

 WASHINGTON STATE DEPARTMENT OF E C O L O G Y		Dangerous Waste Permit Application Part A Form	
Date Received		Reviewed by: <i>Nancy Leonard</i>	Date: 12/14/2009
Month	Day	Year	Approved by: <i>J.P. Davis</i>
1	0	1 4 2 0 0 9	Date: 12/14/2009
I. This form is submitted to: (place an "X" in the appropriate box)			
<input type="checkbox"/>	Request modification to a final status permit (commonly called a "Part B" permit)		
<input checked="" type="checkbox"/>	Request a change under interim status		
<input type="checkbox"/>	Apply for a final status permit. This includes the application for the initial final status permit for a site or for a permit renewal (i.e., a new permit to replace an expiring permit).		
<input type="checkbox"/>	Establish interim status because of the wastes newly regulated on:	(Date)	
List waste codes:			
II. EPA/State ID Number			
W	A	7 8 9 0 0 0 8 9 6 7	
III. Name of Facility			
U.S. Department of Energy - Hanford Facility			
IV. Facility Location (Physical address not P.O. Box or Route Number)			
A. Street			
825 Jadwin			
City or Town		State	ZIP Code
Richland		WA	99352
County Code (if known)	County Name		
0 0 5	Benton		
B. Land Type	C. Geographic Location		D. Facility Existence Date
	Latitude (degrees, mins, secs)	Longitude (degrees, mins, secs)	Month Day Year
F	Refer to TOPO Map (Section XV.)		0 3 2 2 1 9 4 3
V. Facility Mailing Address			
Street or P.O. Box			
P.O. Box 450			
City or Town		State	ZIP Code
Richland		WA	99352

VI. Facility contact (Person to be contacted regarding waste activities at facility)													
Name (last)						(first)							
Olinger						Shirley							
Job Title						Phone Number (area code and number)							
Manager						(509) 372-3062							
Contact Address													
Street or P.O. Box													
P.O. Box 450													
City or Town						State		ZIP Code					
Richland						WA		99352					
VII. Facility Operator Information													
A. Name										Phone Number			
Department of Energy Owner/Operator Washington River Protection Solutions, LLC Co-Operator for DST System/204-AR Waste Unloading Station*										(509) 376-3062 (509) 372-9138*			
Street or P.O. Box													
P.O. Box 450 P.O. Box 850*													
City or Town						State		ZIP Code					
Richland						WA		99352					
B. Operator Type		F											
C. Does the name in VII.A reflect a proposed change in operator? If yes, provide the scheduled date for the change:						<input type="checkbox"/> Yes		<input checked="" type="checkbox"/> No					
						Month		Day		Year			
D. Is the name listed in VII.A. also the owner? If yes, skip to Section VIII.C.										<input type="checkbox"/> Yes		<input checked="" type="checkbox"/> No	
VIII. Facility Owner Information													
A. Name						Phone Number (area code and number)							
Shirley J Olinger, Operator/Facility-Property Owner						(509) 372-3062							
Street or P.O. Box													
P.O. Box 450													
City or Town						State		ZIP Code					
Richland						WA		99352					
B. Operator Type		F											
C. Does the name in VII.A reflect a proposed change in operator? If yes, provide the scheduled date for the change:						<input type="checkbox"/> Yes		<input checked="" type="checkbox"/> No					
						Month		Day		Year			
IX. NAICS Codes (5/6 digit codes)													
A. First						B. Second							
5	6	2	2	1		9	2	4	1	1	0	Administration of Air & Water Resource & Solid Waste Management Programs	
C. Third						D. Fourth							
5	4	1	7	1		Research & Development in the Physical, Engineering, & Life Sciences							

XI. Nature of Business (provide a brief description that includes both dangerous waste and non-dangerous waste areas and activities)

The Double-Shell Tank (DST) System began operations between April 1971 and October 1986 (Table 1). The DST System is used for receipt and the storage (S02) of liquid mixed waste generated on the Hanford Facility. Two operating units, one in the 200 East (242-A Evaporator) and one in the 200 West Area (222-S Laboratory) directly transfer liquid mixed waste through buried double-encased transfer lines to designated underground DSTs. Additionally, the DST System receives liquid mixed waste via temporary transfer lines from, the Single-Shell Tank (SST) System, tank truck transfers (bulk chemical for corrosion control or mixed waste meeting the DST System waste acceptance criteria). Smaller temporary storage tanks used to support decontamination and miscellaneous SST and DST farm activities that are known to meet DST waste acceptance criteria based on process knowledge may be transferred to the DST System. Note that hose-in-hose temporary transfer lines are used for SST to DST transfers only. Transfers from tanker trucks use a single wall hose with plastic sleeving as the secondary containment and is under continuous surveillance.

The tanks in the DST System are considered treatment units (T01) because chemicals can be added for corrosion control; the waste can be mixed using equipment such as airlift circulators or pumps. The DSTs are listed in Table 1, which includes tank numbers, locations, design capacities, and operational dates. The specific treatment, storage, and disposal (TSD) unit boundaries are defined in the DST System Dangerous Waste Part B permit application documentation. The maximum process design capacity for both tank storage (S01) and tank treatment (T01) at the DST System is 126,647,694 liters (~33,500,000 gallons). The total capacity is consistent with individual tank capacities shown on Table 1 and is based on the maximum analyzed limit for each tank as shown in the *Operating Specification for Double-Shell Storage Tanks* (OSD-T-151-00007, Rev. 1).

The 204-AR Waste Unloading Station (WUS) began waste management operations in February 1982, but is currently not used for its' original intent. The 204-AR WUS was used for the treatment of liquid mixed waste that exhibited a pH of less than 12. The waste was chemically adjusted in-line at the 204-AR WUS by adding caustic (sodium hydroxide and sodium nitrate) to increase the pH of the waste to meet DST System corrosion specifications for storage in the DST System. The 204-AR WUS received liquid mixed waste transported in railroad tank cars or tank trucks of varying capacity. The mixed waste was generated from decontamination and regeneration operations in the 100 and 200 Areas, from recovery and laboratory operations in the 200 and 300 Areas, and from decontamination operations in the 400 Area. The maximum process design capacity, with a specific gravity for the waste of 1.0, for tank treatment (T04) at the 204-AR WUS was 50,000 gallons (189,270 liters) of which 10,000 gallons (37,854 liters) was associated with the flushing of the system. Due to the non-compliant transfer system between AW Tank Farm and the 204-AR WUS, no waste can be received at the 204-AR WUS for direct transfer into the DST System until the transfer system has been made RCRA compliant. The current function of the 204-AR WUS is to provide storage for approximately 1500 gallons of dilute aqueous mixed waste collected in Tank TK-1 from previous waste unloading activities. Tank TK-1 also continues to receive liquid from building drain seal maintenance, safety shower drainage, and periodic discharge of ventilation condensate water. The mixed waste consists of listed waste, characteristic waste (D001, D002, and D003), toxic constituents (D004 through D011, D018, D019, D022, D028 through D030, D033 through D036, D038 through D041, and D043), nonspecific source waste (F001 through F005), and state-only waste (WT01, WT02, WP01, and WP02). Multi-source leachate (F039) is included as a waste derived from non-specific sources F001-F005. F039 was added to the list of DST System waste codes in 1994 in anticipation of receiving leachate from the start-up of Low-Level Burial Grounds (Trench 31). The debris designation (Section XIV) refers to in-tank equipment that is abandoned in place. This equipment will be addressed by the DST System final closure plan.

EXAMPLE FOR COMPLETING ITEMS XII and XIII (shown in lines numbered X-1, X-2, and X-3 below): A facility has two storage tanks that hold 1200 gallons and 400 gallons respectively. There is also treatment in tanks at 20 gallons/hr. Finally, a one-quarter acre area that is two meters deep will undergo *in situ vitrification*.

Section XII. Process Codes and Design Capacities							Section XIII. Other Process Codes							
Line Number	A. Process Codes (enter code)			B. Process Design Capacity		C. Process Total Number of Units	Line Number	A. Process Codes (enter code)			B. Process Design Capacity		C. Process Total Number of Units	D. Process Description
	1.	2.	3.	1. Amount	2. Unit of Measure (enter code)			1. Amount	2. Unit of Measure (enter code)					
X 1	S	0	2	1,600	G	002	X 1	T	0	4	700	C	001	In situ vitrification
X 2	T	0	3	20	E	001								
X 3	T	0	4	700	C	001								
1	S	0	2	126,647,694	L	29	1							
2	T	0	1	126,647,694	V	29	2							
3							3							
4							4							
5							5							
6							6							
7							7							
8							8							
9							9							
1 0							1 0							
1 1							1 1							
1 2							1 2							
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1 9							1 9							
2 0							2 0							
2 1							2 1							
2 2							2 2							
2 3							2 3							
2 4							2 4							
2 5							2 5							

XIV. Description of Dangerous Wastes

Example for completing this section: A facility will receive three non-listed wastes, then store and treat them on-site. Two wastes are corrosive only, with the facility receiving and storing the wastes in containers. There will be about 200 pounds per year of each of these two wastes, which will be neutralized in a tank. The other waste is corrosive and ignitable and will be neutralized then blended into hazardous waste fuel. There will be about 100 pounds per year of that waste, which will be received in bulk and put into tanks.

Line Number	A. Dangerous Waste No. (enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Processes						(2) Process Description [If a code is not entered in D (1)]	
	(1) Process Codes (enter)													
X 1	D	0	0	2	400	P	S	0	1	T	0	1		
X 2	D	0	0	1	100	P	S	0	2	T	0	1		
X 3	D	0	0	2										Included with above
	1	D	0	0	1	426,850,200	K	S	0	2	T	0	1	
	2	D	0	0	2		K	S	0	2	T	0	1	
	3	D	0	0	3		K	S	0	2	T	0	1	
	4	D	0	0	4		K	S	0	2	T	0	1	
	5	D	0	0	5		K	S	0	2	T	0	1	
	6	D	0	0	6		K	S	0	2	T	0	1	
	7	D	0	0	7		K	S	0	2	T	0	1	
	8	D	0	0	8		K	S	0	2	T	0	1	
	9	D	0	0	9		K	S	0	2	T	0	1	
	1 0	D	0	1	0		K	S	0	2	T	0	1	
	1 1	D	0	1	1		K	S	0	2	T	0	1	
	1 2	D	0	1	8		K	S	0	2	T	0	1	
	1 3	D	0	1	9		K	S	0	2	T	0	1	
	1 4	D	0	2	2		K	S	0	2	T	0	1	
	1 5	D	0	2	8		K	S	0	2	T	0	1	
	1 6	D	0	2	9		K	S	0	2	T	0	1	
	1 7	D	0	3	0		K	S	0	2	T	0	1	
	1 8	D	0	3	3		K	S	0	2	T	0	1	
	1 9	D	0	3	4		K	S	0	2	T	0	1	
	2 0	D	0	3	5		K	S	0	2	T	0	1	
	2 1	D	0	3	6		K	S	0	2	T	0	1	
	2 2	D	0	3	8		K	S	0	2	T	0	1	
	2 3	D	0	3	9		K	S	0	2	T	0	1	
	2 4	D	0	4	0		K	S	0	2	T	0	1	
	2 5	D	0	4	1		K	S	0	2	T	0	1	

XV. Map
 Attach to this application a topographic map of the area extending to at least one (1) mile beyond property boundaries. The map must show the outline of the facility; the location of each of its existing and proposed intake and discharge structures; each of its dangerous waste treatment, storage, recycling, or disposal units; and each well where fluids are injected underground. Include all springs, rivers, and other surface water bodies in this map area, plus drinking water wells listed in public records or otherwise known to the applicant within ¼ mile of the facility property boundary. The instructions provide additional information on meeting these requirements.

Topographic map is located in the Ecology Library

XVI. Facility Drawing
 All existing facilities must include a scale drawing of the facility (refer to Instructions for more detail).

XVII. Photographs
 All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment, recycling, and disposal areas; and sites of future storage, treatment, recycling, or disposal areas (refer to Instructions for more detail).

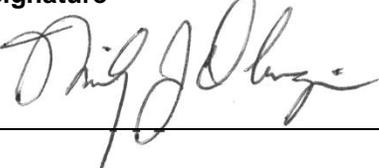
XVIII. Certifications

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Operator Name and Official Title (type or print) Shirley J. Olinger, Manager U.S. Department of Energy Office of River Protection	Signature 	Date Signed 10/15/09
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Co-Operator* Name and Official Title (type or print) Charles G. Spencer President and Project Manager Washington River Protection Solutions LLC	Signature 	Date Signed 10/13/09
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Co-Operator* – Address and Telephone Number
 P.O. Box 850
 Richland, WA 99352
 (509) 372-9138

Facility-Property Owner Name and Official Title (type or print) Shirley J. Olinger, Manager U.S. Department of Energy Office of River Protection	Signature 	Date Signed 10/15/09
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Comments

Historically liquid mixed waste streams that have been transferred to the DST System through permanent buried pipelines and via the 204-AR WUS included:

- Dilute miscellaneous waste generated at the Hanford Facility (100, 200, 300, 400 Areas, and the 240 Complex)
- Supernate and transuranic sludges that consist of neutralized cladding removal waste generated during Plutonium-Uranium Extraction Plant headend operations, and waste generated during Plutonium Finishing Plant processing
- Concentrated DST waste (slurry) from the 242-A Evaporator
- Concentrated complexed waste generated from B Plant processing
- Neutralized current acid waste from the first extraction column at the Plutonium-Uranium Extraction Plant
- Liquid waste from the SST System
- Waste from the Grout Treatment Facility
- T Plant Complex decontamination activities
- Waste from the 204-AR Waste Unloading Station.

Additional liquid mixed waste streams meeting the waste acceptance criteria of the DST system have been transferred to the DST system via tanker trucks and temporary hose transfer lines to the DST system. Any of these waste types could be stored and/or treated in any of the DSTs.

The list of dangerous waste numbers includes some constituents that have not been detected by laboratory analysis however, knowledge of the processes that generated the waste stored in the DST System indicates the strong possibility that these constituents are in the waste.

Detailed topographic maps including latitude and longitude for the DST System are located in the Ecology Library, as required by Ecology guidance document ECY-030-0-31. These maps are also included in Hanford Facility Operating Record, DST System file (H-13-000707, Rev 2, Sheets 1 through 4) as provided in Hanford Facility Dangerous Waste Permit Application, Double-Shell Tank System, DOE/RL-90-39, Rev. 1B, Appendix 2A. Note: The unloading areas for truck transfers have not been identified on the H-13-000707 drawings per WAC 173-303-806(4)(a)(xviii)(J). All DSTs are considered unloading areas because of the potential for placement of waste directly through tank risers.

Table 1. Double-Shell Tanks.

Tank Number	Location	Design Capacity (L)	Operation Date
24 Nonaging* Waste Double-Shell Tanks			
(Nonaging waste is a waste that is not neutralized current acid waste)			
241-AN-101	200 East Area	4,542,480	9/81
241-AN-102	200 East Area	4,542,480	9/81
241-AN-103	200 East Area	4,542,480	9/81
241-AN-104	200 East Area	4,542,480	9/81
241-AN-105	200 East Area	4,542,480	9/81
241-AN-106	200 East Area	4,542,480	9/81
241-AN-107	200 East Area	4,542,480	9/81
241-AP-101	200 East Area	4,795,460	10/86
241-AP-102	200 East Area	4,795,460	10/86
241-AP-103	200 East Area	4,795,460	10/86
241-AP-104	200 East Area	4,795,460	10/86
241-AP-105	200 East Area	4,795,460	10/86
241-AP-106	200 East Area	4,795,460	10/86
241-AP-107	200 East Area	4,795,460	10/86
241-AP-108	200 East Area	4,795,460	10/86
241-AW-101	200 East Area	4,542,480	8/80
241-AW-102	200 East Area	4,542,480	8/80
241-AW-103	200 East Area	4,542,480	8/80
241-AW-104	200 East Area	4,542,480	8/80
241-AW-105	200 East Area	4,542,480	8/80
241-AW-106	200 East Area	4,542,480	8/80
241-SY-101	200 West Area	4,542,480	4/77
241-SY-102	200 West Area	4,542,480	4/77
241-SY-103	200 West Area	4,542,480	4/77

4 Aging* Waste Double-Shell Tanks

(Aging waste is neutralized current acid waste generated from the Plutonium-Uranium Extraction Plant)

241-AY-101	200 East Area	3,900,000	4/71
241-AY-102	200 East Area	3,900,000	4/76*
241-AZ-101	200 East Area	3,900,000	11/76
241-AZ-102	200 East Area	3,900,000	11/76

*Estimated operational date.

+ Aging waste tanks differ from nonaging waste tanks by inclusion of internal ancillary equipment (i.e., steam coils)

204 AR Waste Unloading Station

TK-1 Catch	200 East	4334	2/82
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Nonaging Waste Double-Shell Tanks



241-AN Double-Shell Tank

96080579-24CN
Photo Taken 1996



241-AP Double-Shell Tank

8704135-12CN
Photo Taken 1987



241-AW Double-Shell Tank

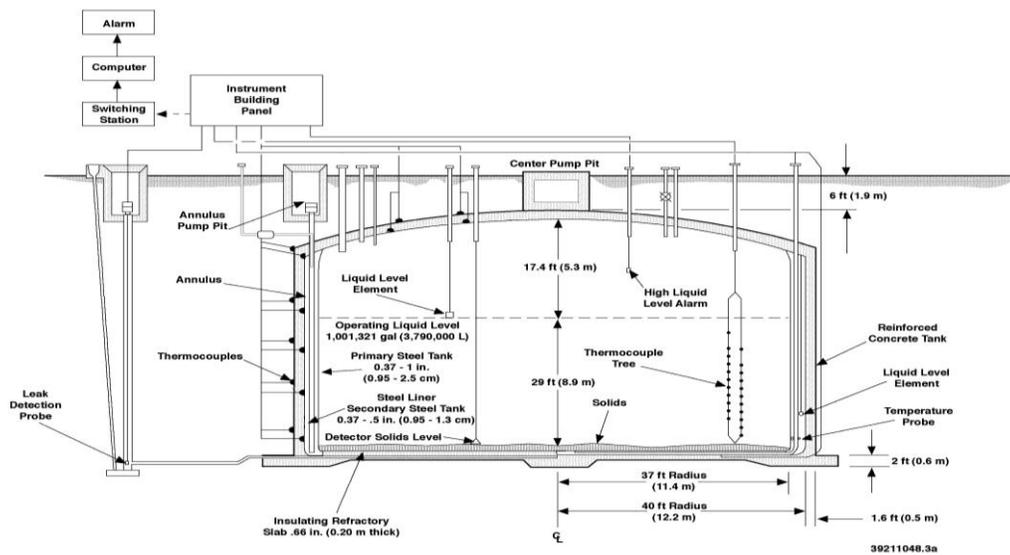
8704135-11CN
Photo Taken 1987



241-SY Double-Shell Tank

96080579-1CN
Photo Taken 1996

Typical Non-Aging Waste Tank



Aging Waste Double-Shell Tanks



241-AY Double-Shell Tank

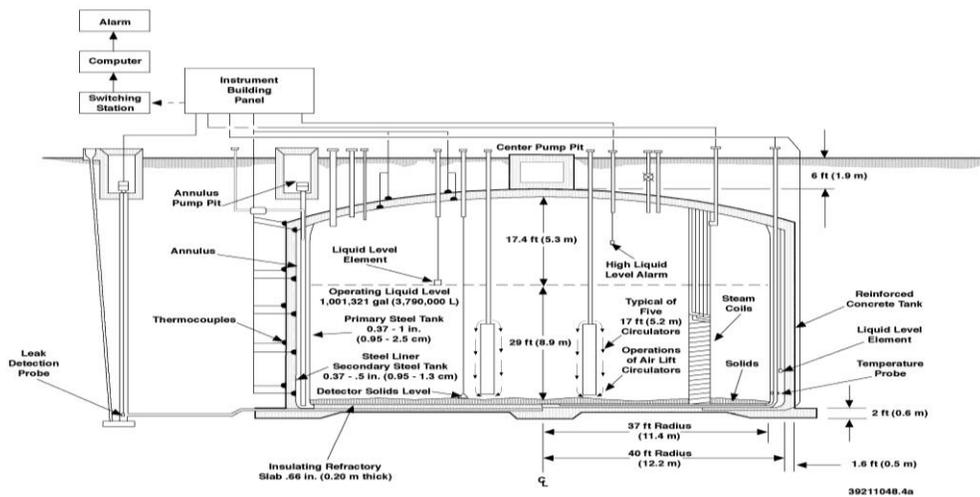
8704135-10CN
 Photo Taken 1987



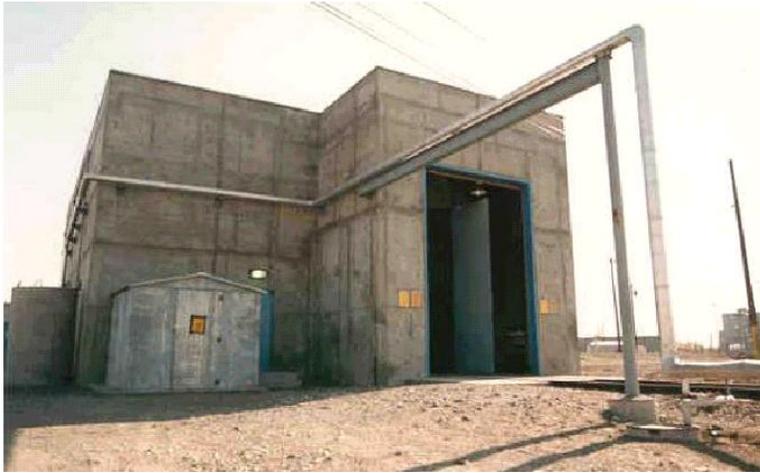
241-AZ Double-Shell Tank

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 Photo Taken 1996

Typical Aging Waste Tank

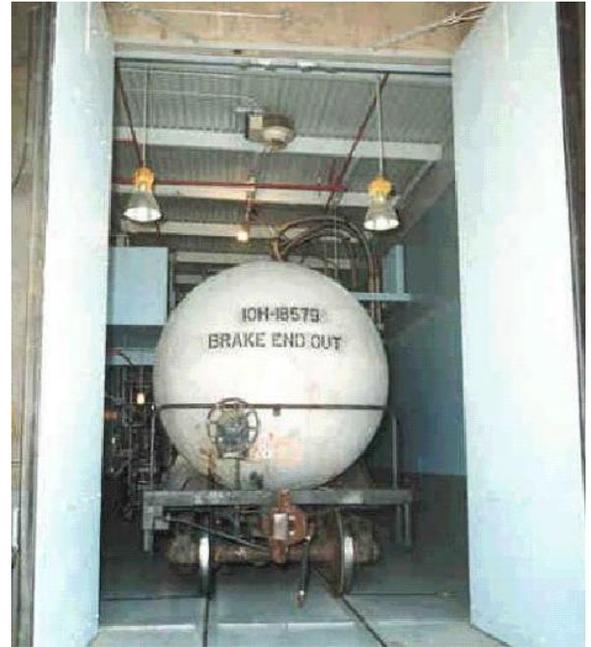


204-AR Waste Unloading Station



8706421-18CN

Photo Taken 1987



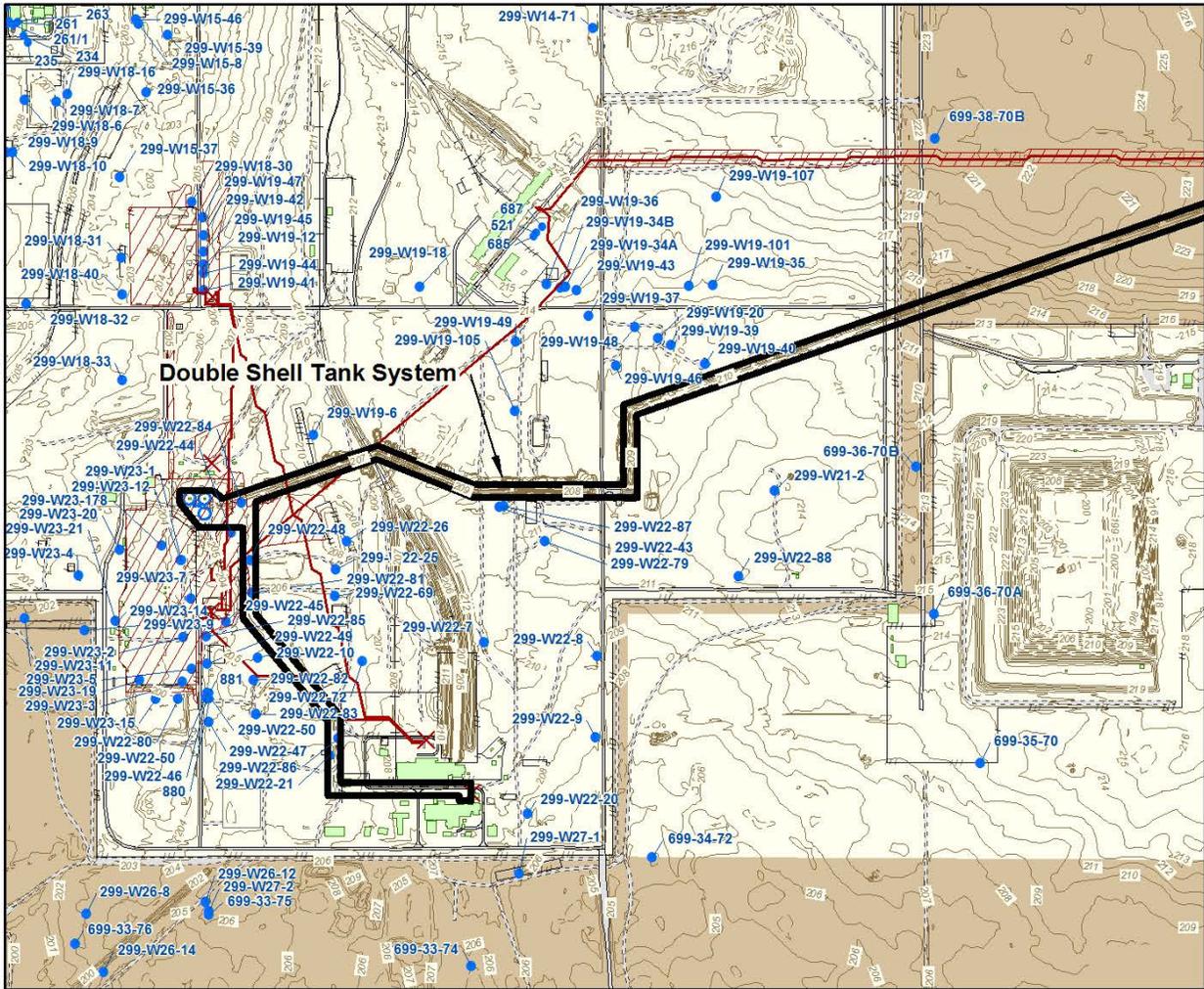
Internal View

8706421-16CN
Photo Taken 1987

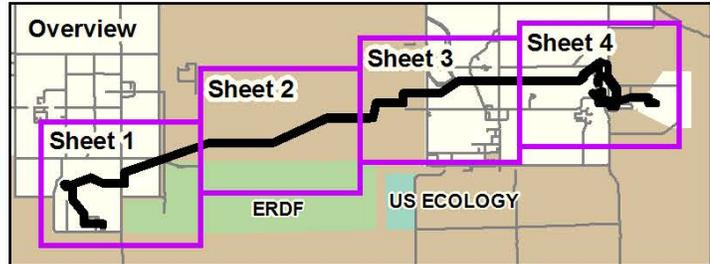
**Unloading
Room**

**Fic
(to
Tai**

**LIQW-702
(To 241-A-A
Valve Pit)**



Double Shell Tank System Sheet 1 200 West Tank Farms

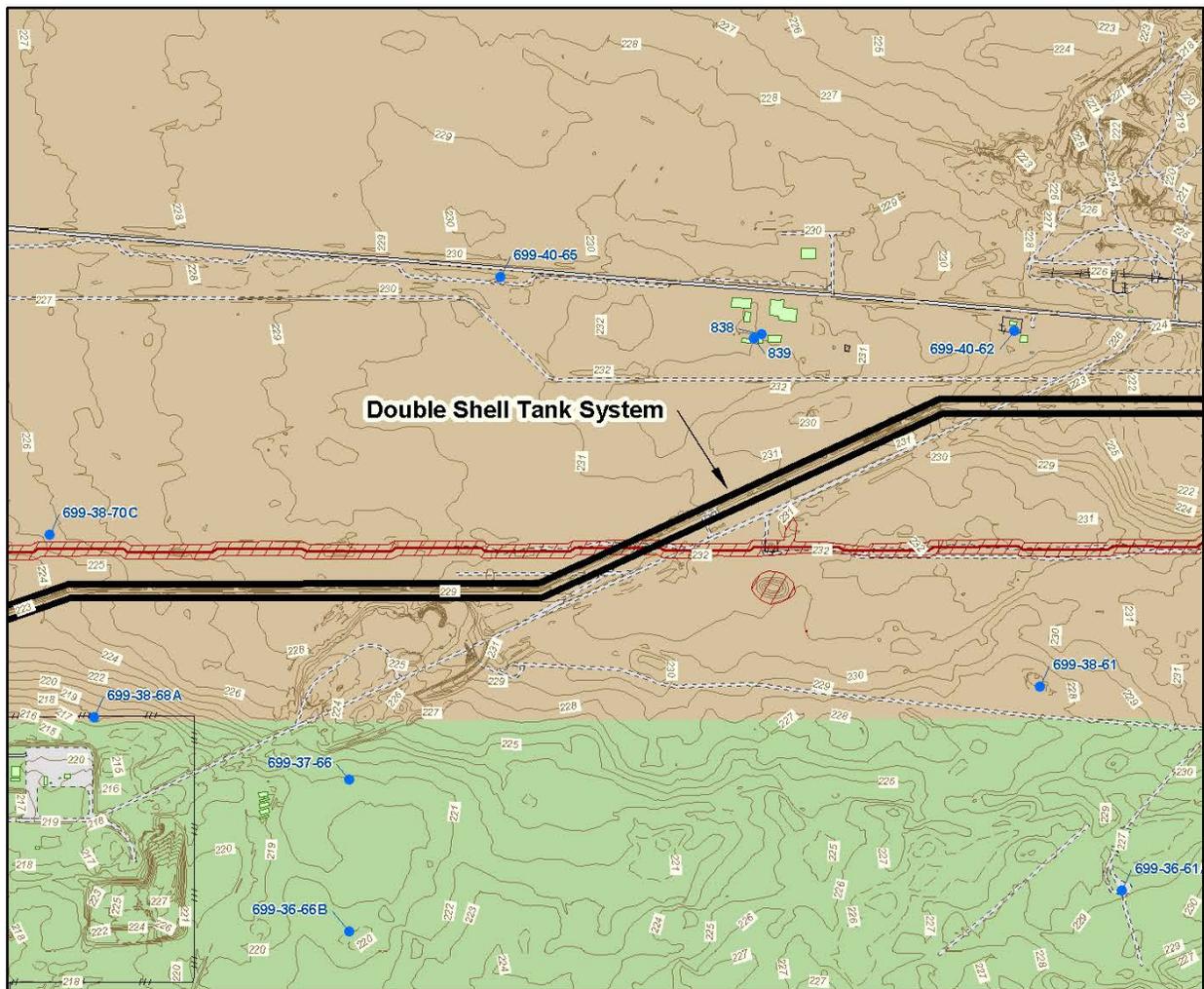


- | | |
|--------------------------------|---------------------------------|
| TSD Unit Boundary | SWMUs and Known Releases |
| DOE Operating Areas | Linear SWMUs and Known Releases |
| Hanford Facility | Spot SWMUs and Known Releases |
| Injection and Withdrawal Wells | Buildings |
| Contours at 1 Meter Intervals | Structures |
| Depression Contours | Concrete |
| Tanks (non-SWMU) | Major Roads |
| | Service Roads |
| | Railroads |
| | Fences |

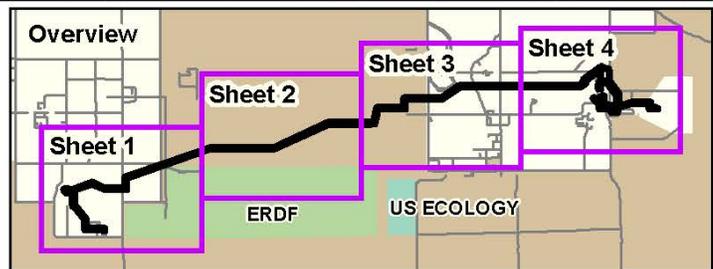


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RICHLAND OPERATIONS OFFICE
Created and Published by:
Central Mapping Services
Fluor Hanford, Richland, WA
(509) 373-9076
INTENDED USE: REFERENCE ONLY

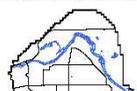




**Double Shell Tank System
Sheet 2
200 West
Cross-Site Transfer Line
(Section)**



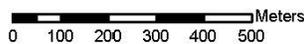
Hanford Site



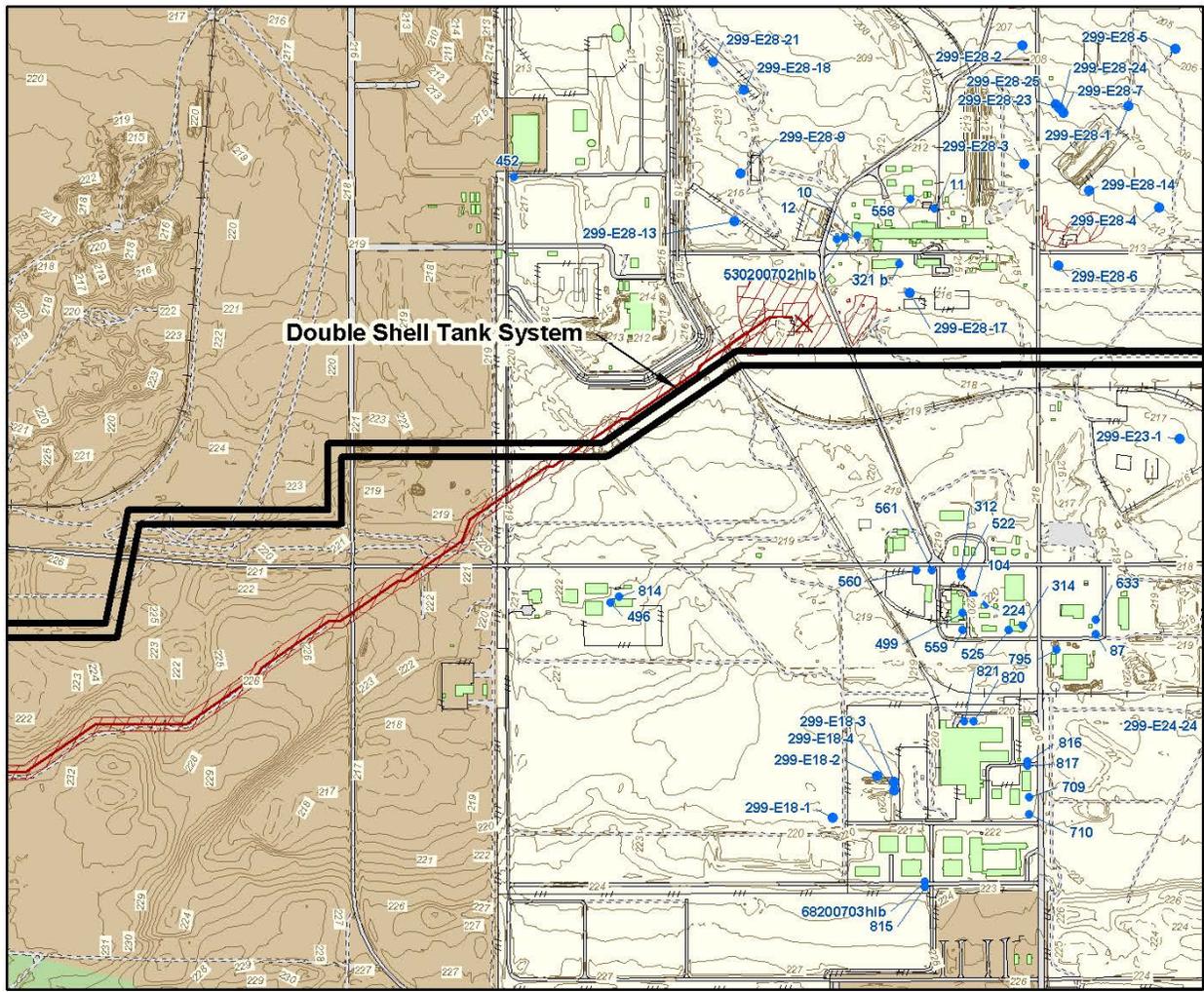
Unit Location

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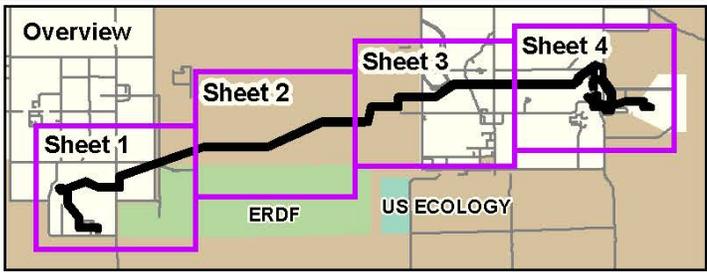
- | | |
|--------------------------------|---------------------------------|
| TSD Unit Boundary | SWMUs and Known Releases |
| DOE Operating Areas | Linear SWMUs and Known Releases |
| Hanford Facility | Spot SWMUs and Known Releases |
| Injection and Withdrawal Wells | Buildings |
| Contours at 1 Meter Intervals | Structures |
| Depression Contours | Concrete |
| | Major Roads |
| | Service Roads |
| | Railroads |
| | Fences |



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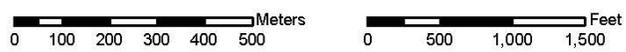
**Double Shell Tank System
Sheet 3
200 East
Cross-Site Transfer Line
(Section)**



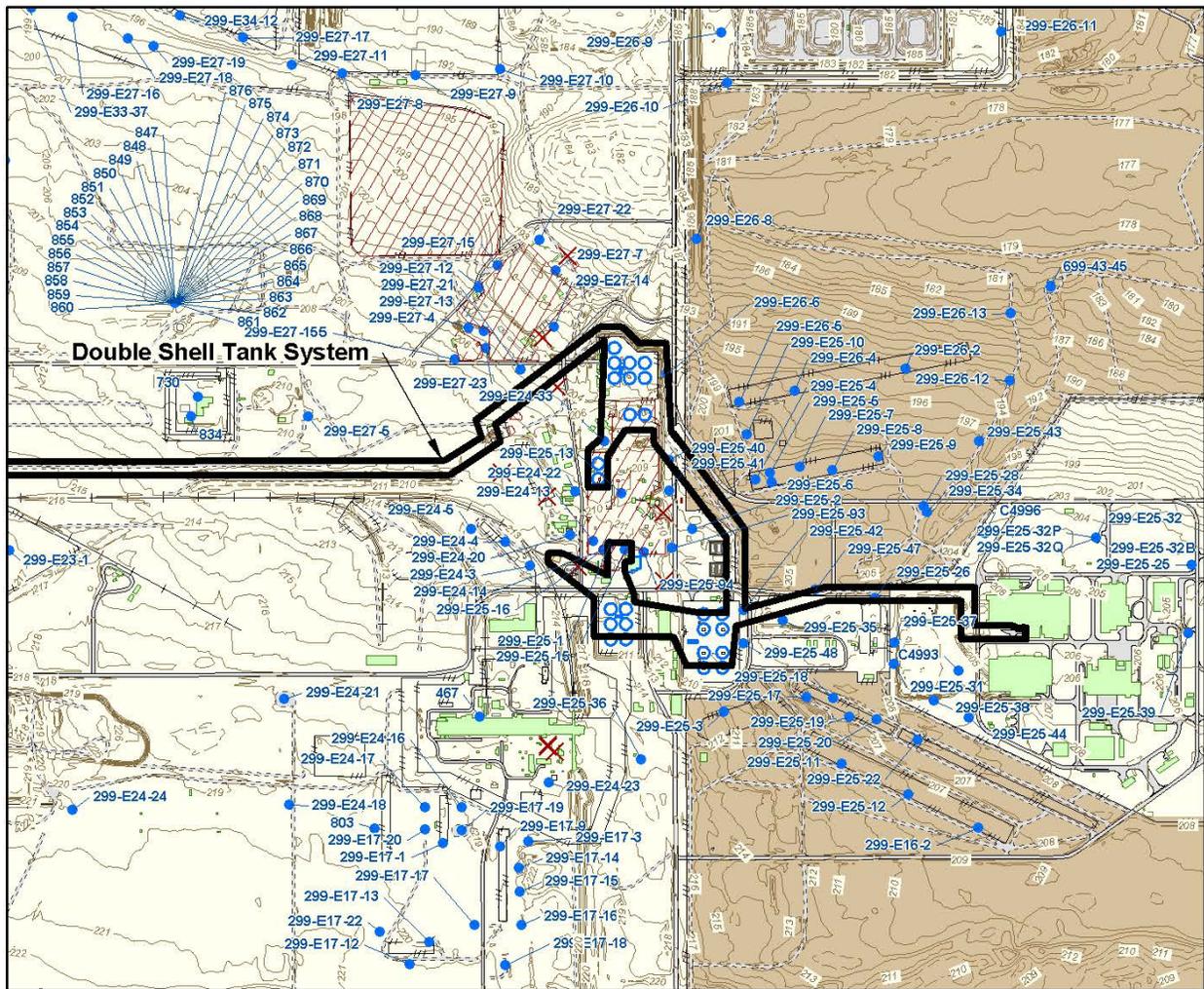
- TSD Unit Boundary
- DOE Operating Areas
- Hanford Facility
- Injection and Withdrawal Wells
- Contours at 1 Meter Intervals
- Depression Contours
- SWMUs and Known Releases
- Linear SWMUs and Known Releases
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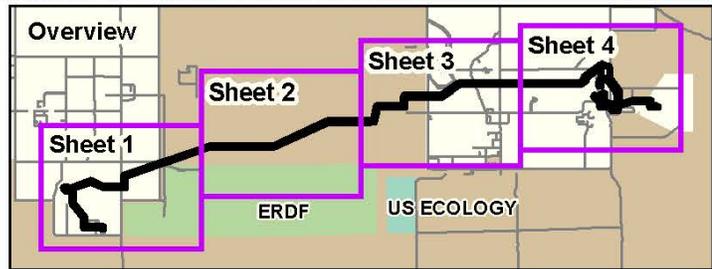
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Double Shell Tank System Sheet 4 200 East Tank Farms



Hanford Site



Unit Location

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- | | |
|--------------------------------|---------------------------------|
| TSD Unit Boundary | SWMUs and Known Releases |
| DOE Operating Areas | Linear SWMUs and Known Releases |
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| | Railroads |
| | Fences |



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