

1                                   **PART V, CLOSURE UNIT 5 UNIT-SPECIFIC CONDITIONS**  
2                                   **300 Area Waste Acid Treatment System**  
3                                   **(Partial Closure Plan Completed, December 3, 2001)**

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4   The 300 Area Waste Acid Treatment System (300 WATS) was a tank system that was used to treat and  
5   store nonrecoverable uranium-bearing waste acid from reactor fuel fabrication operations. Waste acid  
6   neutralization occurred in portions of what now is the 300 Area WATS before operation of the system as  
7   a Resource Conservation and Recovery Act (RCRA) of 1976 unit. The Closure Plan detailed closure of  
8   300 Area WATS components, areas, and contamination resulting from RCRA operations. This unit  
9   consisted of portions of four (4) buildings and two (2) tank farms: 334-A Building, 313 Building,  
10  303-F Building, 333 Building, 334 (tank 4), and 311 Tank Farms (tanks 40 and 50).

11 Closure activities were completed in September 1999, in accordance with the approved Closure Plan  
12 contained in Attachment 46 that was retired during Revision 6 of this Permit. Clean closure was given for  
13 structures above the ground using the visually verifiable 'clean debris surface' rule and table in the  
14 Ecology Guidance for Clean Closure of Dangerous Waste Facilities Publication #94-111 (August, 1994).  
15 The disposition of unclosed 300 Area WATS soils will be performed in conjunction with the 300-FF-2  
16 CERCLA OU remedial action to complete WATS RCRA closure.

17 **V.6.A                   COMPLIANCE WITH APPROVED CLOSURE PLAN**

18 The Permittees shall comply with all requirements set forth in the Hanford Facility Dangerous Waste  
19 Permit, as specified in Attachment 3, Permit Applicability Matrix and the unit-specific conditions  
20 identified below for the 300 Area WATS, including all approved modifications.

21 In the event that these Part V – Unit-Specific Conditions conflict with the Part I – Standard Conditions  
22 and/or Part II – General Facility Conditions of the Permit the unit-specific conditions for 300 Area WATS  
23 prevail.

24 **CLOSURE UNIT 5:**

25 Chapter 1.0    Part A Form, Revision 7, dated July 2005

26 **V.6.B                   UNIT-SPECIFIC CONDITIONS**

27 V.6.B.1        Soil Contamination Areas 1 and 2, identified in the Part A, shall be inspected annually to  
28                   ensure that the contamination at these locations remains immobilized until final  
29                   disposition. Soil over the concrete block covers of 300 Area WATS and U-Bearing  
30                   Piping Trench that covers Soil Contamination Area 1 will be inspected annually for  
31                   disturbance indicating a potential for contamination at this area to become mobilized.  
32                   The concrete slab surface over Soil contamination Area 2, located inside the  
33                   313 Building, will be inspected annually for cracks or major degradation and the presence  
34                   of water that could mobilize soil contamination at this location. If unsatisfactory  
35                   conditions are identified during annual inspections, Ecology will be notified for  
36                   discussion of an appropriate response. This condition constitutes the TSD unit's  
37                   inspection schedule.

38 V.6.B.2        A contingency plan, personnel training plan, or a waste analysis plan will not be required  
39                   for the 300 Area WATS following partial closure, as this scope of work is included in the  
40                   300-FF-2 remedial action.

January 2007

WA7890008967, Part V, Closure Unit 5  
300Area Waste Acid Treatment System

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 <b>WASHINGTON STATE DEPARTMENT OF E C O L O G Y</b>		<h2 style="margin: 0;">Dangerous Waste Permit Application Part A Form</h2>											
		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">Date Received</td> <td style="width: 40%;">Reviewed by: <i>[Signature]</i></td> <td style="width: 10%;">Date:</td> <td style="width: 25%; text-align: center;">1 0 1 0 2 0 0 5</td> </tr> <tr> <td>Month Day Year</td> <td>Approved by: <i>[Signature]</i></td> <td>Date:</td> <td style="text-align: center;">1 0 3 0 2 0 0 5</td> </tr> <tr> <td>0 9 3 0 2 0 0 5</td> <td></td> <td></td> <td></td> </tr> </table>		Date Received	Reviewed by: <i>[Signature]</i>	Date:	1 0 1 0 2 0 0 5	Month Day Year	Approved by: <i>[Signature]</i>	Date:	1 0 3 0 2 0 0 5	0 9 3 0 2 0 0 5	
Date Received	Reviewed by: <i>[Signature]</i>	Date:	1 0 1 0 2 0 0 5										
Month Day Year	Approved by: <i>[Signature]</i>	Date:	1 0 3 0 2 0 0 5										
0 9 3 0 2 0 0 5													
<b>I. This form is submitted to: (place an "X" in the appropriate box)</b>													
<input checked="" type="checkbox"/>	Request modification to a final status permit (commonly called a "Part B" permit)												
<input 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													
City or Town		State	ZIP Code										
Richland		WA	99352										
County Code (if known)	County Name												
0 0 5	Benton												
<b>B. Land Type</b>	<b>C. Geographic Location</b>		<b>D. Facility Existence Date</b>										
	Latitude (degrees, mins, secs)		Longitude (degrees, mins, secs)										
F	S E E	T O P O	M A P	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													
City or Town		State	ZIP Code										
Richland		WA	99352										

<b>VI. Facility contact (Person to be contacted regarding waste activities at facility)</b>												
<b>Name (last)</b>						<b>(first)</b>						
Klein						Keith						
<b>Job Title</b>						<b>Phone Number (area code and number)</b>						
Manager						(509) 376-7395						
<b>Contact 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			
<b>VII. Facility Operator Information</b>												
<b>A. Name</b>						<b>Phone Number (area code and number)</b>						
Department of Energy * Owner/Operator Washington Closure Hanford** Co-Operator for 300 Area Waste Acid Treatment System						(509) 376-7375* (509) 372-9951**						
<b>Street or P.O. Box</b>												
P.O. Box 550* 3070 George Washington Way**												
<b>City or Town</b>						<b>State</b>			<b>ZIP Code</b>			
Richland						WA			99352			
<b>B. Operator Type</b>		F										
<b>C. Does the name in VII.A reflect a proposed change in operator?</b>						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
If yes, provide the scheduled date for the change:						<b>Month</b>		<b>Day</b>		<b>Year</b>		
<b>D. Is the name listed in VII.A. also the owner? If yes, skip to Section VIII.C.</b>						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
<b>VIII. Facility Owner Information</b>												
<b>A. Name</b>						<b>Phone Number (area code and number)</b>						
Keith A. Klein, Operator/Facility-Property Owner*						(509) 376-7395*						
<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			
<b>B. Operator Type</b>		F										
<b>C. Does the name in VII.A reflect a proposed change in operator?</b>						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
If yes, provide the scheduled date for the change:						<b>Month</b>		<b>Day</b>		<b>Year</b>		
<b>IX. NAICS Codes (5/6 digit codes)</b>												
<b>A. First</b>						<b>B. Second</b>						
5	6	2	2	1		9	2	4	1	1	0	Administration of Air & Water Resource & Solid Waste Management Programs
<b>C. Third</b>						<b>D. Fourth</b>						
9	9	9	9	9	9	5	6	2	9	1	0	Remediation Services

X. Other Environmental Permits (see instructions)													
A. Permit Type			B. Permit Number										C. Description
													None

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

The 300 Area Waste Acid Treatment System (300 Area WATS) operated from 1973 and ceased operations in 1995. The 300 Area WATS consisted of various buildings and pipe trenches. Information provided on this form pertaining to unit processes, design capacities, or dangerous waste managed at the unit is for historical purposes only.

The 300 WATS was used to treat both mixed and dangerous waste from fuels fabrication operations occurring in the 333 Building and from nonroutine waste additions. Treatment was performed to make the waste more amenable for further treatment and for storage. The 333 Building waste primarily consisted of hydrofluoric acid, nitric acid, sulfuric acid, and copper nitrate. Approximately 2,086,525 kilograms (4,600,000 pounds) of waste were treated and stored yearly in this system. Approximately 907 kilograms (2,000 pounds) of waste (D007, chromium VI to chromium III) were treated per year.

The 311 tank system was used for the treatment and storage of waste. This waste was effluent from the waste acid treatment and uranium recovery process. Approximately 2,086,525 kilograms (4,600,000 pounds) of waste were treated and stored per year in the 311 tanks.

'Partial' closure activities for this unit began in 1996 and were completed September 1999. Closure activities occurred in three phases and in accordance with the approved closure plan and the requirements of the Hanford Facility RCRA Permit, WA7890008967, Revision 7. Clean closure was achieved for RCRA components for all 300 Area WATS locations, with the exception of two locations of potential soil contamination. The areas of potential soil contamination are shown as Area 1 and 2 in the Figure. Area 1 is located beneath the concrete WATS and U-Bearing Piping trench. Area 2 is located beneath the scabbled concrete floor of the old 313 Building.

In December 2001, Ecology (Letter, G. P. Davis, Ecology, to J. B. Hebdon, U.S. Department of Energy) accepted certification for the clean closed 300 Area WATS locations and released these clean closed locations from the requirements of RCRA and WAC 173-303. The soil at Areas 1 and 2 will remain unclosed and regulated by RCRA, Chapter 173-303 WAC until soil disposition in conjunction with the future 300-FF-2 Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) Operable Unit remedial action. Concrete surfaces over unclosed soil will remain until the time of soil disposition. Closure of these areas will complete 300 Area WATS closure.

Continued in *Comments* section.

**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							
	2								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							
1	3							1	3							
1	4							1	4							
1	5							1	5							
1	6							1	6							
1	7							1	7							
1	8							1	8							
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									
				(1) Process Codes (enter)					(2) Process Description [If a code is not entered in D (1)]				
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

**300 Area Waste Acid Treatment System**

	1	D 0 0 1	2,086,525	K	T	0	1	S	0	2	T	0	4	Includes Debris
	2	D 0 0 2		K	T	0	1	S	0	2	T	0	4	Includes Debris
	3	D 0 0 4		K	T	0	1	S	0	2	T	0	4	Includes Debris
	4	D 0 0 5		K	T	0	1	S	0	2	T	0	4	Includes Debris
	5	D 0 0 6		K	T	0	1	S	0	2	T	0	4	Includes Debris
	6	D 0 0 7		K	T	0	1	S	0	2	T	0	4	Includes Debris
	7	D 0 0 8		K	T	0	1	S	0	2	T	0	4	Includes Debris
	8	W T 0 2		K	T	0	1	S	0	2	T	0	4	Includes Debris
	9	D 0 0 9		K	T	0	1	S	0	2	T	0	4	Includes Debris
1	0	D 0 0 7	907	K	T	0	1							Includes Debris

**311 Tanks**

	1	1	W T 0 2	2,086,525	K	T	0	1	S	0	2				Includes Debris
	1	2	D 0 0 2		K	T	0	1	S	0	2				Includes Debris
	1	3	D 0 0 4		K	T	0	1	S	0	2				Includes Debris
	1	4	D 0 0 5		K	T	0	1	S	0	2				Includes Debris
	1	5	D 0 0 6		K	T	0	1	S	0	2				Includes Debris
	1	6	D 0 0 7		K	T	0	1	S	0	2				Includes Debris
	1	7	D 0 0 8		K	T	0	1	S	0	2				Includes Debris
	1	8	D 0 0 9		K	T	0	1	S	0	2				Includes Debris
	1	9													
	2	0													
	2	1													
	2	2													
	2	3													
	2	4													
	2	5													

**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.

**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.

<p><b>Operator*</b> Name and Official Title (type or print) Keith A. Klein, Manager U.S. Department of Energy Richland Operations Office</p>	<p><b>Signature</b> </p>	<p><b>Date Signed</b> 8/25/05</p>
<p><b>Co-Operator**</b> Name and Official Title (type or print) Patrick L. Pettiette Project Manager Washington Closure Hanford LLC</p>	<p><b>Signature</b> </p>	<p><b>Date Signed</b> 8-7-05</p>
<p><b>Co-Operator**</b> – Address and Telephone Number 3070 George Washington Way Richland, WA 99352 (509) 372-9951</p>		
<p><b>Facility-Property Owner*</b> Name and Official Title (type or print) Keith A. Klein, Manager U.S. Department of Energy Richland Operations Office</p>	<p><b>Signature</b> </p>	<p><b>Date Signed</b> 8/25/05</p>

**Comments**T01, S02, T04

The 300 Area Waste Acid Treatment System (300 WATS) and Tank 40 and 50 began waste management operations in April 1973; auxiliary equipment and centrifuge operations began in November 1995. The 300 WATS was used for the treatment and storage of mixed waste generated during fuel fabrication operations in the 300 Area. The 300 WATS also was used for disposing of used and/or unneeded chemicals for other Hanford Facility operations. A portion of the waste initially was treated in two tanks (tanks 7 and 11) in the 333 Building to reduce the chromium (VI) to chromium (III). From May 1983 to January 1987, tanks 7 and 11 were used twice a year to treat up to 757 liters (200 gallons) per day of waste (T01). This waste, along with all other waste acid generated in the 333 Building, was drained to the 334-A Building and stored in two storage tanks (tanks Band C) (S02), with a combined volume of 15,142 liters (4,000 gallons). Previously, waste entered the 334-A Building passing through a settling tank [tank A, volume 1,363 liters (360 gallons)] before entering tanks B and C. Tank A ceased receiving waste in August 1984, when piping was disconnected to the tank and waste was routed directly to tanks B and C. Tank A was cleaned out and the polyvinyl chloride liner removed in 1988.

From startup in April 1973 until August 1973, the waste acid from the 333 Building was collected in a plastic-lined steel underground 14,385 liter (3,800 gallon) tank and a plastic-lined steel aboveground 22,712 liter (6,000 gallon) tank (tank 4) in the 334 Tank Farm. At that time, the underground tank developed a leak and was removed from service. The 334-A Building storage tanks replaced this underground tank in December 1974. Tank 4 was retained for emergency storage when the 313 Building neutralization activities were down for maintenance or modifications. Tank 4 usually was empty and when the tank was filled in January 1986, a leak developed near the top of the tank. Tank 4 was emptied and abandoned at that time. Tank 4 was removed, cleaned, and disposed of onsite in 1988.

The waste acid was pumped from the 334-A Building to the 313 Building where the waste acid underwent pH adjustment in a waste acid neutralization tank (tank 2) (T01). Tank 2 was capable of treating a maximum of 13,249 liters (3,500 gallons) per day of waste acid. The waste acid was pumped from tank 2 to tank 11 and then to a centrifuge where the waste acid underwent further treatment to separate the liquid and solid phases (T04). A maximum of 11,356 liters (3,000 gallons) of waste acid per day could be treated in the centrifuge. The solid waste from the centrifuge was collected in containers and transferred to the 303-K Storage Unit. The liquid effluent was pumped from the centrifuge to tank 5 and to a filter press for additional treatment to remove fine solids (T04), which remained following treatment in the centrifuge. The filter press treated a maximum of 4,542 liters (1,200 gallons) per day. Solids collected in the filter press were sent to the uranium recovery system or to the 303-K Storage Unit. The filtered liquid effluent was drained into effluent collection tanks (tanks 9 and 10), where the liquid effluent was stored temporarily before being pumped to the 311 Tank Farm.

T01, S02 - The 311 Tank Farm was used for storage of treated liquid effluents from both the 300 Area WATS and the uranium recovery process. Storage occurred in two tanks (tanks 40 and 50) with capacities of 15,142 and 18,927 liters (4,000 and 5,000 gallons), respectively. Tanks 40 and 50 are constructed of stainless steel. Tank 50, the 18,927 liter (5,000 gallon) tank, occasionally was used for decanting waste when the centrifuge in the 313 Building was down for maintenance. Tank 50 was capable of treating up to 18,927 liters (5,000 gallons) per day, but only was used occasionally for decanting waste (a total of five times between January 1986 and December 1987).

Auxiliary equipment (two pumps, two cartridge filters, and two sample ports) are housed in the adjacent 303-F Building. Auxiliary equipment was used to filter solutions and to recirculate the solutions between various tanks and the 313 Building for reprocessing.

## 300 Area Waste Acid Treatment System

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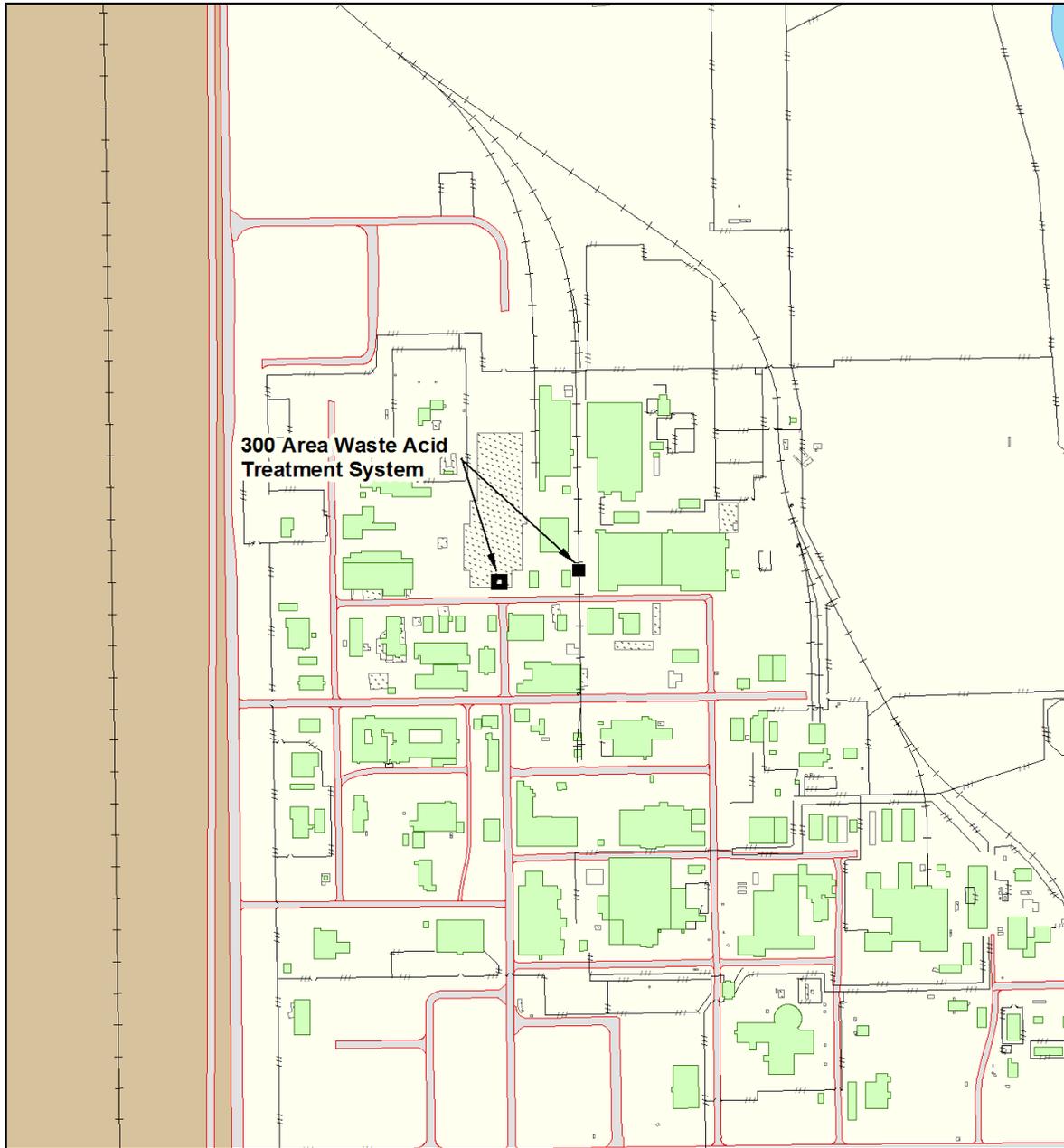
**Substructure Soil Contamination Location, Area 1**

00070107-6CN  
(PHOTO TAKEN 2000)



**Substructure Soil Contamination Location, Area 2**

00070107-2CN  
(PHOTO TAKEN 2000)



### 300 Area Waste Acid Treatment System

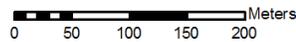
Prepared for:  
 US DEPARTMENT OF ENERGY  
 RICHLAND OPERATIONS OFFICE



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 Fluor Hanford, Richland, WA (509) 376-8759

INTENDED USE: REFERENCE ONLY

- |                     |                       |
|---------------------|-----------------------|
| TSD Unit Boundary   | Buildings and Mobiles |
| DOE Operating Areas | Structures            |
| Hanford Facility    | Concrete              |
| Columbia River      | Railroads             |
| Major Roads         | Fences                |
| Service Roads       |                       |



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