
U-233	2.31E-14	1.91E-11	1.83E-09	1.72E-14	2.03E-14	2.58E-14	2.85E-14
U-234	2.52E-08	2.09E-05	2.00E-03	1.89E-08	2.21E-08	2.82E-08	3.11E-08
U-235	1.12E-09	9.29E-07	8.92E-05	8.39E-10	9.85E-10	1.26E-09	1.38E-09
U-236	2.20E-10	1.82E-07	1.75E-05	1.64E-10	1.93E-10	2.46E-10	2.71E-10
U-238	2.56E-08	2.12E-05	2.03E-03	1.91E-08	2.25E-08	2.86E-08	3.16E-08
Np-237	7.09E-11	5.87E-08	5.63E-06	5.30E-11	6.22E-11	7.93E-11	8.74E-11
Pu-238	3.03E-09	2.51E-06	2.40E-04	2.26E-09	2.66E-09	3.38E-09	3.73E-09
Pu-239	4.38E-07	3.63E-04	3.48E-02	3.27E-07	3.85E-07	4.90E-07	5.40E-07
Pu-240	3.84E-08	3.18E-05	3.06E-03	2.87E-08	3.38E-08	4.30E-08	4.74E-08
Pu-241	1.27E-07	1.05E-04	1.01E-02	9.50E-08	1.12E-07	1.42E-07	1.57E-07
Pu-242	5.88E-13	4.87E-10	4.67E-08	4.39E-13	5.16E-13	6.58E-13	7.25E-13
Am-241	3.58E-09	2.97E-06	2.85E-04	2.68E-09	3.15E-09	4.01E-09	4.42E-09
Am-243	2.91E-14	2.41E-11	2.31E-09	2.18E-14	2.56E-14	3.26E-14	3.59E-14
Cm-242	3.50E-11	2.89E-08	2.78E-06	3.47E-11	3.48E-11	3.51E-11	3.52E-11
Cm-243	7.53E-13	6.24E-10	5.99E-08	7.47E-13	7.50E-13	7.56E-13	7.59E-13
Cm-244	7.40E-13	6.13E-10	5.88E-08	5.53E-13	6.50E-13	8.28E-13	9.12E-13
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	7.22E-06 (g/L)	—	5.74E-04	5.39E-06	6.34E-06	8.07E-06	8.90E-06
U	3.22E-04	63.5	6.09	2.41E-04	2.83E-04	3.60E-04	3.97E-04

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Volume average for density, mass average Water wt% and TOC wt% C.

241-T-202

Photo date:



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TANK 241-T-203 SUMMARY

TANK HISTORY	
Entered Service	2nd qtr 1952
Removed from Service	1976
Inactive	1976
Watch Lists	-
Integrity	Sound
Assumed Leaker	-
Interim Stabilization (IS)	April 1981
Partial Interim Isolation (PI)	-
Intrusion Prevention (IP)	Aug 1981
TENTATIVELY AVAILABLE RISERS	
Riser Number	Size
5	4 in
3, 6, 7	12 in
TANK TEMPERATURE	
Average Tank Temperature	62°F
Maximum Temperature	79°F
Date	July 1, 1988
Elevation from tank bottom	unknown
Riser Number	8
Minimum Temperature	44°F
Date	May 3, 1980
Elevation from tank bottom	unknown
Riser Number	8

TANK DESCRIPTION	
Diameter	20 ft
Bottom Shape	Dish
Nominal Capacity	55,000 gal
Cascade Tank	none
Total Risers	8
WASTE VOLUME (HANLON 1996I)	
Total Waste Volume	35,000 gal
Waste Type	NCPLX
Drainable Interstitial Liquids	4,000 gal
Pumpable Liquids	0 gal
Saltcake	0 gal
Sludge	35,000 gal
Supernatant	0 gal
INTERIOR PHOTOGRAPHS	
Date	Aug 3, 1989
Montage Number	94080233-34CN
Photo Set Number	89-071828
WASTE SURFACE LEVEL	
Devices	Manual Tape
Max Level	188.25 in
Date	Oct 2, 1996
Min Level	181.5 in
Date	April 2, 1991

* Numerous dates in this time span.

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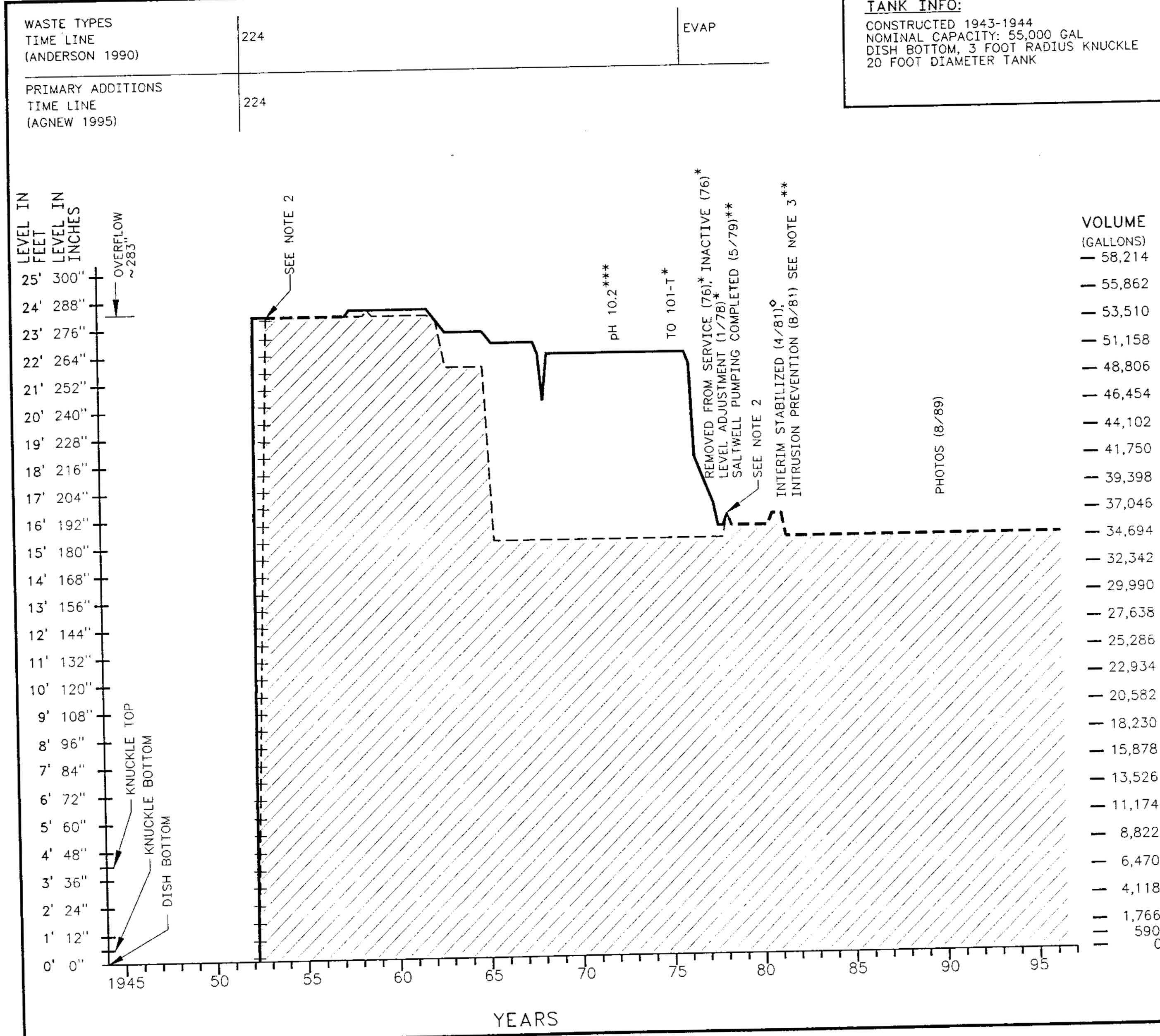


TANK INFO:

CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 55,000 GAL
DISH BOTTOM, 3 FOOT RADIUS KNUCKLE
20 FOOT DIAMETER TANK

REFERENCES

- * ANDERSON 1990
- ** WELTY 1988
- *** BORSHEIM AND KIRCH 1991
- ◇ HANLON 1996I

NOTES:

1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN.
3) IN JUNE 1993, INTERIM ISOLATION WAS REPLACED BY INTRUSION PREVENTION.

GLOSSARY OF WASTE TERMS:

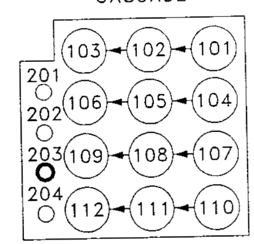
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A.

224: 224-U WASTE
EVAP: EVAPORATOR FEED

LEGEND

- TOTAL WASTE LEVEL (SUPERNATE)
- TOTAL WASTE LEVEL (SOLIDS)
- SOLIDS LEVEL
- ASSUMED SOLIDS LEVEL
- SOLIDS

T TANK FARM
CASCADE



U.S. DEPARTMENT OF ENERGY
Richland Operations Office
FLUOR DANIEL NORTHWEST, INC.

241-T-203 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1952-1996
SOUND/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E108	1/97
SCALE NONE		JOB NO.	SHEET 1 OF 1

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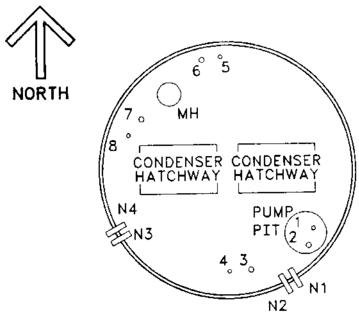
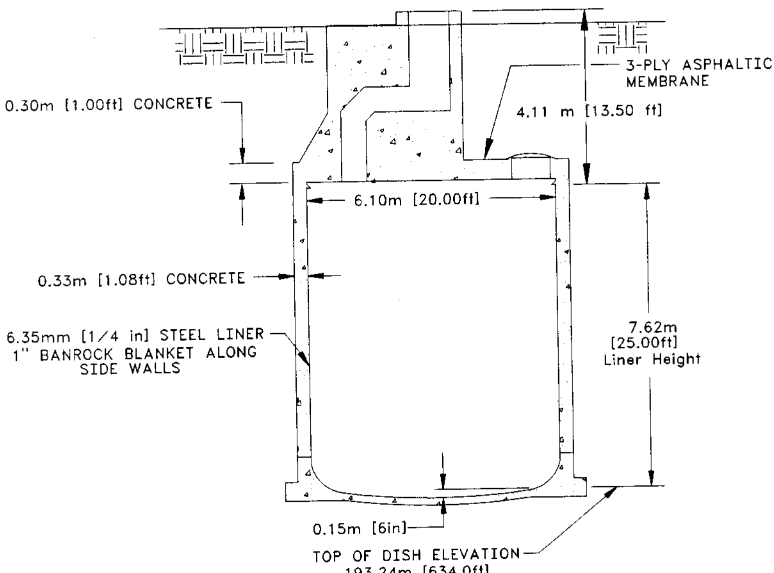
241-T-203



Ref: Alstad 1993
H-2-73068, Rev. 2

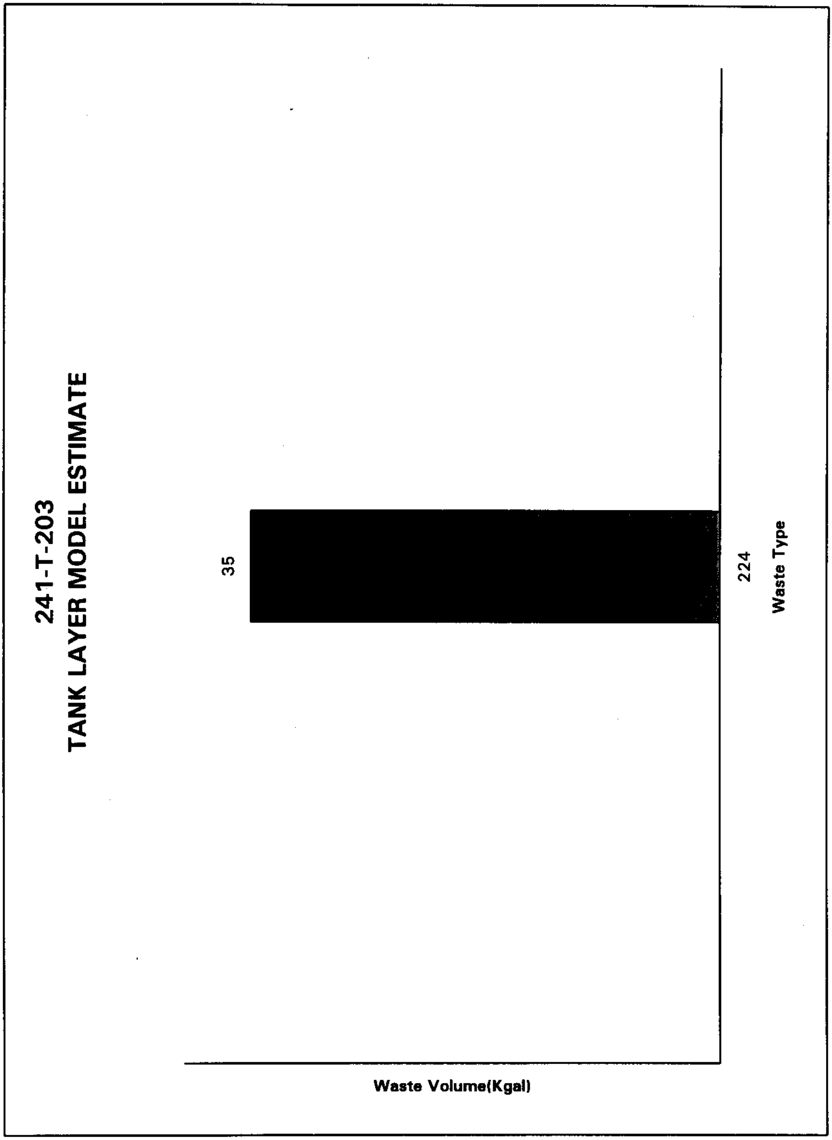
TANK RISER LOCATION

Approximate Grade Elevation 204.52m [671.0ft]



Ref: H-2-1741, Rev. 3
CVI-73550, dwg D-20
H-2-73068, Rev. 2

NOT TO SCALE



Tank Layer Model(TLM) Estimate from *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 4* (Agnew et al., 1997).

HDW Model Rev. 4

Single-Shell Tank 241-T-203							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	1.60E+05 (kg)	(35.0 kgal)	----	----	----	----	----
Heat Load	2.75E-04 (kW)	(0.938 BTU/hr)	----	2.05E-04	2.41E-04	3.07E-04	3.39E-04
Bulk Density	1.21 (g/cc)	----	----	1.15	1.17	1.24	1.26
Void Fraction	0.885	----	----	0.853	0.868	0.905	0.914
Water wt%	68.6	----	----	62.1	64.9	72.8	75.2
TOC wt% C (w	2.11	----	----	2.03	2.07	2.14	2.14
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	4.23	8.06E+04	1.29E+04	3.03	3.26	5.17	6.08
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	0.363	1.68E+04	2.68E+03	0.341	0.352	0.374	0.385
Cr3+	6.05E-03	260	41.7	4.52E-03	5.31E-03	6.77E-03	7.46E-03
Bi3+	5.55E-02	9.61E+03	1.54E+03	1.66E-02	3.87E-02	6.83E-02	7.77E-02
La3+	3.38E-03	389	62.2	2.53E-03	2.97E-03	3.78E-03	4.17E-03
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	1.42E-03	69.2	11.1	1.06E-03	1.25E-03	2.37E-03	6.61E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	4.54E-03	206	33.0	3.39E-03	3.98E-03	5.07E-03	5.59E-03
Ca2+	0.244	8.11E+03	1.30E+03	0.157	0.200	0.289	0.332
K+	0.205	6.65E+03	1.06E+03	0.154	0.180	0.230	0.253
OH-	1.10	1.55E+04	2.48E+03	1.04	1.07	1.14	1.17
NO3-	1.23	6.29E+04	1.01E+04	0.917	1.08	1.37	1.51
NO2-	3.20E-03	122	19.5	1.76E-03	2.44E-03	4.05E-03	4.97E-03
CO32-	0.244	1.21E+04	1.94E+03	0.157	0.200	0.289	0.332
PO43-	8.40E-02	6.61E+03	1.06E+03	3.79E-02	6.37E-02	0.100	0.113
SO42-	2.67E-03	212	34.0	1.99E-03	2.34E-03	2.98E-03	3.29E-03
Si (as SiO32-)	0	0	0	0	0	0	0
F-	*1.01*	*1.59E+04*	*2.54E+03*	*0.180*	*0.211*	*1.97*	*2.89*
Cl-	2.37E-02	696	111	1.77E-02	2.08E-02	2.65E-02	2.93E-02
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	1.06	7.74E+04	1.24E+04	1.01	1.04	1.08	1.09
DBP	0	0	0	0	0	0	0
butanol	*0*	*0*	*0*	*0*	*0*	*0*	*0*
NH3	1.23E-07	1.73E-03	2.76E-04	5.23E-08	8.43E-08	1.69E-07	2.25E-07
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-203							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	0 (kg)	(1.00E-03 kgal)	—	—	—	—	—
Heat Load	0 (kW)	(0 BTU/hr)	—	0	0	0	0
Bulk Density*	0 (g/cc)	—	—	0	0	0	0
Water wt%	0	—	—	0	0	0	0
TOC wt% C (w	0	—	—	0	0	0	0
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	0	0	0	0	0	0	0
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	0	0	0	0	0	0	0
Cr3+	0	0	0	0	0	0	0
Bi3+	0	0	0	0	0	0	0
La3+	0	0	0	0	0	0	0
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	0	0	0	0	0	0	0
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	0	0	0	0	0	0	0
K+	0	0	0	0	0	0	0
OH-	0	0	0	0	0	0	0
NO3-	0	0	0	0	0	0	0
NO2-	0	0	0	0	0	0	0
CO32-	0	0	0	0	0	0	0
PO43-	0	0	0	0	0	0	0
SO42-	0	0	0	0	0	0	0
Si (as SiO32-)	0	0	0	0	0	0	0
F-	0	0	0	0	0	0	0
Cl-	0	0	0	0	0	0	0
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	0	0	0	0	0	0	0
Fe(CN)64-	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-203							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	1.60E+05 (kg)	(35.0 kgal)	----	—	—	----	----
Heat Load	2.75E-04 (kW)	(0.938 BTU/hr)	----	2.05E-04	2.41E-04	3.07E-04	3.39E-04
Bulk Density†	1.21 (g/cc)	—	----	1.15	1.17	1.24	1.26
Water wt%†	68.6	----	—	62.1	64.9	72.8	75.2
TOC wt% C (w	2.11	----	----	2.03	2.07	2.14	2.14
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	4.23	8.06E+04	1.29E+04	3.03	3.26	5.17	6.08
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	0.363	1.68E+04	2.68E+03	0.341	0.352	0.374	0.385
Cr3+	6.05E-03	260	41.7	4.52E-03	5.31E-03	6.77E-03	7.46E-03
Bi3+	5.55E-02	9.61E+03	1.54E+03	1.66E-02	3.87E-02	6.83E-02	7.77E-02
La3+	3.38E-03	389	62.2	2.53E-03	2.97E-03	3.78E-03	4.17E-03
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	1.42E-03	69.2	11.1	1.06E-03	1.25E-03	2.37E-03	6.61E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	4.54E-03	206	33.0	3.39E-03	3.98E-03	5.07E-03	5.59E-03
Ca2+	0.244	8.11E+03	1.30E+03	0.157	0.200	0.289	0.332
K+	0.205	6.65E+03	1.06E+03	0.154	0.180	0.230	0.253
OH-	1.10	1.55E+04	2.48E+03	1.04	1.07	1.14	1.17
NO3-	1.23	6.29E+04	1.01E+04	0.917	1.08	1.37	1.51
NO2-	3.20E-03	122	19.5	1.76E-03	2.44E-03	4.05E-03	4.97E-03
CO32-	0.244	1.21E+04	1.94E+03	0.157	0.200	0.289	0.332
PO43-	8.40E-02	6.61E+03	1.06E+03	3.79E-02	6.37E-02	0.100	0.113
SO42-	2.67E-03	212	34.0	1.99E-03	2.34E-03	2.98E-03	3.29E-03
Si (as SiO32-)	0	0	0	0	0	0	0
F-	1.01	1.59E+04	2.54E+03	0.180	0.211	1.97	2.89
Cl-	2.37E-02	696	111	1.77E-02	2.08E-02	2.65E-02	2.93E-02
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	1.06	7.74E+04	1.24E+04	1.01	1.04	1.08	1.09
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	1.23E-07	1.73E-03	2.76E-04	5.23E-08	8.43E-08	1.69E-07	2.25E-07
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-203

TLM Solids Composite Inventory Estimate*

Physical Properties				-95 CI	-67 CI	+67 CI	+95 CI
Total TLM Wa	1.60E+05 (kg)	(35.0 kgal)	----	----	----	----	----
Heat Load	2.75E-04 (kW)	(0.938 BTU/hr)	----	2.05E-04	2.41E-04	3.07E-04	3.39E-04
Bulk Density	1.21 (g/cc)	----	----	1.15	1.17	1.24	1.26
Void Fraction	0.885	----	----	0.853	0.868	0.905	0.914
Water wt%	68.6	----	----	62.1	64.9	72.8	75.2
TOC wt% C (w	2.11	----	----	2.03	2.07	2.14	2.14
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	5.31E-09	4.40E-06	7.04E-04	2.94E-09	4.10E-09	6.65E-09	8.07E-09
C-14	1.65E-09	1.36E-06	2.18E-04	1.23E-09	1.45E-09	1.84E-09	2.03E-09
Ni-59	4.68E-10	3.88E-07	6.20E-05	3.50E-10	4.11E-10	7.78E-10	2.17E-09
Ni-63	4.32E-08	3.57E-05	5.72E-03	3.23E-08	3.79E-08	7.17E-08	2.01E-07
Co-60	5.29E-10	4.38E-07	7.00E-05	3.95E-10	4.64E-10	5.91E-10	6.52E-10
Se-79	3.47E-10	2.88E-07	4.60E-05	2.60E-10	3.05E-10	3.89E-10	4.28E-10
Sr-90	1.72E-04	0.142	22.8	1.29E-04	1.51E-04	1.92E-04	2.12E-04
Y-90	1.72E-04	0.142	22.8	1.29E-04	1.51E-04	1.92E-04	2.12E-04
Zr-93	1.65E-09	1.37E-06	2.18E-04	1.23E-09	1.45E-09	1.84E-09	2.03E-09
Nb-93m	1.36E-09	1.13E-06	1.81E-04	1.02E-09	1.20E-09	1.53E-09	1.68E-09
Tc-99	1.14E-08	9.47E-06	1.51E-03	8.55E-09	1.00E-08	1.28E-08	1.41E-08
Ru-106	3.96E-16	3.28E-13	5.25E-11	2.96E-16	3.48E-16	4.43E-16	4.89E-16
Cd-113m	4.62E-09	3.82E-06	6.12E-04	3.45E-09	4.05E-09	5.16E-09	5.69E-09
Sb-125	6.10E-10	5.05E-07	8.07E-05	4.56E-10	5.35E-10	6.82E-10	7.52E-10
Sn-126	5.24E-10	4.34E-07	6.94E-05	3.92E-10	4.60E-10	5.86E-10	6.46E-10
I-129	2.16E-11	1.79E-08	2.86E-06	1.61E-11	1.90E-11	2.41E-11	2.66E-11
Cs-134	2.63E-11	2.17E-08	3.48E-06	1.96E-11	2.31E-11	2.94E-11	3.24E-11
Cs-137	1.95E-04	0.162	25.8	1.46E-04	1.71E-04	2.18E-04	2.41E-04
Ba-137m	1.85E-04	0.153	24.4	1.38E-04	1.62E-04	2.06E-04	2.28E-04
Sm-151	1.31E-06	1.09E-03	0.174	9.82E-07	1.15E-06	1.47E-06	1.62E-06
Eu-152	1.72E-09	1.42E-06	2.28E-04	1.71E-09	1.71E-09	1.73E-09	1.73E-09
Eu-154	8.48E-09	7.02E-06	1.12E-03	6.34E-09	7.45E-09	9.49E-09	1.05E-08
Eu-155	1.55E-07	1.29E-04	2.06E-02	1.54E-07	1.55E-07	1.56E-07	1.56E-07
Ra-226	7.76E-14	6.42E-11	1.03E-08	5.80E-14	6.81E-14	8.68E-14	9.56E-14
Ra-228	4.99E-18	4.13E-15	6.61E-13	4.94E-18	4.97E-18	5.01E-18	5.03E-18
Ac-227	4.09E-13	3.39E-10	5.42E-08	3.06E-13	3.59E-13	4.58E-13	5.05E-13
Pa-231	9.44E-13	7.82E-10	1.25E-07	7.06E-13	8.29E-13	1.06E-12	1.16E-12
Th-229	9.65E-16	7.99E-13	1.28E-10	9.57E-16	9.61E-16	9.68E-16	9.72E-16
Th-232	4.36E-19	3.61E-16	5.77E-14	3.26E-19	3.83E-19	4.88E-19	5.37E-19
U-232	5.06E-13	4.19E-10	6.70E-08	3.78E-13	4.44E-13	5.66E-13	6.24E-13
U-233	2.31E-14	1.91E-11	3.06E-09	1.72E-14	2.03E-14	2.58E-14	2.85E-14
U-234	2.52E-08	2.09E-05	3.34E-03	1.89E-08	2.21E-08	2.82E-08	3.11E-08
U-235	1.12E-09	9.29E-07	1.49E-04	8.39E-10	9.85E-10	1.26E-09	1.38E-09
U-236	2.20E-10	1.82E-07	2.91E-05	1.64E-10	1.93E-10	2.46E-10	2.71E-10
U-238	2.56E-08	2.12E-05	3.39E-03	1.91E-08	2.25E-08	2.86E-08	3.16E-08
Np-237	7.09E-11	5.87E-08	9.39E-06	5.30E-11	6.22E-11	7.93E-11	8.74E-11
Pu-238	3.03E-09	2.51E-06	4.01E-04	2.26E-09	2.66E-09	3.38E-09	3.73E-09
Pu-239	4.38E-07	3.63E-04	5.80E-02	3.27E-07	3.85E-07	4.90E-07	5.40E-07
Pu-240	3.84E-08	3.18E-05	5.09E-03	2.87E-08	3.38E-08	4.30E-08	4.74E-08
Pu-241	1.27E-07	1.05E-04	1.68E-02	9.50E-08	1.12E-07	1.42E-07	1.57E-07
Pu-242	5.88E-13	4.87E-10	7.79E-08	4.39E-13	5.16E-13	6.58E-13	7.25E-13
Am-241	3.58E-09	2.97E-06	4.74E-04	2.68E-09	3.15E-09	4.01E-09	4.42E-09
Am-243	2.91E-14	2.41E-11	3.86E-09	2.18E-14	2.56E-14	3.26E-14	3.59E-14
Cm-242	3.50E-11	2.89E-08	4.63E-06	3.47E-11	3.48E-11	3.51E-11	3.52E-11
Cm-243	7.53E-13	6.24E-10	9.98E-08	7.47E-13	7.50E-13	7.56E-13	7.59E-13
Cm-244	7.40E-13	6.13E-10	9.80E-08	5.53E-13	6.50E-13	8.28E-13	9.12E-13
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	7.22E-06 (g/L)	----	9.56E-04	5.39E-06	6.34E-06	8.07E-06	8.90E-06
U	3.22E-04	63.5	10.2	2.41E-04	2.83E-04	3.60E-04	3.97E-04

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-203							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	0 (kg)	(1.00E-03 kgal)	----	----	----	----	----
Heat Load	0 (kW)	(0 BTU/hr)	----	0	0	0	0
Bulk Density*	0 (g/cc)	----	----	0	0	0	0
Water wt%†	0	----	----	0	0	0	0
TOC wt% C (w	0	----	----	0	0	0	0
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	0	0	0	0	0	0	0
C-14	0	0	0	0	0	0	0
Ni-59	0	0	0	0	0	0	0
Ni-63	0	0	0	0	0	0	0
Co-60	0	0	0	0	0	0	0
Se-79	0	0	0	0	0	0	0
Sr-90	0	0	0	0	0	0	0
Y-90	0	0	0	0	0	0	0
Zr-93	0	0	0	0	0	0	0
Nb-93m	0	0	0	0	0	0	0
Tc-99	0	0	0	0	0	0	0
Ru-106	0	0	0	0	0	0	0
Cd-113m	0	0	0	0	0	0	0
Sb-125	0	0	0	0	0	0	0
Sn-126	0	0	0	0	0	0	0
I-129	0	0	0	0	0	0	0
Cs-134	0	0	0	0	0	0	0
Cs-137	0	0	0	0	0	0	0
Ba-137m	0	0	0	0	0	0	0
Sm-151	0	0	0	0	0	0	0
Eu-152	0	0	0	0	0	0	0
Eu-154	0	0	0	0	0	0	0
Eu-155	0	0	0	0	0	0	0
Ra-226	0	0	0	0	0	0	0
Ra-228	0	0	0	0	0	0	0
Ac-227	0	0	0	0	0	0	0
Pa-231	0	0	0	0	0	0	0
Th-229	0	0	0	0	0	0	0
Th-232	0	0	0	0	0	0	0
U-232	0	0	0	0	0	0	0
U-233	0	0	0	0	0	0	0
U-234	0	0	0	0	0	0	0
U-235	0	0	0	0	0	0	0
U-236	0	0	0	0	0	0	0
U-238	0	0	0	0	0	0	0
Np-237	0	0	0	0	0	0	0
Pu-238	0	0	0	0	0	0	0
Pu-239	0	0	0	0	0	0	0
Pu-240	0	0	0	0	0	0	0
Pu-241	0	0	0	0	0	0	0
Pu-242	0	0	0	0	0	0	0
Am-241	0	0	0	0	0	0	0
Am-243	0	0	0	0	0	0	0
Cm-242	0	0	0	0	0	0	0
Cm-243	0	0	0	0	0	0	0
Cm-244	0	0	0	0	0	0	0
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	0 (g/L)	----	0	0	0	0	0
U	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

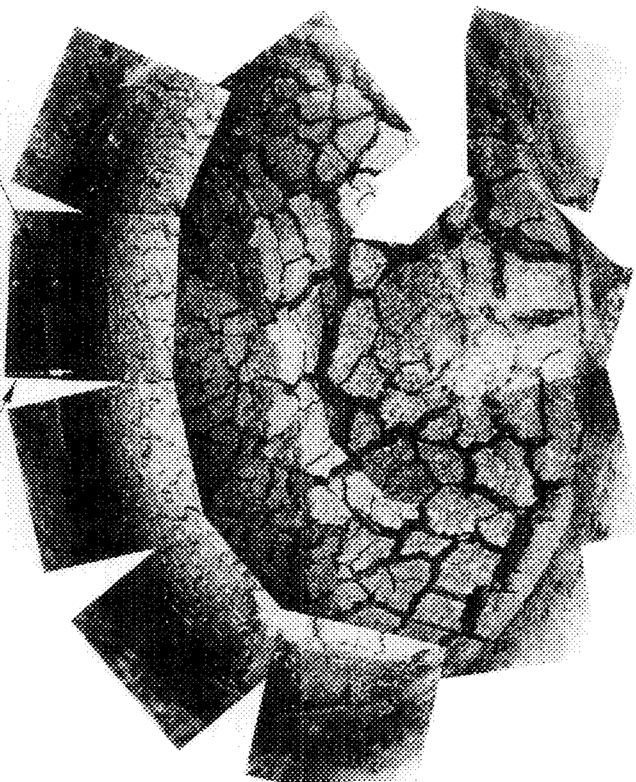
Single-Shell Tank 241-T-203							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	1.60E+05 (kg)	(35.0 kgal)	---	---	---	---	---
Heat Load	2.75E-04 (kW)	(0.938 BTU/hr)	---	2.05E-04	2.41E-04	3.07E-04	3.39E-04
Bulk Density†	1.21 (g/cc)	---	---	1.15	1.17	1.24	1.26
Water wt%†	68.6	---	---	62.1	64.9	72.8	75.2
TOC wt% C (w	2.11	---	---	2.03	2.07	2.14	2.14
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	5.31E-09	4.40E-06	7.04E-04	2.94E-09	4.10E-09	6.65E-09	8.07E-09
C-14	1.65E-09	1.36E-06	2.18E-04	1.23E-09	1.45E-09	1.84E-09	2.03E-09
Ni-59	4.68E-10	3.88E-07	6.20E-05	3.50E-10	4.11E-10	7.78E-10	2.17E-09
Ni-63	4.32E-08	3.57E-05	5.72E-03	3.23E-08	3.79E-08	7.17E-08	2.01E-07
Co-60	5.29E-10	4.38E-07	7.00E-05	3.95E-10	4.64E-10	5.91E-10	6.52E-10
Se-79	3.47E-10	2.88E-07	4.60E-05	2.60E-10	3.05E-10	3.89E-10	4.28E-10
Sr-90	1.72E-04	0.142	22.8	1.29E-04	1.51E-04	1.92E-04	2.12E-04
Y-90	1.72E-04	0.142	22.8	1.29E-04	1.51E-04	1.92E-04	2.12E-04
Zr-93	1.65E-09	1.37E-06	2.18E-04	1.23E-09	1.45E-09	1.84E-09	2.03E-09
Nb-93m	1.36E-09	1.13E-06	1.81E-04	1.02E-09	1.20E-09	1.53E-09	1.68E-09
Tc-99	1.14E-08	9.47E-06	1.51E-03	8.55E-09	1.00E-08	1.28E-08	1.41E-08
Ru-106	3.96E-16	3.28E-13	5.25E-11	2.96E-16	3.48E-16	4.43E-16	4.89E-16
Cd-113m	4.62E-09	3.82E-06	6.12E-04	3.45E-09	4.05E-09	5.16E-09	5.69E-09
Sb-125	6.10E-10	5.05E-07	8.07E-05	4.56E-10	5.35E-10	6.82E-10	7.52E-10
Sn-126	5.24E-10	4.34E-07	6.94E-05	3.92E-10	4.60E-10	5.86E-10	6.46E-10
I-129	2.16E-11	1.79E-08	2.86E-06	1.61E-11	1.90E-11	2.41E-11	2.66E-11
Cs-134	2.63E-11	2.17E-08	3.48E-06	1.96E-11	2.31E-11	2.94E-11	3.24E-11
Cs-137	1.95E-04	0.162	25.8	1.46E-04	1.71E-04	2.18E-04	2.41E-04
Ba-137m	1.85E-04	0.153	24.4	1.38E-04	1.62E-04	2.06E-04	2.28E-04
Sm-151	1.31E-06	1.09E-03	0.174	9.82E-07	1.15E-06	1.47E-06	1.62E-06
Eu-152	1.72E-09	1.42E-06	2.28E-04	1.71E-09	1.71E-09	1.73E-09	1.73E-09
Eu-154	8.48E-09	7.02E-06	1.12E-03	6.34E-09	7.45E-09	9.49E-09	1.05E-08
Eu-155	1.55E-07	1.29E-04	2.06E-02	1.54E-07	1.55E-07	1.56E-07	1.56E-07
Ra-226	7.76E-14	6.42E-11	1.03E-08	5.80E-14	6.81E-14	8.68E-14	9.56E-14
Ra-228	4.99E-18	4.13E-15	6.61E-13	4.94E-18	4.97E-18	5.01E-18	5.03E-18
Ac-227	4.09E-13	3.39E-10	5.42E-08	3.06E-13	3.59E-13	4.58E-13	5.05E-13
Pa-231	9.44E-13	7.82E-10	1.25E-07	7.06E-13	8.29E-13	1.06E-12	1.16E-12
Th-229	9.65E-16	7.99E-13	1.28E-10	9.57E-16	9.61E-16	9.68E-16	9.72E-16
Th-232	4.36E-19	3.61E-16	5.77E-14	3.26E-19	3.83E-19	4.88E-19	5.37E-19
U-232	5.06E-13	4.19E-10	6.70E-08	3.78E-13	4.44E-13	5.66E-13	6.24E-13
U-233	2.31E-14	1.91E-11	3.06E-09	1.72E-14	2.03E-14	2.58E-14	2.85E-14
U-234	2.52E-08	2.09E-05	3.34E-03	1.89E-08	2.21E-08	2.82E-08	3.11E-08
U-235	1.12E-09	9.29E-07	1.49E-04	8.39E-10	9.85E-10	1.26E-09	1.38E-09
U-236	2.20E-10	1.82E-07	2.91E-05	1.64E-10	1.93E-10	2.46E-10	2.71E-10
U-238	2.56E-08	2.12E-05	3.39E-03	1.91E-08	2.25E-08	2.86E-08	3.16E-08
Np-237	7.09E-11	5.87E-08	9.39E-06	5.30E-11	6.22E-11	7.93E-11	8.74E-11
Pu-238	3.03E-09	2.51E-06	4.01E-04	2.26E-09	2.66E-09	3.38E-09	3.73E-09
Pu-239	4.38E-07	3.63E-04	5.80E-02	3.27E-07	3.85E-07	4.90E-07	5.40E-07
Pu-240	3.84E-08	3.18E-05	5.09E-03	2.87E-08	3.38E-08	4.30E-08	4.74E-08
Pu-241	1.27E-07	1.05E-04	1.68E-02	9.50E-08	1.12E-07	1.42E-07	1.57E-07
Pu-242	5.88E-13	4.87E-10	7.79E-08	4.39E-13	5.16E-13	6.58E-13	7.25E-13
Am-241	3.58E-09	2.97E-06	4.74E-04	2.68E-09	3.15E-09	4.01E-09	4.42E-09
Am-243	2.91E-14	2.41E-11	3.86E-09	2.18E-14	2.56E-14	3.26E-14	3.59E-14
Cm-242	3.50E-11	2.89E-08	4.63E-06	3.47E-11	3.48E-11	3.51E-11	3.52E-11
Cm-243	7.53E-13	6.24E-10	9.98E-08	7.47E-13	7.50E-13	7.56E-13	7.59E-13
Cm-244	7.40E-13	6.13E-10	9.80E-08	5.53E-13	6.50E-13	8.28E-13	9.12E-13
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	7.22E-06 (g/L)	---	9.56E-04	5.39E-06	6.34E-06	8.07E-06	8.90E-06
U	3.22E-04	63.5	10.2	2.41E-04	2.83E-04	3.60E-04	3.97E-04

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Volume average for density, mass average Water wt% and TOC wt% C.

241-T-203

Photo date: 8-3-89



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TANK 241-T-204 SUMMARY

TANK HISTORY	
Entered Service	2nd qtr 1952
Removed from Service	1976
Inactive	1976
Watch Lists	-
Integrity	Sound
Assumed Leaker	-
Interim Stabilization (IS)	Aug 1981
Partial Interim Isolation (PI)	-
Intrusion Prevention (IP)	Aug 1981
TENTATIVELY AVAILABLE RISERS	
Riser Number	Size
3, 6, 7	12 in
TANK TEMPERATURE	
Average Tank Temperature	63°F
Maximum Temperature	77°F
Date	Oct 3, 1976
Elevation from tank bottom	unknown
Riser Number	8
Minimum Temperature	52°F
Date	Feb 1, 1977 and Feb 8, 1978
Elevation from tank bottom	unknown
Riser Number	8

TANK DESCRIPTION	
Diameter	20 ft
Bottom Shape	Dish
Nominal Capacity	55,000 gal
Cascade Tank	none
Total Risers	8
WASTE VOLUME (HANLON 1996I)	
Total Waste Volume	38,000 gal
Waste Type	NCPLX
Drainable Interstitial Liquids	4,000 gal
Pumpable Liquids	0 gal
Saltcake	0 gal
Sludge	38,000 gal
Supernatant	0 gal
INTERIOR PHOTOGRAPHS	
Date	Aug 3, 1989
Montage Number	94030233-36CN
Photo Set Number	89-071829
WASTE SURFACE LEVEL	
Devices	Manual Tape
Max Level	188 in
Date	Oct 13, 1993 - Dec 24, 1995*
Min Level	196 in
Date	Feb 7, 1996

* Numerous dates in this time span.

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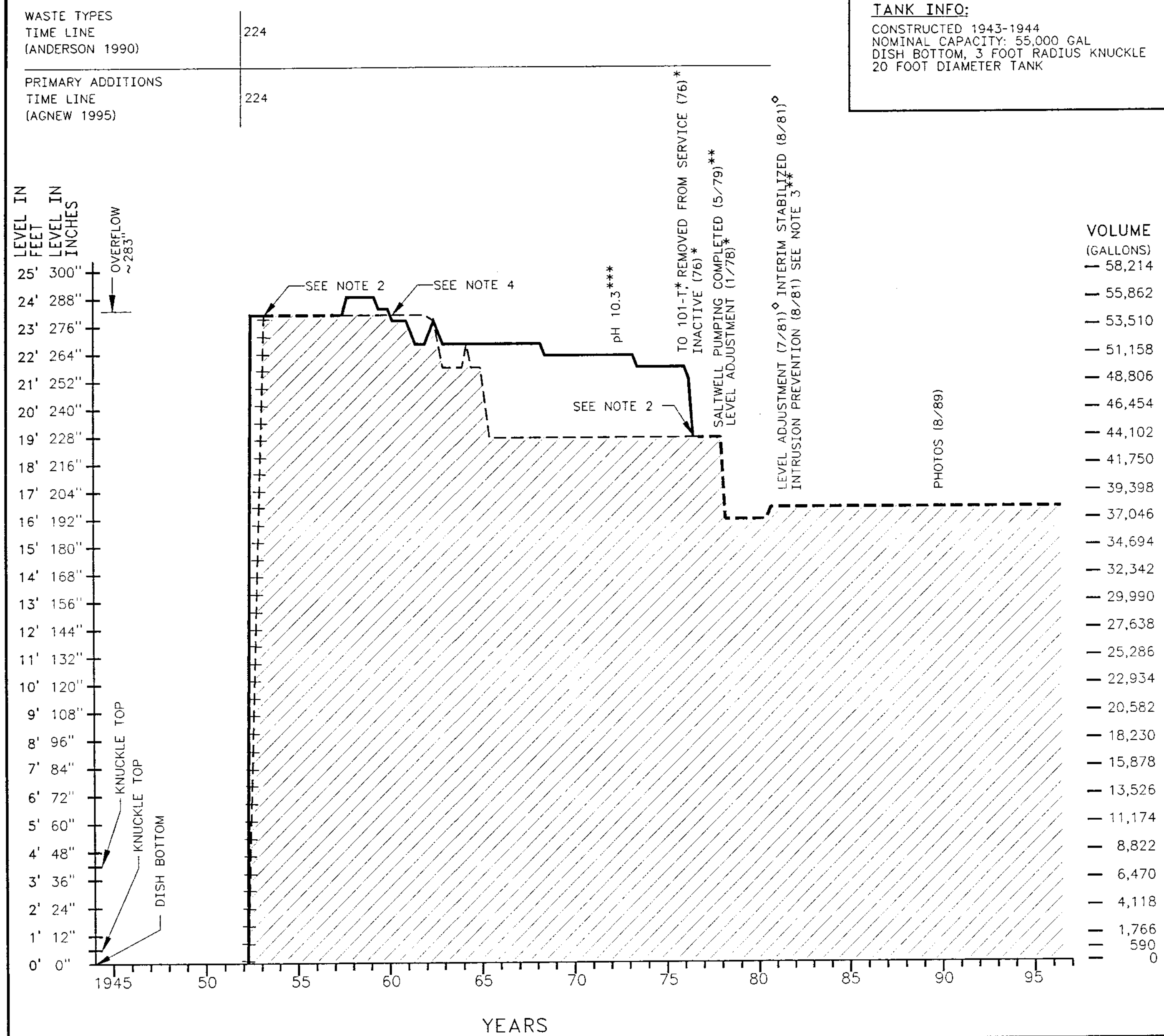


TANK INFO:

CONSTRUCTED 1943-1944
NOMINAL CAPACITY: 55,000 GAL
DISH BOTTOM, 3 FOOT RADIUS KNUCKLE
20 FOOT DIAMETER TANK

REFERENCES

- * ANDERSON 1990
- ** WELTY 1988
- *** BORSHEIM AND KIRCH 1991
- ◇ HANLON 1996I

NOTES:

1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN.
3) IN JUNE 1993, INTERIM ISOLATION WAS REPLACED BY INTRUSION PREVENTION.
4) DATA IS QUESTIONABLE BECAUSE ANDERSON 1990 INDICATES SOLIDS WASTE IS GREATER THAN TOTAL WASTE.

GLOSSARY OF WASTE TERMS:

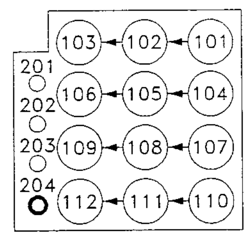
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A.

224: 224-U WASTE

LEGEND

- ——— TOTAL WASTE LEVEL (SUPERNATE)
- - - - - TOTAL WASTE LEVEL (SOLIDS)
- - - - - SOLIDS LEVEL
- +++++ ASSUMED SOLIDS LEVEL
- ▨ SOLIDS

T TANK FARM CASCADE



U.S. DEPARTMENT OF ENERGY
Richland Operations Office
FLUOR DANIEL NORTHWEST, INC.

241-T-204 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1952-1996
SOUND/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E109	1/97
SCALE NONE		JOB NO.	SHEET 1 OF 1

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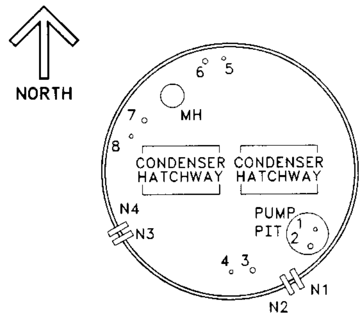
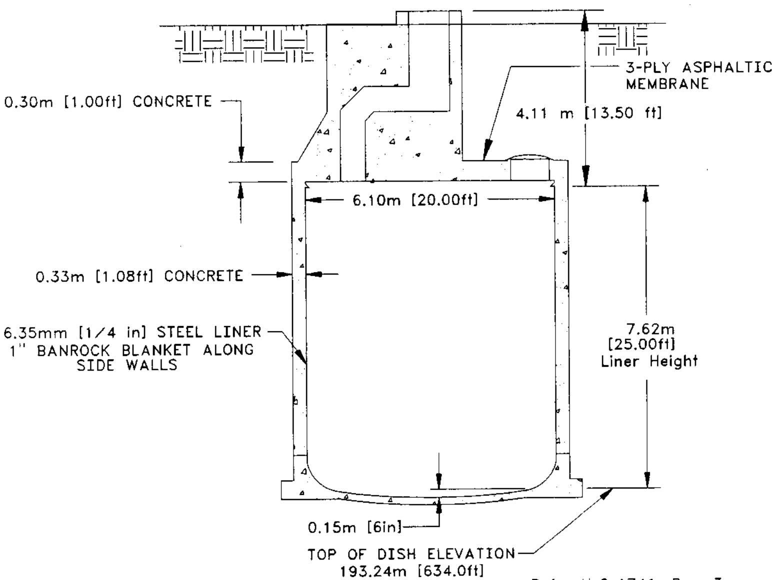
241-T-204



Ref: Alstad 1993
H-2-73069, Rev. 2

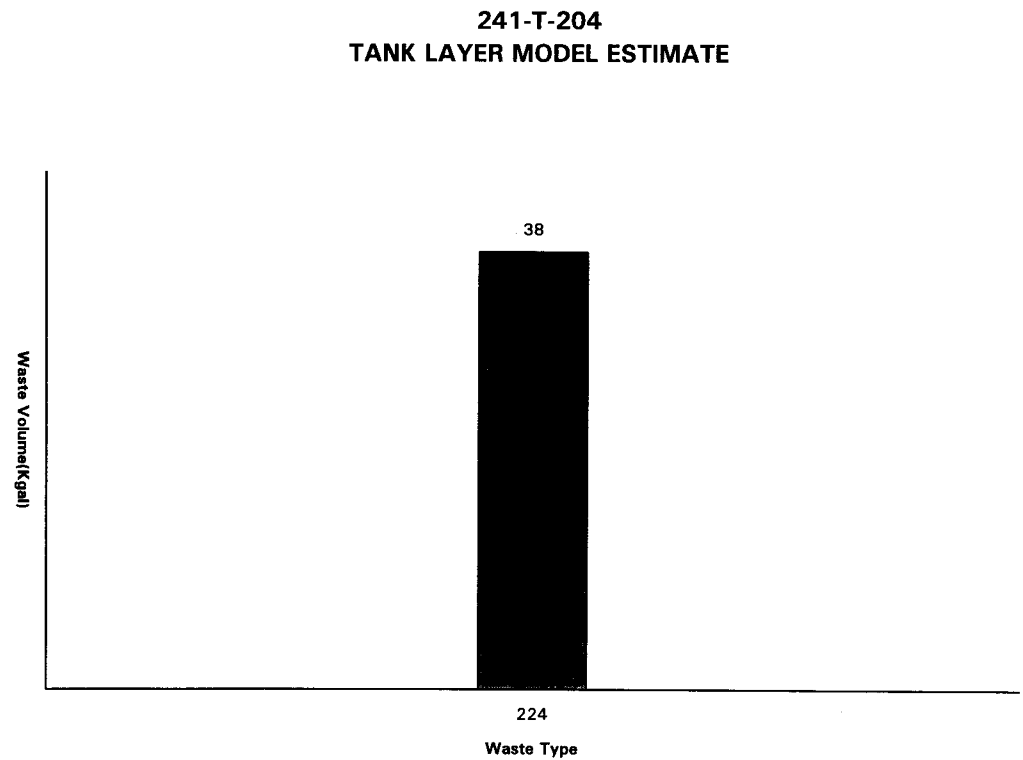
TANK RISER LOCATION

Approximate Grade Elevation 204.22m [670.0ft]



Ref: H-2-1741, Rev. 3
CVI-73550, dwg D-20
H-2-73069, Rev. 2

NOT TO SCALE



Tank Layer Model(TLM) Estimate from *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 4* (Agnew et al., 1997).

HDW Model Rev. 4

Single-Shell Tank 241-T-204							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	1.74E+05 (kg)	(38.0 kgal)	----	—	—	—	—
Heat Load	2.98E-04 (kW)	(1.02 BTU/hr)	----	2.23E-04	2.62E-04	3.34E-04	3.68E-04
Bulk Density	1.21 (g/cc)	----	----	1.15	1.17	1.24	1.26
Void Fraction	0.885	----	----	0.853	0.868	0.905	0.914
Water wt%	68.6	----	----	62.1	64.9	72.8	75.2
TOC wt% C (w	2.11	----	----	2.03	2.07	2.14	2.14
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	4.23	8.06E+04	1.40E+04	3.03	3.26	5.17	6.08
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	0.363	1.68E+04	2.91E+03	0.341	0.352	0.374	0.385
Cr3+	6.05E-03	260	45.2	4.52E-03	5.31E-03	6.77E-03	7.46E-03
Bi3+	5.55E-02	9.61E+03	1.67E+03	1.66E-02	3.87E-02	6.83E-02	7.77E-02
La3+	3.38E-03	389	67.5	2.53E-03	2.97E-03	3.78E-03	4.17E-03
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	1.42E-03	69.2	12.0	1.06E-03	1.25E-03	2.37E-03	6.61E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	4.54E-03	206	35.8	3.39E-03	3.98E-03	5.07E-03	5.59E-03
Ca2+	0.244	8.11E+03	1.41E+03	0.157	0.200	0.289	0.332
K+	0.205	6.65E+03	1.15E+03	0.154	0.180	0.230	0.253
OH-	1.10	1.55E+04	2.69E+03	1.04	1.07	1.14	1.17
NO3-	1.23	6.29E+04	1.09E+04	0.917	1.08	1.37	1.51
NO2-	3.20E-03	122	21.2	1.76E-03	2.44E-03	4.05E-03	4.97E-03
CO32-	0.244	1.21E+04	2.11E+03	0.157	0.200	0.289	0.332
PO43-	8.40E-02	6.61E+03	1.15E+03	3.79E-02	6.37E-02	0.100	0.113
SO42-	2.67E-03	212	36.9	1.99E-03	2.34E-03	2.98E-03	3.29E-03
Si (as SiO32-)	0	0	0	0	0	0	0
F-	1.01	1.59E+04	2.76E+03	0.180	0.211	1.97	2.89
Cl-	2.37E-02	696	121	1.77E-02	2.08E-02	2.65E-02	2.93E-02
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	1.06	7.74E+04	1.34E+04	1.01	1.04	1.08	1.09
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	1.23E-07	1.73E-03	3.00E-04	5.23E-08	8.43E-08	1.69E-07	2.25E-07
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-204							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	0 (kg)	(1.00E-03 kgal)	----	----	----	----	----
Heat Load	0 (kW)	(0 BTU/hr)	----	0	0	0	0
Bulk Density*	0 (g/cc)	----	----	0	0	0	0
Water wt%	0	----	----	0	0	0	0
TOC wt% C (w	0	----	----	0	0	0	0
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	0	0	0	0	0	0	0
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	0	0	0	0	0	0	0
Cr3+	0	0	0	0	0	0	0
Bi3+	0	0	0	0	0	0	0
La3+	0	0	0	0	0	0	0
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	0	0	0	0	0	0	0
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	0	0	0	0	0	0	0
K+	0	0	0	0	0	0	0
OH-	0	0	0	0	0	0	0
NO3-	0	0	0	0	0	0	0
NO2-	0	0	0	0	0	0	0
CO32-	0	0	0	0	0	0	0
PO43-	0	0	0	0	0	0	0
SO42-	0	0	0	0	0	0	0
Si (as SiO32-)	0	0	0	0	0	0	0
F-	0	0	0	0	0	0	0
Cl-	0	0	0	0	0	0	0
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	0	0	0	0	0	0	0
Fe(CN)64-	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-204							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	1.74E+05 (kg)	(38.0 kgal)	----	—	----	—	----
Heat Load	2.98E-04 (kW)	(1.02 BTU/hr)	—	2.23E-04	2.62E-04	3.34E-04	3.68E-04
Bulk Density†	1.21 (g/cc)	—	—	1.15	1.17	1.24	1.26
Water wt%†	68.6	----	—	62.1	64.9	72.8	75.2
TOC wt% C (w	2.11	----	—	2.03	2.07	2.14	2.14
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	4.23	8.06E+04	1.40E+04	3.03	3.26	5.17	6.08
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	0.363	1.68E+04	2.91E+03	0.341	0.352	0.374	0.385
Cr3+	6.05E-03	260	45.2	4.52E-03	5.31E-03	6.77E-03	7.46E-03
Bi3+	5.55E-02	9.61E+03	1.67E+03	1.66E-02	3.87E-02	6.83E-02	7.77E-02
La3+	3.38E-03	389	67.5	2.53E-03	2.97E-03	3.78E-03	4.17E-03
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	1.42E-03	69.2	12.0	1.06E-03	1.25E-03	2.37E-03	6.61E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	4.54E-03	206	35.8	3.39E-03	3.98E-03	5.07E-03	5.59E-03
Ca2+	0.244	8.11E+03	1.41E+03	0.157	0.200	0.289	0.332
K+	0.205	6.65E+03	1.15E+03	0.154	0.180	0.230	0.253
OH-	1.10	1.55E+04	2.69E+03	1.04	1.07	1.14	1.17
NO3-	1.23	6.29E+04	1.09E+04	0.917	1.08	1.37	1.51
NO2-	3.20E-03	122	21.2	1.76E-03	2.44E-03	4.05E-03	4.97E-03
CO32-	0.244	1.21E+04	2.11E+03	0.157	0.200	0.289	0.332
PO43-	8.40E-02	6.61E+03	1.15E+03	3.79E-02	6.37E-02	0.100	0.113
SO42-	2.67E-03	212	36.9	1.99E-03	2.34E-03	2.98E-03	3.29E-03
Si (as SiO32-)	0	0	0	0	0	0	0
F-	1.01	1.59E+04	2.76E+03	0.180	0.211	1.97	2.89
Cl-	2.37E-02	696	121	1.77E-02	2.08E-02	2.65E-02	2.93E-02
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	1.06	7.74E+04	1.34E+04	1.01	1.04	1.08	1.09
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	1.23E-07	1.73E-03	3.00E-04	5.23E-08	8.43E-08	1.69E-07	2.25E-07
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-204							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	1.74E+05 (kg)	(38.0 kgal)	----	----	----	----	----
Heat Load	2.98E-04 (kW)	(1.02 BTU/hr)	----	2.23E-04	2.62E-04	3.34E-04	3.68E-04
Bulk Density	1.21 (g/cc)	----	----	1.15	1.17	1.24	1.26
Void Fraction	0.885	----	----	0.853	0.868	0.905	0.914
Water wt%	68.6	----	----	62.1	64.9	72.8	75.2
TOC wt% C (w	2.11	----	----	2.03	2.07	2.14	2.14
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	5.31E-09	4.40E-06	7.64E-04	2.94E-09	4.10E-09	6.65E-09	8.07E-09
C-14	1.65E-09	1.36E-06	2.37E-04	1.23E-09	1.45E-09	1.84E-09	2.03E-09
Ni-59	4.68E-10	3.88E-07	6.73E-05	3.50E-10	4.11E-10	7.78E-10	2.17E-09
Ni-63	4.32E-08	3.57E-05	6.21E-03	3.23E-08	3.79E-08	7.17E-08	2.01E-07
Co-60	5.29E-10	4.38E-07	7.60E-05	3.95E-10	4.64E-10	5.91E-10	6.52E-10
Se-79	3.47E-10	2.88E-07	5.00E-05	2.60E-10	3.05E-10	3.89E-10	4.28E-10
Sr-90	1.72E-04	0.142	24.7	1.29E-04	1.51E-04	1.92E-04	2.12E-04
Y-90	1.72E-04	0.142	24.7	1.29E-04	1.51E-04	1.92E-04	2.12E-04
Zr-93	1.65E-09	1.37E-06	2.37E-04	1.23E-09	1.45E-09	1.84E-09	2.03E-09
Nb-93m	1.36E-09	1.13E-06	1.96E-04	1.02E-09	1.20E-09	1.53E-09	1.68E-09
Tc-99	1.14E-08	9.47E-06	1.64E-03	8.55E-09	1.00E-08	1.28E-08	1.41E-08
Ru-106	3.96E-16	3.28E-13	5.70E-11	2.96E-16	3.48E-16	4.43E-16	4.89E-16
Cd-113m	4.62E-09	3.82E-06	6.64E-04	3.45E-09	4.05E-09	5.16E-09	5.69E-09
Sb-125	6.10E-10	5.05E-07	8.77E-05	4.56E-10	5.35E-10	6.82E-10	7.52E-10
Sn-126	5.24E-10	4.34E-07	7.53E-05	3.92E-10	4.60E-10	5.86E-10	6.46E-10
I-129	2.16E-11	1.79E-08	3.10E-06	1.61E-11	1.90E-11	2.41E-11	2.66E-11
Cs-134	2.63E-11	2.17E-08	3.78E-06	1.96E-11	2.31E-11	2.94E-11	3.24E-11
Cs-137	1.95E-04	0.162	28.1	1.46E-04	1.71E-04	2.18E-04	2.41E-04
Ba-137m	1.85E-04	0.153	26.5	1.38E-04	1.62E-04	2.06E-04	2.28E-04
Sm-151	1.31E-06	1.09E-03	0.189	9.82E-07	1.15E-06	1.47E-06	1.62E-06
Eu-152	1.72E-09	1.42E-06	2.47E-04	1.71E-09	1.71E-09	1.73E-09	1.73E-09
Eu-154	8.48E-09	7.02E-06	1.22E-03	6.34E-09	7.45E-09	9.49E-09	1.05E-08
Eu-155	1.55E-07	1.29E-04	2.23E-02	1.54E-07	1.55E-07	1.56E-07	1.56E-07
Ra-226	7.76E-14	6.42E-11	1.12E-08	5.80E-14	6.81E-14	8.68E-14	9.56E-14
Ra-228	4.99E-18	4.13E-15	7.17E-13	4.94E-18	4.97E-18	5.01E-18	5.03E-18
Ac-227	4.09E-13	3.39E-10	5.89E-08	3.06E-13	3.59E-13	4.58E-13	5.05E-13
Pa-231	9.44E-13	7.82E-10	1.36E-07	7.06E-13	8.29E-13	1.06E-12	1.16E-12
Th-229	9.65E-16	7.99E-13	1.39E-10	9.57E-16	9.61E-16	9.68E-16	9.72E-16
Th-232	4.36E-19	3.61E-16	6.27E-14	3.26E-19	3.83E-19	4.88E-19	5.37E-19
U-232	5.06E-13	4.19E-10	7.27E-08	3.78E-13	4.44E-13	5.66E-13	6.24E-13
U-233	2.31E-14	1.91E-11	3.32E-09	1.72E-14	2.03E-14	2.58E-14	2.85E-14
U-234	2.52E-08	2.09E-05	3.63E-03	1.89E-08	2.21E-08	2.82E-08	3.11E-08
U-235	1.12E-09	9.29E-07	1.61E-04	8.39E-10	9.85E-10	1.26E-09	1.38E-09
U-236	2.20E-10	1.82E-07	3.16E-05	1.64E-10	1.93E-10	2.46E-10	2.71E-10
U-238	2.56E-08	2.12E-05	3.68E-03	1.91E-08	2.25E-08	2.86E-08	3.16E-08
Np-237	7.09E-11	5.87E-08	1.02E-05	5.30E-11	6.22E-11	7.93E-11	8.74E-11
Pu-238	3.03E-09	2.51E-06	4.35E-04	2.26E-09	2.66E-09	3.38E-09	3.73E-09
Pu-239	4.38E-07	3.63E-04	6.30E-02	3.27E-07	3.85E-07	4.90E-07	5.40E-07
Pu-240	3.84E-08	3.18E-05	5.53E-03	2.87E-08	3.38E-08	4.30E-08	4.74E-08
Pu-241	1.27E-07	1.05E-04	1.83E-02	9.50E-08	1.12E-07	1.42E-07	1.57E-07
Pu-242	5.88E-13	4.87E-10	8.45E-08	4.39E-13	5.16E-13	6.58E-13	7.25E-13
Am-241	3.58E-09	2.97E-06	5.15E-04	2.68E-09	3.15E-09	4.01E-09	4.42E-09
Am-243	2.91E-14	2.41E-11	4.19E-09	2.18E-14	2.56E-14	3.26E-14	3.59E-14
Cm-242	3.50E-11	2.89E-08	5.03E-06	3.47E-11	3.48E-11	3.51E-11	3.52E-11
Cm-243	7.53E-13	6.24E-10	1.08E-07	7.47E-13	7.50E-13	7.56E-13	7.59E-13
Cm-244	7.40E-13	6.13E-10	1.06E-07	5.53E-13	6.50E-13	8.28E-13	9.12E-13
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	7.22E-06 (g/L)	----	1.04E-03	5.39E-06	6.34E-06	8.07E-06	8.90E-06
U	3.22E-04	63.5	11.0	2.41E-04	2.83E-04	3.60E-04	3.97E-04

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-T-204							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	0 (kg)	(1.00E-03 kgal)	----	----	—	—	—
Heat Load	0 (kW)	(0 BTU/hr)	----	0	0	0	0
Bulk Density*	0 (g/cc)	----	----	0	0	0	0
Water wt%†	0	—	—	0	0	0	0
TOC wt% C (w	0	—	----	0	0	0	0
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	0	0	0	0	0	0	0
C-14	0	0	0	0	0	0	0
Ni-59	0	0	0	0	0	0	0
Ni-63	0	0	0	0	0	0	0
Co-60	0	0	0	0	0	0	0
Se-79	0	0	0	0	0	0	0
Sr-90	0	0	0	0	0	0	0
Y-90	0	0	0	0	0	0	0
Zr-93	0	0	0	0	0	0	0
Nb-93m	0	0	0	0	0	0	0
Tc-99	0	0	0	0	0	0	0
Ru-106	0	0	0	0	0	0	0
Cd-113m	0	0	0	0	0	0	0
Sb-125	0	0	0	0	0	0	0
Sn-126	0	0	0	0	0	0	0
I-129	0	0	0	0	0	0	0
Cs-134	0	0	0	0	0	0	0
Cs-137	0	0	0	0	0	0	0
Ba-137m	0	0	0	0	0	0	0
Sm-151	0	0	0	0	0	0	0
Eu-152	0	0	0	0	0	0	0
Eu-154	0	0	0	0	0	0	0
Eu-155	0	0	0	0	0	0	0
Ra-226	0	0	0	0	0	0	0
Ra-228	0	0	0	0	0	0	0
Ac-227	0	0	0	0	0	0	0
Pa-231	0	0	0	0	0	0	0
Th-229	0	0	0	0	0	0	0
Th-232	0	0	0	0	0	0	0
U-232	0	0	0	0	0	0	0
U-233	0	0	0	0	0	0	0
U-234	0	0	0	0	0	0	0
U-235	0	0	0	0	0	0	0
U-236	0	0	0	0	0	0	0
U-238	0	0	0	0	0	0	0
Np-237	0	0	0	0	0	0	0
Pu-238	0	0	0	0	0	0	0
Pu-239	0	0	0	0	0	0	0
Pu-240	0	0	0	0	0	0	0
Pu-241	0	0	0	0	0	0	0
Pu-242	0	0	0	0	0	0	0
Am-241	0	0	0	0	0	0	0
Am-243	0	0	0	0	0	0	0
Cm-242	0	0	0	0	0	0	0
Cm-243	0	0	0	0	0	0	0
Cm-244	0	0	0	0	0	0	0
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	0 (g/L)	—	0	0	0	0	0
U	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-T-204							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	1.74E+05 (kg)	(38.0 kgal)	---	---	---	---	---
Heat Load	2.98E-04 (kW)	(1.02 BTU/hr)	---	2.23E-04	2.62E-04	3.34E-04	3.68E-04
Bulk Density†	1.21 (g/cc)	---	---	1.15	1.17	1.24	1.26
Water wt%†	68.6	---	---	62.1	64.9	72.8	75.2
TOC wt% C (w	2.11	---	---	2.03	2.07	2.14	2.14
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	5.31E-09	4.40E-06	7.64E-04	2.94E-09	4.10E-09	6.65E-09	8.07E-09
C-14	1.65E-09	1.36E-06	2.37E-04	1.23E-09	1.45E-09	1.84E-09	2.03E-09
Ni-59	4.68E-10	3.88E-07	6.73E-05	3.50E-10	4.11E-10	7.78E-10	2.17E-09
Ni-63	4.32E-08	3.57E-05	6.21E-03	3.23E-08	3.79E-08	7.17E-08	2.01E-07
Co-60	5.29E-10	4.38E-07	7.60E-05	3.95E-10	4.64E-10	5.91E-10	6.52E-10
Se-79	3.47E-10	2.88E-07	5.00E-05	2.60E-10	3.05E-10	3.89E-10	4.28E-10
Sr-90	1.72E-04	0.142	24.7	1.29E-04	1.51E-04	1.92E-04	2.12E-04
Y-90	1.72E-04	0.142	24.7	1.29E-04	1.51E-04	1.92E-04	2.12E-04
Zr-93	1.65E-09	1.37E-06	2.37E-04	1.23E-09	1.45E-09	1.84E-09	2.03E-09
Nb-93m	1.36E-09	1.13E-06	1.96E-04	1.02E-09	1.20E-09	1.53E-09	1.68E-09
Tc-99	1.14E-08	9.47E-06	1.64E-03	8.55E-09	1.00E-08	1.28E-08	1.41E-08
Ru-106	3.96E-16	3.28E-13	5.70E-11	2.96E-16	3.48E-16	4.43E-16	4.89E-16
Cd-113m	4.62E-09	3.82E-06	6.64E-04	3.45E-09	4.05E-09	5.16E-09	5.69E-09
Sb-125	6.10E-10	5.05E-07	8.77E-05	4.56E-10	5.35E-10	6.82E-10	7.52E-10
Sn-126	5.24E-10	4.34E-07	7.53E-05	3.92E-10	4.60E-10	5.86E-10	6.46E-10
I-129	2.16E-11	1.79E-08	3.10E-06	1.61E-11	1.90E-11	2.41E-11	2.66E-11
Cs-134	2.63E-11	2.17E-08	3.78E-06	1.96E-11	2.31E-11	2.94E-11	3.24E-11
Cs-137	1.95E-04	0.162	28.1	1.46E-04	1.71E-04	2.18E-04	2.41E-04
Ba-137m	1.85E-04	0.153	26.5	1.38E-04	1.62E-04	2.06E-04	2.28E-04
Sm-151	1.31E-06	1.09E-03	0.189	9.82E-07	1.15E-06	1.47E-06	1.62E-06
Eu-152	1.72E-09	1.42E-06	2.47E-04	1.71E-09	1.71E-09	1.73E-09	1.73E-09
Eu-154	8.48E-09	7.02E-06	1.22E-03	6.34E-09	7.45E-09	9.49E-09	1.05E-08
Eu-155	1.55E-07	1.29E-04	2.23E-02	1.54E-07	1.55E-07	1.56E-07	1.56E-07
Ra-226	7.76E-14	6.42E-11	1.12E-08	5.80E-14	6.81E-14	8.68E-14	9.56E-14
Ra-228	4.99E-18	4.13E-15	7.17E-13	4.94E-18	4.97E-18	5.01E-18	5.03E-18
Ac-227	4.09E-13	3.39E-10	5.89E-08	3.06E-13	3.59E-13	4.58E-13	5.05E-13
Pa-231	9.44E-13	7.82E-10	1.36E-07	7.06E-13	8.29E-13	1.06E-12	1.16E-12
Th-229	9.65E-16	7.99E-13	1.39E-10	9.57E-16	9.61E-16	9.68E-16	9.72E-16
Th-232	4.36E-19	3.61E-16	6.27E-14	3.26E-19	3.83E-19	4.88E-19	5.37E-19
U-232	5.06E-13	4.19E-10	7.27E-08	3.78E-13	4.44E-13	5.66E-13	6.24E-13
U-233	2.31E-14	1.91E-11	3.32E-09	1.72E-14	2.03E-14	2.58E-14	2.85E-14
U-234	2.52E-08	2.09E-05	3.63E-03	1.89E-08	2.21E-08	2.82E-08	3.11E-08
U-235	1.12E-09	9.29E-07	1.61E-04	8.39E-10	9.85E-10	1.26E-09	1.38E-09
U-236	2.20E-10	1.82E-07	3.16E-05	1.64E-10	1.93E-10	2.46E-10	2.71E-10
U-238	2.56E-08	2.12E-05	3.68E-03	1.91E-08	2.25E-08	2.86E-08	3.16E-08
Np-237	7.09E-11	5.87E-08	1.02E-05	5.30E-11	6.22E-11	7.93E-11	8.74E-11
Pu-238	3.03E-09	2.51E-06	4.35E-04	2.26E-09	2.66E-09	3.38E-09	3.73E-09
Pu-239	4.38E-07	3.63E-04	6.30E-02	3.27E-07	3.85E-07	4.90E-07	5.40E-07
Pu-240	3.84E-08	3.18E-05	5.53E-03	2.87E-08	3.38E-08	4.30E-08	4.74E-08
Pu-241	1.27E-07	1.05E-04	1.83E-02	9.50E-08	1.12E-07	1.42E-07	1.57E-07
Pu-242	5.88E-13	4.87E-10	8.45E-08	4.39E-13	5.16E-13	6.58E-13	7.25E-13
Am-241	3.58E-09	2.97E-06	5.15E-04	2.68E-09	3.15E-09	4.01E-09	4.42E-09
Am-243	2.91E-14	2.41E-11	4.19E-09	2.18E-14	2.56E-14	3.26E-14	3.59E-14
Cm-242	3.50E-11	2.89E-08	5.03E-06	3.47E-11	3.48E-11	3.51E-11	3.52E-11
Cm-243	7.53E-13	6.24E-10	1.08E-07	7.47E-13	7.50E-13	7.56E-13	7.59E-13
Cm-244	7.40E-13	6.13E-10	1.06E-07	5.53E-13	6.50E-13	8.28E-13	9.12E-13
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	7.22E-06 (g/L)	---	1.04E-03	5.39E-06	6.34E-06	8.07E-06	8.90E-06
U	3.22E-04	63.5	11.0	2.41E-04	2.83E-04	3.60E-04	3.97E-04

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Volume average for density, mass average Water wt% and TOC wt% C.

241-T-204

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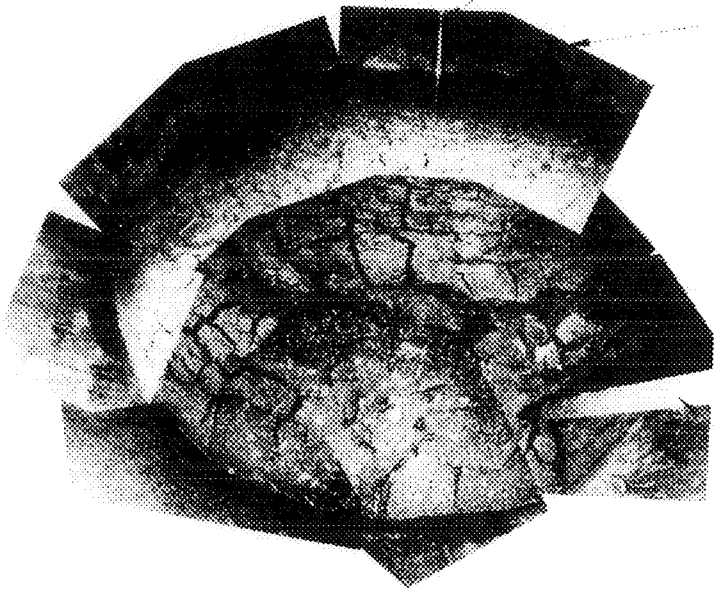

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HDW Model Rev. 4

Single-Shell Tank 241-TY-201

SMM Composite Inventory Estimate

Physical Properties				-95 CI	-67 CI	+67 CI	+95 CI
Total SMM W	0 (kg)	(0.00E+00 kgal)	---	---	---	---	---
Heat Load	0 (kW)	0 (BTU/hr)	---	0	0	0	0
Bulk Density*	0 (g/cc)	---	---	0	0	0	0
Water wt%†	0	---	---	0	0	0	0
TOC wt% C (w	0	---	---	0	0	0	0

Chemical Constituents	mole/L	ppm	kg	-95 CI (mole/L)	-67 CI (mole/L)	+67 CI (mole/L)	+95 CI (mole/L)
Na+	0	0	0	0	0	0	0
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	0	0	0	0	0	0	0
Cr3+	0	0	0	0	0	0	0
Bi3+	0	0	0	0	0	0	0
La3+	0	0	0	0	0	0	0
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2)	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	0	0	0	0	0	0	0
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	0	0	0	0	0	0	0
K+	0	0	0	0	0	0	0
OH-	0	0	0	0	0	0	0
NO3-	0	0	0	0	0	0	0
NO2-	0	0	0	0	0	0	0
CO32-	0	0	0	0	0	0	0
PO43-	0	0	0	0	0	0	0
SO42-	0	0	0	0	0	0	0
Si (as SiO32-)	0	0	0	0	0	0	0
F-	0	0	0	0	0	0	0
Cl-	0	0	0	0	0	0	0
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	0	0	0	0	0	0	0
Fe(CN)64-	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-TY-101							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	6.91E+05 (kg)	(118 kgal)	----	----	----	----	----
Heat Load	0.757 (kW)	(2.58E+03 BTU/hr)	----	0.708	0.718	0.788	0.874
Bulk Density†	1.55 (g/cc)	----	----	1.29	1.34	1.58	1.62
Water wt%†	55.6	----	----	52.3	54.4	71.3	75.6
TOC wt% C (w	0.296	----	----	0.283	0.290	0.342	0.356
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	6.78	1.01E+05	6.97E+04	1.94	2.91	7.31	8.03
Al3+	3.53E-03	61.5	42.5	1.78E-03	3.24E-03	6.02E-03	6.34E-03
Fe3+ (total Fe)	0.114	4.11E+03	2.84E+03	0.107	0.113	0.115	0.116
Cr3+	2.82E-03	94.9	65.6	2.36E-03	2.81E-03	3.36E-03	3.09E-03
Bi3+	0.135	1.83E+04	1.26E+04	0.128	0.132	0.139	0.143
La3+	0	0	0	0	0	0	0
Hg2+	2.04E-06	0.264	0.182	1.98E-06	2.01E-06	3.73E-06	4.95E-06
Zr (as ZrO(OH)2	1.47E-02	865	598	9.93E-03	1.23E-02	1.71E-02	1.94E-02
Pb2+	0	0	0	0	0	0	0
Ni2+	0.121	4.60E+03	3.18E+03	0.117	0.117	0.122	0.123
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	0.181	4.69E+03	3.24E+03	0.139	0.160	0.203	0.224
K+	7.10E-03	179	124	4.15E-03	6.39E-03	9.41E-03	7.81E-03
OH-	2.58	2.84E+04	1.96E+04	2.53	2.57	2.61	2.62
NO3-	3.73	1.49E+05	1.03E+05	0.385	0.800	3.75	3.97
NO2-	0.415	1.23E+04	8.52E+03	0.371	0.393	0.449	0.433
CO32-	0.218	8.45E+03	5.84E+03	0.151	0.195	0.245	0.259
PO43-	0.773	4.74E+04	3.28E+04	0.317	0.465	0.853	0.867
SO42-	5.37E-02	3.33E+03	2.30E+03	2.76E-02	4.76E-02	7.44E-02	0.317
Si (as SiO32-)	7.84E-02	1.42E+03	984	2.88E-02	2.88E-02	0.182	0.282
F-	0.164	2.02E+03	1.39E+03	0.152	0.163	0.495	0.946
Cl-	3.74E-02	857	592	1.92E-02	3.23E-02	0.167	0.186
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	6.32E-06	0.858	0.593	1.12E-07	3.84E-06	1.06E-05	7.48E-06
butanol	6.32E-06	0.303	0.209	1.12E-07	3.84E-06	1.06E-05	7.48E-06
NH3	2.64E-02	290	201	2.24E-02	2.62E-02	3.19E-02	2.88E-02
Fe(CN)64-	6.36E-02	1.11E+04	7.68E+03	6.36E-02	6.36E-02	6.36E-02	6.36E-02

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-TY-101							
TLM Solids Composite Inventory Estimate*							
Physical Properties				-95 CI	-67 CI	+67 CI	+95 CI
Total TLM Wt	6.91E+05 (kg)	(178 kgal)	---	---	---	---	---
Heat Load	0.757 (kW)	(2.58E+03 BTU/hr)	---	0.708	0.718	0.782	0.874
Bulk Density	1.55 (g/cc)	---	---	1.36	1.36	1.58	1.59
Void Fraction	0.777	---	---	0.670	0.727	0.937	0.939
Water wt%	22.6	---	---	52.3	54.4	71.3	72.6
TOC wt% C (wet)	0.298	---	---	0.283	0.290	0.342	0.355
Radiological Constituents	Ci	µCi/g	Ci	-95 CI (Ci/L)	-67 CI (Ci/L)	+67 CI (Ci/L)	+95 CI (Ci/L)
H-3	1.40E-06	2.54E-06	0.667	1.20E-07	1.20E-07	1.57E-06	1.76E-06
C-14	2.77E-05	3.79E-04	0.324	1.04E-07	1.04E-07	2.79E-07	3.02E-07
Ni-59	8.95E-07	3.25E-04	0.480	3.42E-07	3.42E-07	9.14E-07	9.27E-07
Ni-63	6.10E-05	5.24E-02	382	4.93E-05	4.93E-05	5.29E-05	8.41E-05
Co-60	5.71E-08	3.34E-05	1.00E-02	2.79E-08	2.79E-08	6.75E-08	7.30E-08
Se-79	1.92E-08	2.52E-05	2.64E-02	2.19E-08	2.19E-08	5.96E-08	6.48E-08
Sr-90	0.133	85.1	5.89E+04	0.121	0.122	0.132	0.136
Y-90	0.133	86.1	1.95E+04	0.129	0.129	0.135	0.136
Zr-93	2.01E-07	1.22E-04	0.136	1.59E-07	1.59E-07	2.27E-07	3.08E-07
Nb-93m	2.17E-07	1.53E-04	0.108	2.67E-08	2.67E-08	2.35E-07	2.59E-07
Tc-99	1.95E-06	1.28E-03	0.830	1.00E-06	1.57E-06	2.02E-06	2.11E-06
Ru-106	2.37E-14	1.92E-11	1.33E-08	1.42E-14	1.42E-14	2.99E-14	3.20E-14
Cd-113m	7.90E-07	4.55E-04	0.313	2.75E-07	2.75E-07	7.05E-07	7.85E-07
Sb-125	6.29E-08	4.12E-05	2.85E-02	3.84E-08	3.84E-08	6.47E-08	6.92E-08
Sn-126	5.93E-08	3.56E-05	3.98E-02	3.31E-08	3.31E-08	8.55E-08	9.75E-08
I-129	3.58E-09	3.37E-06	1.74E-03	1.97E-09	3.14E-09	4.98E-09	4.02E-09
Cs-134	1.77E-08	1.15E-05	7.92E-03	1.61E-08	1.61E-08	1.79E-08	1.80E-08
Cs-137	0.539	350	2.40E+05	0.150	0.152	0.580	0.590
Ba-137m	0.169	106	7.39E+04	0.139	0.139	0.162	0.165
Sm-151	2.20E-04	0.141	982	2.05E-05	2.05E-05	2.32E-04	2.61E-04
Eu-152	1.58E-07	8.77E-05	6.96E-02	9.18E-08	9.18E-08	1.26E-07	1.26E-07
Eu-154	1.27E-06	7.94E-04	0.555	5.33E-07	5.33E-07	1.34E-06	1.35E-06
Eu-155	9.51E-06	8.16E-05	4.26	8.17E-06	8.17E-06	9.55E-06	9.59E-06
Ra-226	1.29E-11	8.88E-09	6.03E-06	4.44E-12	4.44E-12	3.44E-11	3.64E-11
Ra-228	4.39E-16	2.75E-15	1.91E-10	2.54E-16	2.54E-16	4.90E-15	4.31E-15
Ac-227	7.70E-11	4.97E-08	3.44E-05	3.30E-11	3.30E-11	1.80E-10	1.90E-10
Pa-231	1.62E-10	1.08E-07	7.36E-05	5.00E-11	5.00E-11	1.71E-10	1.87E-10
Th-229	2.35E-14	3.39E-11	3.72E-08	4.06E-16	4.06E-16	8.36E-14	8.39E-14
Th-232	7.92E-17	5.11E-14	3.54E-11	2.83E-17	2.83E-17	7.97E-17	8.68E-17
U-232	6.75E-10	4.36E-07	3.02E-04	9.61E-10	9.68E-10	8.55E-10	8.55E-10
U-233	3.10E-11	2.00E-09	1.30E-05	3.02E-11	3.06E-11	3.18E-11	3.16E-11
U-234	2.82E-05	1.80E-02	12.6	2.76E-05	2.80E-05	2.87E-05	2.89E-05
U-235	1.35E-06	8.08E-04	0.598	1.23E-06	1.24E-06	1.27E-06	1.28E-06
U-236	3.22E-07	1.86E-04	0.139	2.82E-07	2.81E-07	2.92E-07	2.94E-07
U-238	2.89E-05	1.86E-02	12.9	2.81E-05	2.86E-05	2.93E-05	2.94E-05
Np-237	1.21E-09	7.79E-06	5.00E-03	6.46E-09	1.03E-08	1.03E-08	1.22E-08
Pu-238	5.71E-07	5.80E-04	0.359	2.50E-07	5.50E-07	1.00E-06	1.49E-06
Pu-239	1.14E-04	7.38E-02	51.0	3.73E-05	7.45E-05	1.53E-04	1.91E-04
Pu-240	1.08E-05	6.97E-03	4.81	3.23E-06	6.93E-06	1.46E-05	1.82E-05
Pu-241	3.71E-05	2.40E-02	16.6	1.90E-05	2.55E-05	5.16E-05	6.44E-05
Pu-242	1.69E-10	1.09E-07	7.57E-05	4.52E-11	1.06E-10	3.03E-10	3.99E-10
Am-241	5.91E-07	3.82E-04	0.264	3.20E-07	5.00E-07	7.79E-07	6.38E-07
Am-243	4.17E-12	2.70E-09	1.86E-06	2.36E-12	3.56E-12	3.45E-12	4.50E-12
Cm-242	2.55E-09	1.65E-06	1.14E-03	1.92E-09	1.92E-09	3.26E-09	3.38E-09
Cm-243	5.24E-11	3.39E-08	2.34E-05	2.76E-11	2.76E-11	5.25E-11	5.37E-11
Cm-244	9.55E-11	6.17E-08	4.27E-05	4.71E-11	4.71E-11	9.62E-11	1.03E-10
Totals	M	µg/g	kg	-95 CI (M or g/L)	-67 CI (M or g/L)	+67 CI (M or g/L)	+95 CI (M or g/L)
Pu	1.88E-03 (g/L)	---	0.842	6.14E-04	1.24E-03	2.33E-03	3.13E-03
U	0.362	5.57E+04	3.85E+04	0.353	0.358	0.367	0.370

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-TY-101							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	0 (kg)	(3.00E-03 kgal)	----	----	—	—	—
Heat Load	0 (kW)	(0 BTU/hr)	—	0	0	0	0
Bulk Density*	0 (g/cc)	----	----	0	0	0	0
Water wt%†	0	—	—	0	0	0	0
TOC wt% C (w	0	—	—	0	0	0	0
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	0	0	0	0	0	0	0
C-14	0	0	0	0	0	0	0
Ni-59	0	0	0	0	0	0	0
Ni-63	0	0	0	0	0	0	0
Co-60	0	0	0	0	0	0	0
Se-79	0	0	0	0	0	0	0
Sr-90	0	0	0	0	0	0	0
Y-90	0	0	0	0	0	0	0
Zr-93	0	0	0	0	0	0	0
Nb-93m	0	0	0	0	0	0	0
Tc-99	0	0	0	0	0	0	0
Ru-106	0	0	0	0	0	0	0
Cd-113m	0	0	0	0	0	0	0
Sb-125	0	0	0	0	0	0	0
Sn-126	0	0	0	0	0	0	0
I-129	0	0	0	0	0	0	0
Cs-134	0	0	0	0	0	0	0
Cs-137	0	0	0	0	0	0	0
Ba-137m	0	0	0	0	0	0	0
Sm-151	0	0	0	0	0	0	0
Eu-152	0	0	0	0	0	0	0
Eu-154	0	0	0	0	0	0	0
Eu-155	0	0	0	0	0	0	0
Ra-226	0	0	0	0	0	0	0
Ra-228	0	0	0	0	0	0	0
Ac-227	0	0	0	0	0	0	0
Pa-231	0	0	0	0	0	0	0
Th-229	0	0	0	0	0	0	0
Th-232	0	0	0	0	0	0	0
U-232	0	0	0	0	0	0	0
U-233	0	0	0	0	0	0	0
U-234	0	0	0	0	0	0	0
U-235	0	0	0	0	0	0	0
U-236	0	0	0	0	0	0	0
U-238	0	0	0	0	0	0	0
Np-237	0	0	0	0	0	0	0
Pu-238	0	0	0	0	0	0	0
Pu-239	0	0	0	0	0	0	0
Pu-240	0	0	0	0	0	0	0
Pu-241	0	0	0	0	0	0	0
Pu-242	0	0	0	0	0	0	0
Am-241	0	0	0	0	0	0	0
Am-243	0	0	0	0	0	0	0
Cm-242	0	0	0	0	0	0	0
Cm-243	0	0	0	0	0	0	0
Cm-244	0	0	0	0	0	0	0
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	0 (g/L)	----	0	0	0	0	0
U	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

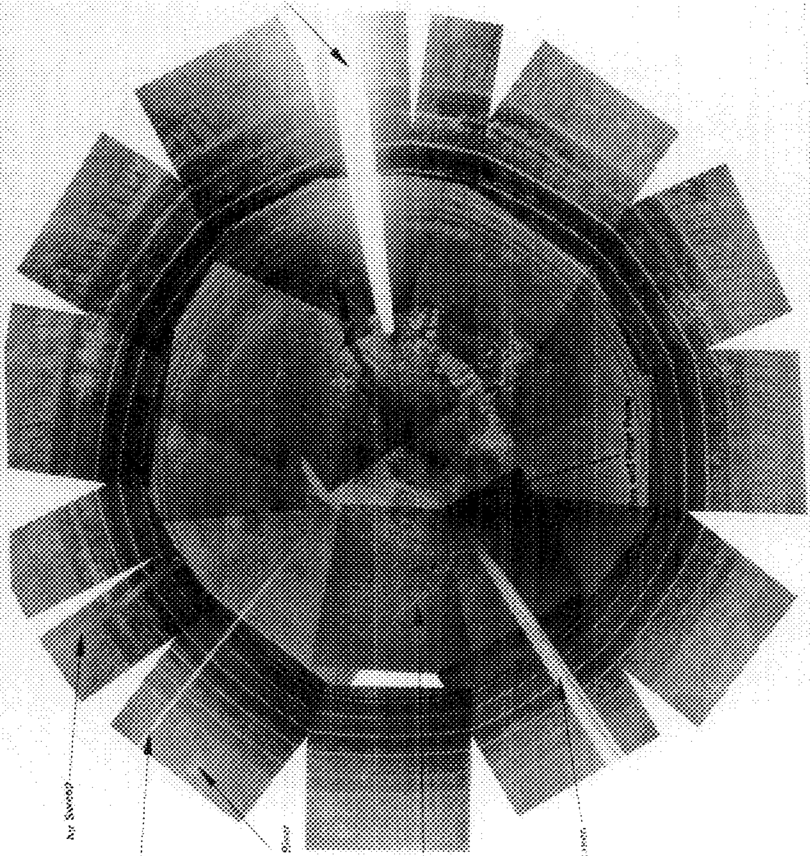
HDW Model Rev. 4

Single-Shell Tank 241-TY-10[illegible]							
Total Inventory Estimate*							
Physical Properties				-95 CI	-67 CI	+67 CI	+95 CI
Total Waste	6.55E+05 (kg)	(338 kgal)	---	---	---	---	---
Heat Load	0.757 (kW)	(2.58E+03 BTU/hr)	---	0.708	0.708	0.782	0.806
Bulk Density†	1.55 (g/cc)	---	---	1.55	1.54	1.55	1.57
Water wt%†	55.6	---	---	52.3	54.4	71.5	75.6
TOC wt% C (wet)	0.396	---	---	0.393	0.290	0.392	0.398
Radiological Constituents	Ci/L	µCi/g	Ci	-95 CI (Ci/L)	-67 CI (Ci/L)	+67 CI (Ci/L)	+95 CI (Ci/L)
H-3	1.89E-06	0.558-01	0.007	1.28E-07	1.28E-07	1.57E-06	1.76E-06
C-14	2.77E-07	1.79E-04	0.120	1.04E-07	1.04E-07	2.79E-07	3.03E-07
Ni-59	8.95E-07	5.75E-04	0.408	3.42E-07	3.42E-07	9.14E-07	9.27E-07
Ni-63	8.12E-05	5.24E-02	35.2	4.49E-05	4.49E-05	8.29E-05	8.41E-05
Co-60	5.72E-08	3.14E-05	1.66E-02	2.79E-08	2.79E-08	5.76E-08	7.30E-08
Se-79	1.92E-08	2.55E-05	2.66E-02	2.19E-08	2.19E-08	2.58E-08	6.48E-08
Sr-90	0.133	86.1	5.48E+04	0.121	0.133	0.135	0.136
Y-90	0.133	86.1	5.95E+04	0.129	0.129	0.133	0.134
Zr-93	2.91E-07	1.82E-04	0.126	1.04E-07	1.04E-07	2.83E-07	3.08E-07
Nb-93m	2.27E-07	1.51E-04	0.106	8.67E-08	8.67E-08	2.38E-07	2.39E-07
Tc-99	1.95E-06	1.25E-03	0.870	1.09E-06	1.09E-06	2.80E-06	2.10E-06
Ru-106	2.29E-14	1.32E-11	1.55E-08	1.42E-14	1.42E-14	2.99E-14	3.30E-14
Cd-113m	7.00E-07	2.52E-04	0.331	2.73E-07	2.73E-07	7.05E-07	7.85E-07
Sb-125	6.39E-08	4.10E-05	2.85E-02	1.84E-08	1.84E-08	6.42E-08	6.02E-08
Sn-126	5.92E-08	5.36E-05	3.98E-02	2.31E-08	2.31E-08	2.95E-08	9.76E-08
I-129	3.58E-09	2.37E-06	1.64E-03	1.50E-09	1.34E-09	4.00E-09	4.00E-09
Cs-134	1.77E-08	1.12E-05	7.55E-03	1.61E-08	1.61E-08	1.79E-08	1.80E-08
Cs-137	0.170	110	7.60E+04	0.159	0.159	0.182	0.193
Ba-137m	0.161	104	7.19E+04	0.129	0.129	0.163	0.165
Sm-151	2.20E-04	0.141	98.2	2.09E-05	2.09E-05	2.22E-04	2.41E-04
Eu-152	1.55E-07	8.77E-05	6.00E-02	5.18E-08	5.18E-08	1.26E-07	1.36E-07
Eu-154	1.23E-06	7.94E-04	0.549	5.33E-07	5.33E-07	1.24E-06	1.32E-06
Eu-155	2.53E-06	8.16E-05	4.26	8.17E-06	8.17E-06	2.55E-06	2.59E-06
Ra-226	1.44E-11	9.55E-09	6.57E-06	4.44E-12	4.44E-12	4.44E-11	5.04E-11
Ra-228	4.29E-16	2.75E-13	1.91E-10	2.54E-16	2.54E-16	4.39E-16	4.55E-16
Ac-227	7.70E-11	4.97E-08	3.44E-05	3.30E-11	3.30E-11	1.80E-10	1.90E-10
Pa-231	1.09E-10	1.08E-07	7.56E-05	5.18E-11	5.18E-11	1.71E-10	1.87E-10
Th-229	2.54E-14	3.59E-11	5.72E-08	4.59E-14	4.59E-14	8.55E-14	8.59E-14
Th-232	7.92E-17	5.11E-14	2.54E-11	3.22E-17	3.22E-17	7.97E-17	8.60E-17
U-232	8.75E-10	4.96E-07	3.02E-04	6.61E-10	6.68E-10	8.55E-10	8.55E-10
U-233	3.10E-11	2.00E-08	1.38E-05	3.00E-11	3.00E-11	3.14E-11	3.16E-11
U-234	2.83E-05	1.83E-02	12.6	2.76E-05	2.80E-05	2.87E-05	2.89E-05
U-235	1.25E-06	8.05E-04	0.557	1.23E-06	1.23E-06	1.27E-06	1.28E-06
U-236	2.88E-07	1.86E-04	0.129	2.82E-07	2.82E-07	2.93E-07	2.96E-07
U-238	2.55E-05	1.86E-02	12.9	2.51E-05	2.54E-05	2.93E-05	2.94E-05
Np-237	1.22E-08	7.79E-06	5.39E-03	6.86E-09	1.02E-08	1.02E-08	1.32E-08
Pu-238	5.71E-07	5.23E-04	0.389	2.31E-07	5.55E-07	1.39E-06	1.69E-06
Pu-239	1.14E-04	7.35E-02	51.0	3.73E-05	7.49E-05	1.55E-04	1.50E-04
Pu-240	1.08E-05	6.98E-03	4.81	3.22E-06	6.97E-06	1.44E-05	1.82E-05
Pu-241	3.72E-05	2.40E-02	16.6	1.09E-05	2.35E-05	3.10E-05	6.44E-05
Pu-242	1.59E-10	1.00E-07	7.11E-05	4.52E-11	1.00E-10	2.20E-10	2.94E-10
Am-241	5.91E-07	3.82E-04	0.264	3.33E-07	5.03E-07	7.79E-07	8.38E-07
Am-243	4.17E-12	2.70E-09	1.86E-06	2.36E-12	3.55E-12	3.55E-12	4.50E-12
Cm-242	2.35E-09	1.55E-06	1.34E-03	1.22E-09	1.22E-09	3.30E-09	3.30E-09
Cm-243	5.34E-11	3.34E-08	2.39E-05	3.36E-11	3.36E-11	5.25E-11	5.27E-11
Cm-244	9.55E-11	6.17E-08	4.27E-05	4.71E-11	4.71E-11	9.92E-11	1.00E-10
Totals	M	µg/g	kg	-95 CI (M or g/L)	-67 CI (M or g/L)	+67 CI (M or g/L)	+95 CI (M or g/L)
Pu	1.88E-03 (g/L)	---	0.826	6.14E-04	1.24E-03	2.52E-03	3.15E-03
U	0.362	5.57E+04	2.85E+04	0.355	0.355	0.367	0.378

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Volume average for density, mass average Water wt% and TOC wt% C.

241-TY-101


FIC Level Probe
Air Sweep
Temperature Probe
Saltwell Screen

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TANK 241-TY-102 SUMMARY

TANK HISTORY	
Entered Service	4th qtr 1953
Removed from Service	-
Inactive	1979
Watch Lists	none
Integrity	Sound
Assumed Leaker	-
Interim Stabilization (IS)	Sept 1979
Partial Interim Isolation (PI)	-
Intrusion Prevention (IP)	Dec 1982
TENTATIVELY AVAILABLE RISERS	
Riser Number(s)	Size
3	4 in
5, 8	12 in
TANK TEMPERATURE	
Average Tank Temperature	60°F
Maximum Temperature	64.76°F
Date	Sept 2 - 17, 1996
Elevation from tank bottom	20.95 ft
Riser Number	4
Minimum Temperature	56.12°F
Date	March 6 & 9 - 13, 1996
Elevation from tank bottom	2.95 ft
Riser Number	4

TANK DESCRIPTION	
Diameter	75 ft
Bottom Shape	Dish
Nominal Capacity	758,000 gal
Cascade Tank	none
Total Risers	15
WASTE VOLUME (HANLON 1996I)	
Total Waste Volume	64,000 gal
Waste Type	NCPLX
Drainable Interstitial Liquids	14,000 gal
Pumpable Liquids	0 gal
Saltcake	64,000 gal
Sludge	0 gal
Supernatant	0 gal
INTERIOR PHOTOGRAPHS	
Date	July 7, 1987
Montage Number	94080233-50CN
Photo Set Number	87-03833
WASTE SURFACE LEVEL	
Devices	Auto and Manual ENRAF
Max Level	32.9 in
Date	Sept 26, 1996
Min Level	31 in
Date	Oct 25, 1993

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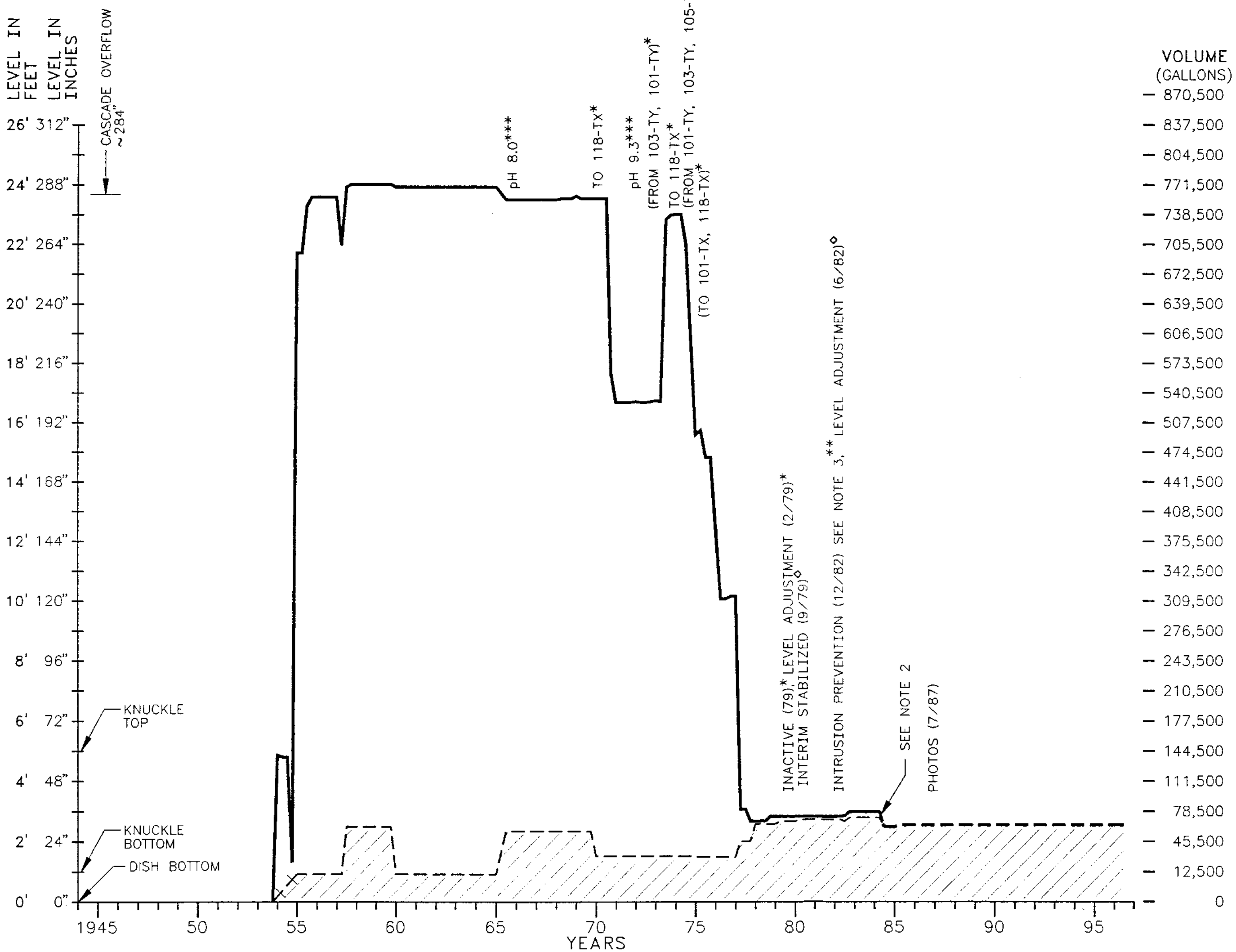
WASTE TYPES TIME LINE (ANDERSON 1990)

1C EB | BL EB OWW R RIX TBP | EVAP FD NCPLX

PRIMARY ADDITIONS TIME LINE (AGNEW 1995)

T1SLTCK WTR



TANK INFO:

CONSTRUCTED 1951-1952
NOMINAL CAPACITY: 758,000 GAL
DISH BOTTOM, 4 FOOT RADIUS KNUCKLE
75 FOOT DIAMETER TANK

REFERENCES

* ANDERSON 1990
** WELTY 1988
*** BORSHEIM AND KIRCH 1991
◇ HANLON 1996l
◇◇ VAIL 1985e

NOTES:

1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN.
3) IN JUNE 1993, INTERIM ISOLATION WAS REPLACED BY INTRUSION PREVENTION.

GLOSSARY OF WASTE TERMS:

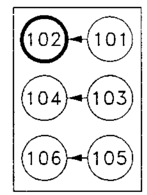
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A.

1C:	FIRST CYCLE DECONTAMINATION WASTE
BL:	B-PLANT LOW-LEVEL WASTE
EB:	EVAPORATOR BOTTOMS
EVAP:	EVAPORATOR FEED
FD:	FEED DILUTE
NCPLX:	NON-COMPLEXED WASTE
OWW:	PUREX ORGANIC WASH WASTE
RIX:	REDOX ION EXCHANGE WASTE
T1SLTCK:	SALTCAKE WASTE 1951-55
WTR:	WATER

LEGEND

TOTAL WASTE LEVEL (SUPERNATE)
TOTAL WASTE LEVEL (SOLIDS)
SOLIDS LEVEL
ASSUMED SOLIDS LEVEL
SOLIDS

TY TANK FARM CASCADE



U.S. DEPARTMENT OF ENERGY
Richland Operations Office
FLUOR DANIEL NORTHWEST, INC.

241-TY-102 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1953-1996
SOUND/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E129	1/97
SCALE NONE		JOB NO.	SHEET 1 OF 1

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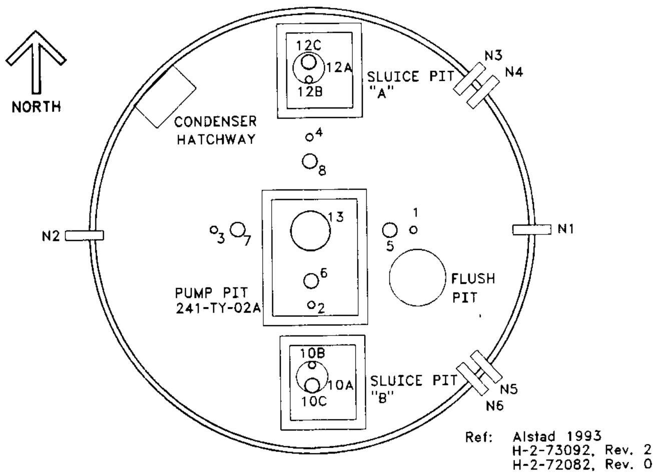
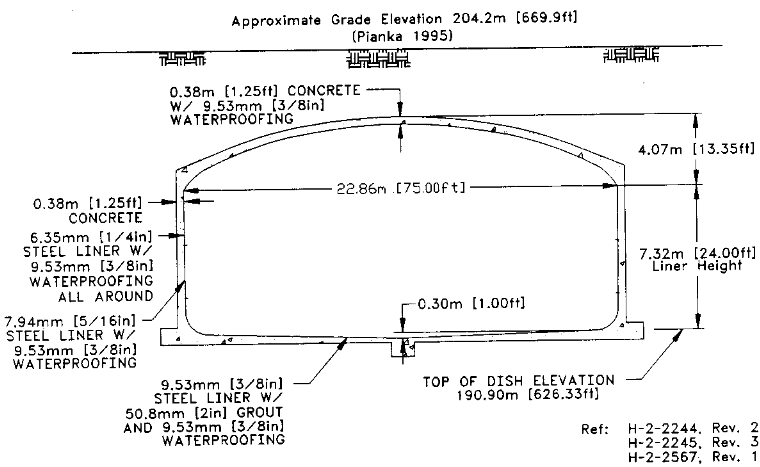
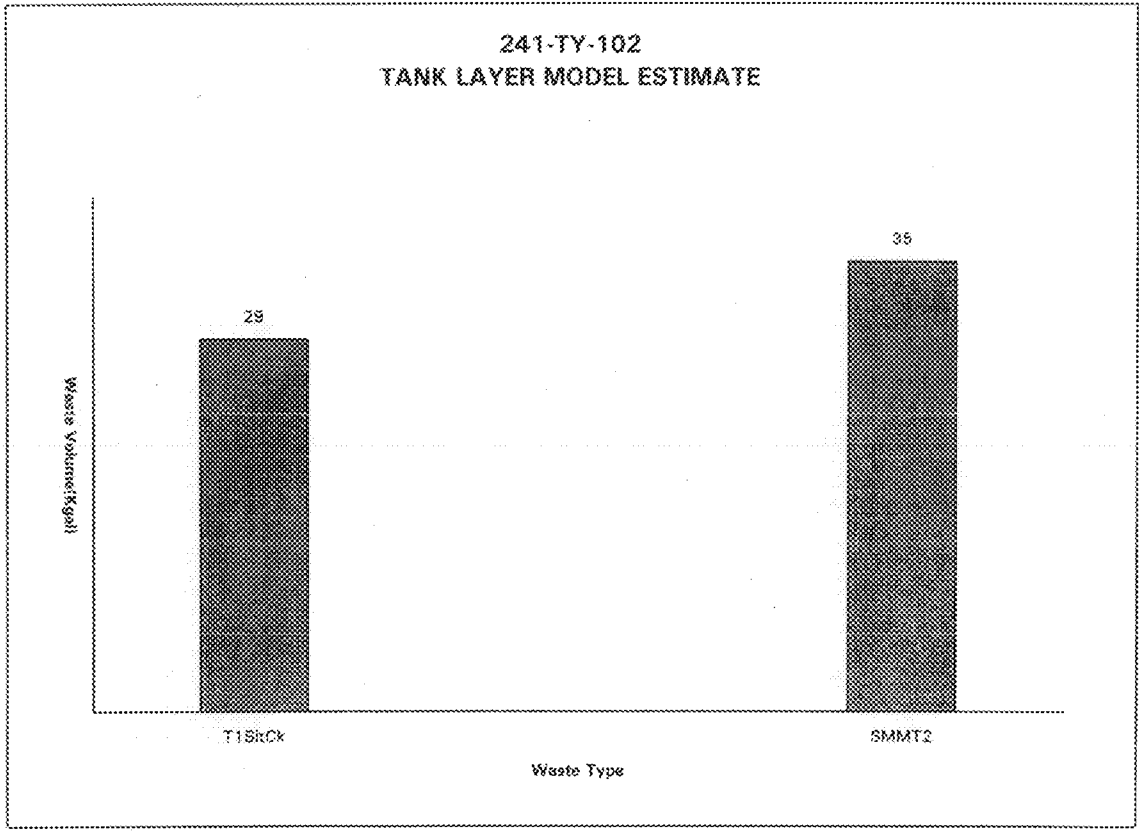
241-TY-102



TANK RISER LOCATION



NOT TO SCALE



Tank Layer Model(TLM) Estimate from *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 4* (Agnew et al., 1997).

HDW Model Rev. 4

Single-Shell Tank 241-TY-102							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	1.91E+05 (kg)	(29.0 kgal)	---	---	---	---	---
Heat Load	3.91E-02 (kW)	(134 BTU/hr)	---	8.31E-03	1.45E-02	5.87E-02	0.113
Bulk Density	1.74 (g/cc)	---	---	1.07	1.21	1.81	1.92
Void Fraction	0.525	---	---	0.256	0.479	0.941	0.997
Water wt%	37.7	---	---	32.3	35.8	74.4	88.0
TOC wt% C (w	1.34E-04	---	---	3.87E-06	1.18E-04	2.15E-04	1.62E-04
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	14.1	1.86E+05	3.55E+04	1.66	4.15	15.4	17.3
Al3+	9.05E-03	140	26.8	4.56E-03	8.30E-03	1.54E-02	1.63E-02
Fe3+ (total Fe)	0.126	4.04E+03	773	0.109	0.123	0.129	0.131
Cr3+	4.31E-03	129	24.6	3.12E-03	4.27E-03	5.67E-03	4.99E-03
Bi3+	1.51E-02	1.81E+03	345	5.53E-03	1.18E-02	1.69E-02	1.82E-02
La3+	0	0	0	0	0	0	0
Hg2+	5.22E-06	0.601	0.115	5.08E-06	5.15E-06	9.58E-06	1.27E-05
Zr (as ZrO(OH)2	3.66E-04	19.2	3.67	2.07E-04	3.50E-04	5.88E-04	5.82E-04
Pb2+	0	0	0	0	0	0	0
Ni2+	1.18E-02	396	75.8	1.01E-03	1.65E-03	1.45E-02	1.51E-02
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	9.20E-02	2.12E+03	405	7.67E-03	6.51E-02	0.102	0.111
K+	1.20E-02	270	51.7	4.49E-03	1.02E-02	1.80E-02	1.39E-02
OH-	0.915	8.93E+03	1.71E+03	0.786	0.889	0.987	1.00
NO3-	9.38	3.34E+05	6.38E+04	0.794	1.86	9.44	9.98
NO2-	0.209	5.53E+03	1.06E+03	9.68E-02	0.153	0.298	0.256
CO32-	0.198	6.83E+03	1.31E+03	2.62E-02	0.140	0.267	0.281
PO43-	1.30	7.06E+04	1.35E+04	0.127	0.507	1.50	1.54
SO42-	0.108	5.97E+03	1.14E+03	4.15E-02	9.27E-02	0.161	0.783
Si (as SiO32-)	1.78E-02	287	54.9	1.73E-02	1.75E-02	4.41E-02	6.99E-02
F-	8.69E-02	948	181	5.45E-02	8.46E-02	0.126	0.111
Cl-	6.77E-02	1.38E+03	263	2.09E-02	5.45E-02	0.401	0.450
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	1.62E-05	1.96	0.374	2.87E-07	9.85E-06	2.71E-05	1.92E-05
butanol	1.62E-05	0.690	0.132	2.87E-07	9.85E-06	2.71E-05	1.92E-05
NH3	3.77E-02	367	70.3	2.74E-02	3.71E-02	5.17E-02	4.38E-02
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-TY-102							
SMM Composite Inventory Estimate							
Physical Properties				-95 CI	-67 CI	+67 CI	+95 CI
Total SMM W	1.66E+05 (kg)	43.8 (kgal)	---	---	---	---	---
Heat Load	0.181 (kW)	(617 BTU/hr)	---	0.161	0.171	0.191	0.201
Bulk Density*	1.40 (g/cc)	---	---	1.38	1.38	1.41	1.42
Water wt%†	48.8	---	---	47.0	47.5	50.5	52.8
TOC wt% C (wet)	0.325	---	---	0.274	0.289	0.351	0.376
Chemical Constituents	mole/L	ppm	kg	-95 CI (mole/L)	-67 CI (mole/L)	+67 CI (mole/L)	+95 CI (mole/L)
Na+	5.35	1.55E+05	2.55E+04	4.90	4.88	5.59	5.82
Al3+	1.02	1.97E+04	3.66E+03	0.910	0.961	1.08	1.16
Fe3+ (total Fe)	7.21E-03	287	53.3	6.26E-03	6.73E-03	7.69E-03	8.16E-03
Cr3+	8.01E-02	2.97E+03	552	6.95E-02	7.52E-02	8.39E-02	8.50E-02
Bi3+	1.60E-03	239	44.5	1.45E-03	1.54E-03	1.72E-03	1.82E-03
La3+	8.09E-10	8.02E-05	1.49E-05	6.55E-10	7.29E-10	8.89E-10	9.66E-10
Hg2+	9.51E-06	1.36	0.253	8.23E-06	8.93E-06	9.44E-06	9.56E-06
Zr (as ZrO(OH)2)	3.51E-04	22.8	4.24	3.17E-04	3.29E-04	3.94E-04	3.93E-04
Pb2+	8.55E-04	126	23.5	6.81E-04	7.70E-04	9.59E-04	1.05E-03
Ni2+	5.01E-03	210	39.0	4.73E-03	4.66E-03	5.08E-03	5.08E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	2.80E-03	80.7	15.0	1.60E-03	1.82E-03	2.29E-03	2.51E-03
Ca2+	2.60E-02	745	138	2.47E-02	2.53E-02	2.67E-02	2.74E-02
K+	4.48E-02	1.25E+03	232	3.49E-02	4.19E-02	4.91E-02	5.24E-02
OH-	5.85	7.11E+04	1.32E+04	5.40	5.62	6.09	6.31
NO3-	3.72	1.65E+05	3.07E+04	3.01	3.55	3.87	3.95
NO2-	1.47	4.83E+04	8.95E+03	1.37	1.36	1.57	1.57
CO32-	0.317	1.36E+04	2.52E+03	0.263	0.281	0.362	0.369
PO43-	8.80E-02	5.97E+03	1.11E+03	6.95E-02	7.57E-02	9.14E-02	9.47E-02
SO42-	0.185	1.27E+04	2.36E+03	0.140	0.150	0.227	0.236
Si (as SiO32-)	5.20E-02	1.04E+03	193	4.54E-02	4.86E-02	5.33E-02	5.82E-02
F-	8.03E-02	1.09E+03	202	6.46E-02	7.12E-02	8.51E-02	9.45E-02
Cl-	0.159	4.02E+03	747	0.132	0.149	0.182	0.180
C6H5O73-	1.36E-02	1.55E+03	288	1.33E-02	1.30E-02	1.42E-02	1.49E-02
EDTA4-	2.56E-03	544	98	1.10E-03	1.25E-03	3.74E-03	4.50E-03
HEDTA3-	4.29E-03	565	180	1.46E-03	3.16E-03	6.74E-03	5.49E-03
glycolate-	3.50E-02	2.09E+03	389	3.12E-02	3.39E-02	4.70E-02	5.54E-02
acetate-	2.30E-03	99.4	18.4	1.95E-03	2.13E-03	2.59E-03	2.81E-03
oxalate2-	1.06E-09	3.66E-05	1.34E-05	8.75E-10	1.10E-09	1.10E-09	1.14E-09
DBP	1.10E-02	1.75E+03	325	9.92E-03	1.07E-02	1.23E-02	1.31E-02
butanol	1.15E-02	610	113	9.95E-03	1.05E-02	1.23E-02	1.31E-02
NH3	7.65E-03	93	17.7	6.00E-02	6.00E-02	8.82E-02	9.76E-02
Fe(CN)64-	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-TY-102

Total Inventory Estimate*

Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	3.77E+05 (kg)	(64.0 kgal)	---	---	---	---	---
Heat Load	0.220 (kW)	(751 BTU/hr)	---	0.183	0.192	0.244	0.300
Bulk Density†	1.56 (g/cc)	---	---	1.23	1.30	1.59	1.64
Water wt%†	43.2	---	---	39.5	41.6	60.5	66.5
TOC wt% C (w	0.160	---	---	0.135	0.147	0.191	0.202
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	11.5	1.70E+05	6.40E+04	5.35	6.74	12.2	13.1
Al3+	0.564	9.78E+03	3.69E+03	0.502	0.532	0.596	0.627
Fe3+ (total Fe)	6.11E-02	2.19E+03	826	5.31E-02	5.98E-02	6.23E-02	6.35E-02
Cr3+	4.58E-02	1.53E+03	577	3.99E-02	4.31E-02	4.70E-02	4.75E-02
Bi3+	7.72E-03	1.04E+03	391	3.40E-03	6.26E-03	8.57E-03	9.14E-03
La3+	4.42E-10	3.95E-05	1.49E-05	3.57E-10	3.99E-10	4.86E-10	5.28E-10
Hg2+	7.46E-06	0.962	0.362	7.32E-06	7.39E-06	9.44E-06	1.09E-05
Zr (as ZrO(OH)2	3.58E-04	21.0	7.90	3.04E-04	3.45E-04	4.46E-04	4.37E-04
Pb2+	4.73E-04	63.0	23.8	3.73E-04	4.22E-04	5.25E-04	5.74E-04
Ni2+	8.07E-03	304	115	3.07E-03	3.48E-03	9.32E-03	9.58E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	1.12E-03	39.7	15.0	8.75E-04	9.97E-04	1.25E-03	1.37E-03
Ca2+	5.59E-02	1.44E+03	543	1.75E-02	4.37E-02	6.07E-02	6.53E-02
K+	3.00E-02	753	284	2.36E-02	2.72E-02	3.50E-02	3.43E-02
OH-	3.62	3.95E+04	1.49E+04	3.37	3.49	3.74	3.87
NO3-	6.32	2.52E+05	9.50E+04	2.11	2.78	6.36	6.60
NO2-	0.898	2.66E+04	1.00E+04	0.792	0.835	0.974	1.01
CO32-	0.263	1.02E+04	3.83E+03	0.155	0.217	0.319	0.329
PO43-	0.635	3.88E+04	1.46E+04	0.102	0.278	0.728	0.745
SO42-	0.152	9.39E+03	3.54E+03	9.53E-02	0.128	0.197	0.481
Si (as SiO32-)	3.65E-02	659	248	3.29E-02	3.47E-02	4.70E-02	5.74E-02
F-	8.33E-02	1.02E+03	383	7.44E-02	8.15E-02	9.61E-02	8.94E-02
Cl-	0.124	2.81E+03	1.06E+03	8.50E-02	0.106	0.281	0.303
C6H5O73-	7.43E-03	903	340	6.73E-03	7.07E-03	7.79E-03	8.13E-03
EDTA4-	1.55E-03	288	108	6.01E-04	1.07E-03	2.04E-03	2.52E-03
HEDTA3-	2.71E-03	477	180	8.01E-04	1.73E-03	3.69E-03	4.64E-03
glycolate-	2.09E-02	1.01E+03	380	1.16E-02	1.62E-02	2.57E-02	3.03E-02
acetate-	1.29E-03	49.0	18.4	1.04E-03	1.17E-03	1.42E-03	1.54E-03
oxalate2-	5.79E-10	3.28E-05	1.24E-05	5.33E-10	5.56E-10	6.03E-10	6.26E-10
DBP	6.31E-03	853	321	5.44E-03	5.87E-03	6.75E-03	7.17E-03
butanol	6.31E-03	301	113	5.44E-03	5.87E-03	6.75E-03	7.17E-03
NH3	6.00E-02	656	247	4.99E-02	5.48E-02	6.53E-02	7.04E-02
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-TY-102							
TLM Solids Composite Inventory Estimate*							
Physical Properties				-95 CI	-67 CI	+67 CI	+95 CI
Total TLM Wt	1.81E+06 (kg)	(390 kgal)	---	---	---	---	---
Heat Load	5.93E-02 (kW)	(114 BTU/hr)	---	8.31E-03	1.45E-02	5.57E-02	0.155
Bulk Density	1.74 (g/cc)	---	---	1.07	1.21	1.81	1.92
Void Fraction	0.525	---	---	0.356	0.479	0.961	0.987
Water wt%	37.7	---	---	30.1	35.2	74.5	88.0
TOC wt% C (wet)	1.39E-04	---	---	1.07E-04	1.00E-04	2.15E-04	1.62E-04
Radiological Constituents	Ci/L	µCi/g	Ci	-95 CI (Ci/L)	-67 CI (Ci/L)	+67 CI (Ci/L)	+95 CI (Ci/L)
H-3	2.99E-06	1.72E-03	0.308	0	0	3.15E-06	3.66E-06
C-14	4.46E-07	2.56E-04	4.60E-02	0	0	4.50E-07	5.02E-07
Ni-59	9.66E-07	5.19E-04	9.93E-02	0	0	9.56E-07	9.57E-07
Ni-63	8.14E-05	4.67E-02	8.39	0	0	8.22E-05	8.22E-05
Co-60	1.05E-07	5.79E-05	1.10E-02	0	0	1.02E-07	1.95E-07
Se-79	8.57E-08	5.50E-05	1.00E-02	0	0	8.69E-08	1.10E-07
Sr-90	1.12E-02	6.40	1.20E+03	6.29E-03	1.09E-02	1.56E-02	7.08E-02
Y-90	1.12E-02	6.45	1.15E+03	0	0	1.13E-02	1.39E-02
Zr-93	4.35E-07	2.61E-04	4.90E-02	0	0	4.60E-07	5.22E-07
Nb-93m	3.85E-07	2.21E-04	4.22E-02	0	0	2.89E-07	4.42E-07
Tc-99	3.15E-06	1.81E-03	0.346	8.26E-07	2.42E-06	4.90E-06	5.62E-06
Ru-106	3.98E-14	2.28E-11	4.37E-09	0	0	4.03E-14	6.27E-14
Cd-113m	1.16E-06	6.29E-04	0.120	0	0	1.11E-06	1.36E-06
Sb-125	5.11E-08	3.23E-05	1.09E-02	0	0	8.22E-08	1.05E-07
Sn-126	1.44E-07	8.26E-05	1.58E-02	0	0	1.46E-07	1.66E-07
I-129	5.93E-09	3.40E-06	6.51E-04	1.55E-09	4.56E-09	8.22E-09	6.82E-09
Cs-134	4.23E-08	2.40E-05	4.64E-03	0	0	4.56E-08	4.94E-08
Cs-137	6.00E-02	34.6	6.59E+03	7.21E-03	1.26E-02	9.17E-02	0.115
Ba-137m	5.68E-02	32.6	6.23E+03	0	0	6.12E-02	6.62E-02
Sm-151	3.57E-06	9.95	39.2	0	0	3.61E-06	4.11E-06
Eu-152	1.12E-09	6.47E-05	1.24E-02	0	0	1.19E-09	1.15E-09
Eu-154	1.78E-06	1.02E-03	0.196	0	0	1.81E-06	2.06E-06
Eu-155	8.59E-06	4.66E-03	0.942	0	0	8.71E-06	8.77E-06
Ra-226	2.69E-11	1.33E-08	2.96E-06	0	0	1.03E-10	8.20E-11
Rn-222	4.49E-56	2.58E-53	4.93E-51	0	0	4.55E-56	4.56E-56
Ac-227	1.29E-10	7.90E-09	1.50E-05	0	0	3.50E-10	4.22E-10
Pa-231	3.01E-10	1.73E-07	3.31E-05	0	0	3.05E-10	3.47E-10
Th-229	8.72E-15	5.00E-11	9.57E-10	0	0	8.79E-15	8.55E-15
Th-232	1.30E-16	7.49E-14	1.43E-11	0	0	1.32E-16	1.38E-16
U-232	1.15E-10	6.60E-08	1.26E-05	9.15E-11	9.99E-11	1.38E-10	1.51E-10
U-233	5.86E-12	3.24E-09	6.06E-07	3.97E-12	4.79E-12	6.58E-12	7.19E-12
U-234	5.57E-06	3.20E-03	0.611	3.82E-06	4.67E-06	6.34E-06	7.17E-06
U-235	2.47E-07	1.42E-04	2.71E-02	1.66E-07	2.07E-07	2.90E-07	3.15E-07
U-236	5.21E-08	2.99E-05	5.73E-03	3.32E-08	4.39E-08	6.09E-08	6.83E-08
U-238	5.65E-06	3.25E-03	0.621	3.86E-06	4.74E-06	6.64E-06	7.28E-06
Np-237	1.94E-08	1.11E-05	2.13E-03	5.69E-09	1.59E-08	3.02E-08	2.23E-08
Pu-238	3.69E-07	2.12E-04	4.05E-02	3.38E-08	1.10E-07	5.33E-07	5.76E-07
Pu-239	6.14E-05	3.53E-02	6.74	8.59E-06	2.65E-05	9.03E-05	9.52E-05
Pu-240	5.00E-06	2.87E-03	0.549	4.82E-07	1.81E-06	7.44E-06	7.70E-06
Pu-241	1.36E-05	7.80E-03	1.50	1.11E-06	4.10E-06	2.08E-05	2.16E-05
Pu-242	6.30E-11	3.45E-08	5.66E-06	4.57E-12	1.52E-11	9.30E-11	9.68E-11
Am-241	8.14E-07	4.67E-04	2.96E-02	1.32E-07	5.23E-07	1.20E-06	9.16E-07
Am-243	5.60E-12	3.23E-09	6.28E-07	9.55E-13	4.90E-12	8.95E-12	6.47E-12
Cm-242	1.86E-08	1.07E-05	2.04E-06	0	0	1.88E-08	1.56E-08
Cm-243	3.90E-11	2.16E-08	4.37E-06	0	0	3.84E-11	3.88E-11
Cm-244	1.24E-10	7.15E-08	1.36E-05	0	0	1.25E-10	1.43E-10
Totals	M	µg/g	kg	-95 CI (M or g/L)	-67 CI (M or g/L)	+67 CI (M or g/L)	+95 CI (M or g/L)
Pu	1.01E-01 (g/L)	---	0.111	3.09E-04	3.30E-04	1.49E-03	1.55E-03
U	7.13E-03	4.72E+03	7.86E+03	4.99E-02	5.97E-02	8.36E-02	9.16E-02

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-TY-102							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	1.86E+05 (kg)	(35.0 kgal)	----	----	----	----	—
Heat Load	0.181 (kW)	(617 BTU/hr)	—	0.161	0.171	0.191	0.201
Bulk Density*	1.40 (g/cc)	—	----	1.36	1.38	1.41	1.42
Water wt%†	48.8	----	—	47.0	47.8	50.5	52.6
TOC wt% C (w	0.325	----	----	0.274	0.299	0.351	0.376
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	1.40E-04	9.99E-02	18.5	8.18E-05	8.18E-05	1.48E-04	1.57E-04
C-14	2.00E-05	1.43E-02	2.65	7.81E-06	7.81E-06	2.06E-05	2.12E-05
Ni-59	1.52E-06	1.09E-03	0.202	9.52E-07	9.52E-07	1.55E-06	1.58E-06
Ni-63	1.49E-04	0.107	19.8	9.28E-05	9.28E-05	1.52E-04	1.55E-04
Co-60	2.19E-05	1.56E-02	2.90	7.96E-06	7.96E-06	2.28E-05	2.36E-05
Se-79	2.05E-06	1.47E-03	0.272	1.28E-06	1.28E-06	2.33E-06	2.60E-06
Sr-90	6.62E-02	47.3	8.77E+03	6.18E-02	6.33E-02	6.95E-02	7.00E-02
Y-90	6.62E-02	47.3	8.77E+03	3.94E-02	3.94E-02	6.81E-02	7.00E-02
Zr-93	1.01E-05	7.19E-03	1.33	6.19E-06	6.19E-06	1.15E-05	1.28E-05
Nb-93m	7.31E-06	5.22E-03	0.969	4.59E-06	4.59E-06	8.30E-06	9.24E-06
Tc-99	1.43E-04	0.102	18.9	9.72E-05	1.19E-04	1.66E-04	1.88E-04
Ru-106	3.91E-09	2.79E-06	5.18E-04	2.11E-09	2.11E-09	4.31E-09	4.68E-09
Cd-113m	5.20E-05	3.71E-02	6.89	2.87E-05	2.87E-05	6.04E-05	6.85E-05
Sb-125	9.29E-05	6.64E-02	12.3	3.27E-05	3.27E-05	9.69E-05	1.01E-04
Sn-126	3.10E-06	2.21E-03	0.410	1.93E-06	1.93E-06	3.52E-06	3.92E-06
I-129	2.75E-07	1.96E-04	3.64E-02	1.87E-07	2.30E-07	3.20E-07	3.64E-07
Cs-134	1.59E-06	1.13E-03	0.210	1.18E-06	1.38E-06	1.80E-06	2.00E-06
Cs-137	0.196	140	2.60E+04	0.164	0.180	0.213	0.229
Ba-137m	0.186	133	2.46E+04	0.155	0.165	0.201	0.217
Sm-151	7.23E-03	5.16	957	4.51E-03	4.51E-03	8.21E-03	9.15E-03
Eu-152	2.23E-06	1.59E-03	0.296	1.27E-06	1.27E-06	2.34E-06	2.44E-06
Eu-154	3.52E-04	0.251	46.6	1.58E-04	1.58E-04	4.22E-04	4.50E-04
Eu-155	1.32E-04	9.45E-02	17.5	7.51E-05	7.51E-05	1.40E-04	1.48E-04
Ra-226	9.77E-11	6.98E-08	1.29E-05	7.36E-11	7.36E-11	1.06E-10	1.15E-10
Ra-228	1.62E-07	1.16E-04	2.15E-02	6.20E-08	1.11E-07	2.22E-07	2.85E-07
Ac-227	6.40E-10	4.57E-07	8.48E-05	5.00E-10	5.00E-10	6.90E-10	7.39E-10
Pa-231	2.83E-09	2.02E-06	3.75E-04	2.05E-09	2.05E-09	3.11E-09	3.38E-09
Th-229	3.76E-09	2.68E-06	4.98E-04	1.56E-09	2.64E-09	5.06E-09	6.45E-09
Th-232	9.96E-09	7.11E-06	1.32E-03	4.42E-09	7.13E-09	1.28E-08	1.55E-08
U-232	8.11E-07	5.79E-04	0.107	4.10E-07	6.06E-07	1.05E-06	1.30E-06
U-233	3.11E-06	2.22E-03	0.412	1.57E-06	2.32E-06	4.02E-06	4.99E-06
U-234	6.62E-07	4.73E-04	8.77E-02	6.31E-07	6.51E-07	6.70E-07	6.75E-07
U-235	2.66E-08	1.90E-05	3.52E-03	2.53E-08	2.61E-08	2.69E-08	2.71E-08
U-236	2.15E-08	1.53E-05	2.84E-03	2.05E-08	2.13E-08	2.17E-08	2.19E-08
U-238	8.06E-07	5.76E-04	0.107	7.77E-07	7.95E-07	8.14E-07	8.19E-07
Np-237	5.14E-07	3.67E-04	6.82E-02	3.66E-07	4.39E-07	5.91E-07	6.65E-07
Pu-238	8.25E-07	5.89E-04	0.109	6.51E-07	7.36E-07	9.14E-07	9.99E-07
Pu-239	2.98E-05	2.13E-02	3.95	2.53E-05	2.75E-05	3.21E-05	3.42E-05
Pu-240	4.93E-06	3.52E-03	0.654	4.10E-06	4.51E-06	5.36E-06	5.76E-06
Pu-241	5.43E-05	3.88E-02	7.20	4.25E-05	4.83E-05	6.04E-05	6.62E-05
Pu-242	2.96E-10	2.11E-07	3.92E-05	2.25E-10	2.60E-10	3.32E-10	3.67E-10
Am-241	3.73E-05	2.66E-02	4.94	2.91E-05	3.31E-05	4.15E-05	4.56E-05
Am-243	1.26E-09	8.99E-07	1.67E-04	9.98E-10	1.12E-09	1.42E-09	1.56E-09
Cm-242	8.63E-08	6.16E-05	1.14E-02	4.68E-08	4.68E-08	8.92E-08	9.20E-08
Cm-243	8.02E-09	5.73E-06	1.06E-03	4.25E-09	4.25E-09	8.37E-09	8.71E-09
Cm-244	8.32E-08	5.94E-05	1.10E-02	4.44E-08	4.44E-08	9.64E-08	1.05E-07
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	4.10E-04 (g/L)	—	5.43E-02	3.25E-04	3.67E-04	4.52E-04	4.94E-04
U	7.42E-03	1.26E+03	234	7.05E-03	7.27E-03	7.52E-03	7.57E-03

*Density is calculated based on Na, OH-, and AlO2-.

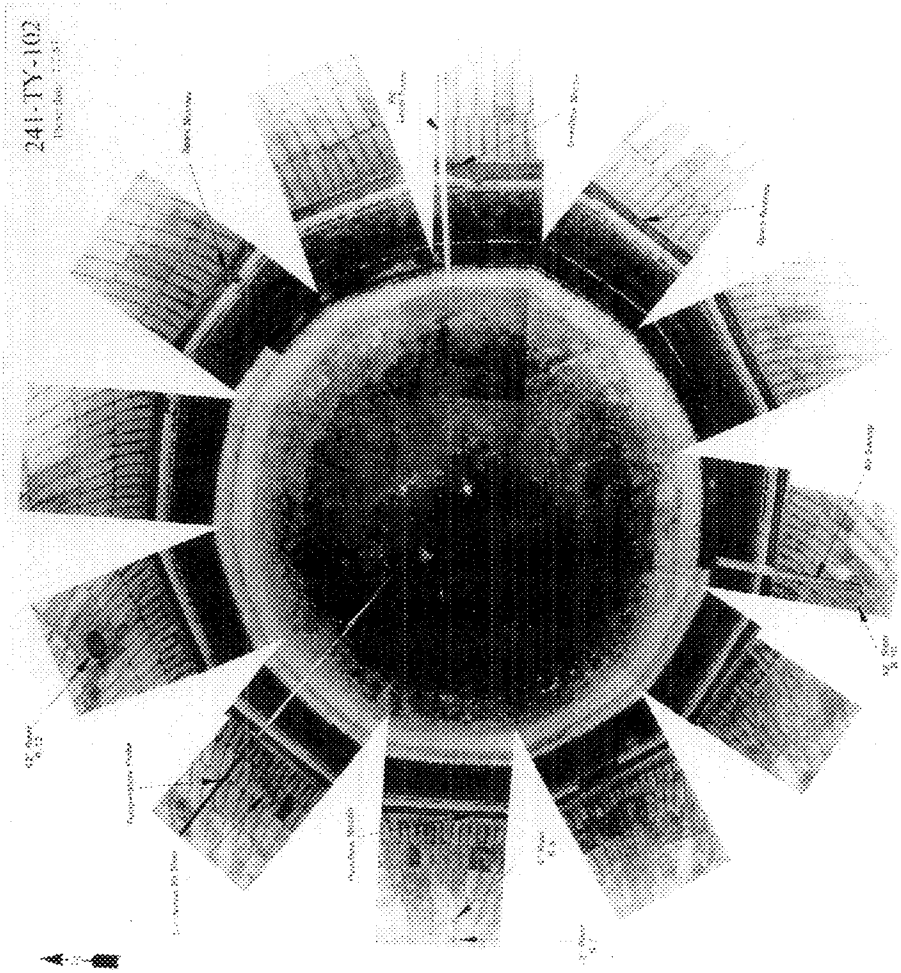
†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-TY-102							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	3.77E+05 (kg)	(64.0 kgal)	---	---	---	---	---
Heat Load	0.220 (kW)	(751 BTU/hr)	---	0.183	0.192	0.244	0.300
Bulk Density†	1.56 (g/cc)	---	---	1.23	1.50	1.59	1.66
Water wt%†	49.2	---	---	39.5	41.5	60.5	66.5
TOC wt% C (wet)	0.180	---	---	0.123	0.147	0.191	0.202
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	7.29E-05	4.61E-05	35.2	4.61E-05	4.61E-05	8.22E-05	8.74E-05
C-14	1.11E-05	7.13E-03	2.68	4.37E-06	4.37E-06	1.13E-05	1.18E-05
Ni-59	1.24E-06	6.98E-04	0.301	8.11E-07	8.11E-07	1.27E-06	1.25E-06
Ni-63	1.19E-04	7.62E-02	28.7	7.97E-05	7.97E-05	1.20E-04	1.22E-04
Co-60	1.20E-05	7.72E-03	2.91	6.40E-06	6.40E-06	1.25E-05	1.30E-05
Se-79	1.15E-06	7.39E-04	0.222	7.62E-07	7.42E-07	1.32E-06	1.47E-06
Sr-90	4.10E-02	26.3	9.90E+03	3.98E-02	3.98E-02	4.31E-02	5.99E-02
Y-90	4.13E-02	26.5	1.00E+04	2.66E-02	2.66E-02	4.35E-02	4.34E-02
Zr-93	5.72E-06	3.68E-03	1.38	3.59E-06	3.59E-06	6.98E-06	7.22E-06
Nb-93m	4.17E-06	2.68E-03	1.01	2.68E-06	2.69E-06	4.71E-06	5.23E-06
Tc-99	7.96E-05	5.10E-05	19.2	5.46E-05	6.67E-05	9.21E-05	1.04E-04
Ru-106	2.14E-09	1.37E-06	5.18E-04	1.13E-09	1.13E-09	3.26E-09	3.36E-09
Cd-113m	2.89E-05	1.86E-02	7.01	1.62E-05	1.62E-05	2.35E-05	2.89E-05
Sb-125	3.06E-05	5.27E-03	22.3	1.79E-05	1.72E-05	5.30E-05	5.51E-05
Sn-126	1.76E-06	1.13E-03	0.426	1.02E-06	1.02E-06	1.98E-06	2.23E-06
I-129	1.55E-07	9.85E-05	3.76E-02	1.05E-07	1.38E-07	1.78E-07	2.01E-07
Cs-134	8.70E-07	5.60E-04	0.211	6.92E-07	7.86E-07	9.25E-07	1.10E-06
Cs-137	0.134	86.1	3.25E+04	0.098	0.112	0.159	0.162
Ba-137m	0.127	81.5	3.08E+04	9.55E-02	9.55E-02	0.136	0.144
Sm-151	4.11E-03	2.64	996	2.83E-03	2.83E-03	4.65E-03	5.17E-03
Eu-152	1.27E-06	8.15E-04	0.308	7.46E-07	7.46E-07	1.35E-06	1.59E-06
Eu-154	1.92E-04	0.123	46.5	8.72E-05	8.72E-05	2.22E-04	3.47E-04
Eu-155	7.65E-05	4.90E-02	18.5	4.50E-05	4.50E-05	2.06E-05	2.47E-05
Ra-226	6.58E-11	4.22E-08	1.59E-08	4.52E-11	4.52E-11	8.20E-11	8.52E-11
Ra-228	5.87E-08	3.76E-05	2.15E-02	3.10E-08	6.77E-08	1.21E-07	1.56E-07
Ac-227	4.15E-10	2.65E-07	1.00E-04	3.65E-10	3.65E-10	4.66E-10	7.19E-10
Pa-231	1.82E-09	1.02E-06	4.05E-04	1.28E-09	1.28E-09	1.84E-09	1.99E-09
Th-229	2.06E-09	1.33E-06	4.98E-04	8.55E-10	1.44E-09	2.77E-09	3.55E-09
Th-232	5.88E-09	3.50E-06	1.30E-03	3.42E-09	3.90E-09	7.00E-09	8.88E-09
U-232	4.44E-07	2.85E-04	0.108	3.24E-07	3.38E-07	5.74E-07	7.13E-07
U-233	1.70E-06	1.09E-03	0.412	8.60E-07	1.27E-06	2.20E-06	2.75E-06
U-234	2.28E-06	1.28E-03	0.659	3.09E-06	3.22E-06	3.32E-06	3.61E-06
U-235	1.25E-07	8.15E-05	3.06E-02	9.13E-08	1.05E-07	1.46E-07	1.59E-07
U-236	3.34E-08	3.27E-05	8.37E-03	3.90E-08	3.16E-08	3.92E-08	4.19E-08
U-238	3.00E-06	1.88E-03	0.728	2.20E-06	2.39E-06	3.45E-06	3.74E-06
Np-237	2.90E-07	1.87E-04	7.05E-02	2.69E-07	2.59E-07	3.52E-07	3.72E-07
Pu-238	5.38E-07	3.38E-04	0.150	4.83E-07	5.03E-07	7.03E-07	7.34E-07
Pu-239	4.41E-05	2.84E-02	10.7	1.88E-05	2.56E-05	3.72E-05	5.55E-05
Pu-240	4.90E-06	3.10E-03	1.20	3.88E-06	3.93E-06	6.07E-06	6.19E-06
Pu-241	3.59E-05	2.31E-02	8.59	3.84E-05	3.15E-05	5.83E-05	4.24E-05
Pu-242	1.89E-10	1.22E-05	4.59E-05	1.51E-10	1.70E-10	2.09E-10	2.28E-10
Am-241	2.08E-05	1.34E-02	5.05	1.82E-05	1.82E-05	2.31E-05	2.58E-05
Am-243	5.91E-10	3.45E-07	1.32E-04	5.45E-10	5.14E-10	7.61E-10	8.56E-10
Cm-242	4.30E-08	3.06E-05	1.10E-02	2.55E-08	2.55E-08	4.95E-08	5.12E-08
Cm-243	4.40E-09	2.82E-06	1.07E-03	2.24E-09	2.24E-09	4.60E-09	4.78E-09
Cm-244	4.58E-08	2.93E-05	1.10E-02	2.45E-08	2.45E-08	5.25E-08	5.73E-08
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	6.22E-04 (g/L)	---	0.150	2.30E-04	3.70E-04	8.70E-04	9.19E-04
U	3.80E-02	5.56E+03	2.03E+03	2.62E-02	3.11E-02	4.19E-02	4.56E-02

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Volume average for density, mass average Water wt% and TOC wt% C.


241-TY-102

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TANK 241-TY-103 SUMMARY

TANK HISTORY	
Entered Service	3rd qtr 1953
Removed from Service	-
Inactive	1976
Watch Lists	none
Integrity	Assumed leaker
Assumed Leaker	1973
Interim Stabilization (IS)	Feb 1983
Partial Interim Isolation (PI)	-
Intrusion Prevention (IP)	Oct 1984
TENTATIVELY AVAILABLE RISERS	
Riser Number(s)	Size
15, 18	4 in
7, 8	12 in
TANK TEMPERATURE	
Average Tank Temperature	66°F
Maximum Temperature	136.94°F
Date	Oct 1, 1976
Elevation from tank bottom	unknown
Riser Number	7
Minimum Temperature	55°F
Date	Oct 3, 1976 & Feb 15, 1977
Elevation from tank bottom	4.60 ft, 6.60 ft, 8.60 ft, 18.60 ft
Riser Number	4

TANK DESCRIPTION	
Diameter	75 ft
Bottom Shape	Dish
Nominal Capacity	758,000 gal
Cascade Tank	to 241-TY-104
Total Risers	14
WASTE VOLUME (HANLON 1996l)	
Total Waste Volume	162,000 gal
Waste Type	NCPLX
Drainable Interstitial Liquids	5,000 gal
Pumpable Liquids	0 gal
Saltcake	0 gal
Sludge	162,000 gal
Supernatant	0 gal
INTERIOR PHOTOGRAPHS	
Date	Aug 22, 1989
Montage Number	94080233-30CN
Photo Set Number	89-082239
WASTE SURFACE LEVEL	
Devices	Auto and Manual ENRAF
Max Level	66 in
Date	July 6, 1992
Min Level	63.15 in
Date	July 19, 1995

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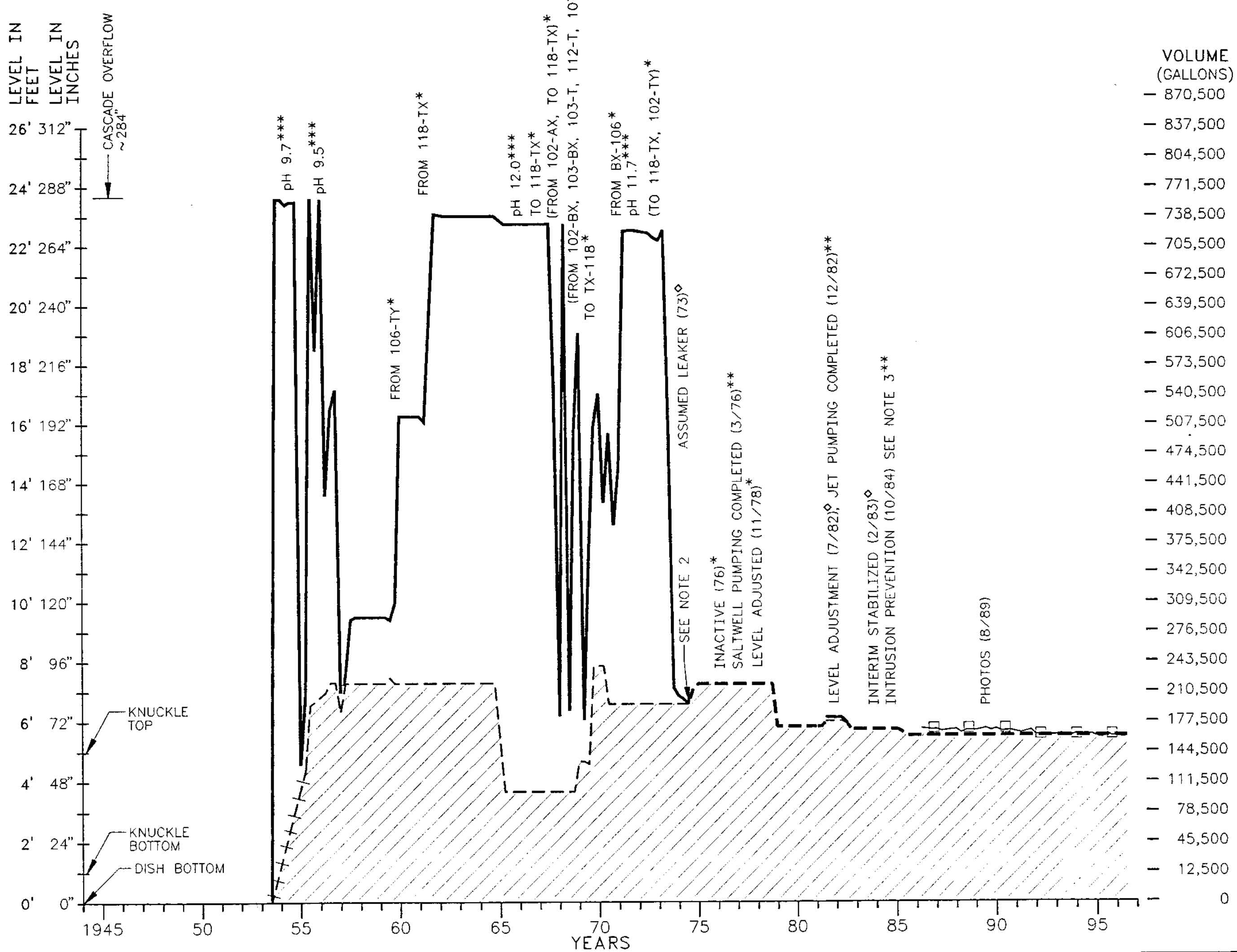
WASTE TYPES TIME LINE (ANDERSON 1990)	1C TBP	1C DW TBP	1C BL CW OWW	R RIX TBP
PRIMARY ADDITIONS TIME LINE (AGNEW 1995)	1CFeCN UR	WTR		



TANK INFO:

CONSTRUCTED 1951-1952
NOMINAL CAPACITY: 758,000 GAL
DISH BOTTOM, 4 FOOT RADIUS KNUCKLE
75 FOOT DIAMETER TANK

REFERENCES

* ANDERSON 1990
** WELTY 1988
*** BORSHEIM AND KIRCH 1991
◇ HANLON 1996I

NOTES:

1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN.
3) IN JUNE 1993, INTERIM ISOLATION WAS REPLACED BY INTRUSION PREVENTION.

GLOSSARY OF WASTE TERMS:

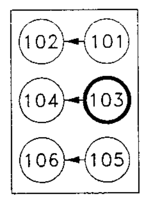
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A.

1C:	FIRST CYCLE DECONTAMINATION WASTE
1CFeCN:	FERROCYANIDE SLUDGE
BL:	B-PLANT LOW-LEVEL WASTE
CW:	COATING (CLADDING) WASTE
DW:	DECONTAMINATION WASTE
OWW:	PUREX ORGANIC WASH WASTE
R:	REDOX HIGH-LEVEL WASTE
RIX:	REDOX ION EXCHANGE WASTE
TBP:	TRIBUTYL PHOSPHATE
UR:	URANIUM RECOVERY WASTE
WTR:	WATER

LEGEND

TOTAL WASTE LEVEL (SUPERNATE)
TOTAL WASTE LEVEL (SOLIDS)
SOLIDS LEVEL
ASSUMED SOLIDS LEVEL
INTERSTITIAL LIQUID LEVEL
SOLIDS

TY TANK FARM CASCADE



U.S. DEPARTMENT OF ENERGY
Richland Operations Office
FLUOR DANIEL NORTHWEST, INC.

241-TY-103 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1953-1996
ASSUMED LEAKER/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E130	1/97
SCALE NONE		JOB NO.	SHEET 1 OF 1

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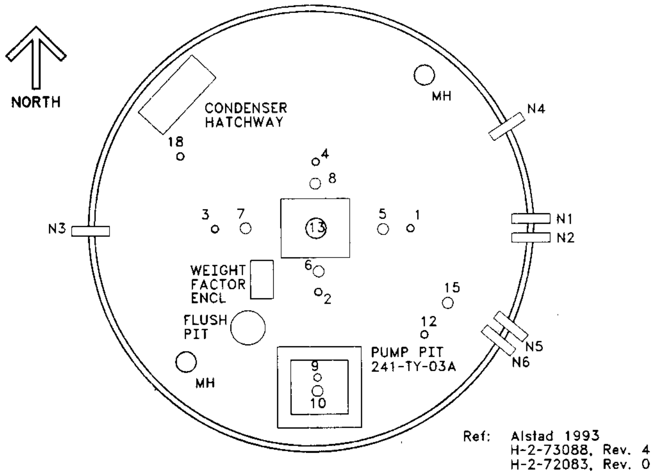
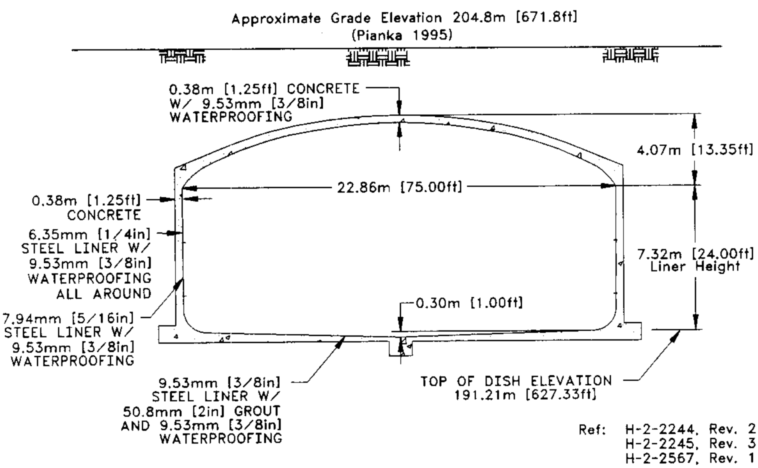
241-TY-103



TANK RISER LOCATION



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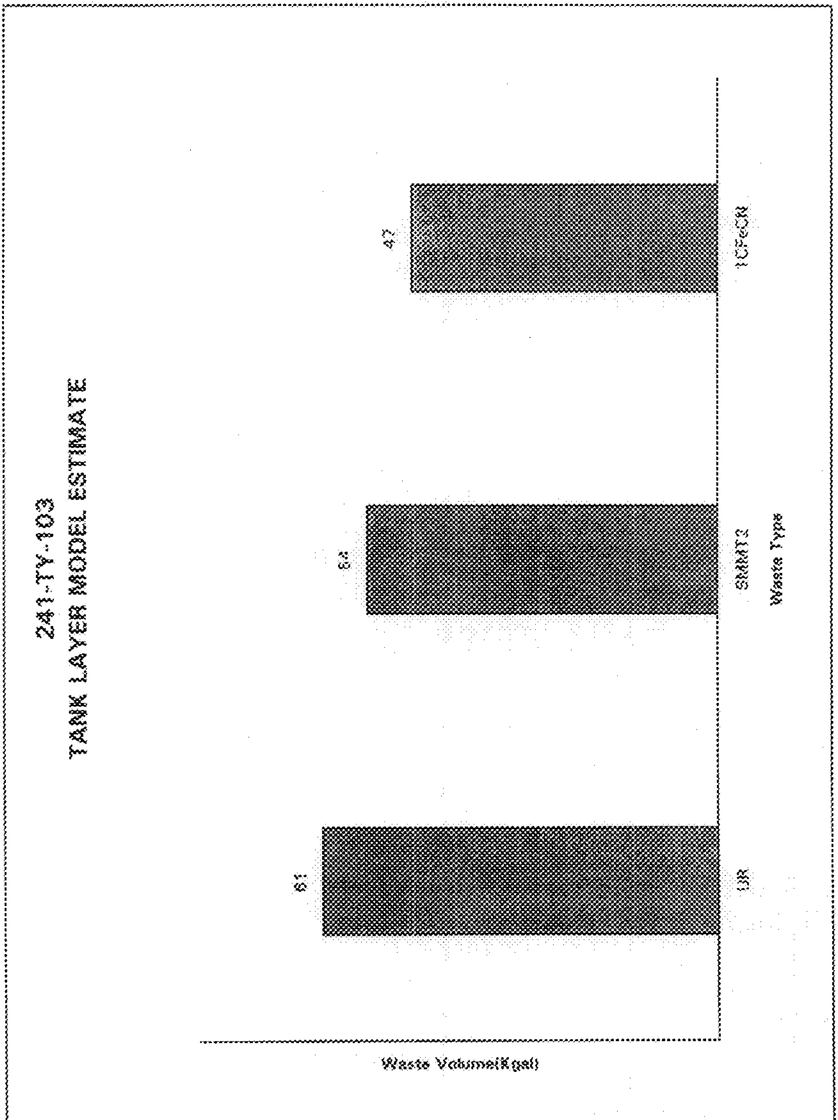


Tank Layer Model(TLM) Estimate from *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 4* (Agnew et al., 1997).

HDW Model Rev. 4

Single-Shell Tank 241-TY-103							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	6.63E+05 (kg)	(108 kgal)	----	----	—	----	—
Heat Load	0.473 (kW)	(1.61E+03 BTU/hr)	----	0.459	0.460	0.485	0.487
Bulk Density	1.62 (g/cc)	----	—	1.19	1.26	1.87	1.64
Void Fraction	0.662	—	—	0.648	0.438	0.947	0.971
Water wt%	40.2	—	----	39.3	24.8	73.1	83.9
TOC wt% C (w	0.201	----	—	0.199	0.175	0.258	0.275
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	8.85	1.26E+05	8.32E+04	0.947	1.74	13.9	9.40
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	0.935	3.22E+04	2.13E+04	4.65E-02	0.863	0.944	0.952
Cr3+	1.65E-03	52.8	35.0	8.34E-04	9.19E-04	2.37E-03	2.47E-03
Bi3+	9.24E-02	1.19E+04	7.89E+03	8.70E-02	8.97E-02	9.51E-02	9.78E-02
La3+	0	0	0	0	0	0	0
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	1.04E-02	584	387	6.98E-03	8.64E-03	1.21E-02	1.38E-02
Pb2+	0	0	0	0	0	0	0
Ni2+	8.37E-02	3.03E+03	2.01E+03	8.29E-02	8.33E-02	8.41E-02	8.44E-02
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	0.298	7.36E+03	4.88E+03	0.104	0.107	0.333	0.367
K+	5.80E-03	140	92.8	1.80E-03	2.22E-03	9.39E-03	9.87E-03
OH-	4.26	4.46E+04	2.96E+04	1.59	4.04	4.28	4.31
NO3-	7.61	2.91E+05	1.93E+05	7.09E-02	0.619	13.0	7.62
NO2-	0.323	9.18E+03	6.08E+03	0.238	0.245	0.455	0.477
CO32-	0.342	1.26E+04	8.38E+03	0.101	0.139	0.383	0.409
PO43-	0.225	1.32E+04	8.72E+03	0.192	0.195	0.254	0.317
SO42-	4.49E-02	2.66E+03	1.76E+03	8.96E-03	1.27E-02	7.71E-02	8.15E-02
Si (as SiO32-)	5.10E-02	884	585	1.56E-02	1.56E-02	0.125	0.196
F-	9.30E-02	1.09E+03	722	9.12E-02	9.21E-02	0.329	0.650
Cl-	3.27E-02	714	473	8.42E-03	1.10E-02	5.44E-02	0.143
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	7.88E-06	1.02	0.677	1.71E-07	9.83E-07	1.48E-05	1.57E-05
butanol	7.88E-06	0.360	0.239	1.71E-07	9.83E-07	1.48E-05	1.57E-05
NH3	8.62E-03	90.4	59.9	8.21E-03	8.38E-03	9.00E-03	9.02E-03
Fe(CN)64-	4.53E-02	7.57E+03	5.01E+03	4.53E-02	4.53E-02	4.53E-02	4.53E-02

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-TY-103							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	1.70E+05 (kg)	155.0 (kgal)	---	---	---	---	---
Heat Load	0.252 (kW)	799 (BTU/hr)	---	0.202	0.218	0.246	0.260
Bulk Density*	1.33 (g/cc)	---	---	1.29	1.31	1.33	1.34
Water wt%†	56.1	---	---	55.2	55.2	57.0	59.9
TOC wt% C (wet)	0.215	---	---	0.192	0.205	0.227	0.238
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	7.58	1.31E+05	3.36E+04	6.74	7.16	7.60	7.97
Al3+	0.854	1.73E+04	4.71E+03	0.755	0.803	0.906	0.954
Fe3+ (total Fe)	7.55E-03	317	86.9	5.07E-03	5.46E-03	6.20E-03	6.69E-03
Cr3+	6.08E-02	2.62E+03	722	5.55E-02	6.25E-02	6.54E-02	6.97E-02
Bi3+	1.43E-03	225	60.9	1.26E-03	1.34E-03	1.52E-03	1.59E-03
La3+	6.90E-10	7.28E-05	1.97E-05	5.64E-10	6.27E-10	7.60E-10	8.22E-10
Hg2+	5.77E-06	1.34	0.222	7.52E-06	7.51E-06	8.29E-06	8.39E-06
Zr (as ZrO(OH)2)	3.31E-04	21.6	5.39	2.23E-04	2.32E-04	3.23E-04	3.40E-04
Pb2+	7.81E-04	122	32.2	6.05E-04	6.79E-04	8.42E-04	9.20E-04
Ni2+	4.32E-03	183	49.6	3.88E-03	4.07E-03	4.39E-03	4.19E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	1.75E-03	72.4	19.6	1.57E-03	1.55E-03	1.94E-03	2.13E-03
Ca2+	2.14E-02	586	175	2.07E-02	2.02E-02	2.20E-02	2.25E-02
K+	3.70E-02	1.09E+03	296	2.52E-02	2.39E-02	4.96E-02	4.37E-02
OH-	4.89	6.22E+04	1.68E+04	4.44	4.83	5.04	5.33
NO3-	2.81	1.42E+05	3.84E+04	2.51	2.62	3.10	3.17
NO2-	1.25	4.39E+04	1.18E+04	1.09	1.18	1.34	1.41
CO3 2-	0.240	1.11E+04	3.02E+03	0.198	0.214	0.286	0.252
PO4 3-	7.46E-02	5.39E+03	1.45E+03	2.94E-02	6.47E-02	7.76E-02	8.03E-02
SO4 2-	0.137	1.14E+04	3.04E+03	0.114	0.124	0.151	0.155
Si (as SiO3 2-)	4.30E-02	907	245	3.74E-02	4.01E-02	4.56E-02	4.82E-02
F-	7.02E-02	1.00E+03	272	5.50E-02	6.20E-02	7.71E-02	8.26E-02
Cl-	0.136	3.62E+03	985	0.108	0.117	0.146	0.146
C6H5O7 3-	1.08E-02	1.54E+03	417	9.98E-03	1.04E-02	1.12E-02	1.16E-02
EDTA4-	4.86E-04	101	27.4	3.40E-04	4.04E-04	5.08E-04	5.89E-04
HEDTA3-	2.28E-04	47.8	18.4	8.74E-05	2.05E-04	4.52E-04	5.73E-04
glycolate-	2.00E-02	1.12E+03	331	1.09E-02	1.61E-02	2.71E-02	3.33E-02
acetate-	1.56E-03	86.2	25.4	1.57E-03	1.75E-03	2.13E-03	2.31E-03
oxalate2-	9.09E-10	6.03E-07	1.63E-07	8.38E-06	8.70E-06	9.44E-06	9.78E-06
DBP	9.53E-03	1.56E+03	455	8.30E-03	8.16E-03	1.05E-02	1.11E-02
butanol	9.23E-03	590	159	8.59E-03	9.16E-03	1.08E-02	1.11E-02
NH3	6.56E-02	877	355	5.18E-02	5.99E-02	7.71E-02	8.56E-02
Fe(CN)6 4-	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-TY-103							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	9.34E+05 (kg)	(162 kgal)	----	----	—	—	—
Heat Load	0.705 (kW)	(2.41E+03 BTU/hr)	—	0.678	0.691	0.719	0.732
Bulk Density†	1.52 (g/cc)	—	—	1.23	1.28	1.69	1.54
Water wt%†	44.8	—	—	44.1	33.0	67.7	74.7
TOC wt% C (w	0.205	----	----	0.199	0.185	0.244	0.255
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	8.43	1.27E+05	1.19E+05	3.01	3.60	11.8	8.80
Al3+	0.285	5.04E+03	4.71E+03	0.252	0.268	0.302	0.318
Fe3+ (total Fe)	0.625	2.29E+04	2.14E+04	3.29E-02	0.578	0.631	0.637
Cr3+	2.34E-02	798	746	2.05E-02	2.21E-02	2.39E-02	2.43E-02
Bi3+	6.21E-02	8.52E+03	7.95E+03	5.85E-02	6.02E-02	6.39E-02	6.56E-02
La3+	2.31E-10	2.11E-05	1.97E-05	1.88E-10	2.09E-10	2.53E-10	2.75E-10
Hg2+	2.73E-06	0.359	0.335	2.44E-06	2.60E-06	2.76E-06	2.80E-06
Zr (as ZrO(OH)2	7.02E-03	420	392	4.76E-03	5.86E-03	8.17E-03	9.28E-03
Pb2+	2.54E-04	34.5	32.2	2.00E-04	2.26E-04	2.81E-04	3.07E-04
Ni2+	5.72E-02	2.20E+03	2.06E+03	5.67E-02	5.69E-02	5.74E-02	5.76E-02
Sr2+	0	0	0	0	0	0	0
Mn4+	5.83E-04	21.0	19.6	4.56E-04	5.18E-04	6.47E-04	7.09E-04
Ca2+	0.206	5.41E+03	5.05E+03	7.59E-02	7.85E-02	0.229	0.251
K+	1.62E-02	416	389	1.29E-02	1.38E-02	1.86E-02	1.89E-02
OH-	4.45	4.97E+04	4.64E+04	2.67	4.31	4.52	4.58
NO3-	6.08	2.48E+05	2.31E+05	0.959	1.37	9.67	6.13
NO2-	0.633	1.91E+04	1.78E+04	0.568	0.580	0.721	0.736
CO32-	0.310	1.22E+04	1.14E+04	0.142	0.170	0.337	0.355
PO43-	0.175	1.09E+04	1.02E+04	0.148	0.155	0.194	0.236
SO42-	8.24E-02	5.20E+03	4.85E+03	5.29E-02	6.10E-02	0.104	0.107
Si (as SiO32-)	4.83E-02	890	831	2.47E-02	2.47E-02	9.76E-02	0.145
F-	8.54E-02	1.07E+03	995	8.07E-02	8.26E-02	0.243	0.457
Cl-	6.70E-02	1.56E+03	1.46E+03	4.71E-02	5.26E-02	8.14E-02	0.140
C6H5O73-	3.60E-03	446	417	3.33E-03	3.46E-03	3.73E-03	3.86E-03
EDTA4-	1.55E-04	29.4	27.4	1.15E-04	1.35E-04	1.76E-04	1.96E-04
HEDTA3-	1.09E-04	19.7	18.4	2.91E-05	6.83E-05	1.51E-04	1.91E-04
glycolate-	7.20E-03	355	331	3.64E-03	5.38E-03	9.02E-03	1.08E-02
acetate-	6.46E-04	25.0	23.4	5.23E-04	5.83E-04	7.09E-04	7.69E-04
oxalate2-	3.03E-10	1.75E-05	1.63E-05	2.80E-10	2.91E-10	3.15E-10	3.26E-10
DBP	3.28E-03	453	423	2.84E-03	3.06E-03	3.51E-03	3.72E-03
butanol	3.28E-03	160	149	2.84E-03	3.06E-03	3.51E-03	3.72E-03
NH3	2.86E-02	319	298	2.30E-02	2.57E-02	3.14E-02	3.43E-02
Fe(CN)64-	3.02E-02	5.37E+03	5.01E+03	3.02E-02	3.02E-02	3.02E-02	3.02E-02

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).
†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-TY-103							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wt	6.60E+05 (kg)	(108 kgal)	---	---	---	---	---
Heat Load	0.475 (kW)	(1.62E+03 BTU/hr)	---	0.459	0.466	0.485	0.557
Bulk Density	1.62 (g/cc)	---	---	1.19	1.28	1.27	1.64
Void Fraction	0.662	---	---	0.648	0.458	0.947	0.973
Water wt%	40.2	---	---	39.3	24.5	73.1	85.2
TOC wt% C (wet)	0.001	---	---	0.199	0.173	0.232	0.275
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	1.50E-06	9.44E-04	0.626	2.34E-07	3.85E-07	2.63E-06	3.01E-06
C-14	2.52E-07	1.56E-04	0.103	7.78E-09	9.02E-08	4.10E-07	4.31E-07
Ni-59	4.38E-07	2.70E-04	0.179	3.00E-07	3.50E-07	4.80E-07	4.88E-07
Ni-63	3.99E-05	2.46E-02	16.3	3.54E-05	3.50E-05	4.29E-05	4.44E-05
Co-60	6.09E-09	2.35E-06	[illegible]	2.08E-08	2.57E-08	9.88E-08	1.02E-07
Se-79	5.34E-08	3.30E-05	2.18E-02	1.60E-08	2.07E-08	8.65E-08	9.10E-08
Sr-90	9.40E-02	58.2	3.85E+04	9.20E-02	9.23E-02	9.74E-02	9.77E-02
Y-90	9.49E-02	58.5	3.88E+04	9.20E-02	9.21E-02	9.74E-02	9.78E-02
Zr-93	2.58E-07	1.56E-04	0.106	7.39E-08	9.64E-08	4.11E-07	4.32E-07
Nb-93m	2.15E-07	1.32E-04	8.72E-02	6.51E-08	8.07E-08	3.48E-07	3.64E-07
Tc-99	1.76E-06	1.08E-03	0.719	5.41E-07	6.69E-07	2.85E-06	2.99E-06
Ru-106	2.72E-14	1.68E-11	1.11E-08	1.95E-15	1.25E-14	4.21E-14	4.42E-14
Cd-113m	6.54E-07	4.03E-04	0.269	1.09E-07	2.49E-07	1.30E-06	1.37E-06
Sb-125	5.82E-08	3.59E-05	2.38E-02	2.11E-08	2.50E-08	9.35E-08	9.60E-08
Sn-126	8.05E-08	4.95E-05	3.29E-02	2.88E-08	3.07E-08	1.30E-07	1.37E-07
I-129	3.32E-09	2.05E-06	1.36E-03	1.02E-09	1.26E-09	5.37E-09	5.65E-09
Cs-134	1.20E-08	7.37E-06	4.89E-03	1.15E-08	1.17E-08	1.22E-08	1.22E-08
Cs-137	0.111	68.2	4.52E+04	0.107	0.108	0.113	0.114
Ba-137m	0.105	64.5	4.27E+04	0.102	0.102	0.107	0.108
Sm-151	1.95E-04	0.122	81.1	6.07E-05	7.52E-05	3.22E-04	3.38E-04
Eu-152	4.76E-07	2.93E-04	0.194	4.70E-07	4.71E-07	4.80E-07	4.81E-07
Eu-154	1.12E-06	6.90E-04	0.457	3.96E-07	4.72E-07	1.77E-06	1.85E-06
Eu-155	3.30E-05	2.12E-02	13.4	3.29E-05	3.30E-05	3.36E-05	3.37E-05
Ra-226	1.35E-11	8.32E-09	5.51E-06	2.59E-12	4.45E-12	2.86E-11	4.51E-10
Ra-228	1.75E-15	1.08E-12	7.14E-10	1.73E-15	1.73E-15	1.78E-15	1.77E-15
Ac-227	6.93E-11	4.26E-08	2.83E-05	1.73E-11	3.28E-11	1.15E-10	2.06E-09
Pa-231	1.53E-10	9.54E-08	6.19E-05	3.94E-11	3.15E-11	2.52E-10	2.65E-10
Th-229	3.39E-12	3.60E-10	1.38E-07	3.28E-12	3.28E-12	3.42E-12	3.48E-12
Th-232	7.13E-17	4.40E-14	2.92E-11	2.13E-17	2.66E-17	1.16E-16	1.22E-16
U-232	4.49E-10	2.77E-07	1.84E-04	4.03E-10	4.96E-10	4.52E-10	4.55E-10
U-233	3.08E-11	1.27E-08	8.41E-06	2.02E-11	2.04E-11	2.07E-11	2.09E-11
U-234	1.87E-05	1.15E-05	7.62	1.64E-05	1.55E-05	1.55E-05	1.59E-05
U-235	8.23E-07	5.09E-04	0.337	8.12E-07	8.19E-07	8.21E-07	8.27E-07
U-236	1.93E-07	1.06E-04	7.92E-02	1.98E-07	1.90E-07	1.95E-07	1.94E-07
U-238	1.90E-05	1.17E-05	7.78	1.57E-05	1.58E-05	1.91E-05	1.93E-05
Np-237	1.09E-08	6.72E-06	4.45E-03	3.27E-09	4.17E-09	1.76E-08	1.85E-08
Pu-238	5.29E-07	3.36E-04	0.218	2.68E-08	3.03E-07	7.54E-07	9.71E-07
Pu-239	6.59E-05	4.07E-02	26.9	1.11E-05	3.79E-05	9.39E-05	1.22E-04
Pu-240	6.42E-06	3.96E-03	2.62	1.09E-06	3.66E-06	9.15E-06	1.22E-05
Pu-241	2.31E-05	1.43E-05	9.46	3.76E-06	1.33E-05	3.30E-05	4.25E-05
Pu-242	1.30E-10	6.22E-08	5.33E-05	1.72E-11	6.03E-11	1.21E-10	1.94E-10
Am-241	5.40E-07	3.33E-04	0.221	2.03E-07	2.35E-07	2.45E-07	2.55E-07
Am-243	3.92E-12	2.35E-09	1.56E-06	1.96E-12	1.71E-12	5.92E-12	6.21E-12
Cm-242	5.81E-09	5.43E-06	2.66E-03	5.72E-09	5.72E-09	5.89E-09	5.90E-09
Cm-243	1.53E-10	1.11E-07	7.22E-05	1.79E-10	1.79E-10	1.55E-10	1.52E-10
Cm-244	9.39E-11	5.79E-08	3.79E-05	3.39E-11	4.07E-11	1.40E-10	1.47E-10
Totals	**M**	**ppm**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	1.09E-03 (g/L)	---	0.445	1.83E-04	6.36E-04	1.55E-03	2.20E-03
U	0.230	1.55E+04	2.32E+04	0.255	0.257	0.240	0.242

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-TY-103							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	2.71E+05 (kg)	(54.0 kgal)	----	—	----	—	----
Heat Load	0.232 (kW)	(793 BTU/hr)	—	0.205	0.218	0.246	0.260
Bulk Density*	1.33 (g/cc)	—	—	1.29	1.31	1.33	1.34
Water wt%†	56.1	----	----	54.5	55.2	57.9	59.9
TOC wt% C (w	0.215	—	—	0.192	0.203	0.227	0.238
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	1.17E-04	8.81E-02	23.9	6.87E-05	6.87E-05	1.24E-04	1.32E-04
C-14	1.67E-05	1.26E-02	3.40	6.57E-06	6.57E-06	1.72E-05	1.78E-05
Ni-59	1.28E-06	9.66E-04	0.262	8.08E-07	8.08E-07	1.31E-06	1.33E-06
Ni-63	1.26E-04	9.47E-02	25.7	7.87E-05	7.87E-05	1.28E-04	1.30E-04
Co-60	1.81E-05	1.36E-02	3.70	6.55E-06	6.55E-06	1.89E-05	1.96E-05
Se-79	1.67E-06	1.26E-03	0.342	1.03E-06	1.03E-06	1.90E-06	2.13E-06
Sr-90	5.29E-02	39.9	1.08E+04	4.90E-02	5.04E-02	5.58E-02	5.62E-02
Y-90	5.29E-02	39.9	1.08E+04	3.07E-02	3.07E-02	5.45E-02	5.61E-02
Zr-93	8.22E-06	6.19E-03	1.68	5.00E-06	5.00E-06	9.38E-06	1.05E-05
Nb-93m	5.95E-06	4.49E-03	1.22	3.70E-06	3.70E-06	6.77E-06	7.55E-06
Tc-99	1.19E-04	8.97E-02	24.3	8.14E-05	9.97E-05	1.38E-04	1.57E-04
Ru-106	3.07E-09	2.32E-06	6.29E-04	1.58E-09	1.58E-09	3.41E-09	3.71E-09
Cd-113m	4.26E-05	3.21E-02	8.72	2.33E-05	2.33E-05	4.96E-05	5.63E-05
Sb-125	7.63E-05	5.75E-02	15.6	2.63E-05	2.63E-05	7.97E-05	8.31E-05
Sn-126	2.52E-06	1.90E-03	0.515	1.55E-06	1.55E-06	2.87E-06	3.20E-06
I-129	2.29E-07	1.73E-04	4.69E-02	1.57E-07	1.92E-07	2.67E-07	3.03E-07
Cs-134	1.23E-06	9.29E-04	0.252	8.75E-07	1.05E-06	1.42E-06	1.59E-06
Cs-137	0.166	125	3.40E+04	0.138	0.152	0.181	0.195
Ba-137m	0.157	119	3.22E+04	0.130	0.138	0.171	0.185
Sm-151	5.88E-03	4.43	1.20E+03	3.62E-03	3.62E-03	6.69E-03	7.47E-03
Eu-152	1.75E-06	1.32E-03	0.358	9.53E-07	9.53E-07	1.84E-06	1.93E-06
Eu-154	2.87E-04	0.216	58.7	1.26E-04	1.26E-04	3.45E-04	3.68E-04
Eu-155	1.04E-04	7.82E-02	21.2	5.62E-05	5.62E-05	1.11E-04	1.17E-04
Ra-226	7.98E-11	6.02E-08	1.63E-05	5.98E-11	5.98E-11	8.70E-11	9.40E-11
Ra-228	1.49E-07	1.12E-04	3.05E-02	5.63E-08	1.02E-07	2.04E-07	2.63E-07
Ac-227	5.26E-10	3.97E-07	1.08E-04	4.10E-10	4.10E-10	5.68E-10	6.09E-10
Pa-231	2.34E-09	1.77E-06	4.79E-04	1.70E-09	1.70E-09	2.58E-09	2.80E-09
Th-229	3.44E-09	2.60E-06	7.04E-04	1.41E-09	2.40E-09	4.65E-09	5.94E-09
Th-232	9.05E-09	6.82E-06	1.85E-03	3.91E-09	6.43E-09	1.17E-08	1.42E-08
U-232	7.43E-07	5.60E-04	0.152	3.70E-07	5.52E-07	9.63E-07	1.20E-06
U-233	2.85E-06	2.15E-03	0.582	1.42E-06	2.12E-06	3.69E-06	4.59E-06
U-234	5.72E-07	4.31E-04	0.117	5.45E-07	5.63E-07	5.79E-07	5.84E-07
U-235	2.29E-08	1.73E-05	4.68E-03	2.18E-08	2.25E-08	2.32E-08	2.34E-08
U-236	1.87E-08	1.41E-05	3.83E-03	1.79E-08	1.86E-08	1.89E-08	1.90E-08
U-238	6.81E-07	5.14E-04	0.139	6.56E-07	6.72E-07	6.88E-07	6.92E-07
Np-237	4.30E-07	3.24E-04	8.78E-02	3.07E-07	3.67E-07	4.93E-07	5.54E-07
Pu-238	6.64E-07	5.01E-04	0.136	5.20E-07	5.90E-07	7.38E-07	8.09E-07
Pu-239	2.38E-05	1.80E-02	4.87	2.01E-05	2.20E-05	2.57E-05	2.75E-05
Pu-240	3.88E-06	2.92E-03	0.792	3.19E-06	3.53E-06	4.23E-06	4.56E-06
Pu-241	4.35E-05	3.28E-02	8.89	3.36E-05	3.85E-05	4.85E-05	5.33E-05
Pu-242	2.35E-10	1.77E-07	4.80E-05	1.76E-10	2.05E-10	2.65E-10	2.94E-10
Am-241	2.82E-05	2.13E-02	5.77	2.14E-05	2.47E-05	3.17E-05	3.51E-05
Am-243	9.75E-10	7.35E-07	1.99E-04	7.60E-10	8.63E-10	1.09E-09	1.20E-09
Cm-242	6.71E-08	5.06E-05	1.37E-02	3.44E-08	3.44E-08	6.96E-08	7.21E-08
Cm-243	6.22E-09	4.69E-06	1.27E-03	3.10E-09	3.10E-09	6.52E-09	6.81E-09
Cm-244	6.55E-08	4.94E-05	1.34E-02	3.33E-08	3.33E-08	7.64E-08	8.34E-08
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	3.26E-04 (g/L)	----	6.67E-02	2.56E-04	2.91E-04	3.62E-04	3.96E-04
U	6.38E-03	1.15E+03	311	6.06E-03	6.27E-03	6.47E-03	6.51E-03

*Density is calculated based on Na, OH-, and AlO2-.

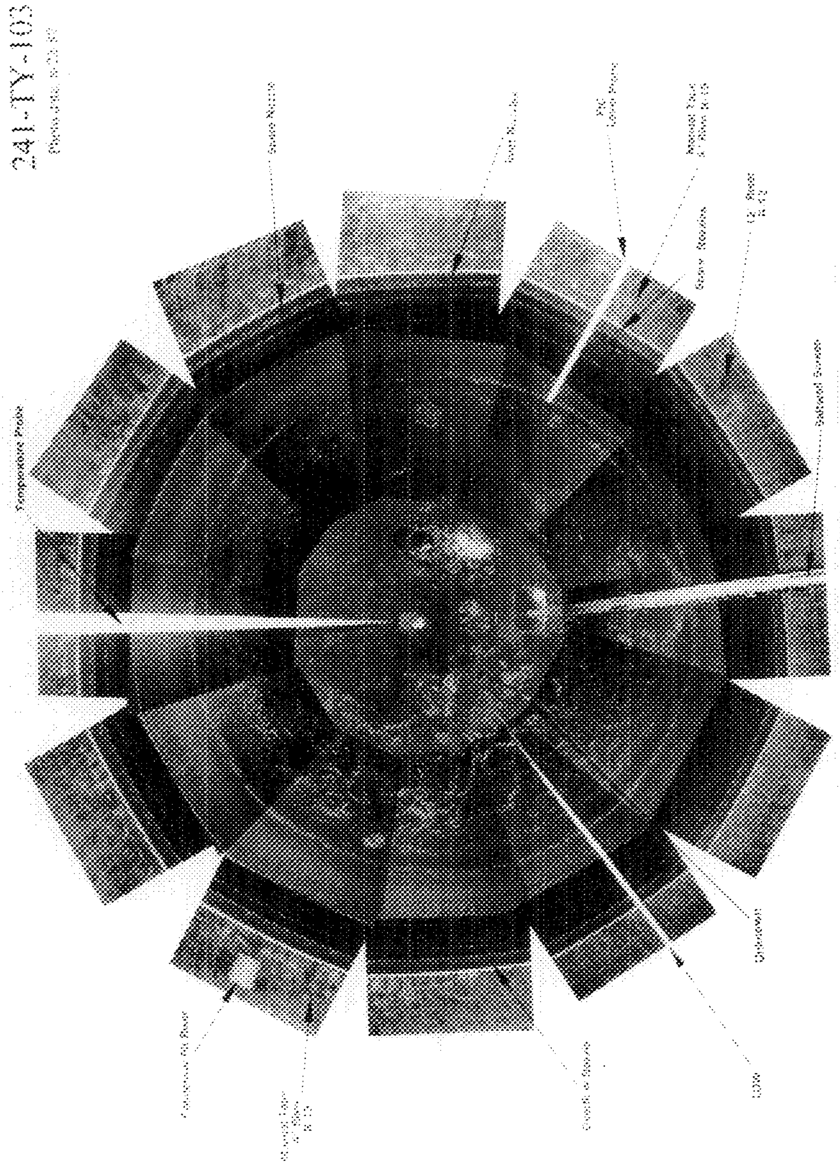
†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-TY-103							
Total Inventory Estimate*							
Physical Properties				-95 CI	-67 CI	+67 CI	+95 CI
Total Waste	9.54E+05 (kg)	(152 kgal)	---	---	---	---	---
Heat Load	0.705 (kW)	(2.41E+03 BTU/hr)	---	0.678	0.691	0.719	0.732
Bulk Density†	1.32 (g/cc)	---	---	1.23	1.28	1.40	1.34
Water wt%†	44.9	---	---	44.1	30.0	67.7	54.7
TOC wt% C (wet)	0.0??	---	---	0.1??	0.1??	0.244	0.2??
Radiological Constituents	Ci/L	µCi/g	Ci	-95 CI (Ci/L)	-67 CI (Ci/L)	+67 CI (Ci/L)	+95 CI (Ci/L)
H-3	4.00E-05	3.03E-02	34.5	2.29E-05	2.29E-05	4.21E-05	4.51E-05
C-14	5.72E-06	4.36E-03	3.52	2.30E-06	2.30E-06	5.91E-06	6.09E-06
Ni-59	7.15E-07	4.72E-04	0.440	5.61E-07	5.61E-07	7.49E-07	7.53E-07
Ni-63	6.82E-05	4.50E-02	42.6	5.28E-05	5.28E-05	7.11E-05	7.13E-05
Co-60	8.67E-06	3.99E-03	5.72	2.32E-06	2.32E-06	6.35E-06	6.55E-06
Se-79	5.92E-07	3.89E-04	0.364	3.79E-07	3.79E-07	6.71E-07	7.35E-07
Sr-90	0.0???	55.1	4.93E+04	7.85E-02	7.85E-02	8.35E-02	8.38E-02
Y-90	8.00E-02	55.1	4.93E+04	7.35E-02	7.35E-02	8.26E-02	8.25E-02
Zr-93	2.91E-06	1.91E-03	1.78	1.84E-06	1.84E-06	3.30E-06	3.67E-06
Nb-93m	2.15E-06	1.40E-03	1.30	1.39E-06	1.39E-06	2.40E-06	2.66E-06
Tc-99	4.59E-05	3.00E-02	35.9	2.03E-05	3.0?E-05	4.73E-05	5.23E-05
Ru-106	1.03E-08	6.70E-07	8.29E-06	5.27E-09	5.27E-09	1.14E-08	1.24E-08
Cd-113m	1.46E-05	9.61E-03	8.98	8.30E-06	8.30E-06	1.30E-05	1.52E-05
Sb-125	2.??E-05	1.87E-02	13.6	8.80E-06	8.80E-06	2.66E-05	3.77E-05
Sn-126	8.94E-07	5.87E-04	0.549	5.70E-07	5.70E-07	1.01E-06	1.12E-06
I-129	7.??E-08	5.16E-05	4.82E-02	5.44E-08	6.02E-08	8.11E-08	1.00E-07
Cs-134	4.3?E-07	2.??E-04	0.257	3.39E-07	3.30E-07	4.?0E-07	5.39E-07
Cs-137	0.129	84.5	7.93E+04	0.126	0.126	0.133	0.159
Ba-137m	0.122	80.2	7.49E+04	0.119	0.119	0.122	0.123
Sm-151	2.09E-03	1.37	1.28E+03	1.39E-03	1.39E-03	2.36E-03	2.62E-03
Eu-152	8.01E-07	5.92E-04	0.552	6.75E-07	6.75E-07	8.22E-07	8.01E-07
Eu-154	9.64E-05	6.33E-02	59.1	4.20E-05	4.20E-05	1.16E-04	1.34E-04
Eu-155	5.81E-05	3.81E-02	35.6	4.23E-05	4.23E-05	6.6?E-05	6.25E-05
Ra-226	3.36E-11	2.34E-08	2.18E-05	2.72E-11	2.90E-11	4.36E-11	5.26E-11
Ra-228	4.97E-08	3.26E-05	3.05E-02	1.55E-08	3.35E-08	6.51E-08	2.76E-08
Ac-227	3.22E-10	1.93E-07	1.80E-04	1.72E-10	1.92E-10	3.52E-10	1.59E-09
Pa-231	8.55E-10	5.9?E-07	5.01E-04	6.69E-10	6.69E-10	9.99E-10	1.04E-09
Th-229	1.15E-09	7.55E-07	7.06E-04	4.60E-10	8.02E-10	1.55E-09	1.98E-09
Th-232	3.03E-09	1.98E-06	1.85E-03	1.20E-09	2.14E-09	3.89E-09	4.72E-09
U-232	2.48E-07	1.63E-04	0.152	1.54E-07	1.54E-07	3.31E-07	4.00E-07
U-233	9.49E-07	6.23E-04	0.582	4.74E-07	7.06E-07	1.22E-06	1.33E-06
U-234	1.26E-05	8.29E-03	7.73	1.55E-05	1.55E-05	1.37E-05	1.35E-05
U-235	5.57E-07	3.66E-04	0.342	5.48E-07	5.38E-07	5.81E-07	5.55E-07
U-236	1.34E-07	8.78E-05	8.20E-02	1.33E-07	1.33E-07	1.34E-07	1.36E-07
U-238	1.29E-05	8.48E-03	7.90	1.27E-05	1.28E-05	1.30E-05	1.31E-05
Np-237	1.51E-07	9.92E-05	9.25E-02	1.10E-07	1.20E-07	1.72E-07	1.92E-07
Pu-238	3.74E-07	2.77E-04	0.252	2.79E-07	3.23E-07	7.24E-07	8.06E-07
Pu-239	5.19E-05	3.41E-02	31.8	1.50E-05	3.32E-05	7.05E-05	9.88E-05
Pu-240	5.57E-06	3.66E-03	3.42	2.00E-06	3.73E-06	7.39E-06	9.41E-06
Pu-241	2.99E-05	1.97E-02	18.4	1.70E-05	2.33E-05	3.55E-05	4.28E-05
Pu-242	3.49E-10	5.77E-08	2.53E-05	5.98E-11	3.24E-10	5.70E-10	2.88E-09
Am-241	4.77E-06	3.62E-03	2.99	2.49E-06	3.61E-06	1.09E-05	1.21E-05
Am-243	3.09E-10	2.15E-07	2.01E-04	2.55E-10	2.90E-10	3.86E-10	4.80E-10
Cm-242	2.83E-08	1.85E-05	1.73E-02	1.73E-08	1.73E-08	2.41E-08	2.99E-08
Cm-243	2.20E-09	1.44E-06	1.35E-03	1.15E-09	1.15E-09	2.30E-09	3.29E-09
Cm-244	2.19E-08	1.44E-05	1.34E-02	1.12E-08	1.12E-08	2.30E-08	2.70E-08
Totals	M	µg/g	kg	-95 CI (M or g/L)	-67 CI (M or g/L)	+67 CI (M or g/L)	+95 CI (M or g/L)
Pu	4.55E-04 (g/L)	---	0.512	2.21E-04	3.26E-04	1.14E-03	1.57E-03
U	0.161	2.2?E+05	2.2?E+04	0.159	0.160	0.162	0.164

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Volume average for density, mass average Water wt% and TOC wt% C.


241-TY-103
Temperature Probe

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TANK 241-TY-104 SUMMARY

TANK HISTORY	
Entered Service	3rd qtr 1953
Removed from Service	1974
Inactive	1976
Watch Lists	Organics
Integrity	Assumed leaker
Assumed Leaker	1981
Interim Stabilization (IS)	Nov 1983
Partial Interim Isolation (PI)	-
Intrusion Prevention (IP)	Dec 1982

TENTATIVELY AVAILABLE RISERS	
Riser Number(s)	Size
3, 15, 18	4 in
5, 7, 8	12 in

TANK TEMPERATURE	
Average Tank Temperature	64°F
Maximum Temperature	87°F
Date	Dec 3, 1976
Elevation from tank bottom	16.60 ft
Riser Number	4
Minimum Temperature	54°F
Date	April 6, 1991
Elevation from tank bottom	0.60 ft, 2.60 ft, 4.60 ft
Riser Number	4

TANK DESCRIPTION	
Diameter	75 ft
Bottom Shape	Dish
Nominal Capacity	758,000 gal
Cascade Tank	none
Total Risers	12

WASTE VOLUME (HANLON 1996l)	
Total Waste Volume	46,000 gal
Waste Type	NCPLX
Drainable Interstitial Liquids	15,000 gal
Pumpable Liquids	0 gal
Saltcake	0 gal
Sludge	43,000 gal
Supernatant	3,000 gal

INTERIOR PHOTOGRAPHS	
Date	Nov 3, 1987
Montage Number	94080233-51CN
Photo Set Number	87-05326

WASTE SURFACE LEVEL	
Devices	Auto/Manual ENRAF
Max Level	23.8 in
Date	Jan 1, 1991 - March 24, 1994*
Min Level	23 in
Date	Oct 25, 1993 - May 17, 1994*

*Numerous dates in this time span

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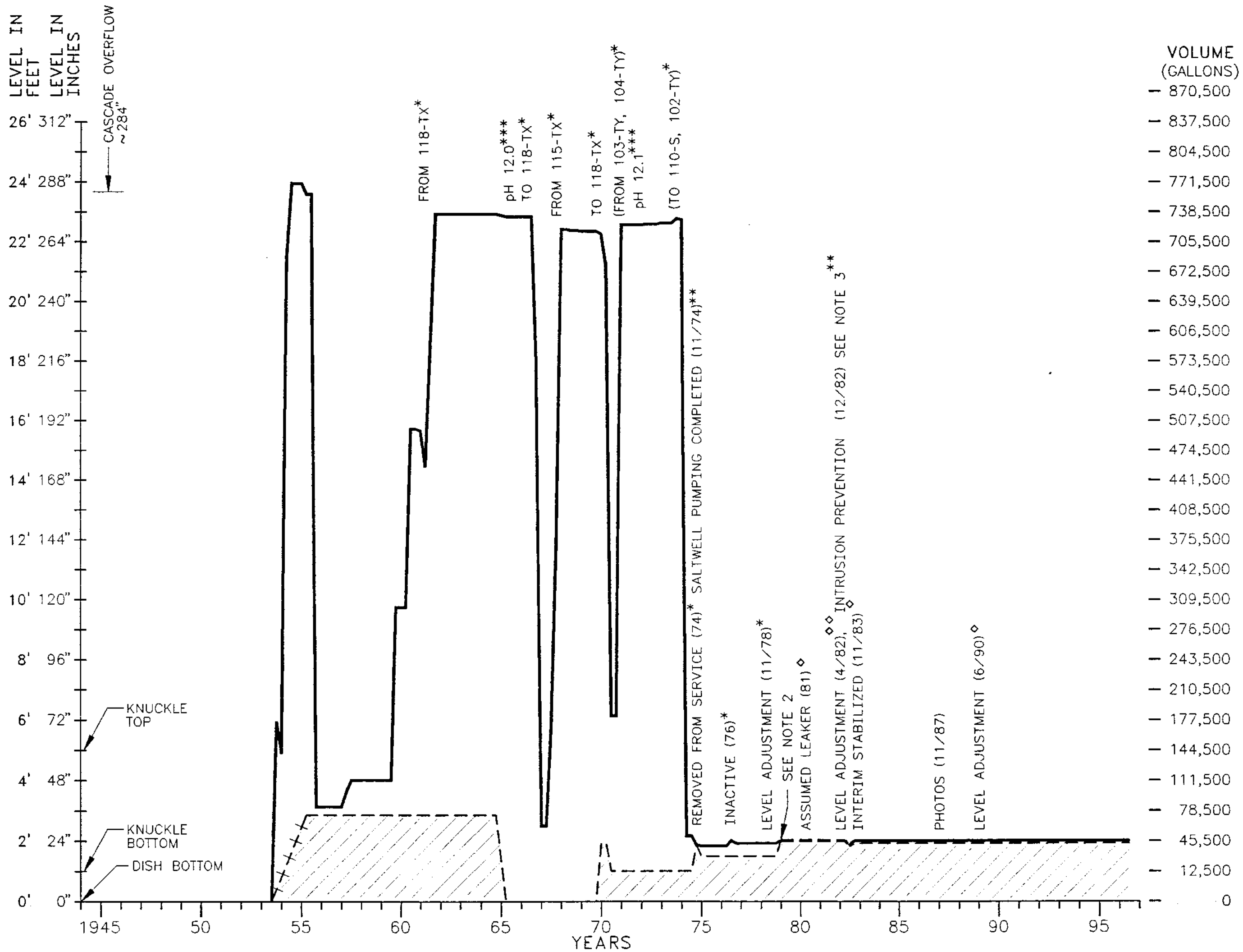
WASTE TYPES TIME LINE (ANDERSON 1990)	1C TBP	1C DW TBP	BL DW OWW R RIX	EVAP NCPLX

PRIMARY ADDITIONS TIME LINE (AGNEW 1995)	WTR



TANK INFO:

CONSTRUCTED 1951-1952
NOMINAL CAPACITY: 758,000 GAL
DISH BOTTOM, 4 FOOT RADIUS KNUCKLE
75 FOOT DIAMETER TANK

REFERENCES

- * ANDERSON 1990
- ** WELTY 1988
- *** BORSHEIM AND KIRCH 1991
- ◇ HANLON 1996l
- ◇◇ McCANN 1982b

NOTES:

1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN.
3) IN JUNE 1993, INTERIM ISOLATION WAS REPLACED BY INTRUSION PREVENTION.

GLOSSARY OF WASTE TERMS:

FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A.

1C:	FIRST CYCLE DECONTAMINATION WASTE
DW:	DECONTAMINATION WASTE
EVAP:	EVAPORATOR FEED
NCPLX:	NON-COMPLEXED WASTE
OWW:	PUREX ORGANIC WASH WASTE
R:	REDOX HIGH-LEVEL WASTE
RIX:	REDOX ION EXCHANGE WASTE
TBP:	TRIBUTYL PHOSPHATE
WTR:	WATER

LEGEND

- TOTAL WASTE LEVEL (SUPERNATE)
- TOTAL WASTE LEVEL (SOLIDS)
- SOLIDS LEVEL
- ASSUMED SOLIDS LEVEL
- SOLIDS

TY TANK FARM CASCADE

102 ← 101
104 ← 103
106 ← 105

U.S. DEPARTMENT OF ENERGY
Richland Operations Office
FLUOR DANIEL NORTHWEST, INC.

241-TY-104 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1953-1996
ASSUMED LEAKER/STABILIZED TANK
WATCH LIST: ORGANIC

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E131	1/97
SCALE NONE		JOB NO.	SHEET 1 OF 1

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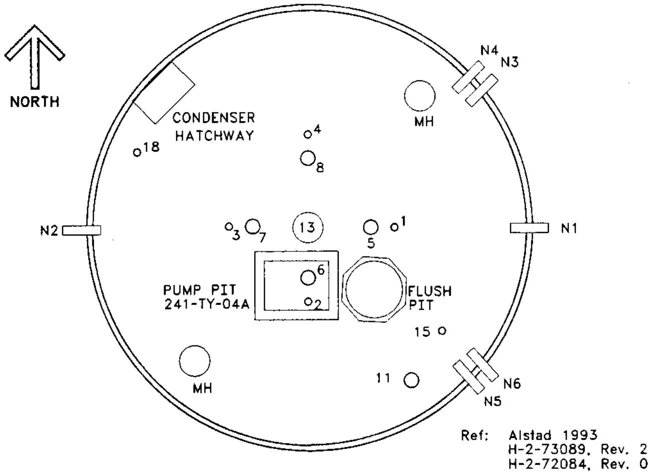
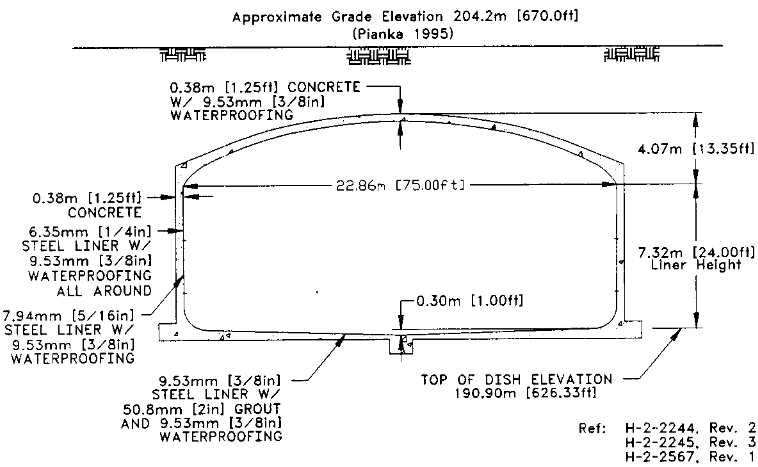
241-TY-104



TANK RISER LOCATION



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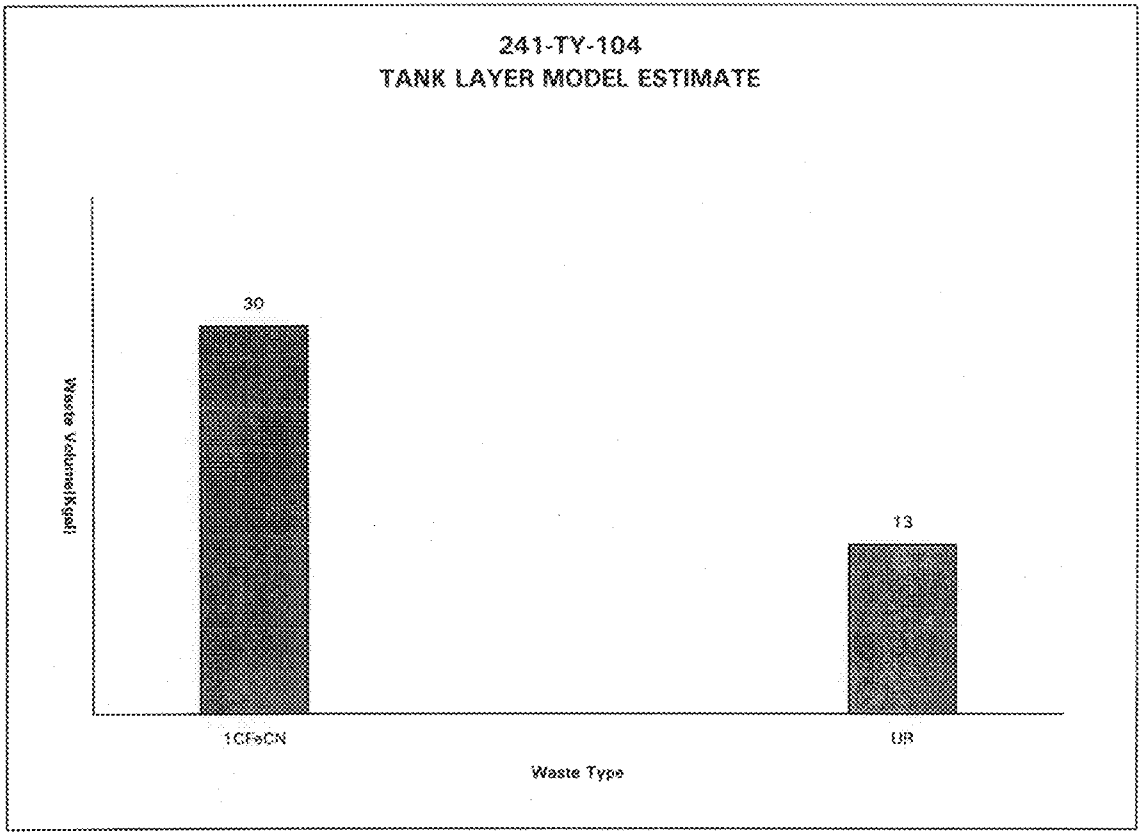


Tank Layer Model(TLM) Estimate from *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 4* (Agnew et al., 1997).

HDW Model Rev. 4

Single-Shell Tank 241-TY-104

TLM Solids Composite Inventory Estimate*

Physical Properties				-95 CI	-67 CI	+67 CI	+95 CI
Total TLM Wa	2.49E+05 (kg)	(43.0 kgal)	---	---	---	---	---
Heat Load	0.294 (kW)	(1.00E+03 BTU/hr)	---	0.291	0.291	0.296	0.297
Bulk Density	1.53 (g/cc)	---	---	1.30	1.34	1.66	1.55
Void Fraction	0.789	---	---	0.772	0.669	0.941	0.954
Water wt%	52.9	---	---	51.2	42.6	71.3	76.6
TOC wt% C (w	0.342	---	---	0.337	0.315	0.391	0.404
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	5.72	8.60E+04	2.14E+04	1.49	1.92	8.44	6.61
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	0.550	2.01E+04	5.00E+03	7.42E-02	0.511	0.554	0.559
Cr3+	1.75E-03	59.6	14.8	1.32E-03	1.36E-03	2.14E-03	2.19E-03
Bi3+	0.148	2.02E+04	5.04E+03	0.140	0.144	0.153	0.157
La3+	0	0	0	0	0	0	0
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	1.66E-02	992	247	1.12E-02	1.39E-02	1.94E-02	2.21E-02
Pb2+	0	0	0	0	0	0	0
Ni2+	0.134	5.13E+03	1.28E+03	0.133	0.133	0.134	0.135
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	0.270	7.08E+03	1.76E+03	0.166	0.168	0.295	0.319
K+	4.94E-03	126	31.4	2.79E-03	3.02E-03	6.85E-03	7.11E-03
OH-	3.97	4.42E+04	1.10E+04	2.55	3.86	3.99	4.01
NO3-	4.13	1.67E+05	4.17E+04	9.53E-02	0.389	7.02	4.13
NO2-	0.427	1.28E+04	3.20E+03	0.381	0.385	0.497	0.509
CO32-	0.290	1.14E+04	2.83E+03	0.161	0.182	0.314	0.336
PO43-	0.324	2.01E+04	5.01E+03	0.307	0.308	0.340	0.374
SO42-	3.28E-02	2.06E+03	512	1.35E-02	1.55E-02	5.00E-02	5.23E-02
Si (as SiO32-)	8.18E-02	1.50E+03	374	2.50E-02	2.50E-02	0.200	0.314
F-	0.149	1.85E+03	461	0.146	0.148	0.527	1.04
Cl-	2.59E-02	600	149	1.29E-02	1.43E-02	3.75E-02	8.48E-02
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	4.22E-06	0.580	0.144	9.18E-08	5.26E-07	7.91E-06	8.41E-06
butanol	4.22E-06	0.204	5.09E-02	9.18E-08	5.26E-07	7.91E-06	8.41E-06
NH3	1.36E-02	151	37.5	1.29E-02	1.33E-02	1.38E-02	1.38E-02
Fe(CN)64-	7.27E-02	1.29E+04	3.20E+03	7.27E-02	7.27E-02	7.27E-02	7.27E-02

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-TY-104							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	1.40E+04 (kg)	[illegible] (kgal)	---	---	---	---	---
Heat Load	0 (kW)	0 (BTU/hr)	---	0	0	0	0
Bulk Density*	1.00 (g/cc)	---	---	1.00	1.00	1.00	1.00
Water wt%	100	---	---	100	100	100	100
TOC wt% C (wet)	0	---	---	0	0	0	0
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	0	0	0	0	0	0	0
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	0	0	0	0	0	0	0
Cr3+	0	0	0	0	0	0	0
Bi3+	0	0	0	0	0	0	0
La3+	0	0	0	0	0	0	0
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2)	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	0	0	0	0	0	0	0
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	0	0	0	0	0	0	0
K+	0	0	0	0	0	0	0
OH-	0	0	0	0	0	0	0
NO3-	0	0	0	0	0	0	0
NO2-	0	0	0	0	0	0	0
CO3 2-	0	0	0	0	0	0	0
PO4 3-	0	0	0	0	0	0	0
SO4 2-	0	0	0	0	0	0	0
Si (as SiO3 2-)	0	0	0	0	0	0	0
F-	0	0	0	0	0	0	0
Cl-	0	0	0	0	0	0	0
C6H5O7 3-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH3	0	0	0	0	0	0	0
Fe(CN)6 4-	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-TY-104							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	2.60E+05 (kg)	(46.0 kgal)	----	---	----	----	----
Heat Load	0.294 (kW)	(1.00E+03 BTU/hr)	----	0.291	0.291	0.296	0.297
Bulk Density†	1.49 (g/cc)	---	----	1.28	1.32	1.62	1.52
Water wt%†	55.0	----	---	53.3	44.9	72.8	77.8
TOC wt% C (w	0.327	---	----	0.323	0.302	0.372	0.383
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	5.35	8.23E+04	2.14E+04	1.40	1.79	7.89	6.18
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	0.514	1.92E+04	5.00E+03	6.94E-02	0.478	0.518	0.523
Cr3+	1.64E-03	57.0	14.8	1.23E-03	1.27E-03	2.00E-03	2.05E-03
Bi3+	0.138	1.94E+04	5.04E+03	0.130	0.134	0.143	0.147
La3+	0	0	0	0	0	0	0
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	1.55E-02	948	247	1.05E-02	1.30E-02	1.81E-02	2.06E-02
Pb2+	0	0	0	0	0	0	0
Ni2+	0.125	4.91E+03	1.28E+03	0.124	0.124	0.126	0.126
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	0.252	6.77E+03	1.76E+03	0.155	0.157	0.276	0.298
K+	4.61E-03	121	31.4	2.61E-03	2.82E-03	6.41E-03	6.65E-03
OH-	3.72	4.22E+04	1.10E+04	2.38	3.61	3.73	3.75
NO3-	3.86	1.60E+05	4.17E+04	8.91E-02	0.363	6.56	3.86
NO2-	0.399	1.23E+04	3.20E+03	0.356	0.360	0.465	0.476
CO32-	0.271	1.09E+04	2.83E+03	0.151	0.170	0.293	0.314
PO43-	0.303	1.93E+04	5.01E+03	0.287	0.288	0.318	0.349
SO42-	3.06E-02	1.97E+03	512	1.26E-02	1.45E-02	4.67E-02	4.89E-02
Si (as SiO32-)	7.64E-02	1.44E+03	374	2.33E-02	2.33E-02	0.187	0.294
F-	0.139	1.77E+03	461	0.137	0.138	0.493	0.975
Cl-	2.42E-02	574	149	1.21E-02	1.34E-02	3.51E-02	7.92E-02
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	3.94E-06	0.554	0.144	8.58E-08	4.92E-07	7.39E-06	7.86E-06
butanol	3.94E-06	0.196	5.09E-02	8.58E-08	4.92E-07	7.39E-06	7.86E-06
NH3	1.27E-02	144	37.5	1.21E-02	1.24E-02	1.29E-02	1.29E-02
Fe(CN)64-	6.79E-02	1.23E+04	3.20E+03	6.79E-02	6.79E-02	6.79E-02	6.79E-02

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-TY-104							
TLM Solids Composite Inventory Estimate*							
Physical Properties				-95 CI	-67 CI	+67 CI	+95 CI
Total TLM Wa	2.49E+05 (kg)	(43.6 kgal)	---	---	---	---	---
Heat Load	0.293 (kW)	(1.00E+03 BTU/hr)	---	0.291	0.291	0.296	0.297
Bulk Density	1.53 (g/cc)	---	---	1.50	1.54	1.66	1.33
Void Fraction	0.789	---	---	0.770	0.668	0.941	0.856
Water wt%	50.9	---	---	50.2	42.6	70.2	76.0
TOC wt% C (w	0.542	---	---	0.537	0.535	0.591	0.404
Radiological Constituents	Ci	µCi/g	Q	-95 CI (Ci/L)	-67 CI (Ci/L)	+67 CI (Ci/L)	+95 CI (Ci/L)
H-3	1.37E-06	6.89E-04	0.554	5.72E-07	6.56E-07	1.76E-06	1.86E-06
C-14	2.16E-07	1.40E-04	5.49E-02	1.51E-07	1.50E-07	2.98E-07	3.19E-07
Ni-59	6.47E-07	4.22E-04	0.105	6.21E-07	6.23E-07	6.71E-07	6.74E-07
Ni-63	5.20E-05	3.40E-02	8.50	5.66E-05	5.69E-05	8.12E-05	8.15E-05
Co-60	3.39E-08	3.52E-05	5.77E-03	3.24E-08	3.40E-08	7.21E-08	7.57E-08
Se-79	4.32E-08	2.96E-05	7.36E-03	2.34E-08	2.75E-08	6.30E-08	6.54E-08
Sr-90	0.149	99.4	2.43E+04	0.147	0.148	0.150	0.153
Y-90	0.148	97.3	2.42E+04	0.147	0.148	0.150	0.151
Zr-93	2.15E-07	1.40E-04	3.49E-02	1.31E-07	1.31E-07	2.99E-07	3.10E-07
Nb-93m	1.50E-07	1.35E-04	3.55E-02	1.01E-07	1.00E-07	2.51E-07	2.80E-07
Tc-99	1.49E-06	9.74E-04	0.242	5.38E-07	5.06E-07	2.07E-06	2.35E-06
Ru-106	2.54E-14	1.66E-11	4.12E-09	1.64E-14	1.74E-14	3.34E-14	3.49E-14
Cd-113m	5.47E-07	3.58E-04	8.90E-02	3.17E-07	3.41E-07	7.32E-07	7.80E-07
Sb-125	5.28E-08	2.45E-05	8.59E-03	2.38E-08	2.50E-08	7.06E-08	7.59E-08
Sn-126	6.55E-08	4.97E-05	1.11E-02	3.95E-08	4.15E-08	9.89E-08	9.86E-08
I-129	2.81E-09	1.84E-06	4.55E-04	1.38E-09	1.72E-09	3.81E-09	4.06E-09
Cs-134	1.57E-08	1.33E-05	3.58E-03	1.55E-08	1.55E-08	1.55E-08	1.55E-08
Cs-137	0.170	112	2.72E+04	0.169	0.169	0.172	0.173
Ba-137m	0.162	106	2.63E+04	0.160	0.160	0.163	0.163
Sm-151	1.58E-04	0.110	27.3	9.01E-05	1.02E-04	3.24E-04	3.42E-04
Eu-152	3.24E-07	2.02E-04	5.25E-02	3.23E-07	3.23E-07	3.37E-07	3.37E-07
Eu-154	1.65E-06	8.57E-04	0.268	8.15E-07	8.59E-07	1.35E-06	1.36E-06
Eu-155	3.38E-05	1.34E-02	2.54	3.34E-05	3.34E-05	3.38E-05	3.38E-05
Ra-226	1.06E-11	6.95E-09	1.72E-06	5.19E-13	5.76E-13	1.87E-11	2.45E-10
Ra-228	1.13E-15	7.38E-13	1.84E-10	1.12E-15	1.12E-15	1.13E-15	1.14E-15
Ac-227	5.47E-11	3.36E-08	8.86E-06	2.88E-11	2.88E-11	7.81E-11	1.12E-09
Pa-231	1.20E-10	7.85E-08	1.96E-05	8.65E-11	8.69E-11	1.78E-10	1.81E-10
Th-229	2.19E-13	1.40E-10	3.57E-08	2.17E-13	2.17E-13	2.21E-13	2.21E-13
Th-232	3.57E-17	2.35E-14	5.72E-12	3.30E-17	3.38E-17	8.35E-17	8.69E-17
U-232	7.29E-10	4.70E-07	1.17E-04	7.09E-10	7.14E-10	7.25E-10	7.30E-10
U-233	3.29E-11	2.15E-08	5.36E-06	3.25E-11	3.27E-11	3.32E-11	3.34E-11
U-234	2.99E-05	1.96E-05	4.87	2.95E-05	2.97E-05	3.01E-05	3.03E-05
U-235	1.32E-06	8.64E-04	0.215	1.30E-06	1.31E-06	1.33E-06	1.34E-06
U-236	3.06E-07	2.00E-04	4.99E-02	3.02E-07	3.04E-07	3.08E-07	3.11E-07
U-238	3.04E-05	1.99E-02	4.95	3.00E-05	3.02E-05	3.06E-05	3.08E-05
Np-237	9.23E-09	6.03E-06	1.51E-03	5.22E-09	5.66E-09	1.29E-08	1.33E-08
Pu-238	2.37E-07	2.45E-04	0.778	1.38E-07	4.75E-07	1.30E-06	1.54E-06
Pu-239	1.04E-04	6.80E-02	16.9	1.61E-05	5.91E-05	1.49E-04	1.92E-04
Pu-240	1.01E-05	6.63E-03	1.65	1.56E-06	5.76E-06	1.45E-05	1.87E-05
Pu-241	3.65E-05	2.40E-02	5.97	5.61E-06	2.05E-05	5.25E-05	6.77E-05
Pu-242	1.68E-10	1.10E-07	2.73E-05	2.36E-11	5.32E-11	2.40E-10	3.10E-10
Am-241	4.57E-07	3.35E-04	8.59E-02	3.17E-07	3.56E-07	6.59E-07	6.51E-07
Am-243	3.35E-12	3.22E-09	5.78E-07	3.29E-12	3.42E-12	4.98E-12	4.20E-12
Cm-242	5.30E-09	3.88E-06	9.53E-04	6.05E-09	6.06E-09	6.15E-09	6.15E-09
Cm-243	1.25E-10	8.15E-08	2.04E-05	1.26E-10	1.26E-10	1.26E-10	1.26E-10
Cm-244	5.44E-11	5.32E-08	1.37E-05	5.86E-11	5.77E-11	1.11E-10	1.13E-10
Totals	M	ppm	kg	-95 CI (M or g/L)	-67 CI (M or g/L)	+67 CI (M or g/L)	+95 CI (M or g/L)
Pu	1.70E-03 (g/L)	---	0.280	2.66E-04	9.77E-04	2.46E-03	3.17E-03
U	0.263	3.95E+04	1.85E+04	0.377	0.380	0.385	0.388

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-TY-104							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	1.14E+04 (kg)	(3.00 kgal)	----	----	—	—	----
Heat Load	0 (kW)	(0 BTU/hr)	—	0	0	0	0
Bulk Density*	1.00 (g/cc)	----	—	1.00	1.00	1.00	1.00
Water wt%†	100	—	----	100	100	100	100
TOC wt% C (w	0	—	----	0	0	0	0
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	0	0	0	0	0	0	0
C-14	0	0	0	0	0	0	0
Ni-59	0	0	0	0	0	0	0
Ni-63	0	0	0	0	0	0	0
Co-60	0	0	0	0	0	0	0
Se-79	0	0	0	0	0	0	0
Sr-90	0	0	0	0	0	0	0
Y-90	0	0	0	0	0	0	0
Zr-93	0	0	0	0	0	0	0
Nb-93m	0	0	0	0	0	0	0
Tc-99	0	0	0	0	0	0	0
Ru-106	0	0	0	0	0	0	0
Cd-113m	0	0	0	0	0	0	0
Sb-125	0	0	0	0	0	0	0
Sn-126	0	0	0	0	0	0	0
I-129	0	0	0	0	0	0	0
Cs-134	0	0	0	0	0	0	0
Cs-137	0	0	0	0	0	0	0
Ba-137m	0	0	0	0	0	0	0
Sm-151	0	0	0	0	0	0	0
Eu-152	0	0	0	0	0	0	0
Eu-154	0	0	0	0	0	0	0
Eu-155	0	0	0	0	0	0	0
Ra-226	0	0	0	0	0	0	0
Ra-228	0	0	0	0	0	0	0
Ac-227	0	0	0	0	0	0	0
Pa-231	0	0	0	0	0	0	0
Th-229	0	0	0	0	0	0	0
Th-232	0	0	0	0	0	0	0
U-232	0	0	0	0	0	0	0
U-233	0	0	0	0	0	0	0
U-234	0	0	0	0	0	0	0
U-235	0	0	0	0	0	0	0
U-236	0	0	0	0	0	0	0
U-238	0	0	0	0	0	0	0
Np-237	0	0	0	0	0	0	0
Pu-238	0	0	0	0	0	0	0
Pu-239	0	0	0	0	0	0	0
Pu-240	0	0	0	0	0	0	0
Pu-241	0	0	0	0	0	0	0
Pu-242	0	0	0	0	0	0	0
Am-241	0	0	0	0	0	0	0
Am-243	0	0	0	0	0	0	0
Cm-242	0	0	0	0	0	0	0
Cm-243	0	0	0	0	0	0	0
Cm-244	0	0	0	0	0	0	0
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	0 (g/L)	—	0	0	0	0	0
U	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

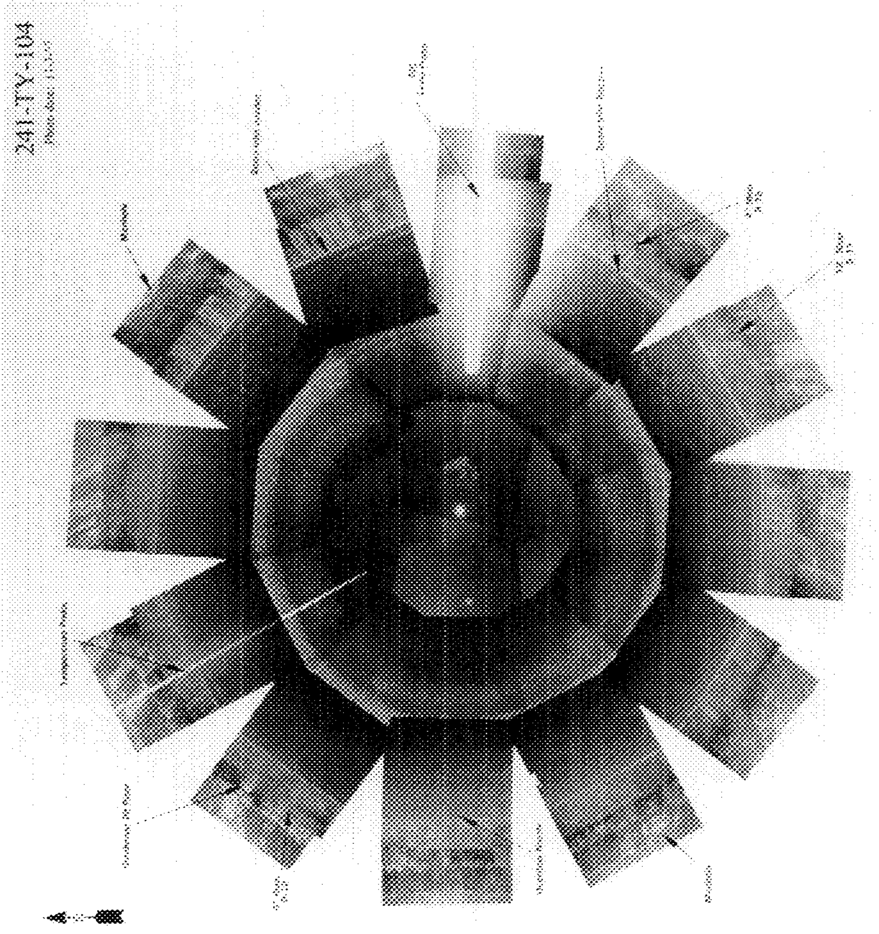
†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-TY-104							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	2.60E+05 (kg)	46.3 (kgal)	---	---	---	---	---
Heat Load	0.294 (kW)	(1.00E+03 BTU/hr)	---	0.291	0.291	0.296	0.297
Bulk Density†	1.49 (g/cc)	---	---	1.32	1.32	1.61	1.62
Water wt%†	53.6	---	---	53.1	44.9	72.2	72.6
TOC wt% C (wet)	0.327	---	---	0.333	0.302	0.372	0.383
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	9.99E-07	5.66E-04	0.174	3.50E-07	4.26E-07	1.65E-06	1.74E-06
C-14	2.00E-07	1.34E-04	3.49E-02	1.13E-07	1.20E-07	2.79E-07	2.95E-07
Ni-59	6.05E-07	4.05E-04	0.105	5.80E-07	5.82E-07	6.27E-07	6.30E-07
Ni-63	5.52E-05	3.69E-02	9.61	5.29E-05	5.32E-05	5.72E-05	5.75E-05
Co-60	5.39E-08	3.70E-05	8.77E-03	3.03E-08	3.24E-08	6.83E-08	7.05E-08
Se-79	4.23E-08	2.83E-05	7.35E-03	2.36E-09	2.57E-09	5.99E-09	6.11E-09
Sr-90	0.139	93.1	2.42E+04	0.138	0.138	0.140	0.141
Y-90	0.139	93.1	2.42E+04	0.138	0.138	0.141	0.141
Zr-93	2.01E-07	1.34E-04	3.49E-02	1.13E-07	1.22E-07	2.79E-07	2.95E-07
Nb-93m	1.80E-07	1.20E-04	2.93E-02	9.40E-08	1.02E-07	2.35E-07	2.44E-07
Tc-99	1.39E-06	9.31E-04	0.242	2.85E-07	3.47E-07	2.96E-06	3.01E-06
Ru-106	2.37E-14	1.59E-11	4.12E-09	1.54E-14	1.82E-14	3.12E-14	3.22E-14
Cd-113m	5.11E-07	3.42E-04	8.90E-02	2.36E-07	3.19E-07	7.04E-07	7.30E-07
Sb-125	4.94E-08	2.30E-05	5.39E-03	3.06E-08	3.27E-08	6.80E-08	6.90E-08
Sn-126	6.30E-08	4.27E-05	1.11E-02	3.60E-08	3.80E-08	8.88E-08	9.21E-08
I-129	2.62E-09	1.76E-06	4.58E-04	1.45E-09	1.60E-09	2.65E-09	3.80E-09
Cs-134	1.74E-08	1.17E-05	3.04E-03	1.73E-08	1.73E-08	1.76E-08	1.76E-08
Cs-137	0.160	107	2.78E+04	0.158	0.158	0.161	0.161
Ba-137m	0.151	101	2.63E+04	0.150	0.150	0.153	0.153
Sm-151	1.57E-04	0.105	27.3	8.79E-05	9.32E-05	2.18E-04	2.27E-04
Eu-152	3.01E-07	2.03E-04	5.28E-02	2.01E-07	2.01E-07	2.06E-07	2.06E-07
Eu-154	9.59E-07	6.28E-04	0.166	5.78E-07	6.18E-07	1.26E-06	1.31E-06
Eu-155	2.20E-05	1.47E-02	3.56	2.19E-05	2.19E-05	2.22E-05	2.22E-05
Ra-226	9.90E-12	6.62E-09	1.72E-06	4.56E-12	5.39E-12	1.75E-11	2.29E-11
Ra-228	1.05E-13	7.06E-12	1.84E-10	1.04E-13	1.05E-13	1.06E-13	1.06E-13
Ac-227	5.09E-11	3.40E-08	8.86E-06	2.51E-11	2.75E-11	7.40E-11	1.09E-09
Pa-231	1.13E-10	7.53E-08	1.96E-05	5.66E-11	6.23E-11	1.62E-10	1.69E-10
Th-229	2.05E-13	1.37E-10	3.57E-08	2.03E-13	2.05E-13	2.07E-13	2.07E-13
Th-232	5.55E-17	3.39E-15	9.72E-12	3.05E-17	3.35E-17	7.92E-17	8.13E-17
U-232	6.72E-10	4.50E-07	1.17E-04	6.63E-10	6.68E-10	6.78E-10	6.82E-10
U-233	3.08E-11	2.06E-08	5.36E-06	3.03E-11	3.06E-11	3.16E-11	3.12E-11
U-234	2.80E-05	1.87E-02	4.87	2.75E-05	2.77E-05	3.22E-05	3.24E-05
U-235	1.23E-06	8.26E-04	0.215	1.20E-06	1.20E-06	1.24E-06	1.35E-06
U-236	2.56E-07	1.59E-04	4.99E-02	2.52E-07	2.54E-07	2.55E-07	3.01E-07
U-238	2.24E-05	1.90E-02	4.95	2.80E-05	2.82E-05	2.86E-05	2.88E-05
Np-237	9.65E-09	5.79E-06	1.51E-03	4.89E-09	5.39E-09	1.30E-08	1.35E-08
Pu-238	7.92E-07	5.23E-04	0.136	1.20E-07	4.44E-07	1.12E-06	1.44E-06
Pu-239	9.72E-05	6.50E-02	16.9	1.05E-05	5.50E-05	1.39E-04	1.79E-04
Pu-240	9.45E-06	8.35E-03	1.64	1.46E-06	5.39E-06	1.36E-05	1.75E-05
Pu-241	3.32E-05	3.29E-02	5.77	5.24E-06	1.93E-05	4.91E-05	6.33E-05
Pu-242	1.57E-10	1.05E-07	2.73E-05	2.39E-11	8.89E-11	2.34E-10	2.55E-10
Am-241	4.65E-07	3.11E-04	8.08E-02	2.90E-07	3.10E-07	6.10E-07	6.28E-07
Am-243	3.32E-12	2.22E-09	5.78E-07	2.14E-12	2.26E-12	4.37E-12	4.51E-12
Cm-242	2.79E-09	1.85E-06	4.93E-04	5.66E-09	5.66E-09	5.75E-09	5.75E-09
Cm-243	1.17E-10	7.92E-08	2.06E-05	1.16E-10	1.16E-10	1.18E-10	1.18E-10
Cm-244	7.88E-11	5.27E-08	1.37E-05	2.00E-11	2.39E-11	1.04E-10	1.07E-10
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	1.61E-03 (g/L)	---	0.280	2.48E-04	9.13E-04	2.30E-03	2.96E-03
U	0.355	5.69E+04	1.48E+04	0.332	0.332	0.360	0.362

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Volume average for density, mass average Water wt% and TOC wt% C.


241-TY-104

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TANK 241-TY-105 SUMMARY

TANK HISTORY	
Entered Service	2nd qtr 1953
Removed from Service	-
Inactive	1976
Watch Lists	none
Integrity	Assumed leaker
Assumed Leaker	1960
Interim Stabilization (IS)	Feb 1983
Partial Interim Isolation (PI)	-
Intrusion Prevention (IP)	Oct 1984
TENTATIVELY AVAILABLE RISERS	
Riser Number(s)	Size
4, 12	4 in
7, 8	12 in
TANK TEMPERATURE	
Average Tank Temperature	73°F
Maximum Temperature	99°F
Date	March 12, 1977 & Nov 13, 1977
Elevation from tank bottom	unknown
Riser Number	3
Minimum Temperature	59°F
Date	July 3, 1989
Elevation from tank bottom	unknown
Riser Number	3

TANK DESCRIPTION	
Diameter	75 ft
Bottom Shape	Dish
Nominal Capacity	758,000 gal
Cascade Tank	to 241-TY-106
Total Risers	11
WASTE VOLUME (HANLON 1996I)	
Total Waste Volume	231,000 gal
Waste Type	NCPLX
Drainable Interstitial Liquids	0 gal
Pumpable Liquids	0 gal
Saltcake	0 gal
Sludge	231,000 gal
Supernatant	0 gal
INTERIOR PHOTOGRAPHS	
Date	Sept 7, 1989
Montage Number	94080233-27CN
Photo Set Number	89-090748
WASTE SURFACE LEVEL	
Devices	Auto ENRAF
Max Level	87.51 in
Date	April 1, 1991
Min Level	83.96 in
Date	Dec 3 & 7, 1996

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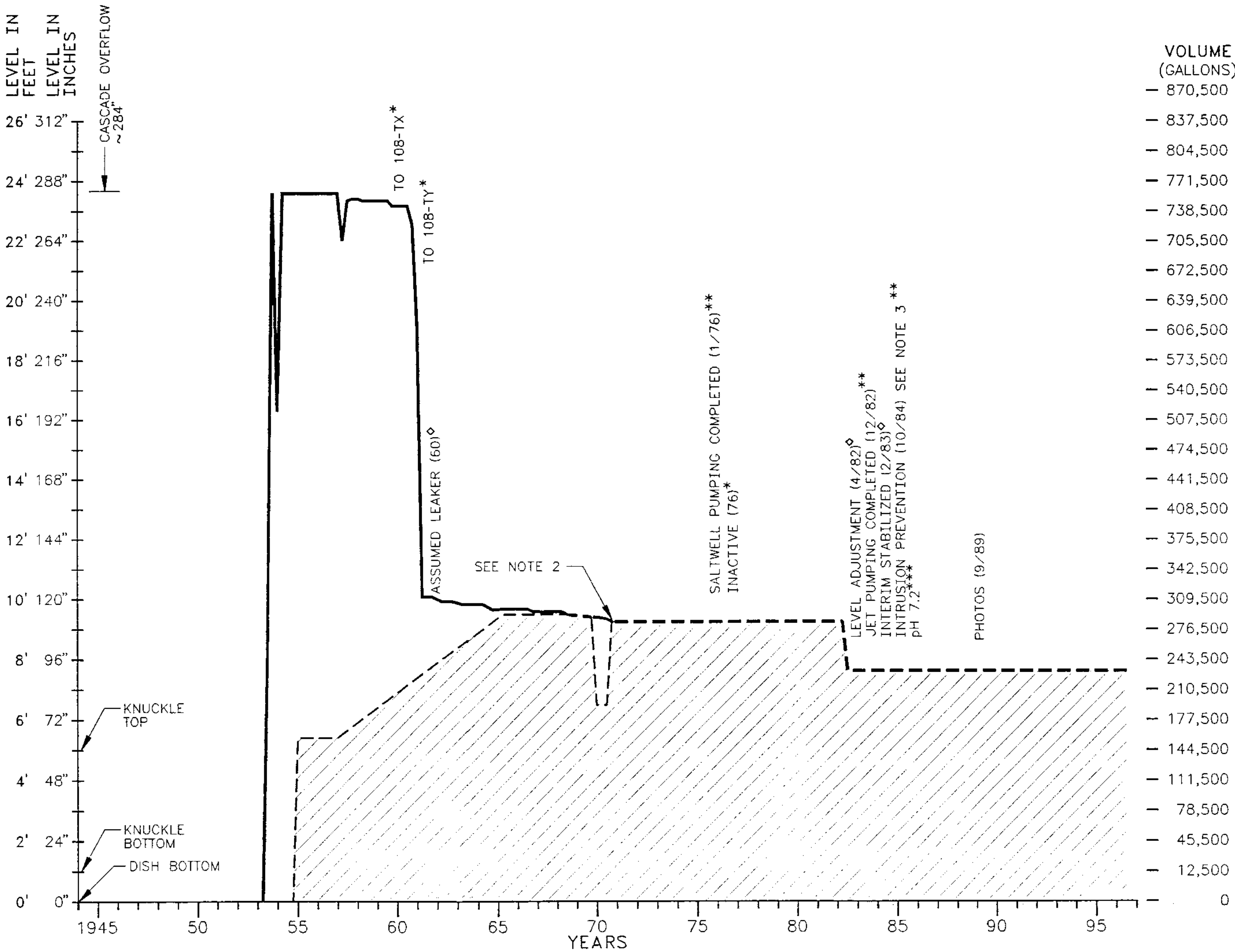
WASTE TYPES TIME LINE (ANDERSON 1990)	TBP	EVAP
PRIMARY ADDITIONS TIME LINE (AGNEW 1995)	UR	



TANK INFO:

CONSTRUCTED 1951-1952
NOMINAL CAPACITY: 758,000 GAL
DISH BOTTOM, 4 FOOT RADIUS KNUCKLE
75 FOOT DIAMETER TANK

REFERENCES

- * ANDERSON 1990
- ** WELTY 1988
- *** BORSHEIM AND KIRCH 1991
- ◇ HANLON 1996I
- ◇◇ VAIL 1985e

NOTES:

1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN.
3) IN JUNE 1993, INTERIM ISOLATION WAS REPLACED BY INTRUSION PREVENTION.

GLOSSARY OF WASTE TERMS:

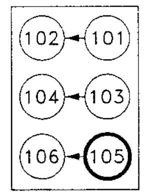
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A.

EVAP: EVAPORATOR FEED
TBP: TRIBUTYL PHOSPHATE
UR: URANIUM RECOVERY WASTE

LEGEND

- TOTAL WASTE LEVEL (SUPERNATE)
- TOTAL WASTE LEVEL (SOLIDS)
- SOLIDS LEVEL
- SOLIDS

TY TANK FARM
CASCADE



U.S. DEPARTMENT OF ENERGY
Richland Operations Office
FLUOR DANIEL NORTHWEST, INC.

241-TY-105 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1953-1996
ASSUMED LEAKER/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E132	1/97
SCALE NONE		JOB NO.	SHEET 1 OF 1

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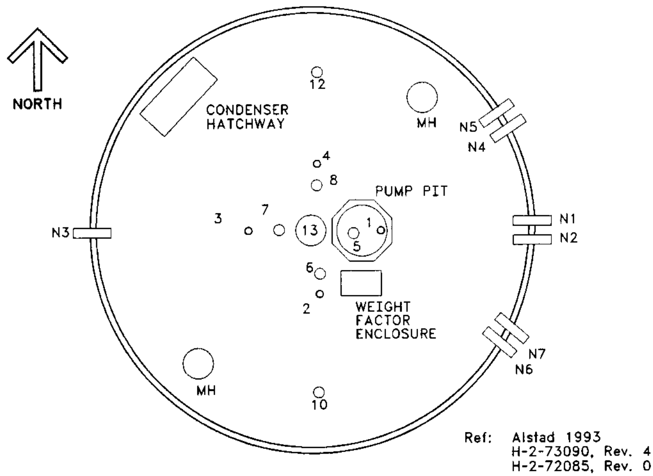
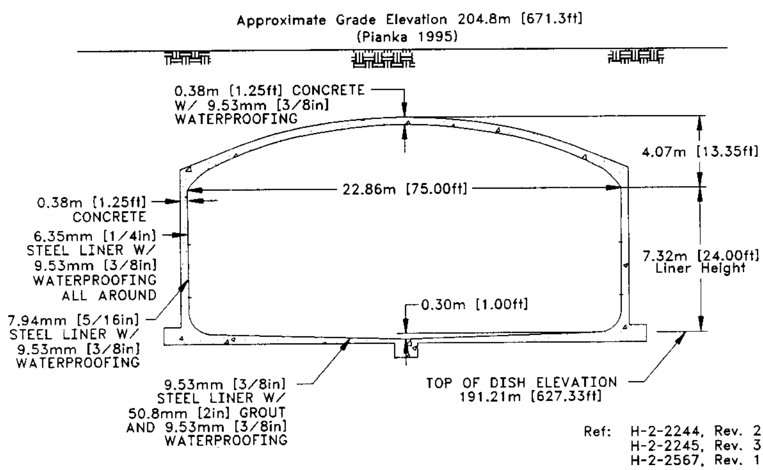
241-TY-105



TANK RISER LOCATION



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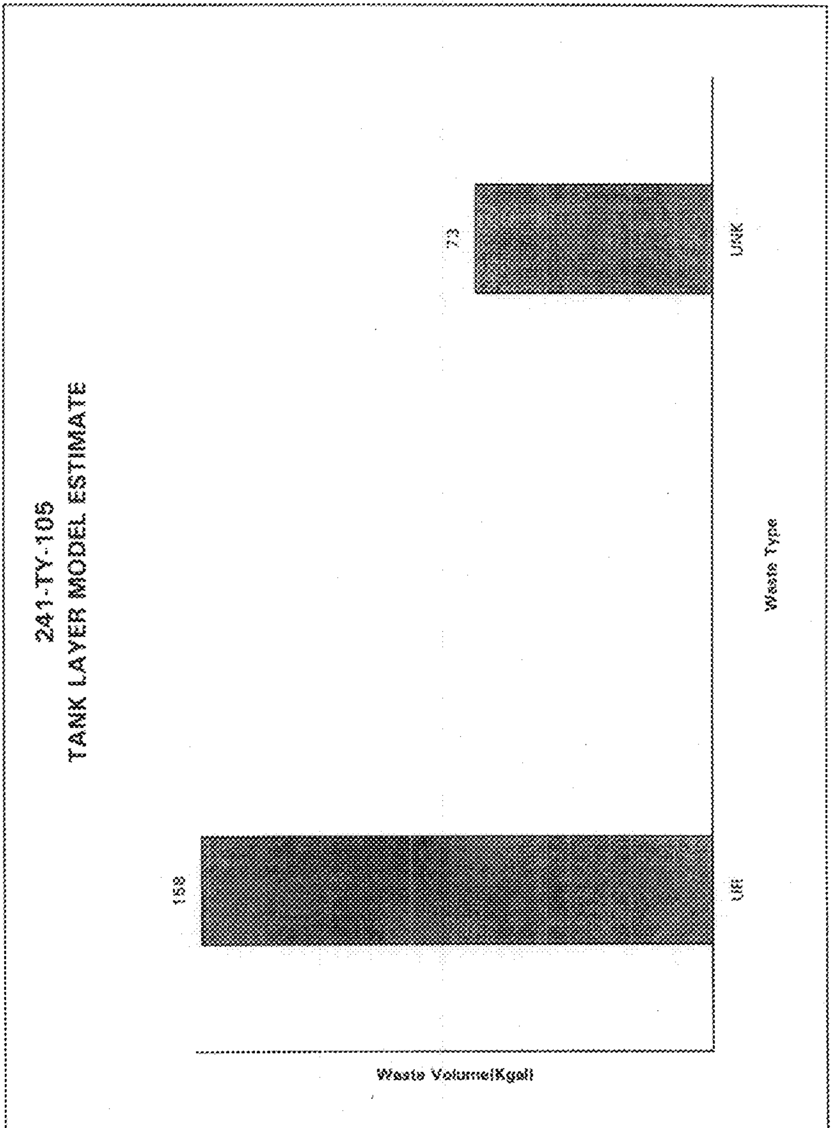


Tank Layer Model(TLM) Estimate from *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 4* (Agnew et al., 1997)

HDW Model Rev. 4

Single-Shell Tank 241-TY-105							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	1.06E+06 (kg)	(158 kgal)	—	—	—	—	—
Heat Load	4.98E-02 (kW)	(170 BTU/hr)	—	1.36E-02	1.74E-02	8.22E-02	8.66E-02
Bulk Density	1.77 (g/cc)	—	—	1.00	1.14	2.21	1.81
Void Fraction	0.453	—	—	0.427	5.58E-02	0.957	1.00
Water wt%	22.1	—	—	21.7	2.56	76.4	99.7
TOC wt% C (w	1.13E-04	—	—	4.36E-06	1.13E-05	2.83E-04	3.15E-04
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	14.0	1.82E+05	1.93E+05	4.20E-02	1.45	23.0	14.5
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	1.57	4.96E+04	5.25E+04	4.60E-04	1.45	1.59	1.60
Cr3+	1.47E-03	43.1	45.7	3.20E-05	1.83E-04	2.76E-03	2.93E-03
Bi3+	0	0	0	0	0	0	0
La3+	0	0	0	0	0	0	0
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	7.36E-04	24.4	25.8	1.60E-05	9.17E-05	1.38E-03	1.47E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	0.344	7.77E+03	8.24E+03	1.84E-04	6.36E-03	0.406	0.466
K+	7.24E-03	160	169	1.58E-04	9.03E-04	1.36E-02	1.44E-02
OH-	4.72	4.53E+04	4.80E+04	1.43E-03	4.34	4.77	4.82
NO3-	13.4	4.68E+05	4.96E+05	3.05E-02	1.00	22.9	13.4
NO2-	0.152	3.94E+03	4.18E+03	4.97E-04	1.31E-02	0.384	0.424
CO32-	0.427	1.45E+04	1.53E+04	2.00E-03	6.92E-02	0.501	0.546
PO43-	5.98E-02	3.20E+03	3.39E+03	1.30E-03	7.45E-03	0.112	0.224
SO42-	6.51E-02	3.53E+03	3.74E+03	1.42E-03	8.12E-03	0.122	0.130
Si (as SiO32-)	0	0	0	0	0	0	0
F-	0	0	0	0	0	0	0
Cl-	4.39E-02	877	930	9.55E-04	5.47E-03	8.23E-02	0.239
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	1.40E-05	1.65	1.75	3.04E-07	1.74E-06	2.62E-05	2.78E-05
butanol	1.40E-05	0.583	0.619	3.04E-07	1.74E-06	2.62E-05	2.78E-05
NH3	4.34E-04	4.16	4.41	3.55E-07	1.13E-05	1.12E-03	1.15E-03
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-TY-105							
SMM Composite Inventory Estimate							
Physical Properties				-95 CI	-67 CI	+67 CI	+95 CI
Total SMM W	5.21E+05 (kg)	(71.9 kgal)	---	---	---	---	---
Heat Load	5.39E-02 (kW)	(183 BTU/hr)	---	4.56E-03	[illegible]	[illegible]	[illegible]
Bulk Density*	1.20 (g/cc)	---	---	1.00	1.02	1.31	1.21
Water wt%†	66.2	---	---	65.9	64.2	55.2	99.6
TOC wt% C (wet)	4.94E-04	---	---	5.80E-04	[illegible]	[illegible]	4.94E-04
Chemical Constituents	mole/L	ppm	kg	-95 CI (mole/L)	-67 CI (mole/L)	+67 CI (mole/L)	+95 CI (mole/L)
Na+	5.22	1.00E+05	5.21E+04	5.60E-02	3.02	5.58	5.50
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	2.06E-03	129	41.3	5.19E-04	2.06E-03	3.27E-03	3.56E-03
Cr3+	4.33E-03	190	62.3	4.26E-03	1.94E-03	4.38E-03	4.33E-03
Bi3+	0	0	0	0	0	0	0
La3+	0	0	0	0	0	0	0
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2)	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	2.16E-03	106	55.1	2.10E-03	7.70E-04	2.19E-03	2.17E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	1.20E-02	401	122	2.49E-04	5.84E-03	1.44E-02	1.67E-02
K+	2.13E-02	696	208	2.10E-04	7.56E-03	2.16E-02	2.13E-02
OH-	1.50E-02	212	70.3	1.50E-04	[illegible]	1.60E-02	1.85E-02
NO3-	3.82	1.79E+05	5.51E+04	4.12E-02	1.45	3.79	3.82
NO2-	0.309	1.07E+04	1.55E+03	3.15E-03	4.07E-02	0.303	0.309
CO3 2-	0.259	1.29E+04	4.07E+03	2.60E-03	9.62E-02	0.262	0.262
PO4 3-	0.176	1.39E+04	4.62E+03	1.75E-03	6.25E-02	0.178	0.176
SO4 2-	0.192	1.54E+04	4.69E+03	1.89E-03	6.81E-02	0.194	0.193
Si (as SiO3 2-)	0	0	0	0	0	0	0
F-	0	0	0	0	0	0	0
Cl-	0.129	3.80E+03	1.26E+03	1.27E-03	4.59E-02	0.131	0.129
C6H5O7 3-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	4.11E-05	7.23	2.39	4.06E-07	1.46E-05	4.15E-05	4.11E-05
butanol	4.11E-05	2.54	0.841	4.06E-07	1.46E-05	4.15E-05	4.11E-05
NH3	1.00E-03	14.4	4.78	1.35E-09	5.33E-05	1.96E-03	1.99E-03
Fe(CN)6 4-	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-TY-105							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	1.39E+06 (kg)	(231 kgal)	—	—	---	—	—
Heat Load	0.100 (kW)	(342 BTU/hr)	----	1.41E-02	5.85E-02	0.132	0.136
Bulk Density†	1.59 (g/cc)	—	----	1.00	1.12	1.89	1.61
Water wt%†	32.6	----	—	32.3	15.6	79.1	99.6
TOC wt% C (w	2.04E-04	—	----	4.82E-06	1.09E-04	3.42E-04	3.66E-04
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	11.3	1.63E+05	2.26E+05	4.64E-02	1.63	17.3	11.6
Al3+	0	0	0	0	0	0	0
Fe3+ (total Fe)	1.08	3.78E+04	5.26E+04	5.08E-04	0.990	1.09	1.10
Cr3+	2.37E-03	77.6	108	3.54E-05	1.24E-03	3.24E-03	3.36E-03
Bi3+	0	0	0	0	0	0	0
La3+	0	0	0	0	0	0	0
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	1.19E-03	43.8	60.9	1.77E-05	6.22E-04	1.62E-03	1.68E-03
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	0.239	6.02E+03	8.37E+03	2.03E-04	7.14E-03	0.281	0.321
K+	1.17E-02	287	400	1.74E-04	6.12E-03	1.60E-02	1.65E-02
OH-	3.23	3.46E+04	4.81E+04	1.58E-03	2.97	3.27	3.30
NO3-	10.2	3.99E+05	5.55E+05	3.39E-02	1.14	16.7	10.2
NO2-	0.192	5.55E+03	7.73E+03	3.50E-04	6.16E-02	0.359	0.387
CO32-	0.374	1.41E+04	1.96E+04	2.21E-03	7.77E-02	0.423	0.454
PO43-	9.65E-02	5.76E+03	8.01E+03	1.44E-03	5.05E-02	0.132	0.207
SO42-	0.105	6.34E+03	8.83E+03	1.56E-03	5.50E-02	0.143	0.149
Si (as SiO32-)	0	0	0	0	0	0	0
F-	0	0	0	0	0	0	0
Cl-	7.09E-02	1.58E+03	2.19E+03	1.06E-03	3.71E-02	9.67E-02	0.202
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	2.25E-05	2.98	4.14	3.35E-07	1.18E-05	3.07E-05	3.18E-05
butanol	2.25E-05	1.05	1.46	3.35E-07	1.18E-05	3.07E-05	3.18E-05
NH3	6.19E-04	6.61	9.20	2.44E-07	8.89E-05	1.11E-03	1.13E-03
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).
†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-TY-105							
TLM Solids Composite Inventory Estimate*							
Physical Properties				-95 CI	-67 CI	+67 CI	+95 CI
Total TLM Waste	1.06E+06 (kg)	(155 kgal)	---	---	---	---	---
Heat Load	4.96E-02 (kW)	(170 BTU/hr)	---	1.36E-02	1.74E-02	9.55E-02	9.66E-02
Bulk Density	1.77 (g/cc)	---	---	1.66	1.73	1.81	1.82
Void Fraction	0.455	---	---	0.427	5.00E-02	0.857	1.00
Water wt%	33.3	---	---	21.7	2.56	76.5	99.5
TOC wt% C (wet)	1.13E-04	---	---	4.56E-08	1.13E-07	2.82E-04	3.13E-04
Radiological Constituents	CI/L	µCi/g	Ci	-95 CI (Ci/L)	-67 CI (Ci/L)	+67 CI (Ci/L)	+95 CI (Ci/L)
H-3	2.36E-06	1.30E-03	1.37	5.36E-10	2.67E-07	4.59E-06	4.92E-06
C-14	3.17E-07	1.79E-04	0.185	6.90E-09	3.96E-08	5.93E-07	6.33E-07
Ni-59	9.03E-08	5.10E-05	5.40E-02	1.36E-08	1.13E-08	1.69E-07	1.80E-07
Ni-63	8.19E-06	4.59E-03	4.87	1.17E-07	1.02E-06	1.53E-05	1.62E-05
Co-60	7.26E-08	4.10E-05	4.34E-02	1.58E-09	9.10E-09	1.36E-07	1.45E-07
Se-79	6.70E-08	3.78E-05	4.00E-02	1.46E-09	8.33E-09	1.26E-07	1.33E-07
Sr-90	5.10E-03	2.91	3.09E+03	1.12E-04	6.44E-04	9.66E-03	1.02E-02
Y-90	5.10E-03	2.91	3.09E+03	1.10E-04	6.44E-04	9.68E-03	1.03E-02
Zr-93	3.15E-07	1.79E-04	0.188	5.02E-09	3.97E-08	5.96E-07	6.34E-07
Nb-93m	2.68E-07	1.51E-04	0.161	5.80E-09	3.35E-08	5.03E-07	5.35E-07
Tc-99	2.36E-06	1.34E-03	1.32	4.70E-08	2.75E-07	4.13E-06	4.39E-06
Ru-106	3.02E-13	1.70E-11	1.81E-08	6.57E-16	3.77E-15	5.67E-14	6.02E-14
Cd-113m	7.77E-07	4.38E-04	0.465	1.04E-08	9.69E-08	1.46E-06	1.55E-06
Sb-125	6.72E-08	3.79E-05	4.10E-02	1.46E-09	8.39E-09	1.26E-07	1.34E-07
Sn-126	1.01E-07	5.80E-05	5.02E-02	1.96E-09	1.26E-08	1.90E-07	2.01E-07
I-129	4.15E-09	2.34E-06	2.48E-03	9.03E-11	5.18E-10	7.78E-09	8.28E-09
Cs-134	8.42E-10	4.75E-07	5.03E-04	1.82E-10	4.36E-10	1.26E-09	1.31E-09
Cs-137	1.06E-02	5.84	6.19E+03	4.68E-03	5.27E-03	1.54E-02	1.61E-02
Ba-137m	9.79E-03	5.52	5.86E+03	4.42E-03	4.99E-03	1.46E-02	1.52E-02
Sm-151	2.49E-04	0.141	149	5.42E-06	3.11E-05	4.67E-04	4.97E-04
Eu-152	7.36E-07	4.00E-04	0.439	7.17E-07	7.18E-07	7.34E-07	7.35E-07
Eu-154	1.31E-06	7.38E-04	0.783	2.65E-09	1.63E-07	2.45E-06	2.61E-06
Eu-155	5.47E-05	3.09E-02	32.7	5.40E-05	5.41E-05	5.53E-05	5.54E-05
Ra-226	1.93E-11	1.09E-08	1.16E-08	3.97E-13	2.28E-12	4.51E-11	7.93E-10
Ra-228	2.77E-15	1.56E-12	1.66E-09	2.74E-15	2.74E-15	2.80E-15	2.81E-15
Ac-227	9.33E-11	5.26E-08	1.58E-08	2.02E-12	1.16E-11	1.75E-10	5.61E-09
Pa-231	2.03E-10	1.15E-07	1.21E-04	4.41E-12	2.53E-11	3.80E-10	4.04E-10
Th-229	5.38E-13	3.04E-10	3.22E-07	5.32E-13	5.32E-13	5.44E-13	5.45E-13
Th-232	8.05E-12	5.11E-14	[illegible]	3.93E-16	3.12E-12	1.70E-16	1.90E-16
U-232	1.00E-12	5.80E-13	5.19E-07	2.25E-14	1.29E-13	1.94E-12	2.06E-12
U-233	5.13E-14	2.80E-11	3.07E-08	1.12E-15	6.40E-15	9.62E-14	1.02E-13
U-234	5.49E-08	3.10E-05	3.28E-02	1.19E-09	6.85E-09	1.03E-07	1.09E-07
U-235	2.44E-09	1.38E-06	1.46E-03	5.31E-11	3.05E-10	4.58E-09	4.87E-09
U-236	4.72E-10	2.66E-07	2.82E-04	1.02E-11	5.89E-11	8.85E-10	9.41E-10
U-238	5.57E-08	3.14E-05	3.33E-02	1.21E-09	6.95E-09	1.04E-07	1.11E-07
Np-237	1.36E-05	7.67E-06	8.13E-03	2.96E-10	1.70E-09	2.55E-08	2.71E-05
Pu-238	1.80E-08	1.02E-05	1.08E-02	3.91E-10	2.24E-09	8.87E-08	8.91E-07
Pu-239	2.74E-06	1.54E-03	1.64	5.90E-08	3.41E-07	1.35E-05	1.32E-04
Pu-240	2.35E-07	1.32E-04	0.140	5.11E-09	2.93E-08	1.16E-06	1.05E-05
Pu-241	7.08E-07	3.99E-04	0.423	1.54E-08	8.83E-08	3.49E-06	3.13E-05
Pu-242	3.19E-12	1.80E-09	1.91E-06	6.93E-14	3.98E-13	1.57E-11	1.45E-10
Am-241	6.11E-07	3.44E-04	0.365	1.32E-09	7.61E-08	1.14E-06	1.22E-06
Am-243	4.26E-12	2.40E-09	2.55E-06	9.27E-14	5.31E-13	7.98E-12	8.49E-12
Cm-242	1.33E-08	7.50E-06	7.95E-03	1.31E-08	1.31E-08	1.34E-08	1.35E-08
Cm-243	2.72E-10	1.53E-07	1.63E-04	2.69E-10	2.69E-10	2.73E-10	2.76E-10
Cm-244	1.01E-09	5.68E-08	6.02E-05	[illegible]	[illegible]	[illegible]	[illegible]
Totals	M	µg/g	kg	-95 CI (M or g/L)	-67 CI (M or g/L)	+67 CI (M or g/L)	+95 CI (M or g/L)
Pu	4.51E-05 (g/L)	---	2.70E-02	[illegible]	[illegible]	[illegible]	[illegible]
U	7.61E-04	94.3	99.5	[illegible]	[illegible]	[illegible]	[illegible]

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-TY-105							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	3.31E+05 (kg)	(73.0 kgal)	----	----	----	----	----
Heat Load	5.04E-02 (kW)	(172 BTU/hr)	----	4.96E-04	1.79E-02	5.09E-02	5.04E-02
Bulk Density*	1.20 (g/cc)	----	----	1.00	1.08	1.21	1.21
Water wt%†	66.3	----	----	63.9	64.2	85.2	99.6
TOC wt% C (w	4.94E-04	----	----	5.81E-06	1.95E-04	5.05E-04	4.94E-04
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	6.76E-06	5.64E-03	1.87	7.14E-10	9.31E-07	7.12E-06	7.17E-06
C-14	9.34E-07	7.80E-04	0.258	9.20E-09	3.32E-07	9.45E-07	9.35E-07
Ni-59	2.66E-07	2.22E-04	7.34E-02	2.62E-09	9.45E-08	2.69E-07	2.66E-07
Ni-63	2.40E-05	2.00E-02	6.62	2.36E-07	8.52E-06	2.42E-05	2.40E-05
Co-60	2.14E-07	1.78E-04	5.91E-02	2.10E-09	7.60E-08	2.16E-07	2.14E-07
Se-79	1.97E-07	1.64E-04	5.45E-02	1.94E-09	7.01E-08	1.99E-07	1.97E-07
Sr-90	1.52E-02	12.7	4.20E+03	1.50E-04	5.40E-03	1.54E-02	1.52E-02
Y-90	1.52E-02	12.7	4.20E+03	1.50E-04	5.40E-03	1.54E-02	1.52E-02
Zr-93	9.36E-07	7.81E-04	0.259	9.22E-09	3.33E-07	9.47E-07	9.37E-07
Nb-93m	7.90E-07	6.59E-04	0.218	7.78E-09	2.81E-07	7.99E-07	7.90E-07
Tc-99	6.48E-06	5.41E-03	1.79	6.38E-08	2.31E-06	6.56E-06	6.49E-06
Ru-106	8.89E-14	7.42E-11	2.46E-08	8.76E-16	3.16E-14	9.00E-14	8.90E-14
Cd-113m	2.29E-06	1.91E-03	0.632	2.25E-08	8.13E-07	2.31E-06	2.29E-06
Sb-125	1.98E-07	1.65E-04	5.47E-02	1.95E-09	7.04E-08	2.00E-07	1.98E-07
Sn-126	2.96E-07	2.47E-04	8.19E-02	2.92E-09	1.05E-07	3.00E-07	2.97E-07
I-129	1.22E-08	1.02E-05	3.38E-03	1.20E-10	4.34E-09	1.24E-08	1.22E-08
Cs-134	1.39E-09	1.16E-06	3.85E-04	1.37E-11	4.95E-10	1.41E-09	1.39E-09
Cs-137	1.71E-02	14.2	4.72E+03	1.68E-04	6.07E-03	1.73E-02	1.71E-02
Ba-137m	1.61E-02	13.5	4.46E+03	1.59E-04	5.74E-03	1.63E-02	1.62E-02
Sm-151	7.34E-04	0.612	203	7.22E-06	2.61E-04	7.42E-04	7.34E-04
Eu-152	2.72E-08	2.27E-05	7.50E-03	2.67E-10	9.66E-09	2.75E-08	2.72E-08
Eu-154	3.85E-06	3.21E-03	1.06	3.79E-08	1.37E-06	3.89E-06	3.85E-06
Eu-155	2.05E-06	1.71E-03	0.565	2.01E-08	7.28E-07	2.07E-06	2.05E-06
Ra-226	5.37E-11	4.49E-08	1.49E-05	5.29E-13	1.91E-11	5.44E-11	5.38E-11
Ra-228	1.04E-16	8.66E-14	2.87E-11	1.02E-18	3.69E-17	1.05E-16	1.04E-16
Ac-227	2.75E-10	2.29E-07	7.59E-05	2.70E-12	9.76E-11	2.78E-10	2.75E-10
Pa-231	5.96E-10	4.98E-07	1.65E-04	5.87E-12	2.12E-10	6.03E-10	5.97E-10
Th-229	2.01E-14	1.68E-11	5.56E-09	1.98E-16	7.16E-15	2.04E-14	2.01E-14
Th-232	2.66E-16	2.22E-13	7.36E-11	2.62E-18	9.47E-17	2.69E-16	2.67E-16
U-232	3.05E-12	2.54E-09	8.42E-07	3.00E-14	1.08E-12	3.08E-12	3.05E-12
U-233	1.51E-13	1.26E-10	4.17E-08	1.49E-15	5.37E-14	1.53E-13	1.51E-13
U-234	1.62E-07	1.35E-04	4.46E-02	1.59E-09	5.74E-08	1.63E-07	1.62E-07
U-235	7.19E-09	6.00E-06	1.99E-03	7.08E-11	2.56E-09	7.27E-09	7.20E-09
U-236	1.39E-09	1.16E-06	3.84E-04	1.37E-11	4.94E-10	1.40E-09	1.39E-09
U-238	1.64E-07	1.37E-04	4.53E-02	1.61E-09	5.83E-08	1.66E-07	1.64E-07
Np-237	4.00E-08	3.34E-05	1.11E-02	3.94E-10	1.42E-08	4.05E-08	4.00E-08
Pu-238	5.30E-08	4.42E-05	1.46E-02	5.21E-10	1.88E-08	5.36E-08	5.30E-08
Pu-239	8.06E-06	6.72E-03	2.23	7.93E-08	2.86E-06	8.15E-06	8.06E-06
Pu-240	6.91E-07	5.77E-04	0.191	6.81E-09	2.46E-07	6.99E-07	6.92E-07
Pu-241	2.08E-06	1.74E-03	0.576	2.05E-08	7.41E-07	2.11E-06	2.08E-06
Pu-242	9.38E-12	7.83E-09	2.59E-06	9.24E-14	3.34E-12	9.49E-12	9.39E-12
Am-241	1.80E-06	1.50E-03	0.496	1.77E-08	6.39E-07	1.82E-06	1.80E-06
Am-243	1.25E-11	1.05E-08	3.46E-06	1.23E-13	4.46E-12	1.27E-11	1.25E-11
Cm-242	4.97E-10	4.15E-07	1.37E-04	4.90E-12	1.77E-10	5.03E-10	4.98E-10
Cm-243	1.02E-11	8.50E-09	2.81E-06	1.00E-13	3.62E-12	1.03E-11	1.02E-11
Cm-244	2.96E-10	2.47E-07	8.19E-05	2.92E-12	1.05E-10	3.00E-10	2.97E-10
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	1.33E-04 (g/L)	----	3.67E-02	1.31E-06	4.72E-05	1.34E-04	1.33E-04
U	2.06E-03	410	136	2.03E-05	7.34E-04	2.09E-03	2.06E-03

*Density is calculated based on Na, OH-, and AlO2-.

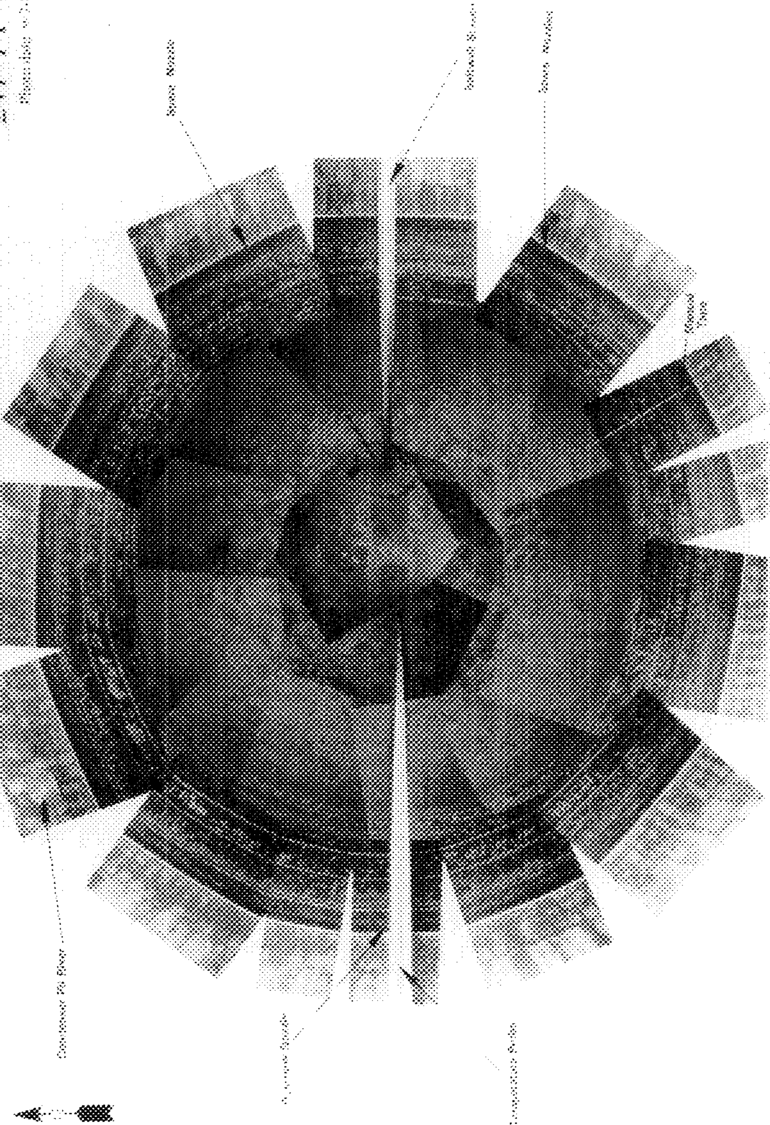
†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-SX-105							
Total Inventory Estimate*							
Physical Properties				-95 CI	-67 CI	+67 CI	+95 CI
Total Waste	1.59E+06 (kg)	(211 kgal)	---	---	---	---	---
Heat Load	0.159 (kW)	543 (BTU/hr)	---	1.41E-02	3.55E-02	0.132	0.158
Bulk Density†	1.59 (g/cc)	---	---	1.00	1.32	1.89	1.61
Water wt%†	22.6	---	---	12.3	15.6	29.1	33.5
TOC wt% C (wet)	2.60E-04	---	---	4.92E-04	1.09E-04	3.42E-04	3.66E-04
Radiological Constituents	Ci/L	µCi/g	Ci	-95 CI (Ci/L)	-67 CI (Ci/L)	+67 CI (Ci/L)	+95 CI (Ci/L)
H-3	2.76E-06	2.30E-03	3.29	5.90E-10	2.50E-07	3.35E-06	3.63E-06
C-14	3.12E-07	3.22E-04	0.460	7.03E-09	2.98E-07	6.99E-07	7.28E-07
Ni-59	1.86E-07	5.15E-05	0.127	2.17E-08	7.50E-08	1.99E-07	2.06E-07
Ni-63	1.31E-05	5.30E-03	11.5	1.06E-07	5.88E-06	1.29E-05	1.36E-05
Co-60	1.17E-07	7.37E-05	0.105	1.75E-09	6.14E-08	1.60E-07	1.66E-07
Se-79	1.90E-07	6.99E-05	9.65E-02	5.61E-09	1.06E-08	1.47E-07	1.53E-07
Sr-90	8.33E-03	5.23	7.28E+03	1.24E-04	4.35E-03	1.14E-02	1.18E-02
Y-90	8.33E-03	5.24	7.28E+03	1.24E-04	4.36E-03	1.14E-02	1.18E-02
Zr-93	5.19E-07	3.27E-04	0.449	7.64E-09	2.69E-07	7.00E-07	7.26E-07
Nb-93m	4.33E-07	2.73E-04	0.374	6.45E-09	2.27E-07	5.91E-07	6.12E-07
Tc-99	3.58E-06	2.25E-03	3.11	5.30E-08	1.86E-06	4.85E-06	5.03E-06
Ru-106	5.88E-14	3.07E-11	4.77E-08	7.26E-16	2.55E-14	6.66E-14	6.90E-14
Cd-113m	1.25E-06	7.55E-04	1.10	1.97E-08	6.70E-07	1.70E-06	1.77E-06
Sb-125	1.09E-07	6.82E-05	9.49E-02	1.62E-09	5.68E-08	1.48E-07	1.53E-07
Sn-126	1.63E-07	1.03E-04	0.142	2.42E-09	8.51E-08	2.22E-07	2.30E-07
I-129	6.70E-09	4.21E-06	5.86E-03	9.92E-11	3.31E-09	9.14E-09	9.47E-09
Cs-134	1.02E-09	6.40E-07	8.90E-04	2.65E-10	6.54E-10	1.35E-09	1.53E-09
Cs-137	1.25E-02	7.85	1.09E+04	3.25E-03	8.02E-03	1.59E-02	1.80E-02
Ba-137m	1.18E-02	7.42	1.03E+04	3.08E-03	7.58E-03	1.50E-02	1.55E-02
Sm-151	4.02E-04	0.255	352	5.99E-06	2.11E-04	5.49E-04	5.68E-04
Eu-152	5.05E-07	3.17E-04	0.442	4.80E-08	4.88E-07	5.30E-07	5.31E-07
Eu-154	2.15E-06	1.35E-03	1.88	2.14E-08	1.31E-06	2.85E-06	2.99E-06
Eu-155	3.51E-05	2.20E-02	30.3	3.70E-05	3.28E-05	3.28E-05	3.28E-05
Ra-226	2.99E-11	1.88E-08	2.58E-08	4.35E-11	1.54E-11	4.75E-11	5.59E-10
Ra-228	1.95E-15	1.21E-12	1.90E-09	1.57E-15	1.26E-15	1.95E-15	1.96E-15
Ac-227	1.32E-10	8.48E-08	1.15E-04	2.24E-12	7.88E-11	2.05E-10	2.31E-09
Pa-231	2.27E-10	2.06E-07	3.86E-04	8.87E-12	1.31E-10	4.66E-10	4.62E-10
Th-229	4.75E-13	3.25E-10	2.27E-07	3.66E-17	3.39E-12	3.79E-12	3.79E-12
Th-232	1.46E-16	9.16E-14	1.28E-10	2.18E-18	7.65E-17	1.99E-16	2.07E-16
U-232	1.67E-12	1.05E-09	1.46E-09	2.49E-14	8.75E-13	3.22E-12	2.28E-12
U-233	6.22E-14	5.20E-11	7.30E-08	1.22E-13	4.34E-14	1.03E-13	1.12E-13
U-234	9.56E-08	5.59E-05	7.79E-02	1.32E-09	4.66E-08	1.31E-07	1.35E-07
U-235	3.99E-09	2.49E-06	3.40E-03	5.97E-11	2.08E-09	5.32E-09	5.37E-09
U-236	7.63E-10	4.79E-07	6.66E-04	1.13E-11	3.99E-10	1.04E-09	1.05E-09
U-238	8.99E-08	5.65E-05	7.86E-02	1.34E-09	4.71E-08	1.23E-07	1.27E-07
Np-237	3.20E-08	1.38E-05	1.88E-05	3.27E-09	1.55E-08	2.96E-08	3.06E-08
Pu-238	2.90E-05	1.85E-05	2.58E-02	4.33E-16	1.52E-05	7.65E-05	5.55E-07
Pu-239	4.22E-04	2.79E-01	386	6.28E-07	2.21E-04	1.16E-03	8.84E-03
Pu-240	3.79E-07	2.00E-04	0.331	5.60E-08	1.98E-07	9.98E-07	7.35E-06
Pu-241	1.14E-06	7.18E-04	0.999	1.70E-08	5.98E-07	3.01E-06	2.18E-05
Pu-242	5.12E-12	3.22E-09	4.50E-06	7.66E-14	2.69E-12	1.36E-11	9.23E-11
Am-241	9.85E-07	6.19E-04	0.862	1.47E-08	5.16E-07	1.34E-06	1.39E-06
Am-243	6.98E-12	4.22E-09	6.10E-06	1.02E-13	3.66E-12	9.28E-12	9.72E-12
Cm-242	5.23E-09	5.30E-06	8.00E-03	6.90E-08	9.10E-09	9.35E-09	9.36E-09
Cm-243	1.55E-10	1.19E-07	1.06E-04	1.84E-10	1.67E-10	1.01E-10	1.92E-10
Cm-244	1.62E-10	1.02E-07	1.42E-04	2.42E-12	8.51E-11	2.22E-10	2.30E-10
Totals	M	µg/g	kg	-95 CI (M or g/L)	-67 CI (M or g/L)	+67 CI (M or g/L)	+95 CI (M or g/L)
Pu	7.27E-05 (g/L)	---	6.36E-02	1.08E-06	3.81E-05	1.95E-04	1.39E-03
U	1.12E-02	669	237	1.60E-05	5.90E-03	1.54E-02	1.60E-02

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Volume average for density, mass average Water wt% and TOC wt% C.



241-TY-105

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TANK 241-TY-106 SUMMARY

TANK HISTORY	
Entered Service	3rd qtr 1953
Removed from Service	-
Inactive	1977
Watch Lists	none
Integrity	Assumed Leaker
Assumed Leaker	1959
Interim Stabilization (IS)	Nov 1978
Partial Interim Isolation (PI)	-
Intrusion Prevention (IP)	Dec 1982
TENTATIVELY AVAILABLE RISERS	
Riser Number(s)	Size
1, 4	4 in
5, 6, 7, 8	12 in
TANK TEMPERATURE	
Average Tank Temperature	62°F
Maximum Temperature	86°F
Date	August 11, 1977
Elevation from tank bottom	unknown
Riser Number	2
Minimum Temperature	54°F
Date	April 13, 1977
Elevation from tank bottom	unknown
Riser Number	2

TANK DESCRIPTION	
Diameter	75 ft
Bottom Shape	Dish
Nominal Capacity	758,000 gal
Cascade Tank	none
Total Risers	9
WASTE VOLUME (HANLON 1996I)	
Total Waste Volume	17,000 gal
Waste Type	NCPLX
Drainable Interstitial Liquids	0 gal
Pumpable Liquids	0 gal
Saltcake	0 gal
Sludge	17,000 gal
Supernatant	0 gal
INTERIOR PHOTOGRAPHS	
Date	Aug 22, 1987
Montage Number	94080233-26CN
Photo Set Number	89-082238
WASTE SURFACE LEVEL	
Devices	Auto ENRAF
Max Level	14.25 in
Date	Oct 6, 1993 - Jan 1, 1994*
Min Level	13 in
Date	Jan 2, 1994 - Oct 13, 1995*

* Numerous dates in this time span.

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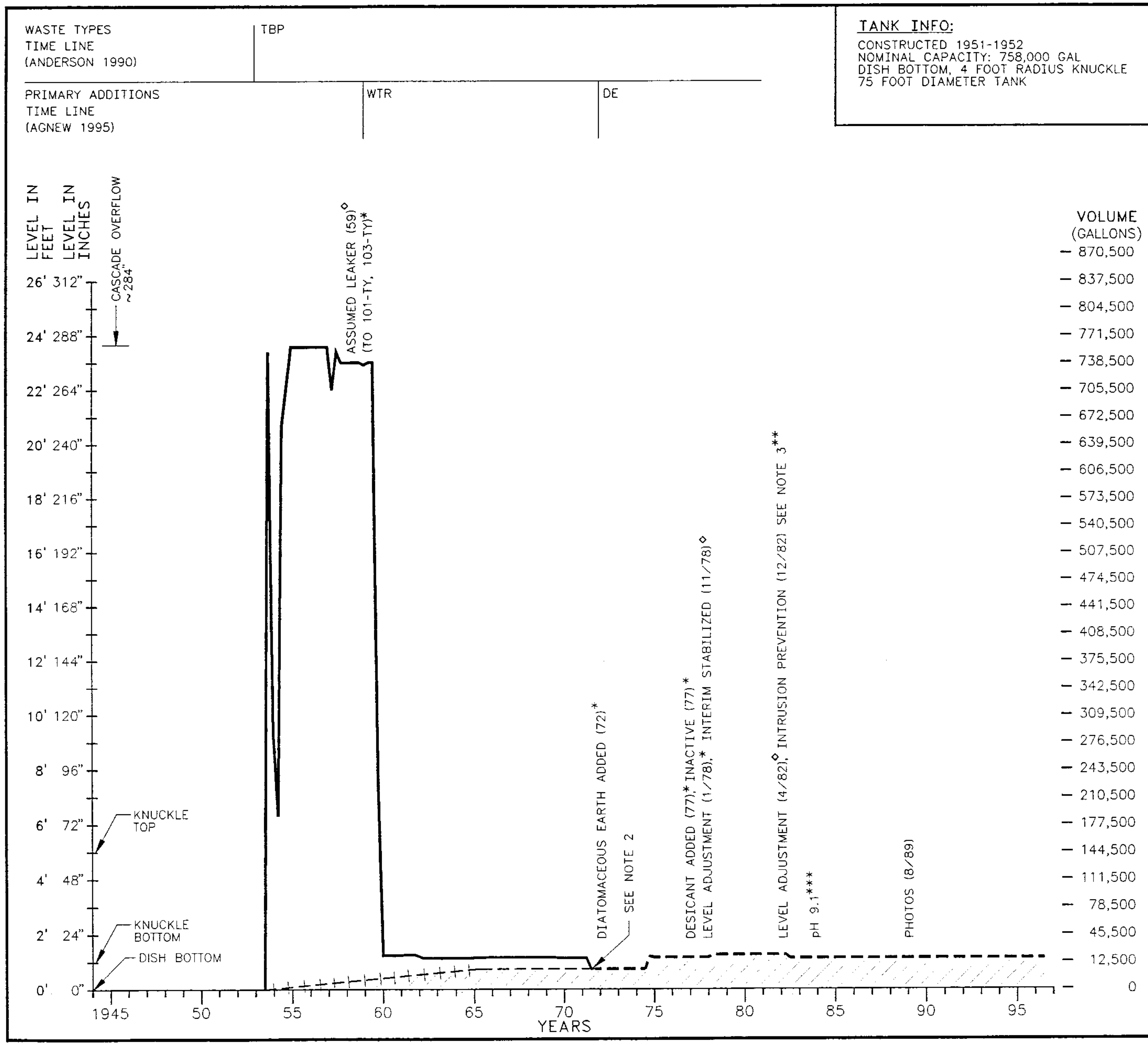


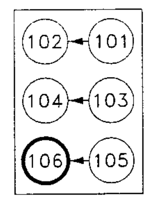
TANK INFO:
CONSTRUCTED 1951-1952
NOMINAL CAPACITY: 758,000 GAL
DISH BOTTOM, 4 FOOT RADIUS KNUCKLE
75 FOOT DIAMETER TANK

REFERENCES
* ANDERSON 1990
** WELTY 1988
*** BORSHEIM AND KIRCH 1991
◇ HANLON 1996l
◇◇ VAIL 1985e

NOTES:
1) TRANSFER SOURCES AND DESTINATIONS ARE NOT AVAILABLE FOR ALL LEVEL CHANGES. FOR MORE DETAILS ABOUT TRANSFER INFORMATION SEE ANDERSON 1990.
2) INTERSTITIAL LIQUID LEVEL IS UNKNOWN.
3) IN JUNE 1993, INTERIM ISOLATION WAS REPLACED BY INTRUSION PREVENTION.

GLOSSARY OF WASTE TERMS:
FOR MORE COMPLETE DEFINITIONS SEE APPENDIX A.
DE: DIATOMACEOUS EARTH
TBP: TRIBUTYL PHOSPHATE
WTR: WATER

LEGEND
TOTAL WASTE LEVEL (SUPERNATE)
TOTAL WASTE LEVEL (SOLIDS)
SOLIDS LEVEL
+++++ ASSUMED SOLIDS LEVEL
SOLIDS



U.S. DEPARTMENT OF ENERGY
Richland Operations Office
FLUOR DANIEL NORTHWEST, INC.

241-TY-106 SINGLE-SHELL TANK
WASTE & LEVEL HISTORY 1953-1996
ASSUMED LEAKER/STABILIZED TANK
WATCH LIST: N/A

SIZE	BLDG NO.	DWG NO.	DATE
B	241	ES-TKS-E133	1/97
SCALE NONE		JOB NO.	SHEET 1 OF 1

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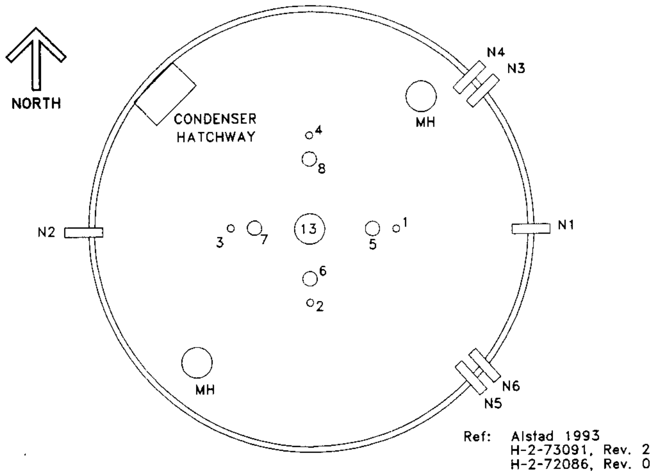
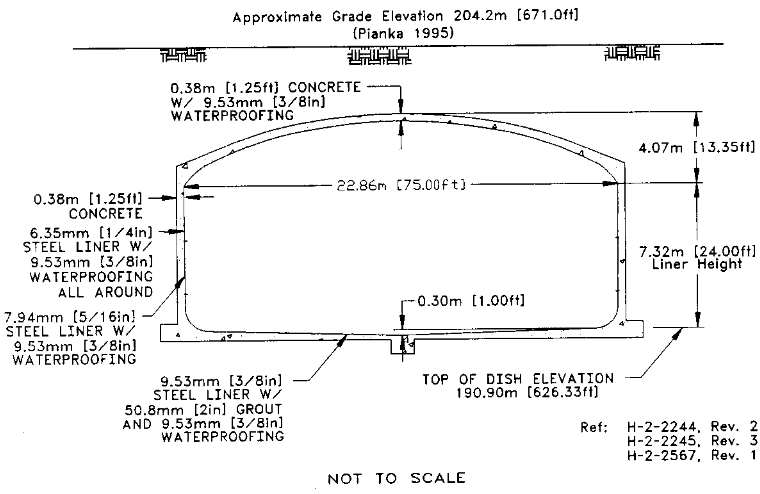
241-TY-106



TANK RISER LOCATION



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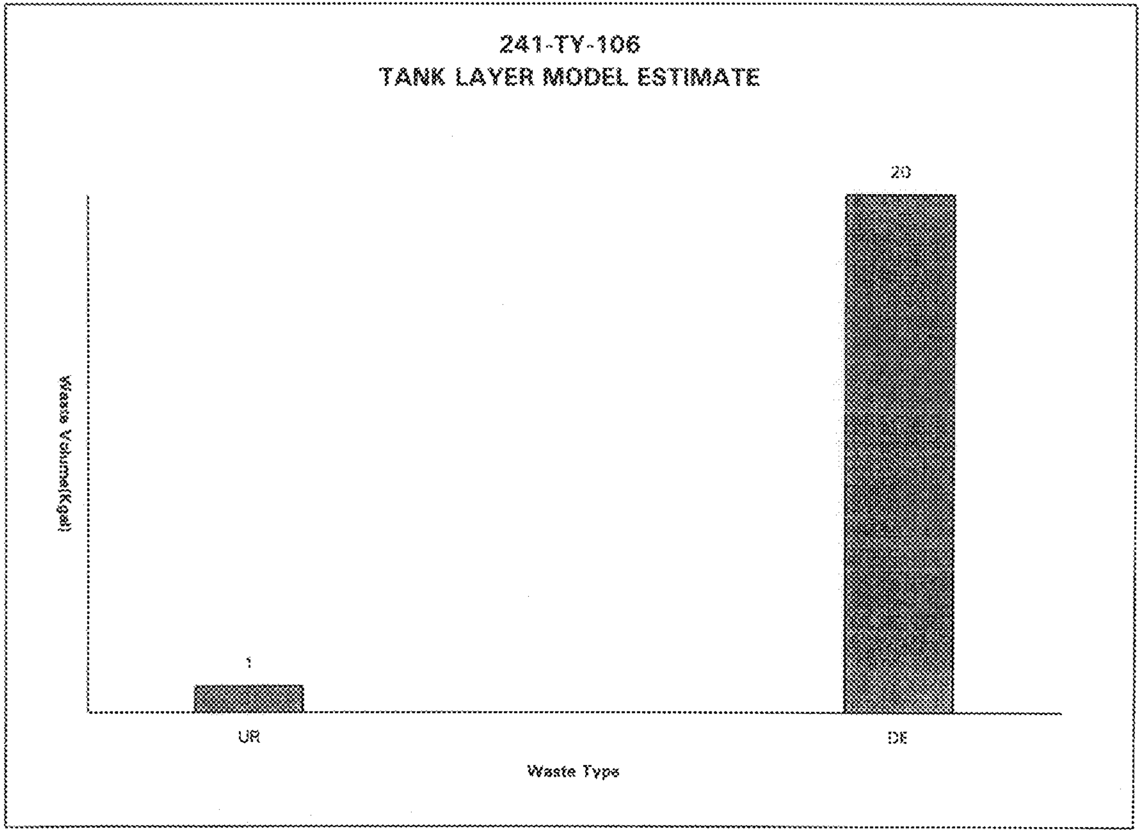


Tank Layer Model(TLM) Estimate from *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 4* (Agnew et al., 1997).

HDW Model Rev. 4

Single-Shell Tank 241-TY-106							
TLM Solids Composite Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total TLM Wa	3.62E+04 (kg)	(21.0 kgal)	—	----	—	—	----
Heat Load	3.13E-04 (kW)	(1.07 BTU/hr)	----	8.52E-05	1.09E-04	5.17E-04	5.44E-04
Bulk Density	0.455 (g/cc)	----	—	0.419	0.426	0.476	0.457
Void Fraction	2.14E-02	----	—	2.02E-02	2.64E-03	4.53E-02	4.73E-02
Water wt%	-0.834	—	----	-0.885	-4.12	4.45	5.95
TOC wt% C (w	2.09E-05	—	----	4.94E-07	2.49E-06	4.10E-05	4.39E-05
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	10.8	5.47E+05	1.98E+04	10.2	10.2	11.3	10.9
Al3+	7.62E-02	4.52E+03	163	7.62E-02	7.62E-02	7.62E-02	7.62E-02
Fe3+ (total Fe)	0.160	1.96E+04	711	8.58E-02	0.154	0.161	0.162
Cr3+	6.96E-05	7.95	0.288	1.51E-06	8.68E-06	1.30E-04	1.39E-04
Bi3+	0	0	0	0	0	0	0
La3+	0	0	0	0	0	0	0
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	3.48E-05	4.49	0.162	7.57E-07	4.34E-06	6.52E-05	6.94E-05
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	9.25E-02	8.14E+03	295	7.62E-02	7.65E-02	9.54E-02	9.82E-02
K+	3.43E-04	29.4	1.06	7.45E-06	4.27E-05	6.43E-04	6.83E-04
OH-	0.223	8.34E+03	302	6.77E-05	0.205	0.226	0.228
NO3-	0.633	8.62E+04	3.12E+03	1.44E-03	4.73E-02	1.09	0.633
NO2-	7.18E-03	726	26.3	2.35E-05	6.21E-04	1.82E-02	2.01E-02
CO32-	2.02E-02	2.66E+03	96.4	9.46E-05	3.27E-03	2.37E-02	2.58E-02
PO43-	2.83E-03	590	21.3	6.15E-05	3.53E-04	5.30E-03	1.06E-02
SO42-	3.08E-03	650	23.5	6.70E-05	3.84E-04	5.77E-03	6.14E-03
Si (as SiO32-)	5.40	3.33E+05	1.21E+04	5.40	5.40	5.40	5.40
F-	0	0	0	0	0	0	0
Cl-	2.08E-03	162	5.85	4.52E-05	2.59E-04	3.89E-03	1.13E-02
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	6.60E-07	0.305	1.10E-02	1.44E-08	8.23E-08	1.24E-06	1.32E-06
butanol	6.60E-07	0.107	3.89E-03	1.44E-08	8.23E-08	1.24E-06	1.32E-06
NH3	2.05E-05	0.767	2.77E-02	1.68E-08	5.36E-07	5.29E-05	5.46E-05
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-TY-106							
SMM Composite Inventory Estimate							
Physical Properties				-95 CI	-67 CI	+67 CI	+95 CI
Total SMM W	0 (kg)	(0 kgal)	---	---	---	---	---
Heat Load	0 (kW)	(0 BTU/hr)	---	0	0	0	0
Bulk Density*	0 (g/cc)	---	---	0	0	0	0
Water wt%	0	---	---	0	0	0	0
TOC wt% C (wet)	0	---	---	0	0	0	0
Chemical Constituents	(mole/L)	ppm	kg	-95 CI (mole/L)	-67 CI (mole/L)	+67 CI (mole/L)	+95 CI (mole/L)
Na^+	0	0	0	0	0	0	0
Al^{3+}	0	0	0	0	0	0	0
Fe^{3+} (total Fe)	0	0	0	0	0	0	0
Cr^{3+}	0	0	0	0	0	0	0
Bi^{3+}	0	0	0	0	0	0	0
La^{3+}	0	0	0	0	0	0	0
Hg^{2+}	0	0	0	0	0	0	0
Zr (as $ZrO(OH)_2$)	0	0	0	0	0	0	0
Pb^{2+}	0	0	0	0	0	0	0
Ni^{2+}	0	0	0	0	0	0	0
Sr^{2+}	0	0	0	0	0	0	0
Mn^{4+}	0	0	0	0	0	0	0
Ca^{2+}	0	0	0	0	0	0	0
K^+	0	0	0	0	0	0	0
OH^-	0	0	0	0	0	0	0
NO_3^-	0	0	0	0	0	0	0
NO_2^-	0	0	0	0	0	0	0
CO_3^{2-}	0	0	0	0	0	0	0
PO_4^{3-}	0	0	0	0	0	0	0
SO_4^{2-}	0	0	0	0	0	0	0
Si (as SiO_3^{2-})	0	0	0	0	0	0	0
F^-	0	0	0	0	0	0	0
Cl^-	0	0	0	0	0	0	0
$C_6H_5O_7^{3-}$	0	0	0	0	0	0	0
$EDTA^{4-}$	0	0	0	0	0	0	0
$HEDTA^{3-}$	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	0	0	0	0	0	0	0
butanol	0	0	0	0	0	0	0
NH_3	0	0	0	0	0	0	0
$Fe(CN)_6^{4-}$	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-TY-106							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	3.62E+04 (kg)	(21.0 kgal)	----	----	----	----	----
Heat Load	3.13E-04 (kW)	(1.07 BTU/hr)	----	8.52E-05	1.09E-04	5.17E-04	5.44E-04
Bulk Density†	0.455 (g/cc)	----	----	0.419	0.426	0.476	0.457
Water wt%†	-0.834	----	----	-0.885	-4.12	4.45	5.95
TOC wt% C (w	2.09E-05	----	----	4.94E-07	2.49E-06	4.10E-05	4.39E-05
Chemical Constituents	**mole/L**	**ppm**	**kg**	**-95 CI (mole/L)**	**-67 CI (mole/L)**	**+67 CI (mole/L)**	**+95 CI (mole/L)**
Na+	10.8	5.47E+05	1.98E+04	10.2	10.2	11.3	10.9
Al3+	7.62E-02	4.52E+03	163	7.62E-02	7.62E-02	7.62E-02	7.62E-02
Fe3+ (total Fe)	0.160	1.96E+04	711	8.58E-02	0.154	0.161	0.162
Cr3+	6.96E-05	7.95	0.288	1.51E-06	8.68E-06	1.30E-04	1.39E-04
Bi3+	0	0	0	0	0	0	0
La3+	0	0	0	0	0	0	0
Hg2+	0	0	0	0	0	0	0
Zr (as ZrO(OH)2	0	0	0	0	0	0	0
Pb2+	0	0	0	0	0	0	0
Ni2+	3.48E-05	4.49	0.162	7.57E-07	4.34E-06	6.52E-05	6.94E-05
Sr2+	0	0	0	0	0	0	0
Mn4+	0	0	0	0	0	0	0
Ca2+	9.25E-02	8.14E+03	295	7.62E-02	7.65E-02	9.54E-02	9.82E-02
K+	3.43E-04	29.4	1.06	7.45E-06	4.27E-05	6.43E-04	6.83E-04
OH-	0.223	8.34E+03	302	6.77E-05	0.205	0.226	0.228
NO3-	0.633	8.62E+04	3.12E+03	1.44E-03	4.73E-02	1.09	0.633
NO2-	7.18E-03	726	26.3	2.35E-05	6.21E-04	1.82E-02	2.01E-02
CO32-	2.02E-02	2.66E+03	96.4	9.46E-05	3.27E-03	2.37E-02	2.58E-02
PO43-	2.83E-03	590	21.3	6.15E-05	3.53E-04	5.30E-03	1.06E-02
SO42-	3.08E-03	650	23.5	6.70E-05	3.84E-04	5.77E-03	6.14E-03
Si (as SiO32-)	5.40	3.33E+05	1.21E+04	5.40	5.40	5.40	5.40
F-	0	0	0	0	0	0	0
Cl-	2.08E-03	162	5.85	4.52E-05	2.59E-04	3.89E-03	1.13E-02
C6H5O73-	0	0	0	0	0	0	0
EDTA4-	0	0	0	0	0	0	0
HEDTA3-	0	0	0	0	0	0	0
glycolate-	0	0	0	0	0	0	0
acetate-	0	0	0	0	0	0	0
oxalate2-	0	0	0	0	0	0	0
DBP	6.60E-07	0.305	1.10E-02	1.44E-08	8.23E-08	1.24E-06	1.32E-06
butanol	6.60E-07	0.107	3.89E-03	1.44E-08	8.23E-08	1.24E-06	1.32E-06
NH3	2.05E-05	0.767	2.77E-02	1.68E-08	5.36E-07	5.29E-05	5.46E-05
Fe(CN)64-	0	0	0	0	0	0	0

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

Single-Shell Tank 241-TY-106

TLM Solids Composite Inventory Estimate[a]

Physical Properties				-95 CI	-67 CI	+67 CI	+95 CI
Total TLM Wst	3.63E+04 (kg)	(21.0 kgal)	---	---	---	---	---
Heat Load	2.15E-04 (kW)	(0.735 Btu/hr)	---	8.52E-05	1.09E-04	3.17E-04	3.44E-04
Bulk Density	0.455 (g/cc)	---	---	0.419	0.426	0.476	0.457
Void Fraction	2.11E-02	---	---	2.02E-02	2.64E-02	4.53E-02	4.73E-02
Water wt%	0.836	---	---	0.585	4.12	4.43	5.95
TOC wt% C (wet)	2.09E-05	---	---	6.99E-07	2.49E-06	4.10E-05	4.99E-05

Radiological Constituents	Ci/L	µCi/g	Ci	-95 CI (Ci/L)	-67 CI (Ci/L)	+67 CI (Ci/L)	+95 CI (Ci/L)
H-3	1.09E-07	2.39E-04	8.68E-03	2.53E-11	1.27E-08	2.17E-07	2.33E-07
C-14	1.50E-08	3.30E-05	1.19E-03	3.27E-10	1.87E-09	2.82E-08	2.99E-08
Ni-59	4.27E-09	9.38E-06	3.39E-04	9.29E-11	5.33E-10	8.01E-09	8.51E-09
Ni-63	3.85E-07	8.45E-04	3.06E-02	8.37E-09	4.80E-08	7.22E-07	7.60E-07
Co-60	3.44E-09	7.56E-06	2.73E-04	7.47E-11	4.28E-10	6.44E-09	6.85E-09
Se-79	3.17E-09	6.96E-06	2.52E-04	6.59E-11	3.95E-10	5.94E-09	6.31E-09
Sr-90	2.44E-04	0.536	19.4	5.31E-06	3.04E-05	4.58E-04	4.87E-04
Y-90	2.44E-04	0.536	19.4	5.31E-06	3.04E-05	4.58E-04	4.87E-04
Zr-93	1.50E-08	3.30E-05	1.20E-03	3.27E-10	1.88E-09	2.82E-08	3.00E-08
Nb-93m	1.27E-08	2.79E-05	1.01E-03	2.76E-10	1.58E-09	2.38E-08	2.53E-08
Tc-99	1.04E-07	2.29E-04	8.28E-03	2.27E-09	1.30E-08	1.95E-07	2.08E-07
Ru-106	1.43E-15	3.14E-12	1.14E-10	3.11E-17	1.78E-16	2.68E-15	2.85E-15
Cd-113m	3.69E-09	8.07E-06	2.92E-04	8.00E-11	4.59E-10	6.89E-09	7.33E-09
Sb-125	3.16E-08	6.94E-05	2.51E-03	6.90E-11	3.97E-08	5.97E-08	6.34E-08
Sn-126	4.77E-09	1.05E-05	3.79E-04	1.04E-10	5.96E-10	8.94E-09	9.50E-09
I-129	1.96E-10	4.31E-07	1.56E-05	4.27E-12	2.45E-11	3.68E-10	3.91E-10
Cs-134	4.66E-11	8.77E-08	3.17E-06	3.81E-11	2.04E-11	5.45E-11	6.33E-11
Cs-137	4.90E-04	1.08	38.9	2.21E-04	2.50E-04	7.20E-04	7.62E-04
Ba-137m	4.63E-04	1.02	36.8	2.09E-04	2.36E-04	6.98E-04	7.21E-04
Sm-151	1.19E-05	2.59E-02	0.937	2.56E-07	1.47E-06	2.21E-05	2.35E-05
Eu-152	3.40E-08	7.54E-05	2.73E-03	3.39E-08	3.40E-08	3.47E-08	3.48E-08
Eu-154	6.19E-08	1.36E-04	4.92E-03	1.35E-08	7.72E-09	1.16E-07	1.23E-07
Eu-155	3.59E-06	5.68E-03	0.286	2.56E-06	2.56E-06	2.62E-06	2.62E-06
Ra-226	9.64E-15	1.56E-08	5.66E-06	1.00E-14	1.00E-13	2.10E-13	1.75E-11
Ra-228	1.31E-16	2.66E-13	1.94E-11	1.30E-16	1.30E-16	1.33E-16	1.33E-16
Ac-227	4.41E-12	9.69E-09	3.51E-07	9.60E-12	5.50E-13	8.27E-12	1.71E-10
Pa-231	9.59E-13	2.10E-08	7.62E-07	2.09E-13	1.20E-12	1.80E-11	1.91E-11
Th-229	3.93E-12	5.59E-11	2.02E-08	2.51E-19	2.53E-19	2.27E-19	3.29E-19
Th-232	4.28E-18	9.40E-15	3.40E-13	9.31E-20	5.34E-19	8.03E-18	8.54E-18
U-232	4.90E-13	1.08E-10	3.89E-09	1.07E-15	8.11E-15	9.18E-14	9.76E-14
U-233	2.43E-13	4.53E-12	3.53E-10	1.28E-17	3.10E-16	4.55E-13	4.84E-13
U-234	2.60E-06	5.70E-06	2.06E-04	5.69E-11	3.26E-10	4.87E-06	5.18E-06
U-235	1.18E-10	2.59E-07	9.38E-06	2.51E-12	1.44E-11	2.17E-10	2.30E-10
U-236	2.33E-11	4.98E-08	1.77E-06	4.90E-13	2.79E-12	4.19E-11	4.45E-11
U-238	2.66E-06	5.79E-06	2.09E-04	5.73E-11	3.29E-10	4.94E-06	5.25E-06
Np-237	6.47E-10	1.41E-06	5.11E-05	1.40E-11	8.02E-11	1.21E-09	1.28E-09
Pu-238	8.51E-10	1.87E-06	6.76E-05	1.85E-11	1.06E-10	4.20E-09	2.79E-08
Pu-239	1.29E-09	2.94E-04	1.80E-02	2.82E-09	1.61E-09	6.39E-07	5.76E-06
Pu-240	1.11E-08	2.44E-05	8.83E-04	2.40E-10	1.39E-09	5.48E-08	4.95E-07
Pu-241	3.35E-08	7.35E-05	2.66E-03	7.29E-10	4.17E-09	1.65E-07	1.49E-06
Pu-242	1.31E-12	3.31E-10	1.09E-08	3.28E-13	1.92E-12	7.07E-12	6.71E-12
Am-241	2.89E-05	6.34E-05	2.29E-03	6.29E-10	3.60E-09	5.42E-08	5.76E-08
Am-243	2.02E-10	4.43E-10	1.60E-08	4.38E-15	2.51E-14	3.75E-13	4.02E-13
Cm-242	6.25E-10	1.37E-06	5.00E-05	6.21E-10	6.22E-10	6.36E-10	6.37E-10
Cm-243	1.29E-11	2.83E-05	1.02E-06	1.37E-11	1.37E-11	1.39E-11	1.39E-11
Cm-244	4.77E-12	1.05E-08	3.79E-07	1.04E-13	5.94E-13	8.94E-12	9.50E-12

Totals	M	µg/g	kg	-95 CI (M or g/L)	-67 CI (M or g/L)	+67 CI (M or g/L)	+95 CI (M or g/L)
Pu	2.10E-08 (g/L)	---	1.65E-04	4.64E-08	2.66E-07	3.87E-05	5.49E-05
U	3.72E-05	17.2	0.627	7.21E-07	4.14E-06	6.22E-05	6.61E-05

[a]Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

HDW Model Rev. 4

Single-Shell Tank 241-TY-106							
SMM Composite Inventory Estimate							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total SMM W	0 (kg)	(0 kgal)	----	—	—	—	----
Heat Load	0 (kW)	(0 BTU/hr)	—	0	0	0	0
Bulk Density*	0 (g/cc)	—	—	0	0	0	0
Water wt%†	0	----	—	0	0	0	0
TOC wt% C (w	0	—	—	0	0	0	0
Radiological Constituents	**Ci/L**	**µCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	0	0	0	0	0	0	0
C-14	0	0	0	0	0	0	0
Ni-59	0	0	0	0	0	0	0
Ni-63	0	0	0	0	0	0	0
Co-60	0	0	0	0	0	0	0
Se-79	0	0	0	0	0	0	0
Sr-90	0	0	0	0	0	0	0
Y-90	0	0	0	0	0	0	0
Zr-93	0	0	0	0	0	0	0
Nb-93m	0	0	0	0	0	0	0
Tc-99	0	0	0	0	0	0	0
Ru-106	0	0	0	0	0	0	0
Cd-113m	0	0	0	0	0	0	0
Sb-125	0	0	0	0	0	0	0
Sn-126	0	0	0	0	0	0	0
I-129	0	0	0	0	0	0	0
Cs-134	0	0	0	0	0	0	0
Cs-137	0	0	0	0	0	0	0
Ba-137m	0	0	0	0	0	0	0
Sm-151	0	0	0	0	0	0	0
Eu-152	0	0	0	0	0	0	0
Eu-154	0	0	0	0	0	0	0
Eu-155	0	0	0	0	0	0	0
Ra-226	0	0	0	0	0	0	0
Ra-228	0	0	0	0	0	0	0
Ac-227	0	0	0	0	0	0	0
Pa-231	0	0	0	0	0	0	0
Th-229	0	0	0	0	0	0	0
Th-232	0	0	0	0	0	0	0
U-232	0	0	0	0	0	0	0
U-233	0	0	0	0	0	0	0
U-234	0	0	0	0	0	0	0
U-235	0	0	0	0	0	0	0
U-236	0	0	0	0	0	0	0
U-238	0	0	0	0	0	0	0
Np-237	0	0	0	0	0	0	0
Pu-238	0	0	0	0	0	0	0
Pu-239	0	0	0	0	0	0	0
Pu-240	0	0	0	0	0	0	0
Pu-241	0	0	0	0	0	0	0
Pu-242	0	0	0	0	0	0	0
Am-241	0	0	0	0	0	0	0
Am-243	0	0	0	0	0	0	0
Cm-242	0	0	0	0	0	0	0
Cm-243	0	0	0	0	0	0	0
Cm-244	0	0	0	0	0	0	0
Totals	**M**	**µg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	0 (g/L)	—	0	0	0	0	0
U	0	0	0	0	0	0	0

*Density is calculated based on Na, OH-, and AlO2-.

†Water wt% derived from the difference of density and total dissolved species.

HDW Model Rev. 4

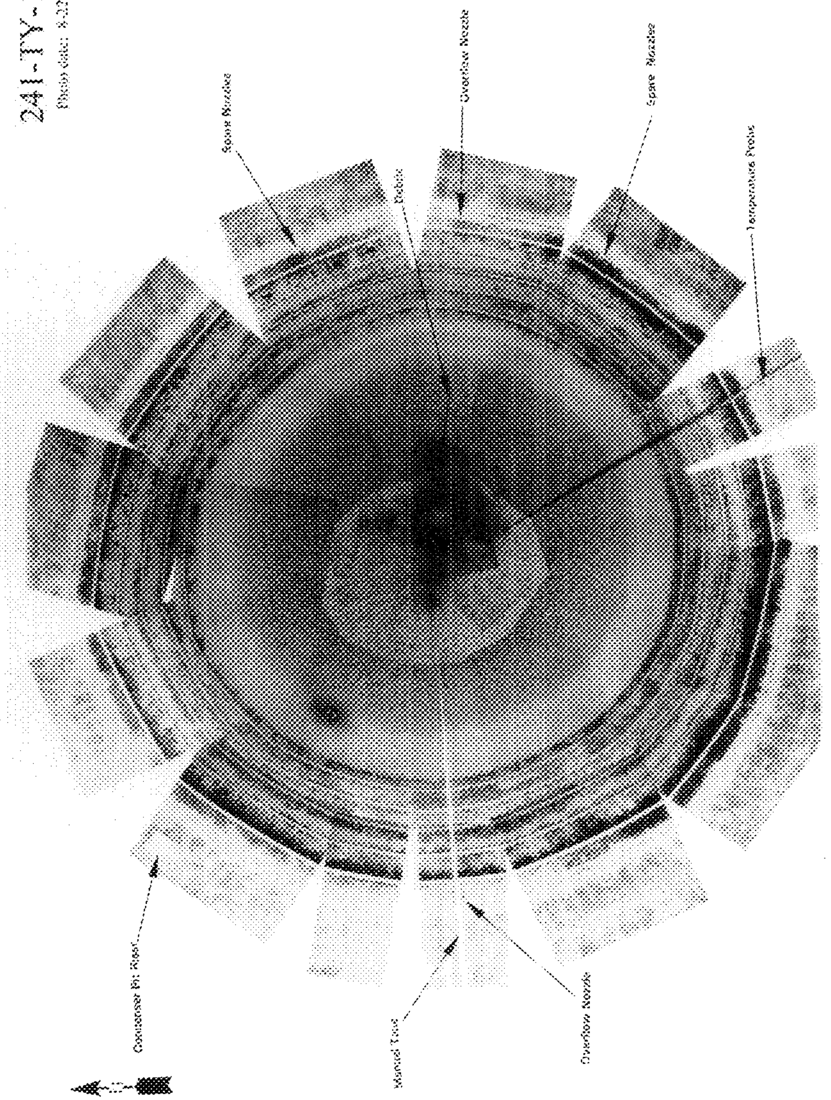
Single-Shell Tank 241-TY-106							
Total Inventory Estimate*							
Physical Properties				**-95 CI**	**-67 CI**	**+67 CI**	**+95 CI**
Total Waste	3.82E+04 (kg)	(21.9 kgal)	---	---	---	---	---
Heat Load	1.10E-04 (kW)	(1.17 BTU/hr)	---	9.53E-05	1.09E-04	1.17E-04	1.44E-04
Bulk Density†	0.455 (g/cc)	---	---	0.419	0.428	0.478	0.457
Water wt%†	-0.554	---	---	-0.555	-4.12	4.45	3.95
TOC wt% C (wet)	3.09E-05	---	---	4.94E-07	2.49E-06	4.10E-05	6.29E-05
Radiological Constituents	**Ci/L**	**μCi/g**	**Ci**	**-95 CI (Ci/L)**	**-67 CI (Ci/L)**	**+67 CI (Ci/L)**	**+95 CI (Ci/L)**
H-3	1.09E-07	2.39E-04	8.03E-07	2.55E-11	1.27E-08	2.17E-07	2.53E-07
C-14	1.50E-08	3.30E-05	1.10E-03	3.27E-10	1.27E-09	3.22E-08	3.99E-08
Ni-59	4.17E-08	9.00E-05	3.09E-04	9.29E-11	5.35E-10	9.01E-08	8.51E-09
Ni-63	3.55E-07	8.45E-04	3.06E-02	8.37E-09	4.90E-08	7.22E-07	7.88E-07
Co-60	3.44E-09	7.54E-06	2.75E-04	7.47E-11	4.28E-10	6.44E-09	6.82E-09
Se-79	3.17E-09	6.96E-06	2.32E-04	6.89E-11	3.55E-10	3.94E-09	6.55E-09
Sr-90	3.88E-03	8.53	32.4	5.01E-06	3.04E-05	4.38E-04	4.27E-04
Y-90	2.44E-04	0.536	39.5	5.10E-06	3.04E-05	4.58E-04	4.47E-04
Zr-93	1.50E-08	3.30E-05	1.20E-03	3.27E-10	1.55E-09	2.52E-08	3.06E-08
Nb-93m	1.27E-08	2.79E-05	1.01E-03	2.76E-10	1.38E-09	3.38E-08	2.77E-08
Tc-99	1.04E-07	2.29E-04	8.29E-03	2.27E-09	1.30E-08	1.95E-07	2.08E-07
Ru-106	1.92E-15	3.18E-12	1.14E-10	3.11E-17	1.78E-16	3.88E-15	2.25E-15
Cd-113m	3.66E-08	8.05E-05	2.92E-03	8.09E-10	4.59E-09	6.89E-08	7.33E-08
Sb-125	3.15E-06	8.09E-06	2.30E-04	8.02E-11	3.97E-10	5.97E-09	6.34E-09
Sn-126	4.77E-09	1.05E-05	3.79E-04	1.04E-10	5.94E-10	8.94E-09	9.30E-09
I-129	1.96E-10	4.31E-07	1.56E-05	4.27E-12	2.45E-11	3.68E-10	3.91E-10
Cs-134	4.00E-11	8.77E-09	3.17E-06	1.91E-11	3.08E-11	5.95E-11	6.22E-11
Cs-137	3.90E-04	1.08	38.2	2.10E-04	2.95E-04	7.39E-04	7.62E-04
Ba-137m	4.60E-04	1.02	36.2	2.09E-04	2.36E-04	6.90E-04	7.21E-04
Sm-151	1.18E-05	2.59E-02	0.937	2.56E-07	1.47E-06	3.21E-05	2.27E-05
Eu-152	3.65E-08	2.56E-05	3.72E-07	3.39E-08	3.40E-08	3.47E-08	3.48E-08
Eu-154	6.19E-08	1.36E-04	4.92E-03	1.23E-09	7.72E-09	1.18E-07	1.23E-07
Eu-155	2.59E-06	5.69E-03	0.206	2.56E-06	2.56E-06	2.62E-06	2.62E-06
Ra-226	8.69E-13	1.90E-09	6.90E-08	1.89E-14	1.09E-13	3.13E-12	3.75E-11
Ra-228	1.31E-16	2.90E-13	1.06E-11	1.30E-16	1.30E-16	1.33E-16	1.33E-16
Ac-227	4.51E-12	9.60E-09	3.51E-07	9.60E-16	5.50E-15	8.27E-12	1.71E-10
Pa-231	9.59E-12	2.10E-08	7.62E-07	2.09E-12	1.20E-12	1.80E-11	1.91E-11
Th-229	2.55E-14	3.59E-11	3.02E-09	2.51E-14	2.53E-14	2.57E-14	2.55E-14
Th-232	4.28E-18	8.00E-15	3.40E-13	8.01E-20	5.34E-19	8.03E-18	8.54E-18
U-232	4.90E-14	1.09E-10	3.90E-09	1.07E-15	6.10E-15	9.18E-14	9.76E-14
U-233	2.55E-15	5.33E-12	1.93E-10	5.35E-17	3.03E-16	4.55E-15	4.54E-15
U-234	3.60E-09	5.70E-06	2.06E-04	5.83E-11	3.24E-10	4.87E-09	5.18E-09
U-235	1.15E-10	2.54E-07	9.19E-06	2.51E-12	1.44E-11	2.17E-10	2.30E-10
U-236	2.23E-11	4.90E-08	1.77E-06	4.96E-13	2.78E-12	4.19E-11	4.45E-11
U-238	2.64E-09	5.79E-06	2.09E-04	5.73E-11	3.29E-10	4.94E-09	5.27E-09
Np-237	6.63E-10	1.41E-06	5.10E-05	1.46E-11	8.03E-11	1.31E-09	1.35E-09
Pu-238	5.31E-10	1.27E-06	6.39E-05	1.23E-11	1.06E-10	4.20E-09	3.79E-08
Pu-239	1.29E-07	2.84E-04	1.03E-02	2.83E-09	1.61E-08	6.35E-07	5.76E-06
Pu-240	1.11E-08	2.44E-05	5.87E-04	2.47E-10	1.39E-09	5.48E-08	4.95E-07
Pu-241	3.35E-08	7.33E-05	2.66E-03	1.22E-10	4.17E-09	1.63E-07	1.49E-06
Pu-242	1.51E-15	3.31E-10	1.20E-08	3.35E-15	1.55E-14	7.45E-13	6.71E-12
Am-241	2.84E-08	6.24E-05	2.25E-03	6.28E-10	3.50E-09	5.42E-08	5.70E-08
Am-243	2.02E-12	3.43E-10	1.60E-08	4.38E-15	2.51E-14	3.78E-12	4.02E-12
Cm-242	6.29E-10	1.35E-06	5.08E-05	6.21E-10	6.22E-10	6.35E-10	6.37E-10
Cm-243	1.29E-11	3.22E-09	1.02E-06	1.27E-11	1.27E-11	1.30E-11	1.30E-11
Cm-244	4.77E-12	1.05E-08	3.79E-07	1.04E-13	5.94E-13	8.94E-12	9.50E-12
Totals	**M**	**μg/g**	**kg**	**-95 CI (M or g/L)**	**-67 CI (M or g/L)**	**+67 CI (M or g/L)**	**+95 CI (M or g/L)**
Pu	3.72E-06 (g/L)	---	1.69E-04	4.54E-08	2.58E-07	1.10E-05	9.49E-05
U	1.32E-03	273	0.527	7.21E-07	4.14E-06	6.22E-05	6.61E-05

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).

†Volume average for density, mass average Water wt% and TOC wt% C.

241-TY-106

Photo date: 8-22-[illegible]



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APPENDIX 8

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GLOSSARY

This glossary of Hanford terminology has been compiled from numerous sources. A lot of the terms have come from Anderson (1990), Jungfleisch (1984) and Agnew et al. (1996). These definitions may conflict with other sources.

1C	First-cycle decontamination waste from the bismuth phosphate ($BiPO_4$) process at B and T Plants consisting of by-products co-precipitated from a solution containing plutonium (contains 10% of the original fission product activity and 2% of the products). By-product cake solution was mixed with product waste and neutralized with 50% caustic. Coating waste from removing aluminum fuel element cladding was added and comprised about 24% of the waste.
1C1	First-cycle decontamination waste from the bismuth phosphate ($BiPO_4$) process, 1944-49 (LANL defined waste #3)
1C2	First-cycle decontamination waste from the bismuth phosphate ($BiPO_4$) process, 1950-56 (LANL defined waste #4)
1CEB	1st Cycle Evaporator Bottoms
1CFeCN	Ferrocyanide sludge produced by in-plant scavenging of 1C supernatant wastes (LANL defined waste #12)
224	224-U Waste. LaF_3 finishing waste from $BiPO_4$ process and uranium recovery in the 224 buildings by T Plant and B Plant and the Plutonium Finishing Plant (LANL defined waste #7)
2C	Second-cycle decontamination waste from the bismuth phosphate ($BiPO_4$) process at B and T Plants (see second-cycle decontamination waste)
2C1	Second-cycle decontamination waste from the bismuth phosphate ($BiPO_4$) process, 1944-49 (LANL defined waste #5)
2C2	Second-cycle decontamination waste from the bismuth phosphate ($BiPO_4$) process, 1950-56 (LANL defined waste #6)
A1SltCk	Salt cake waste generated from the 242-A Evaporator-Crystallizer from 1977 until 1980.
A2SltSlr	Salt slurry waste generated from the 242-A Evaporator-Crystallizer from 1981 until 1994.

AR	Washed PUREX sludge from the 244-AR Vault (LANL defined waste #31)
Assumed Leaker	A waste storage tank for which past surveillance data has indicated a loss of liquid attributed to a breach of integrity. In 1984, the designations of "suspect leaker," "questionable integrity," "confirmed leaker," "declared leaker," "dormant", and "borderline" were merged into one category called "assumed leaker."
B	High-level waste from PUREX acidified waste processed through B Plant to extract strontium (LANL defined waste #32)
BG	Below grade
BL	B Plant low-level waste beginning 1968 (LANL defined waste #33)
BM	Bench mark
BNW	Battelle Northwest Laboratory waste
BSLTCK	Salt cake waste generated from the 242-B Evaporator, 1951-53 (LANL defined waste #41)
BYSLTCK	Salt cake waste generated from in-tank solidification units 1 and 2 in BY Tank Farm, 1965-74 (LANL defined waste #44)
Cascade	Eleven of the single-shell tank farms (all except the AX Tank Farm) were equipped with overflow lines between tanks. The tanks were connected in series and were placed at different elevations creating a downhill gradient for liquids to flow (cascade) from one tank to another. Thus, multiple tanks could be filled with one pump.
CEM	*Cement* (LANL defined waste #37)
CPLX	Complexed waste; dilute waste containing relatively high concentrations of organic chelating agents such as EDTA and HEDTA form B Plant waste fractionization.
Crib	An underground structure filled with aggregate designed to receive liquid waste, usually through a perforated pipe. The filtration and ion exchange properties of the soil in and around the crib were used to contain the radionuclides

CSR	Waste (supernate) from cesium recovery of tank supernate at B Plant (LANL defined waste #35)
CW	Coating (cladding) waste produced at PUREX from dissolution of Zircaloy or aluminum fuel cladding.
CWP	Coating (cladding) waste (PUREX)
CWP1	Coating (cladding) waste (PUREX), (LANL defined waste #21, CWP/Al, 1956-60)
CWP2	Cladding (coating) waste (PUREX), (LANL defined waste #22, CWP/Al, 1961-72)
CWP/ZR	Now called PD or NCRW
CWR1	REDOX cladding (coating) waste, (LANL defined waste #15, CWR/Al, 1952-60)
CWR2	Coating (cladding) waste (REDOX), (LANL defined waste #16, CWL/Al with some Zr, 1961-72)
CWZR1	Coating (cladding) waste (PUREX), Zircaloy cladding; 1968-72 (LANL defined waste #23)
CWZR2	Coating (cladding) waste (PUREX), Zircaloy cladding; 1983-88 (LANL defined waste #47), see NCRW and PD; also known as CWP/ZR2
DE	Diatomaceous Earth; Diatomite (SiO_2), a light friable siliceous material derived from diatom (algal) remains, added to some underground waste storage tanks to absorb residual liquids. (LANL defined waste #36)
Ditch	A linear excavation often used for the temporary diversion or disposal of process waste streams.
DW	Decontamination waste; a wash solution from equipment decontamination at T Plant (LANL defined waste #39)
EB	Evaporator bottoms; a slurry from the evaporators
EVAP	Evaporator feed (post 1976 designation)
FD	Feed dilute

FIC	Food Instrument Corporation, waste surface level device
H_2O	Water
HLO	Hanford Laboratory Operations; also, Hanford laboratory operations waste; laboratory waste from the 300 Area
HS	Hot Semiworks (C Plant); a pilot facility with a variety of operations. Also, Hot or Strontium Semiworks waste (LANL defined waste #28), see SSW.
ILL	Interstitial liquid level
Inactive Tank	A tank that has been removed from liquid-processing service, has been pumped to less than 33,000 gallons of waste, and will be, or is in the process of being, stabilized followed by intrusion prevention. This includes all tanks not in active or active-restricted categories. Also included are inactive spare tanks that would be used if an active tank failed.
Interim Isolation	An administrative designation reflecting the completion of the physical effort required to *minimize* the addition of liquids into an inactive storage tank, process vault, sump, catch tank, or diversion box. (In June 1993, "interim isolation" was replaced by "intrusion prevention".)
Interim Stabilization	A tank which contains less than 50,000 gallons of drainable interstitial liquid and less than 5,000 gallons of supernate. If a jet pump was used to achieve interim stabilization, then the jet pump flowrate must have been at or below 0.05 gallons per minute before interim stabilization was completed.
Interstitial Liquid	The interstitial liquid within the tanks is the liquid that fills the interstitial (voids) spaces of the solid waste.
Intrusion Prevention	An administrative designation reflecting the completion of the physical effort required to minimize the addition of liquids into an inactive storage tank, process vault, catch tank, sump, or diversion box.
IX	Ion exchange waste from the cesium recovery process at B Plant
Knuckle	Point where the side wall and the bottom curved surface of a tank meet

Level Adjustment	Any update in the waste inventory (or tank level) in a tank. The adjustments usually result from surveillance observations or historical investigations.
Liquid Observation Well (LOW)	A liquid observation well is a fiber glass or tefzel-reinforced epoxy-polyester resin, 89 mm (3.5 inches) diameter pipe that is capped on the bottom end. This end is placed within 25 mm (1 inch) above the bottom portion of the steel tank liner. Three types of probes are used in the LOW to monitor changes in the interstitial liquid level: acoustic, gamma, and neutron.
MH	Manhole
MW	Waste from the bismuth phosphate process (which extracted plutonium) containing all the uranium, approximately 90% of the original fission product activity, and approximately 1% of the product. This waste was brought to the neutral point with 50% caustic and then treated with an excess of sodium carbonate. This procedure yielded almost completely soluble waste at a minimum total volume. The exact composition of the carbonate compounds was not known, but was assumed to be a uranium phosphate carbonate mixture. The term "metal" was the code word for plutonium
MW1	Metal waste from $BiPO_4$, 1944-49 (LANL defined waste #1, same as MW)
MW2	Metal waste from $BiPO_4$, 1950-56 (LANL defined waste #2, same as MW)
N	Phosphate decontamination waste from N Reactor (LANL defined waste #40)
NCAW	Neutralized current acid waste, primary high-level waste stream from PUREX process (LANL defined waste #45, formerly P3, 1983-88)
NCPLX	Non-complexed waste; general term for supernates and salt well liquors that did not contain organic complexants.
NCRW	Neutralized cladding removal waste, same as CWP/Zr.
NIT	$HNO_3/KMNO_4$ solution added during evaporator operation (LANL defined waste #38)
Non-Complexed	General waste term applied to all Hanford Site liquors not identified as complexed (containing organics).

OBSV Port	Observation Port
Out-of-Service-Tank	A tank that does not meet the definition of an in-service tank. Before September 1988, these tanks were defined as inactive. (Note: All single-shell tanks are out of service.)
OWW	Organic Wash Waste; The solvent used in PUREX was treated before reuse by washing with potassium permanganate and sodium carbonate, followed by dilute nitric acid.
OWW1	Organic wash waste, 1956-62, also known as CARB (LANL defined waste #24)
OWW2	Organic wash waste, 1963-67 (LANL defined waste #25)
OWW3	Organic wash waste, 1968-72 (LANL defined waste #26)
P	High-level neutralized acid waste from PUREX
P1	PUREX high-level waste, 1956-62 (LANL defined waste #17)
P2	PUREX high-level waste, 1963-67 (LANL defined waste #18)
P2'	1968-1972, assigned to P2. (LANL defined waste #19)
P3	1983-1988, now called PXNAW or NCAW. (LANL defined waste #45)
Partial Interim Isolation	The administrative designation for completing the physical effort required for interim isolation, except for isolating the risers and piping that will be required for jet pumping or for other methods of stabilization.
PASF	PUREX ammonia scrubber feed (LANL defined waste #48)
PD	PUREX decladding waste
PFeCN1	Ferrocyanide sludge produced by in-plant scavenging (using 0.005 M ferrocyanide) of waste from uranium recovery (LANL defined waste #9)
PFeCN2	Same as PFeCN1 except 0.0025 M ferrocyanide used (LANL defined waste #10)
pH	A measure of the hydrogen ion concentration in solution.
PL	Low-level waste from PUREX

PL1	PUREX low-level waste (LANL defined waste #20)
PL2	1983-88, now called PXMSC, among other things. (LANL defined waste #46)
PNF	Partial Neutralization Feed. Indicates addition of nitric acid at an evaporator in an attempt to produce more salt cake during volume reduction.
Primary Addition	An addition of waste from a specific plant or process vault.
PXMSC	Dilute, non-complexed waste from PUREX misc. streams (LANL defined waste #46, formerly PL2)
PXNAW	Aging waste from PUREX high level waste; see NCAW (LANL defined waste #45, formerly P3, 1983-88)
R	High-level waste from REDOX
R1	REDOX waste, 1952-57 (LANL defined waste #13)
R2	REDOX waste, 1958-66 (LANL defined waste #14)
Riser	A vertical pipe through a tank dome (access to the tank interior).
RIX	REDOX ion exchange waste produced at B Plant by extracting cesium from REDOX supernate
RSLTCK	Salt-cake waste from the REDOX concentrator (LANL defined waste #43)
S1SltCk	Salt cake waste generated from the 242-S Evaporator/Crystallizer from 1973 until 1976.
S2SltSlr	Salt cake waste generated from the 242-S Evaporator/Crystallizer from 1977 until 1980.
SACS	Surveillance analysis computer system
Salt Cake	Crystallized nitrate and other salts deposited in waste tanks, usually after the waste is concentrated by evaporation.
Salt Well	A hole drilled or sluiced into salt cake and lined with a cylindrical screen to permit drainage and jet pumping of interstitial liquids.

Scavenged Waste	Waste which has been treated with ferrocyanide to remove cesium from the supernate by precipitating it into a sludge.
Self-Concentrating Waste	Liquid, high-level radioactive waste whose decaying radionuclides heat the solution sufficiently to boil off (i.e., evaporate) the water, thus concentrating the waste.
SIX	Waste from removing cesium from PUREX sludge supernate by ion exchange at B Plant
Sluicing, or sluiced	To wash with water. At Hanford, this has meant to dissolve or suspend waste in solution using a high pressure water stream.
Slurry	Insoluble material suspended in water or aqueous solution.
SMM	Supernatant Mixing Model (created at LANL) that calculates the composition of tank liquids and concentrates as linear combinations of supernates.
SMP	Sludge measuring port
SMMT2	Solids from concentrate calculated by SMM
Sound	The integrity classification of a waste storage tank for which surveillance data indicate no loss of liquid attributed to a breach of integrity.
SRR	Sluiced PUREX sludge from A and AX Tank Farms sent to B Plant to recover strontium from 1967-76 (LANL defined waste #34). The sludge returned from B Plant was sent to the AR Vault and the supernate was sent to 241-C-105.
SST	Single-shell tank
Stabilization	The removal or immobilization, as completely as possible, of the liquid contained in a radioactive waste storage tank by pumping via a salt well, adding diatomaceous earth, etc.
Supernatant or Supernate	Liquid floating above the solids in the waste storage tanks. Supernate is usually derived by subtracting the solids level measurement from the liquid level measurement.
T1SLTCK	Salt-cake waste generated from the 242-T Evaporator, 1951-56 (LANL defined waste #42)
T2SLTCK	Salt-cake waste generated from the 242-T Evaporator, 1965-76

Tank Farm	An area containing underground storage tanks for storing waste.
TBP	Tributyl phosphate, a solvent used in the uranium extraction process at U Plant; also, a waste which is sometimes called uranium recovery waste (UR).
TFeCN	Ferrocyanide sludge produced by in-tank or in-farm scavenging (LANL defined waste #11)
TH1	Thoria high-level or cladding waste, 1966 (LANL defined waste #29, formerly TH66)
TH2	Thoria high-level or cladding waste, 1970 (LANL defined waste #30, formerly TH70)
Thermocouple	Thermocouples are simple devices that develop a millivoltage when parts of the thermocouple are exposed to temperature differentials. The millivoltage can be converted to a temperature reading based upon a specific voltage versus temperature curve inherent to the type of thermocouple being used. Thermocouples are attached to a fabricated assembly called a thermocouple tree.
Thermocouple Tree	Thermocouples are attached to a fabricated assembly called a thermocouple tree. The number of thermocouples attached to the tree varies as a function of the depth of the tank as well as the thermocouple tree design. The thermocouples are spaced at intervals, along trees that have many thermocouples, so that a vertical temperature profile of the tank contents can be developed. The thermocouple tree is installed in a riser and left in place inside the tank.
TLM	Tank Layer Model (created at LANL and derived from *Waste Status and Transaction Record Summary* (Agnew et al., 1995) database) models the volumes of wastes in the tanks.
Trench	A linear excavation used for the disposal of solid waste.
UNK	Unknown waste type (LANL defined waste)
UR	Uranium recovery operation in U Plant, 1952-57. Created uranium recovery waste (UR) (LANL defined waste #8), also known as tributyl phosphate (TBP) waste, and FeCN (scavenging wastes). See TFeCN and PFeCN.

Watch List Tank	An *underground* storage tank requiring special safety precautions because the tank potentially could release high-level radioactive waste if uncontrolled increases in pressure or temperature occur. Special restrictions have been placed on the tanks by "Safety Measures for Waste Tanks at Hanford Nuclear Reservation," Section 3137, National Defense Authorization Act for Fiscal Year 1991, November 5, 1990, Public Law 101-501 (also called the Wyden Amendment).
WC	Weather cover
WESF	Waste Encapsulation and Storage Facility
WTR	Water; flush water from miscellaneous sources
Wyden Amendment	See watch list tank.
Z	Waste discharged from Z Plant (PFP) (LANL defined waste #27)

APPENDIX B

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REFERENCES

Agnew, S.F., R.A. Corbin, T.B. Duran, K.A. Jurgensen, T.P. Ortiz, and B.L. Young; September 1995; *Waste Status and Transaction Record Summary for the Southwest Quadrant*; WHC-SD-WM-TI-614, Rev. 1; Los Alamos National Laboratory, Los Alamos, New Mexico.

Agnew, S.F., J. Boyer, R.A. Corbin, T.B. Duran, J. FitzPatrick, K.A. Jurgensen, T.P. Ortiz, and B.L. Young; 1996; *Hanford Tank Chemical and Radionuclide Inventories: HDW Model Rev. 3*, LA-UR-96-858; Los Alamos National Laboratory, Los Alamos, New Mexico.

Alstad, A.T., December 1993; *Riser Configuration Document for Single-Shell Waste Tanks*; WHC-SD-RE-TI-053, Rev. 9; Westinghouse Hanford Company, Richland, Washington.

Anderson, J.D.; June 1990; *A History of the 200 Areas Tank Farms*; WHC-MR-0132; Westinghouse Hanford Company, Richland, Washington.

Ballinger, M.Y., and R.B. Hall; March 1991; *A History of Major Hanford Facilities and Processes Involving Radioactive Material*; PNL-6964 HEDR; Pacific Northwest Laboratory, Richland, Washington.

Borsheim, G.L., and N.W. Kirch; March 1991; *Summary of Single-Shell Tank Waste Stability*; WHC-EP-0347; Westinghouse Hanford Company, Richland, Washington.

Brevick, C.H., and J. L. Stroup, December 1996a; *Supporting Document for the Historical Tank Content Estimate for T Tank Farm*; HNF-SD-WM-ER-320, Rev. 1; Fluor Daniel Northwest, Inc., Richland, Washington.

Brevick, C.H., and J. L. Stroup; December 1996b; *Supporting Document for the Historical Tank Content Estimate for TX Tank Farm*; HNF-SD-WM-ER-321, Rev. 1; Fluor Daniel Northwest, Inc., Richland, Washington.

Brevick, C.H., and J. L. Stroup; December 1996c; *Supporting Document for the Historical Tank Content Estimate for TY Tank Farm*; HNF-SD-WM-ER-322, Rev. 1; Fluor Daniel Northwest, Inc., Richland, Washington.

Caudill H.L.; June 1965; *Design Criteria for a Second In-Tank Waste Solidification System*; RL-SEP-499; General Electric Company, Richland, Washington.

Caudill H.L.; March 1967; *Design Criteria Modifications for Increased Capacity in the First In-Tank Solidification System*, ISO-869; Isochem, Inc., Richland, Washington.

Duncan, D.R., B.A. Mayancsik, J.A. Pottmeyer, E.J. Vejvoda, J.A. Reddick, K.M. Sheldon, and M.I. Weyns, February 1993; *Characterization of Past and Present Solid Waste Streams from the Plutonium Finishing Plant*; WHC-EP-0621; Westinghouse Hanford Company, Richland, Washington.

Eberlein, S. J., J. E. Meacham, H. Babad, R. J. Cash, G. T. Dukelow, D. W. Hamilton, G. D. Johnson, J. W. Osborne, M. A. Payne, and D. A. Sherwood; March 1995; *Approach for Tank Safety Characterization of Hanford Site Waste*; WHC-EP-0843; Westinghouse Hanford Company, Richland, Washington

Gerber, M.S., September 1992, *Legend and Legacy: Fifty Years of Defense Production at the Hanford Site*; WHC-MR-0293, Rev. 2, Westinghouse Hanford Company, Richland, Washington.

Gerber, M.S.; October 1993a, *The Hanford Site: An Anthology of Early Histories*; WHC-MR-0435; Westinghouse Hanford Company, Richland, Washington.

Gerber, M.S.; November 1993b; *A Brief History of the PUREX and UO_3 Facilities*; WHC-MR-0437; Westinghouse Hanford Company, Richland, Washington.

Gerber, M.S.; April 1994; *Dramatic Change at T Plant*; WHC-MR-0452; Westinghouse Hanford Company, Richland, Washington.

Gerber, M.S.; 1996; Correspondence to C.V. Salois of ICF Kaiser Hanford; Westinghouse Hanford Company, Richland, Washington.

Godfrey, W.L.; June 1965; *242-T Evaporator Facility, Information Manual*; RL-SEP-396; Hanford Atomic Products Operation, General Electric Company, Richland, Washington.

Hanlon, B.M.; November 1996l; *Waste Tank Summary for Month Ending September 30, 1996*; WHC-EP-0182-102; Westinghouse Hanford Company, Richland, Washington.

Jungfleisch, F.M.; March 1984; *Preliminary Estimation of the Waste Inventories in Hanford Tanks Through 1980*; SD-WM-TI-057, Rockwell Hanford Operations, Richland, Washington.

Leach, C.E., and S.M. Stahl; August 1993; *Hanford Site Tank Farm Facilities Interim Safety Basis*, Vols. 1 & 2; WHC-SD-WM-ISB-001; Westinghouse Hanford Company, Richland, Washington.

Lipnicki, J.; June 1996; *Waste Tank Risers Available for Sampling*; WHC-SD-WM-TI-710, Rev. 3; Westinghouse Hanford Company, Richland, Washington.

McCann, D.C.; May 1982b; *Waste Status Summary, April 1982*; RHO-RE-SR-14; Rockwell Hanford Operations, Richland, Washington.

McCann, D.C.; July 1982d; *Waste Status Summary, June 1982*; RHO-RE-SR-14; Rockwell Hanford Operations, Richland, Washington.

McCann, D.C.; August 1982e; *Waste Status Summary, July 1982*; RHO-RE-SR-14; Rockwell Hanford Operations, Richland, Washington.

McCann, D.C.; September 1982f; *Waste Status Summary, August 1982*; RHO-RE-SR-14; Rockwell Hanford Operations, Richland, Washington.

McCann, D.C.; December 1982i; *Waste Status Summary, November 1982*; RHO-RE-SR-14; Rockwell Hanford Operations, Richland, Washington.

McCann, D.C.; November 1983k; *Waste Status Summary, October 1983*; RHO-RE-SR-14; Rockwell Hanford Operations, Richland, Washington.

McCann, D.C.; December 1983l; *Waste Status Summary, November 1983*; RHO-RE-SR-14; Rockwell Hanford Operations, Richland, Washington.

McCann, D.C.; January 1984a; *Waste Status Summary, December 1983*; RHO-RE-SR-14; Rockwell Hanford Operations, Richland, Washington.

McCann, D.C., February 1984b; *Waste Status Summary, January 1984*; RHO-RE-SR-14; Rockwell Hanford Operations, Richland, Washington.

McCann, D.C.; March 1984c; *Waste Status Summary, February 1984*; RHO-RE-SR-14; Rockwell Hanford Operations, Richland, Washington.

McCann, D.C.; April 1984d; *Waste Status Summary, March 1984*; RHO-RE-SR-14; Rockwell Hanford Operations, Richland, Washington.

McCann, D.C.; May 1984e; *Waste Status Summary, April 1984*; RHO-RE-SR-14; Rockwell Hanford Operations, Richland, Washington.

McCann, D.C., June 1984f; *Waste Status Summary, May 1984*; RHO-RE-SR-14; Rockwell Hanford Operations, Richland, Washington.

McCann, D.C.; July 1984g; *Waste Status Summary, June 1984*; RHO-RE-SR-14; Rockwell Hanford Operations, Richland, Washington.

McCann, D.C.; August 1984h; *Waste Status Summary, July 1984*; RHO-RE-SR-14, Rockwell Hanford Operations, Richland, Washington.

McCann, D.C., and T.S. Vail; September 1984i; *Waste Status Summary, August 1984*; RHO-RE-SR-14; Rockwell Hanford Operations, Richland, Washington.

PNL; 1991; *Resource Book — Decommissioning of Contaminated Facilities at Hanford*; PNL-7008 (originally BNWL-MA-88 in 1975, then PNL-MA-588), Battelle Pacific Northwest Laboratories, Richland, Washington.

Rockwell; August 1985; *200 Areas Fact Book*; Rockwell Hanford Company, Richland, Washington.

Rodenhizer, D.G.; 1987; *Hanford Waste Tank Sluicing History*, SD-WM-TI-302; Westinghouse Hanford Company, Richland, Washington.

Shefcik, J.J., December 1964; *Process Specifications for In-Tank Solidification of Radiochemical Wastes*, RL-SEP-115; General Electric Company, Richland, Washington.

Thurman, J.M.; December 1988j; *Tank Farm Surveillance and Waste Status Summary Report for September 1988*; WHC-EP-0182-6; Westinghouse Hanford Company, Richland, Washington.

Vail, T.S.; August 1985e; *Waste Status Summary, July 1985*, RHO-RE-SR-14; Rockwell Hanford Operations, Richland, Washington.

Welty, R.K.; September 1988; *Waste Storage Tank Status and Leak Detection Criteria*; WHC-SD-WM-TI-356, Vols. 1 and 2, Westinghouse Hanford Company, Richland, Washington.

Wilson, G.R., and I.E. Reep; December 1991; *A Plan to Implement Remediation of Waste Tank Safety Issues at the Hanford Site*; WHC-EP-0422, Rev. 1, Westinghouse Hanford Company, Richland, Washington.

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Single-Shell Tank 241-TX-107							
Total Solids Composite Inventory Estimate*							
Physical Properties				-95 CI	-67 CI	+67 CI	+95 CI
Total Waste	5.10E+04 (kg)	(8.00 kgal)	---	---	---	---	---
Heat Load	2.33E-04 (kW)	(2.55 BTU/hr)	---	6.22E-04	6.74E-04	7.78E-04	8.24E-04
Bulk Density	1.68 (g/cc)	---	---	1.61	1.65	1.72	1.72
Void Fraction	0.596	---	---	0.284	0.535	0.466	0.546
Water wt%	47.0	---	---	46.8	46.7	46.5	46.2
TOC wt% C (wet)	0	---	---	0	0	0	0
Radiological Constituents	Ci/L	µCi/g	Ci	-95 CI (Ci/L)	-67 CI (Ci/L)	+67 CI (Ci/L)	+95 CI (Ci/L)
H-3	9.49E-07	5.65E-04	2.87E-02	7.90E-07	8.66E-07	1.04E-06	1.12E-06
C-14	2.72E-06	1.62E-03	8.25E-02	1.83E-06	2.35E-06	3.06E-06	3.32E-06
Ni-59	9.62E-08	5.71E-05	2.91E-03	8.39E-08	8.99E-08	1.24E-07	3.30E-07
Ni-63	8.44E-06	5.01E-03	0.256	7.36E-06	7.88E-06	1.33E-05	2.64E-05
Co-60	4.31E-08	2.56E-05	1.30E-03	3.62E-08	4.36E-08	5.64E-08	7.33E-08
Se-79	7.11E-08	4.22E-05	2.15E-03	6.07E-08	6.59E-08	7.60E-08	8.05E-08
Sr-90	2.00E-03	1.19	60.5	1.70E-03	1.85E-03	2.14E-03	2.27E-03
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Tc-99	2.33E-06	1.39E-03	7.07E-02	2.00E-06	2.10E-06	2.70E-06	2.63E-06
Ru-106	1.11E-13	6.58E-11	3.36E-09	9.40E-14	1.03E-13	1.19E-13	1.26E-13
Cd-113m	6.88E-07	4.09E-04	2.08E-02	5.68E-07	6.39E-07	7.27E-07	7.80E-07
Sb-125	2.54E-08	1.51E-05	7.69E-04	2.17E-08	2.35E-08	2.72E-08	2.88E-08
Sn-126	1.06E-07	6.30E-05	3.19E-03	9.61E-08	9.78E-08	1.13E-07	1.20E-07
I-129	4.35E-09	2.58E-06	1.32E-04	3.72E-09	4.03E-09	4.65E-09	4.92E-09
Cs-134	2.72E-11	1.61E-08	8.23E-07	2.30E-11	2.52E-11	2.91E-11	3.08E-11
Cs-137	2.25E-03	1.34	68.2	1.92E-03	2.09E-03	2.41E-03	2.55E-03
Ba-137m	2.12E-03	1.27	64.6	1.82E-03	1.96E-03	2.28E-03	2.41E-03
Sm-151	2.68E-04	0.159	8.12	2.29E-04	2.49E-04	2.87E-04	3.05E-04
Eu-152	6.29E-08	3.72E-05	1.90E-03	6.24E-08	6.26E-08	6.31E-08	6.33E-08
Eu-154	6.33E-07	3.76E-04	1.92E-02	5.40E-07	5.87E-07	6.77E-07	7.13E-07
Eu-155	9.50E-06	5.64E-03	0.288	9.44E-06	9.47E-06	9.54E-06	9.57E-06
Ra-226	1.37E-10	8.15E-08	4.16E-06	1.05E-10	1.20E-10	3.10E-10	4.40E-10
Ra-228	8.56E-16	5.08E-13	2.59E-11	8.50E-16	8.53E-16	8.59E-16	8.61E-16
Ac-227	3.45E-10	2.04E-07	1.04E-05	1.53E-10	1.55E-10	1.30E-09	2.21E-09
Pa-231	3.18E-10	1.89E-07	9.62E-06	2.70E-16	2.98E-16	3.48E-16	1.59E-09
Th-229	1.65E-15	9.79E-13	4.99E-11	1.64E-12	1.64E-12	1.66E-12	1.66E-12
Th-232	1.05E-16	6.23E-14	3.18E-12	6.95E-17	9.75E-17	1.02E-16	1.05E-16
U-232	1.63E-09	9.67E-07	4.93E-05	1.62E-09	1.63E-09	1.63E-09	1.63E-09
U-233	9.75E-11	5.79E-08	2.95E-06	9.72E-11	9.74E-11	9.77E-11	9.78E-11
U-234	1.37E-04	8.16E-02	4.16	1.37E-04	1.37E-04	1.38E-04	1.38E-04
U-235	6.18E-06	3.67E-03	0.187	6.16E-06	6.17E-06	6.19E-06	6.20E-06
U-236	8.78E-07	5.21E-04	2.66E-02	8.74E-07	8.76E-07	8.79E-07	8.80E-07
U-238	1.39E-04	8.26E-02	4.21	1.39E-04	1.39E-04	1.39E-04	1.40E-04
Np-237	1.40E-08	8.32E-06	4.25E-04	1.20E-08	1.30E-08	1.50E-08	1.59E-08
Pu-238	1.06E-08	6.29E-06	3.20E-04	9.22E-09	9.89E-09	7.10E-08	1.45E-07
Pu-239	3.31E-06	1.97E-03	0.100	2.80E-06	3.10E-06	2.23E-05	4.54E-05
Pu-240	1.95E-07	1.16E-04	5.91E-03	1.70E-07	1.85E-07	1.32E-06	2.68E-06
Pu-241	1.25E-07	7.40E-05	3.78E-03	1.09E-07	1.17E-07	8.43E-07	1.71E-06
Pu-242	3.52E-13	2.21E-10	1.06E-08	3.32E-13	3.47E-13	3.59E-12	8.23E-12
Am-241	1.17E-07	6.96E-05	3.55E-03	1.06E-07	1.09E-07	1.26E-07	1.33E-07
Am-243	3.35E-13	1.85E-10	9.92E-09	2.80E-13	3.04E-13	3.51E-13	3.72E-13
Cm-242	3.52E-10	1.50E-07	7.64E-06	3.50E-10	3.51E-10	3.53E-10	3.54E-10
Cm-243	3.74E-12	2.22E-09	1.13E-07	3.72E-12	3.73E-12	3.76E-12	3.77E-12
Cm-244	5.02E-12	2.98E-09	1.52E-07	4.29E-12	4.65E-12	5.37E-12	5.69E-12
Totals	M	µg/g	kg	-95 CI (M or g/L)	-67 CI (M or g/L)	+67 CI (M or g/L)	+95 CI (M or g/L)
Pu	5.42E-05 (g/L)	---	1.64E-03	4.72E-05	5.06E-05	3.63E-04	7.42E-04
U	0.75	2.47E+05	1.26E+04	1.55	1.55	1.55	1.56

*Unknowns in tank solids inventory are assigned by Tank Layering Model (TLM).