

		WASHINGTON STATE DEPARTMENT OF <b>ECOLOGY</b>		<b>Addendum A Part A Form</b>	
Date Received		Reviewed by: <i>W.D. Joz. Rick Bond</i>		Date: 0 9 2 2 2 0 0 8	
Month Day Year		Approved by: <i>D.P. Davis</i>		Date: 0 9 2 2 2 0 0 8	
0	9	1	9	2	0 0 8
<b>I. This form is submitted to: (place an "X" in the appropriate box)</b>					
<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: _____					
<b>II. EPA/State ID Number</b>					
W	A	7	8	9	0 0 0 8 9 6 7
<b>III. Name of Facility</b>					
US Department of Energy - Hanford Facility					
<b>IV. Facility Location (Physical address not P.O. Box or Route Number)</b>					
<b>A. Street</b>					
825 Jadwin					
<b>City or Town</b>				<b>State</b>	<b>ZIP Code</b>
Richland				WA	99352
<b>County Code (if known)</b>		<b>County Name</b>			
0	0	5	Benton		
<b>B. Land Type</b>		<b>C. Geographic Location</b>		<b>D. Facility Existence Date</b>	
F		Latitude (degrees, mins, secs) Refer to TOPO Map (Section XV.)		Longitude (degrees, mins, secs)	
				Month	Day
				0	3
				0	2
				1	9
				4	3
<b>V. Facility Mailing Address</b>					
<b>Street or P.O. Box</b>					
P.O. Box 550					
<b>City or Town</b>				<b>State</b>	<b>ZIP Code</b>
Richland				WA	99352

VI. Facility contact (Person to be contacted regarding waste activities at facility)																
Name (last)						(first)										
Brockman						David										
Job Title						Phone Number (area code and number)										
Manager						(509) 376-7395										
Contact Address																
Street or P.O. Box																
P.O. Box 550																
City or Town						State		ZIP Code								
Richland						WA		99352								
VII. Facility Operator Information																
A. Name						Phone Number										
Department of Energy Owner/Operator						(509) 376-7395										
CH2M HILL Plateau Remediation Company Co-Operator for B Plant Complex*						(509) 376-0556*										
Street or P.O. Box																
P.O. Box 550 P.O. Box 1600 *																
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?						<input type="checkbox"/> Yes		<input checked="" type="checkbox"/> No		Co-Operator* change						
If yes, provide the scheduled date for the change:						Month		Day			Year					
		1	0		0	1		2	0	0	8					
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)										
David A. Brockman, Operator/Facility-Property Owner						(509) 376-7395										
Street or P.O. Box																
P.O. Box 550																
City or Town						State		ZIP Code								
Richland						WA		99352								
B. Owner Type		F														
C. Does the name in VIII.A reflect a proposed change in owner?						<input type="checkbox"/> Yes		<input checked="" type="checkbox"/> No								
If yes, provide the scheduled date for the change:						Month		Day			Year					
IX. NAICS Codes (5/6 digit codes)																
A. First						B. Second										
5		6	2	2	1	Waste Treatment & Disposal	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										

X. Other Environmental Permits (see instructions)														
A. Permit Type			B. Permit Number										C. Description	
	E		A	I	R	-	0	6	-	1	0	1	0	WAC 246-247, NOC Radioactive Air
	E		F	F	-	0	1							WAC 246-247, NOC Radioactive Air

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

B Plant (constructed in 1943, began operations in April 1945) is located in the western central portion of the 200 East Area. The first mission for B Plant was the recovery of plutonium using a bismuth phosphate chemical separation process (1945 to 1952). In the early 1960's, B Plant was modified for a second mission, recovery, and purification of cesium and strontium. The cesium and strontium were encapsulated and stored in the Waste Encapsulation and Storage Facility (WESF).

Presently, the B Plant Complex consists of the main facility (221-B) and various support structures. The B Plant Complex contains five dangerous waste storage and/or treatment tank systems (54 vessels), Cell 4 container storage, and containment building storage. Most waste handling activities were conducted in the 221-B Building. The 221-B Building used a remote process cell design to house the process tanks and associated equipment. Typical cells are 5.5 meters long by 3.9 meters wide by 8.5 meters deep; and each cell is covered with four concrete cover blocks. The 221-B Building is made of reinforced concrete, and is approximately 259 meters long by 21 meters wide by 23 meters high, covering an area of approximately 5,370 square meters. Additional operations were carried out in various other smaller support buildings including the 221-BB Building, 221-BF Facility, and 276-BA Facility.

S02/T01

The Neutralized Current Acid Waste Treatment and Storage System is located in the 221-B Building. The neutralized current acid waste was transferred to the B Plant Complex (221-B Building) for the Tank Waste Remediation pretreatment project. The neutralized current acid waste inventory was transferred back to the Double-Shell Tank (DST) System in May 1993 after the Tank Waste Remediation pretreatment project was canceled. No waste is being stored or treated, and there is no intention of resuming operations. The system is included to reflect past operations.

The Low-Level Waste Treatment and Storage System is located within the 221-B Building. Treatment of low-level waste (to meet DST System acceptance standards) includes the addition of sodium hydroxide until the pH is greater than 12.0. Treatment also includes the addition of sodium nitrite until the nitrite concentration is above 600 parts per million and other chemicals required to meet the acceptance criteria. The low-level waste tank storage was intended for waste generated at the 221-B Building and WESF that was not being transferred in 90 days to the DST System. There is no plan to store low-level waste at the 221-B Building from other sources. No waste is being stored or treated, and there is no intention of resuming operations. The system is included to reflect past operations.

The Low-Level Waste Concentrator (formerly known as the single-stage thermal siphon reboiler), located in the 221-B Building, Cell 23, was operated to concentrate the low-level waste in the low-level waste storage and treatment tank system. The low-level waste concentrator is a thermal siphon and shell and tube heat exchanger. This system is inactive with no intention of resuming operations. The system is included to reflect past operations.

**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. 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 1	S	0	2	811,280	L	054	1								
1 2	T	0	1	107,126	V	024	2								
1 3	S	0	1	51,008	L	001	3								
1 4	S	0	6	35,170	C	001	4								
1 5							5								
1 6							6								
1 7							7								
1 8							8								
1 9							9								
2 0							1 0								
2 1							1 1								
2 2							1 2								
2 3							1 3								
2 4							1 4								
2 5							1 5								
							1 6								
							1 7								
							1 8								
							1 9								
							2 0								
							2 1								
							2 2								
							2 3								
							2 4								
							2 5								



EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7
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**Continuation of Section XIV. Description of Dangerous Waste**

Line Number	A. Dangerous Waste No. (enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Process													
	(1) Process Codes (enter)						(2) Process Description [If a code is not entered in D (1)]													
26	D	0	0	9		K	S	0	2											
27	D	0	1	0		K	S	0	2											
28	D	0	1	1		K	S	0	2											
29	F	0	0	1		K	S	0	2											
30	F	0	0	2		K	S	0	2											
31	F	0	0	3		K	S	0	2											
32	F	0	0	4		K	S	0	2											
33	F	0	0	5		K	S	0	2											
34	W	T	0	1		K	S	0	2											
35	W	T	0	2		K	S	0	2											
36	D	0	0	2	90,992*	K	T	0	1											
37	D	0	0	4		K	T	0	1											
38	D	0	0	5		K	T	0	1											
39	D	0	0	6		K	T	0	1											
40	D	0	0	7		K	T	0	1											
41	D	0	0	8		K	T	0	1											
42	D	0	0	9		K	T	0	1											
43	D	0	1	0		K	T	0	1											
44	D	0	1	1		K	T	0	1											
45	F	0	0	1		K	T	0	1											
46	F	0	0	2		K	T	0	1											
47	F	0	0	3		K	T	0	1											
48	F	0	0	4		K	T	0	1											
49	F	0	0	5		K	T	0	1											
50	W	T	0	1		K	T	0	1											
51	W	T	0	2		K	T	0	1											
52	D	0	0	2	1,085,878*	K	S	0	2	T	0	1								
53	D	0	0	4		K	S	0	2	T	0	1								
54	D	0	0	5		K	S	0	2	T	0	1								
55	D	0	0	6		K	S	0	2	T	0	1								
56	D	0	0	7		K	S	0	2	T	0	1								
57	D	0	0	8		K	S	0	2	T	0	1								
58	D	0	0	9		K	S	0	2	T	0	1								

\* The quantity of waste represents past operations. There are no plans to use these vessels for mixed waste activities.



**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.

<b>Operator</b> Name and Official Title (type or print) David A. Brockman, Manager U.S. Department of Energy Richland Operations Office	<b>Signature</b> 	<b>Date Signed</b> 9/19/08
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<b>Co-Operator*</b> Name and Official Title (type or print) John G. Lehew, III President and Chief Executive Officer CH2M HILL Plateau Remediation Company	<b>Signature</b> 	<b>Date Signed</b> 9/2/08
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**Co-Operator – Address and Telephone Number\***  
 P.O. Box 1600  
 Richland, WA 99352  
 (509) 376-0556

<b>Facility-Property Owner</b> Name and Official Title (type or print) David A. Brockman, Manager U.S. Department of Energy Richland Operations Office	<b>Signature</b> 	<b>Date Signed</b> 9/19/08
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**Comments**

In Section VII. Facility Operator Information, there is no change to DOE as the Facility Owner/Operator; only a change in Co-Operator\*. The change in Co-Operator\* will be effective October 1, 2008.

S02/T01 (cont)

**ORGANIC MIXED WASTE STORAGE:** The organic mixed waste storage tank system was used to store organic solvent used in recovery and purification of strontium and cesium. The system consists of vessels located in the 221-B Building and in 276-BA Facility. The organic mixed waste was transferred to an off-site TSD facility for disposal by incineration in late 1997. This system is inactive with no intention of resuming operation. The system is included to reflect past operations. (Refer to the B Plant Complex Vessel Table)

**ISO WEST TANK CLOSURE:** The 276-BA Facility was constructed with two identical storage tanks. Of these two tanks, the ISO West tank never managed organic mixed waste. In 1998, the ISO West tank was administratively closed (98-EAP-136, Letter, James E. Rasmussen, RL, to R. E. Skinnerland, Ecology, *Certified ISO West Interim Organic Storage Tank (ISO West Tank) Administrative Closure Technical Data Synopsis (TSD: TS-2-3)*, dated March 4, 1998; Letter, Shri Mohan, Ecology, to James Rasmussen, RL, RE: *Approval of the Procedural Closure of the B Plant International Standards Organization (ISO) West Tank Administrative Closure*, dated October 20, 1998). The ISO West tank has been removed from the B Plant Complex for use elsewhere on the Hanford site.

**MISCELLANEOUS TANKS STORAGE SYSTEM:** The miscellaneous tanks are located in the 221-B Building, the 221-BB Building, and the 221-BF Facility. The miscellaneous tanks in the B Plant Complex that managed mixed waste after the 1987 date of regulation for mixed waste in the state of Washington are identified on the B Plant Complex Vessel Table. This system is inactive with no intention of using these tanks for future waste management activities. This system is included to reflect past operations. (Refer to the B Plant Complex Vessel Table)

S01

**CELL 4 CONTAINER STORAGE:** The 221-B Building Cell 4 containerized waste storage unit is used for the storage of 208-liter (55-gallon) containers. Waste stored in Cell 4 containers consists of solid mixed waste with no free liquids. Waste stored in Cell 4 includes light bulbs with lead solder. There is no intent to receive additional waste in Cell 4. The maximum design capacity for container storage is 51,008 liters.

S06

**CONTAINMENT BUILDING/STORAGE:** The designation S06 (containment building/storage) has been used to indicate that the solid mixed waste stored in the 221-B Building (on the canyon deck and in various cells) is considered to be in a containment building subject to the requirements of 40 CFR 265, Subpart DD and WAC 173-303-400(3)(a). The solid mixed waste consists of radioactively contaminated failed canyon process equipment, jumpers and lead shielding materials. The failed canyon process equipment and jumpers (or isolated components thereof) contain lead used as weights, counterweights, or radioactive shielding. The lead shielding materials include lead blankets, lead sheets, lead bricks, and lead window glass. The solid mixed waste also could be contaminated with residues from the processing of tank waste. Future additions of waste to the containment building will be restricted to the types of waste described above. The maximum storage capacity is 35,170 cubic meters.

**Comments**

**B PLANT COMPLEX VESSELS**

<b>Neutralized Current Acid Waste (NCAW) Treatment &amp; Storage System</b>		
Vessel ID	Location	Capacity (liters)
TK-6-2	221-B, Cell 6	19,684
TK-7-1	221-B, Cell 7	19,306
TK-7-2	221-B, Cell 7	18,927
TK-8-1	221-B, Cell 8	19,684
TK-8-2	221-B, Cell 8	19,684
TK-13-1	221-B, Cell 13	15,142
TK-14-2	221-B, Cell 14	14,763
TK-29-3	221-B, Cell 29	15,520
TK-39-2	221-B, Cell 39	6,814
TK-39-5	221-B, Cell 39	7,571
Storage Capacity*		157,095

<b>Low-Level Waste (LLW) Concentrator</b>		
Vessel ID	Location	Capacity (liters)
E-23-3	221-B, Cell 23	11,356
E-23-3-1	221-B, Cell 23	0
E-23-3-2	221-B, Cell 23	0
D-23-2	221-B, Cell 23	0
E-23-4	221-B, Cell 23	0
TK-23-1	221-B, Cell 23	2,990
Storage capacity*		14,346
Treatment capacity		27,633 per day

<b>Low-Level Waste (LLW) Treatment &amp; Storage System</b>		
Vessel ID	Location	Capacity (liters)
TK-9-1	221-B, Cell 9	19,684
TK-9-2	221-B, Cell 9	19,684
TK-10-1	221-B, Cell 10	37,839
TK-24-1	221-B, Cell 24	52,616
TK-25-1	221-B, Cell 25	18,548
TK-25-2	221-B, Cell 25	18,548
TK-26-3	221-B, Cell 26	9,922
TK-39-1	221-B, Cell 39	13,120
Storage Capacity*		189,961
NCAW and LLW storage capacity*		347,056
NCAW and LLW treatment capacity*		79,493 per day

<b>Organic Mixed Waste Storage System</b>		
Vessel ID	Location	Capacity (liters)
TK-26-1	221-B, Cell 26	14,763
TK-27-2	221-B, Cell 27	7,571
TK-27-3	221-B, Cell 27	14,385
TK-27-4	221-B, Cell 27	1,060
TK-28-3	221-B, Cell 28	14,385
TK-28-4	221-B, Cell 28	1,060
TK-29-4	221-B, Cell 29	492
TK-30-3	221-B, Cell 30	15,520
ISO-EAST	276-BA	17,500
Storage Capacity*		86,736

<b>Miscellaneous Storage Tank System</b>		
Vessel ID	Location	Capacity (liters)
E-5-2	221-B, Cell 5	1,639
TK-17-1	221-B, Cell 17	18,700
TK-17-2	221-B, Cell 17	18,908
T-18-2	221-B, Cell 18	11,761
TK-18-3	221-B, Cell 18	2,794
E-20-2	221-B, Cell 20	1,552
TK-21-1	221-B, Cell 21	53,272
TK-22-1	221-B, Cell 22	1,775
T-28-1	221-B, Cell 28	2,642
TK-29-2	221-B, Cell 29	15,077
T-30-1	221-B, Cell 30	2,634
TK-32-1	221-B, Cell 32	15,024
TK-33-1	221-B, Cell 33	53,211
TK-34-2	221-B, Cell 34	15,520
TK-35-2	221-B, Cell 35	15,002
TK-36-1	221-B, Cell 36	15,547
TK-100	221-B, Canyon Deck	15,122
BCP	221-BB	2,271
BCS	221-BB	2,271
221-BF-A	221-BF	49,210
221-BF-B	221-BF	49,210
Storage Capacity*		363,142

\*Treatment and storage capacities are provided to reflect past operations. Current and/or future B Plant activities do not propose utilization of treatment or storage capacity beyond what has been agreed to for facility transition purposes under Section 8 of the Hanford Federal Facility Agreement and Consent Order.



**B Plant Complex**  
98070285-72CN

Photo Taken 1998



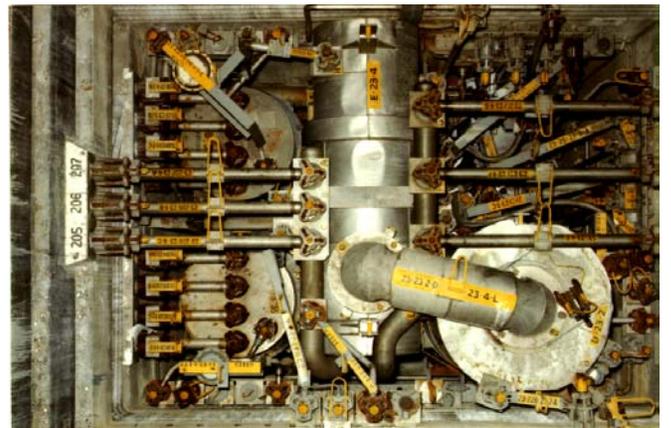
**221-B Building Canyon**  
98040211-8CN

Photo Taken 1998



**221-B Building, Cell 8** (typical canyon cell)  
NCAW Storage & Treatment Tank  
(TK-8-1 & TK-8-2)

83107243-11CN  
Photo Taken 1983



**221-B Building, Cell 23**  
Low-Level Waste Concentrator  
(TK-23-1, E-23-3, E-23-3-1, E-23-3-2, E-23-4, & D-23-2)

83107243-40CN  
Photo Taken 1983



**221-B Building, Cell 4, Container Storage**  
94040656-5CN Photo Taken 1994



**221-BB Building, Miscellaneous Tank Storage System**  
98100330-8CN Photo Taken 1998

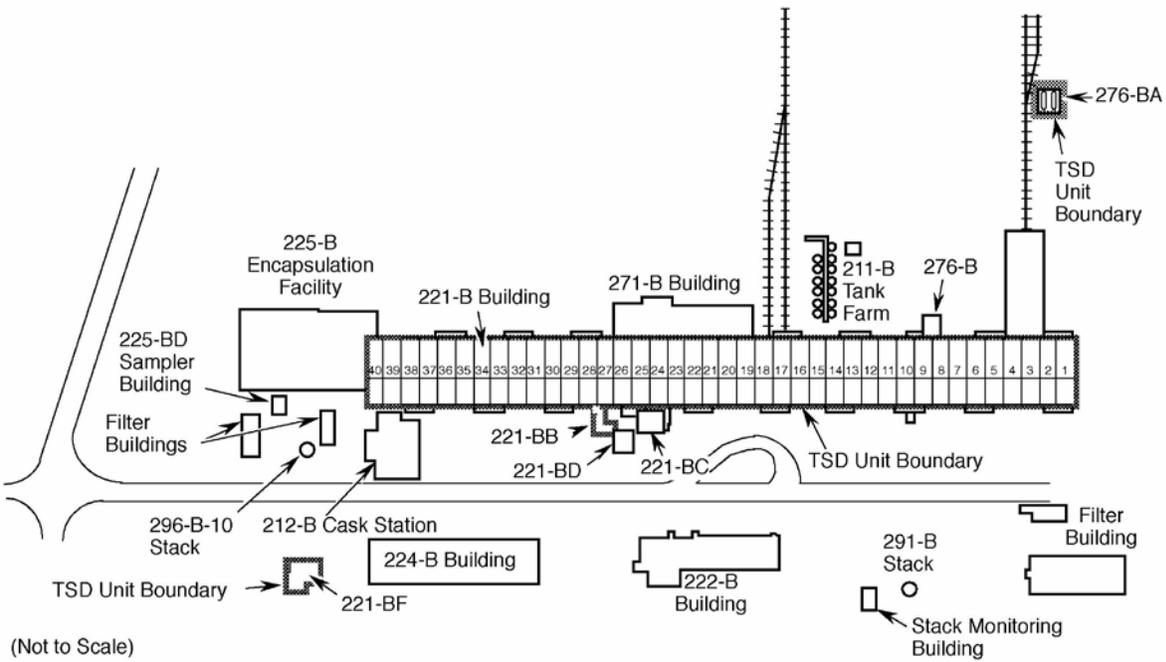


**276-BA Facility, Organic Mixed Waste Storage System**  
External organic mixed waste storage tank (ISO East)  
98110220-7CN Photo Taken 1998



**221-BF Facility, Miscellaneous Tank Storage System**  
98110220-4CN Photo Taken 1998

B Plant Complex

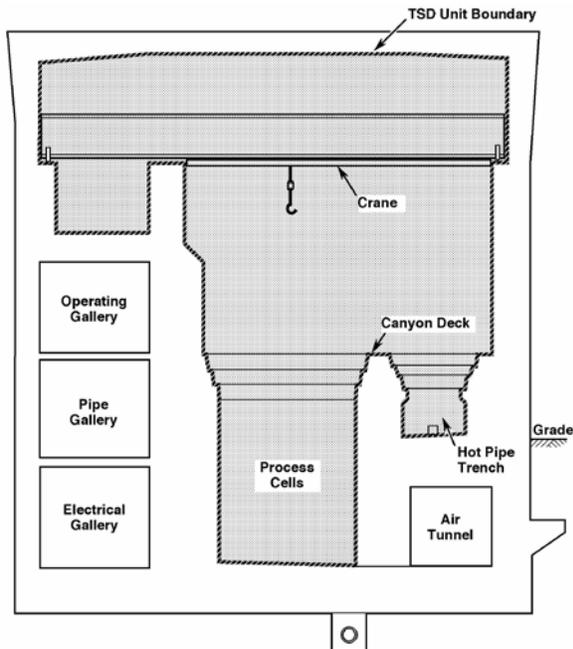


(Not to Scale)

Note: 221-BB, 221-BF, and 276-BA are included in the TSD Unit Boundary. The railroad tunnel is not included in the TSD Unit Boundary.

H95110328.3R1

TSD Unit Boundary (Typical Cross-Section)



Not to Scale

Note: Shaded portions denote areas that are within the TSD Unit Boundary

H96030202.1R1

221-B Building Process Cells

1	2	3	4	5	6	7		8	9	10
			Cell 4 Container Storage	Miscellaneous Tank Storage	NCAW Storage/Treatment				LLW Concentrator	
			Maximum Capacity 13,475 gal	E-5-2 1,638 gal	TK-6-2 5,200 gal	TK-7-1 5,100 gal TK-7-2 5,000 gal	TK-8-1 5,200 gal TK-8-2 5,200 gal	TK-8-1 5,200 gal TK-8-2 5,200 gal	TK-10-1 5,200 gal	TK-10-1 9,996 gal

11	12	13	14	15	16	17	18	19	20	21
NCAW Storage/Treatment					Miscellaneous Tank Storage				Miscellaneous Tank Storage	
		TK-13-1 4,000 gal				TK-17-1 18,200 gal TK-17-2 18,908 gal	T-18-2 11,761 gal TK-18-3 2,794 gal		E-20-2 1,552 gal	TK-21-2 53,272 gal

22	23	24	25	26	27	28	29	30	31	
TK-22-1 3,900 gal	Low-Level Waste Concentrator	Low-Level Waste Staging and Treatment	TK-25-1 790 gal	TK-24-1 13,900 gal	TK-26-1 3,900 gal TK-26-2 2,621 gal	TK-27-2 2,000 gal TK-27-3 3,800 gal TK-27-4 250 gal	TK-28-3 3,800 gal TK-28-4 280 gal T-28-1 2,642 gal	TK-29-3 4,100 gal TK-29-4 130 gal TK-29-2 16,077 gal	TK-30-3 4,100 gal T-30-1 2,634 gal	
Organic Waste Storage/Treatment/LLW Concentrator/Misc. Tank Storage										

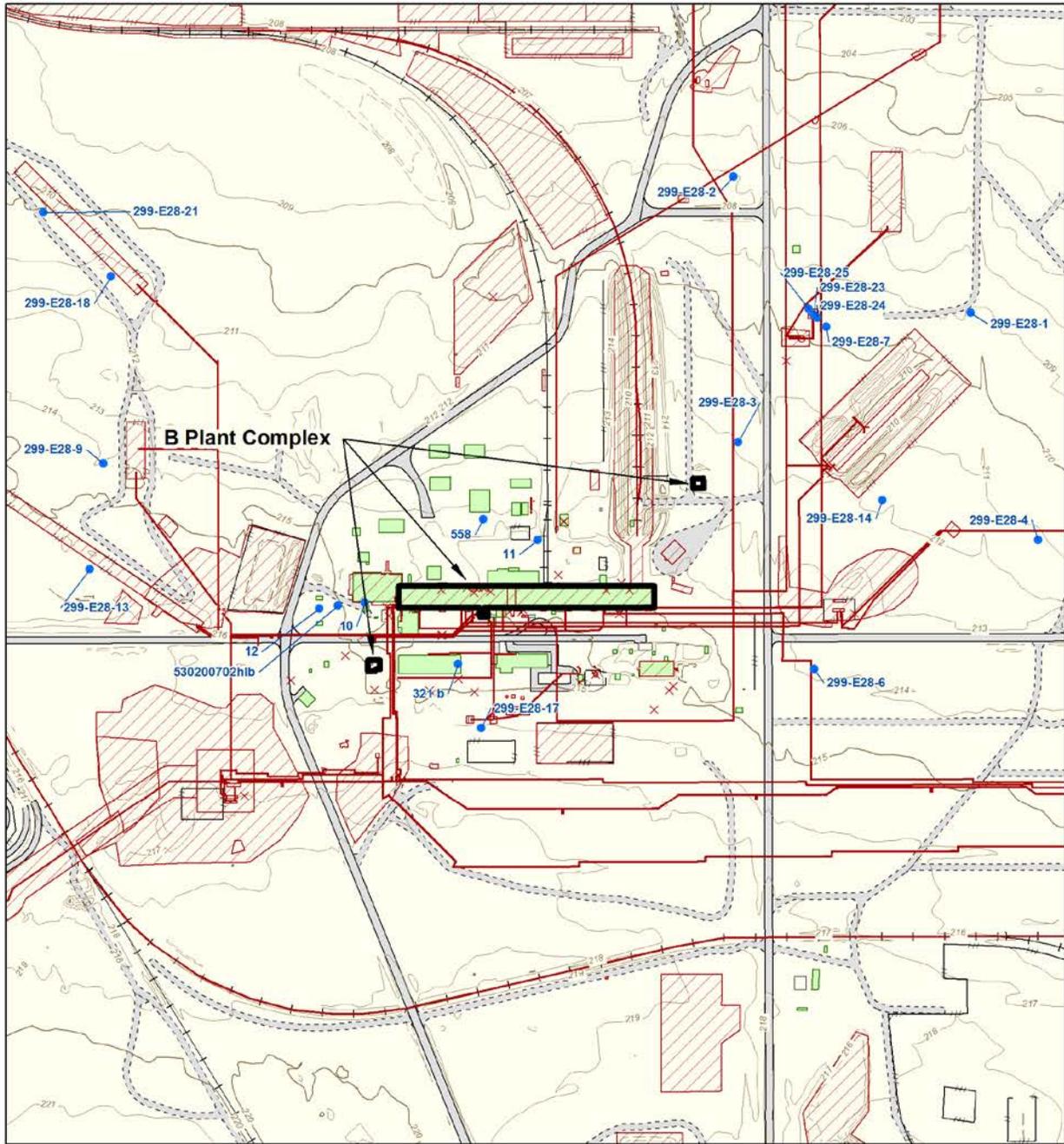
32	33	34	35	36	37	38	39	40			
Miscellaneous Tank Storage								NCAW Storage/Treatment			
TK-32-1 15,024 gal	TK-33-1 53,211 gal	TK-34-2 15,620 gal	TK-35-2 16,002 gal	TK-36-1 16,647 gal			TK-39-1 (LLW Concentrator) 3,465 gal TK-39-2 1,800 gal TK-39-5 2,000 gal				

Key:

NCAW = neutralized current acid waste gal = gallon		
D = deentrainer		
E = heat transfer equipment		
F = filter		
G = centrifuge		
P = pump		
PG = pulse generator		
T = tower		
TK = tank		

For conversion to liters, multiply gallons by 3.7854.

39402094.1R2



## B Plant Complex

Prepared for:  
 US DEPARTMENT OF ENERGY  
 RICHLAND OPERATIONS OFFICE  
 Created and Published by:  
 Central Mapping Services  
 Fluor Hanford, Richland, WA  
 (509) 373-9076  
 Intended Use: REFERENCE ONLY  
 Topographic Data:  
 1996, Bechtel Hanford, Inc.

### Hanford Site



Unit  
 Location

- 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
- Spot SWMUs and Known Releases
- Buildings
- Structures
- Concrete
- Major Roads
- Service Roads
- Railroads
- Fences



O:\Projects\2005\RCRA\_TSD\050614\_2ndPriorityFacilityTops\2005\_Thompson\Maps\050906\_BPlantComplex\_LineDwg\_85x11\_Rev2.mxd - 7/18/2008 @ 9:03:34 AM

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