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Rev. 0

River Corridor Closure Contract

300 Area D4 Project 1st Quarter Fiscal Year 2006 Building Completion Report

April 2006

Washington Closure Hanford

Prepared for the U.S. Department of Energy, Richland Operations Office
Office of Assistant Manager for River Corridor

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METRIC CONVERSION CHART

Into Metric Units			Out of Metric Units		
If You Know	*Multiply By*	*To Get*	*If You Know*	*Multiply By*	*To Get*
Length			**Length**		
inches	25.4	millimeters	millimeters	0.039	inches
inches	2.54	centimeters	centimeters	0.394	inches
feet	0.305	meters	meters	3.281	feet
yards	0.914	meters	meters	1.094	yards
miles	1.609	kilometers	kilometers	0.621	miles
Area			**Area**		
Sq. inches	6.452	sq. centimeters	sq. centimeters	0.155	sq. inches
sq. feet	0.093	sq. meters	sq. meters	10.76	sq. feet
sq. yards	0.836	sq. meters	sq. meters	1.196	sq. yards
sq. miles	2.6	sq. kilometers	sq. kilometers	0.4	sq. miles
acres	0.405	hectares	hectares	2.47	acres
Mass (weight)			**Mass (weight)**		
ounces	28.35	grams	grams	0.035	ounces
pounds	0.454	kilograms	kilograms	2.205	pounds
Ton	0.907	metric ton	metric ton	1.102	ton
Volume			**Volume**		
teaspoons	5	milliliters	milliliters	0.033	fluid ounces
tablespoons	15	milliliters	liters	2.1	pints
fluid ounces	30	milliliters	liters	1.057	quarts
cups	0.24	liters	liters	0.264	gallons
pints	0.47	liters	cubic meters	35.315	cubic feet
quarts	0.95	liters	cubic meters	1.308	cubic yards
gallons	3.8	liters			
cubic feet	0.028	cubic meters			
cubic yards	0.765	cubic meters			
Temperature			**Temperature**		
Fahrenheit	subtract 32, then multiply by 5/9	Celsius	Celsius	multiply by 9/5, then add 32	Fahrenheit
Radioactivity			**Radioactivity**		
picocuries	37	millibecquerel	millibecquerels	0.027	picocuries

1.0 SCOPE

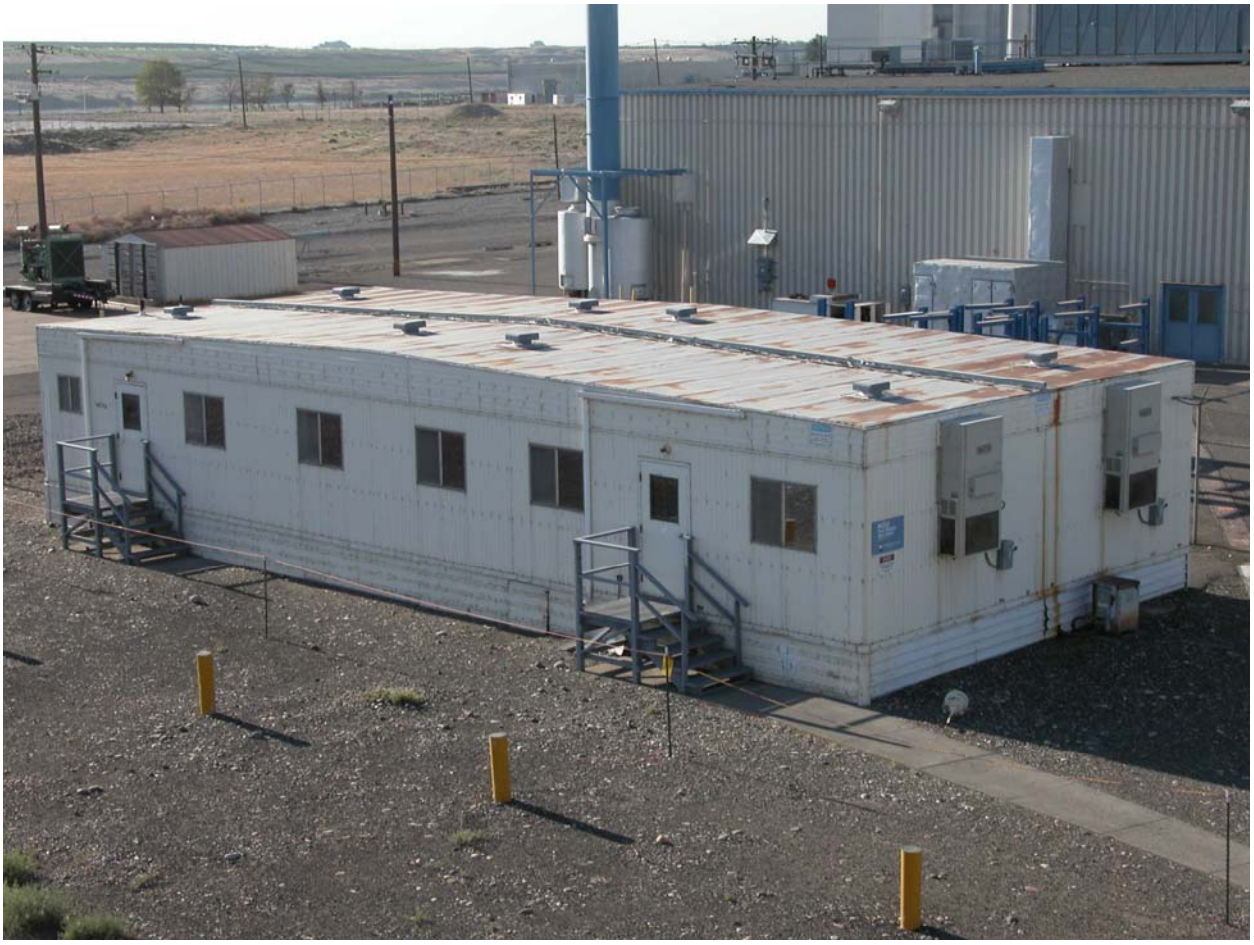
This report documents the deactivation, decontamination, decommissioning, and demolition (D4) of the MO-052, 3225, 334, 334A, and 334-TF Buildings in the 300 Area of the Hanford Site. The D4 of these facilities included characterization, engineering, removal of hazardous and radiologically contaminated materials, equipment removal, utility disconnection, deactivation, decontamination, demolition of the structure, and stabilization or removal of the remaining slab and foundation as appropriate.

2.0 FACILITY DESCRIPTION AND CONDITIONS

2.1 MO-052 BUILDING

The MO-052 Building was a double-wide transportable mobile office located in the north-central region of the 300 Area. The building was used as temporary office space.

Figure 1. MO-052 Building.



2.2 3225 BOTTLE DOCK

The 3225 Building was a small, open, steel-framed and roof loading dock with cinder block walls used to store cylinders of compressed gas.

Figure 2. 3225 Bottle Dock.

2.3 334 PROCESS SEWER MONITOR FACILITY

The 334 Building housed the control instruments for the acid system in the 333 N Fuels Building and stored small amounts of chemicals. It is a steel frame structure on a concrete slab with steel wall and roof panels.

Figure 3. 334 Process Sewer Monitor Facility.

2.4 334A WASTE ACID STORAGE BUILDING

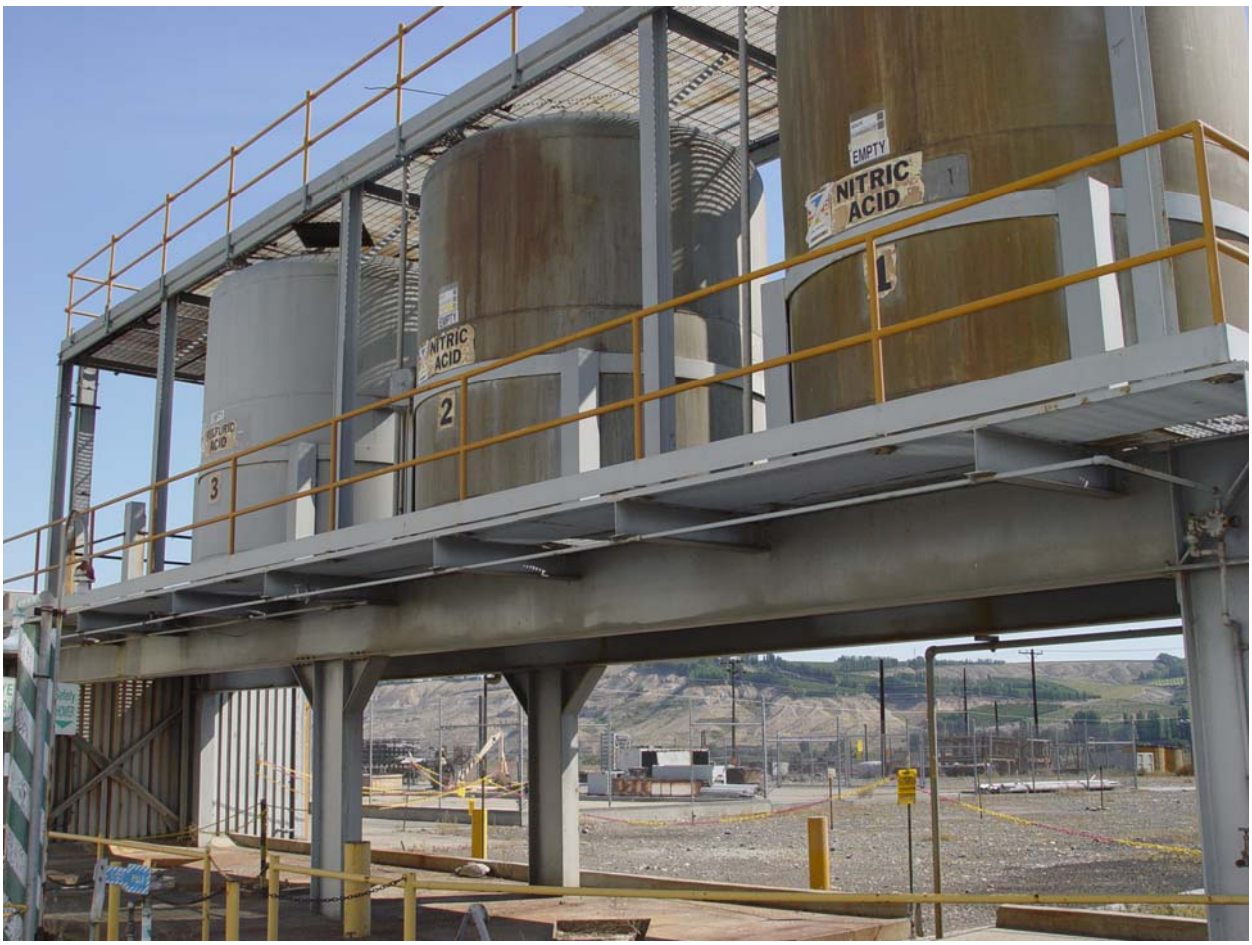
The 334A Building served as the waste treatment and waste storage facility for the 333 N Fuels Building. It was part of the 300 Area Waste Acid Treatment System (WATS) *Resource Conservation and Recovery Act of 1976* (RCRA) treatment, storage, and disposal (TSD) unit. The 334A Building portion of the 300 Area WATS RCRA TSD unit was clean closed in 1999. The structure consists of a small steel frame structure, an above-grade steel frame structure supporting three acid tanks, and an at-grade reinforced concrete pit. The pit is lined with an acid-resistant glass-filled polyester coating.

Figure 4. 334A Waste Acid Storage Building.

2.5 334TF BUILDING

The 334 Tank Farm consisted of four 22,712-L (6,000-gal) steel tanks that were used to store nitric and sulfuric acid to support 333 Building fuels fabrication operations. (One tank was removed in 1988 after it began to leak.) The tanks were raised off the ground approximately 3 m (10 ft) by a steel frame support structure.

Figure 5. 334TF Tank Farm.



3.0 PROJECT ACTIVITIES

3.1 ENGINEERING AND PERMITS

The Removal Action Work Plan #1 for 300 Area Facilities (DOE-RL 2005b) was prepared to satisfy the requirements of the action memorandum (EPA and DOE 2005), outlining how compliance with, and enforcement of, applicable regulations will be achieved for cleanup of 300 Area facilities. Additionally, the removal action work plan (DOE-RL 2005b) and environmental control plan (BHI 2005a) serve as the decommissioning plan and project management plan for the 300 Area project. The removal action work plan was prepared in accordance with Section 7.2.4 of the *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement) (Ecology et al. 1989) and was approved by the U.S. Department of Energy, Richland Operations Office and the regulators.

The plant forces work review for demolition of the MO-052 and 3225 Building (8850-21-005) was completed in September 2005, and the review for the 334, 334A, and 334TF Buildings (8850-24-005) was completed in August 2005. The D4 work on all five buildings was determined not to be applicable to the *Davis-Bacon Act of 1931* pay scale (BHI 2004b).

The initial hazard categorization for all five buildings (334A: IHC-2005-0012 [BHI 2005b]; 334, 334TF: IHC-2005-0013 [BHI 2005c]; MO-052, 3225: IHC-2005-0022 [BHI 2005d]) determined that the inventory of radioactive materials in the buildings was less than the Category 3 threshold quantity defined in Table A.1 of *DOE Standard – Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports* (DOE-STD-1027-92, Change Notice No. 1 [DOE 1997]) and, consequently, the buildings were categorized as "Below Category 3." The quantity of nonradioactive substances (i.e., primarily lead, polychlorinated biphenyls [PCBs], asbestos, and beryllium) did not exceed the threshold quantities of 29 *Code of Federal Regulations* (CFR) 1910.119 or 40 CFR 68.130.

3.2 HAZARDOUS MATERIAL REMOVAL

The scope of the demolition project included removing and properly disposing of hazardous materials (e.g., oils, grease, asbestos-containing material, mercury, lead, and PCBs). All known hazardous materials were removed from inside and outside of the building prior to demolition.

3.3 UTILITY AND DRAIN ISOLATION

Once hazardous material removal was completed in the buildings and the utilities were no longer needed, all electrical, water, and telecommunications services were disconnected from the buildings (if they had not been disconnected previously). Floors drains were inspected for mercury and then sealed to provide isolation. Sanitary sewers to the building were disconnected during early deactivation activities, and all drains were grouted.

3.4 DEMOLITION OF ABOVE-GRADE STRUCTURES

After the hazardous materials and equipment removal activities were performed and utilities isolated, the above-grade structures were ready for demolition. The building structures were demolished using excavator-mounted hydraulic shears and a bucket-and-thumb. The debris was segregated for loading and disposal. Building debris was processed and sampled until industrial hygiene monitoring confirmed that loading and unloading waste did not generate airborne beryllium. Standard Environmental Restoration Disposal Facility (ERDF) roll-on/roll-off containers with two 6-mil liners were used to package and ship debris. Beryllium controls required that a pool of containers were designated for use in the 300 Area only. These containers were part of a "closed-loop" disposal system and remain exclusively for use in the 300 Area.

3.5 BELOW-GRADE DEMOLITION

The MO-052 and 3225 Buildings were completely demolished, with no slab or footings remaining. The 334, 334A, and 334TF Buildings, including a portion of the WATS pipe trench (300-224 waste site) located directly under the 334 Tank Farm, were demolished to slab-on-grade, with final slab and foundation removal to be left until future remediation of the waste sites underneath the buildings. This deferral is documented in (DOE 2005a). Post-demolition summary reports were written for the 3225 bottle dock and the MO-052 mobile office. Photos were taken to show the site at end of demo. GPS points were not gathered at either location as there were no parts of the structures left behind. (Jacques 2006a and 2006b)

3.6 SITE RESTORATION

Upon completion of the above-grade demolition activities, remaining basements and trenches were backfilled with clean fill from pit #6, north of the 300 Area. As-left conditions are documented in (DOE 2005a, Jacques 2006a and Jacques 2006b).

4.0 COST AND SCHEDULE

4.1 COST

The total project cost for the demolition of the five buildings was approximately $44,000. This cost does not include deactivation or surveillance and maintenance work performed by Fluor Hanford, Bechtel Hanford, Inc., and other contractors prior to turnover of the building to Washington Closure Hanford. It also does not include overhead or distributed costs.

4.1.1 MO-052 Building/3225 Bottle Dock

The costs for these two buildings were collected together.

Engineering and Planning:	$	7,773
Characterization	$	936
Hazmat Removal	$	0
Demolition	$	4,329
TOTAL	$	13,038

4.1.2 334, 334A, 334TF Buildings

The costs for these three buildings were collected together.

Engineering and Planning:	$	235
Characterization	$	19,476
Hazmat Removal	$	1,586
Demolition	$	9,873
TOTAL	$	31,170

4.2 SCHEDULE

4.2.1 MO-052 Building/3225 Bottle Dock

Costs for these two buildings were collected together, so completion dates were reported together as well.

Characterization Completed	October 20, 2005
Building Deactivation Completed	October 24, 2005
Building Demolition Completed	November 10, 2005
Waste Loadout Completed	November 10, 2005

4.2.2 334, 334A, 334TF Buildings

Costs for these three buildings were collected together, so completion dates were reported together as well.

Characterization Completed	October 20, 2005
Building Deactivation Completed	November 22, 2005
Building Demolition Completed	December 7, 2005
Waste Loadout Completed	December 8, 2005

5.0 RECYCLED MATERIAL AND WASTE DISPOSAL

One of the objectives of the 300 Area D4 Project is to support recycling and waste minimization. However, beryllium and radiological contamination throughout the site will prevent most of the material and equipment from the buildings to be salvaged and/or transferred offsite. Therefore, all of the debris for buildings identified in this report was shipped to the ERDF for disposal.

5.1 WASTE DISPOSAL

Waste transferred to the ERDF is listed in Table 1.

Table 1. Waste Transferred to ERDF.

Building	Number of ERDF Containers	Waste Volume (ft^3)
MO-052	37	200
334, 334A, 334TF	22	184
3225	1	11

6.0 OCCUPATIONAL EXPOSURES

6.1 PERSONNEL INJURIES

Washington Closure Hanford personnel worked a total of approximately 325 hours (manual and non-manual, not including sub-contractors) on the project with no OSHA recordable injuries and no lost workday cases.

6.2 PERSONNEL RADIOLOGICAL EXPOSURES

No clothing or skin contamination incidents occurred during D4 of the five 300 Area buildings. In addition, the as low as reasonably achievable goal of 0 person-mrem was achieved. All boundary air sample results were below procedural action levels for the duration of the project.

6.3 OTHER INDUSTRIAL HAZARD EXPOSURES

None (see Section 7.2).

7.0 LESSONS LEARNED AND RECOMMENDATIONS

7.1 RELEASE OF MATERIAL FROM 300 AREA COMPLICATED BY LEGACY OPERATIONS

In an effort to minimize waste shipped to ERDF, some of the material from the five buildings demolished this quarter was considered for offsite recycling. Of primary interest were the 334-TF tanks, which were of steel manufacture and had never been associated with radiological work. However, when the tanks were surveyed for radiological release, they were found to be slightly contaminated, and could therefore not be recycled. Ultimately, they were sectioned and shipped to ERDF, but incurred additional time and expense. The source of the contamination could not be determined, but it was suspected that previous stack emissions, fires, or biological vectors (most likely pigeons) could have been responsible.

7.2 CAUTION MUST BE EXERCISED IN ADJACENT WORK AREAS

The 334 and 334A Buildings were located immediately adjacent to each other, and were completed at approximately the same time. This resulted in a potentially hazardous situation during waste processing at the 334 Building. Hazardous material removal was being conducted in the 334A Building while the waste from the 334 Building was being sized reduced with the excavator shear attachment. A piece of debris from the waste processing operation snapped off and flew towards 334A. Although no one was hurt, it became apparent that the hazardous material removal work being conducted in the 334A Building was within the 23-m (75-ft) exclusion radius established for the waste processing work at 334, so work was halted in 334A until waste processing was completed.

8.0 REFERENCES

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40 CFR 68, "Chemical Accident Prevention Provisions," *Code of Federal Regulations*, as amended.

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Resource Conservation and Recovery Act of 1976, 42 U.S.C. 6901, et seq.

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