

River Corridor Closure Contract

300 Area D4 Project 3rd Quarter Fiscal Year 2006 Building Completion Report

September 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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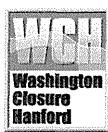


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REVISION HISTORY

Revision	Date	Reason for revision	Revision initiator
0	09/06	Initial issuance	NA

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					
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					
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)					
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					
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					
Fahrenheit	subtract 32, then multiply by 5/9	Celsius	Celsius	multiply by 9/5, then add 32	Fahrenheit
Radioactivity					
picocuries	37	millibecquerel	millibecquerels	0.027	picocuries

1.0 SCOPE

This report documents the deactivation, decontamination, decommissioning, and demolition (D4) of five 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.

For descriptions and details regarding buildings completed earlier in fiscal year 2006, see *300 Area D4 Project 1st Quarter Fiscal Year 2006 Building Completion Report* (WCH 2006a) and *300 Area D4 Project 2nd Quarter Fiscal Year 2006 Building Completion Report* (WCH 2006b).

2.0 FACILITY DESCRIPTION AND CONDITIONS

The five buildings detailed in this report were located in the 300 Area of the Hanford Site, which is owned and operated by the U.S. Department of Energy (DOE), in Benton County, Washington. The 300 Area was constructed and operated as a reactor fuel fabrication and laboratory complex.

2.1 303B BUILDING

The 303B Building, built during World War II, was used to store fresh metal (unirradiated uranium) and chemicals, as well as uranium scrap (Figure 1). The 120-m² (296-ft²) building was constructed with concrete block walls, concrete foundation and floor slab, and a reinforced concrete roof.

Figure 1. 303B Building.



2.2 3705 PHOTOGRAPHIC SERVICES BUILDING

The 3705 facility was a one-story, 591-m² (6,357-ft²) pre-cast-concrete structure with a concrete slab floor. The building was built in 1950 as a fire-resistant structure to contain film processing operations and to provide 1-year storage of film and radiological badge materials.

Figure 2. 3705 Building.



2.3 3711 BUILDING

The 3711 Building, known as both the Storage Building and the J. A. Jones Construction Shop, was a 297-m² (3,200-ft²) metal frame building with corrugated aluminum siding and roof and aluminum truss roof. The metal building sat on a 0.9-m (3-ft)-high concrete block foundation on concrete slab floor.

Figure 3. 3711 Building.



2.4 3746D PHOTOGRAPHY ANNEX BUILDING

The 3746D Photography Annex Building was a Quonset-type, 110-m² (1,187-ft²) corrugated sheet-metal structure (Figure 4). It was originally used to conduct training classes for craftsmen in the maintenance of instruments and electrical equipment. Later, it became a storage treatment facility (Technical Service Annex) in support of the 3705 Photography Services Building.

Figure 4. 3746D Building.



2.5 MO-026

The MO-026 building was known as the Graphics Trailer (H-3-40889) in association with the 3705 photography building. It was a transportable, steel-framed, metal-clad 123-m² (1,323-ft²) double-wide mobile office trailer. The building was used as office space by Photography and Graphics personnel until the mid-1990s.

Figure 5. MO-026.



3.0 PROJECT ACTIVITIES

3.1 ENGINEERING AND PERMITS

The Removal Action Work Plan #1 for 300 Area Facilities (DOE-RL 2005) 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 2005) and environmental control plan (WCH 2006c) 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 DOE, Richland Operations Office and the regulators.

Three plant forces work reviews (PFWRs) were prepared for the demolition of these five buildings. Three were included in 8850-024-05, Rev. 0, "North 300 Area Minor Building Removal," which covers the 303B, 3705, and 3746D Buildings, among others. PFWR 8850-021-06, Rev. 0, "300 Area Building Removal North," covered the 3711 Building, and PFWR 8850-036-06, Rev. 0, "Demolition of Building MO-026," was prepared for that building specifically. The D4 work on all five buildings was determined not to be applicable to the *Davis-Bacon Act of 1931* pay scale.

Table 1 shows the buildings and associated initial hazard categorization (IHC) documents, along with the results of each evaluation.

Table 1. Initial Hazard Categorization Evaluations and Results.

Building	IHC Number	Results
303B, 3705	IHC-2006-0001, Rev. 0 (WCH 2006d)	Below Category 3 ^a for radiological and below threshold quantities ^b for nonradiological
3711, 3746D	IHC-2005-0031, Rev. 0 (BHI 2005)	Below Category 3 ^a for radiological and below threshold quantities ^b for nonradiological
MO-026	IHC-2006-0010, Rev. 0 (WCH 2006e)	Below Category 3 ^a for radiological and below threshold quantities ^b for nonradiological

^a Category 3 threshold quantity as 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]).

^b "Threshold quantities" as defined in 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 polychlorinated biphenyls). All known hazardous materials were removed from inside and outside of the buildings prior to demolition. Some asbestos-containing floor tile material was left in place in 3705 during demolition, but was removed with the floor slab.

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

In general, 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 303B Building was demolished to slab on grade, and the slab was left in place. The slab will be removed at a later date, either by the D4 Closure Project or the Field Remediation Closure Project. All other slabs and foundations (if any) under the other four buildings were removed.

3.6 SITE RESTORATION

Upon completion of the above-grade demolition activities at 303B, the slab was downposted from a Contamination Area to Fixed Contamination Area/Underground Radioactive Material Area. The 3711 Building site was downposted to an Underground Radioactive Material Area. The 3705, 3746D, and MO-026 building sites remain inside a Contamination Area at this time.

Further information regarding the final status of each of these buildings can be found in the post-demolition summary report for each building (Smith 2006a, 2006b, 2006c, 2006d). These reports document in greater detail the final end state of the site for future remediation purposes,

if applicable. The reports are listed in the Section 7.0. NOTE: At this time, a post-demolition summary report has not been prepared for the 3705 Building.

4.0 COST AND SCHEDULE

The following section details start and finish dates for major D4 activities in each of the five buildings as well as the total labor costs. These costs do 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. They also do not include overhead or distributed costs, equipment and material costs, or work performed by subcontractors.

Note that some activities began prior to the current reporting quarter (third quarter of fiscal year 2006). Also, entries reading "NC" mean that no costs were collected or charged specifically to this activity.

The total labor cost (before overhead and distributed costs) for all five buildings was \$109,474.

4.1 303B BUILDING

	<u>Start Date</u>	<u>Completion Date</u>	<u>Cost</u>
Engineering Planning	January 9, 2006	March 22, 2006	\$367
Characterization	February 20, 2006	March 2, 2006	NC
Building Deactivation	February 20, 2006	March 6, 2006	\$2,024
Building Demolition	April 8, 2006	April 5, 2006	\$18,312
Waste Loadout	April 8, 2006	April 5, 2006	NC
		TOTAL	\$20,703

4.2 3705 BUILDING

	<u>Start Date</u>	<u>Completion Date</u>	<u>Cost</u>
Engineering Planning	April 7, 2006	June 2, 2006	\$3,646
Characterization	April 7, 2006	May 11, 2006	NC
Building Deactivation	May 3, 2006	June 7, 2006	\$4,134
Building Demolition	June 26, 2006	June 27, 2006	\$25,514
Waste Loadout	June 26, 2006	June 27, 2006	NC
		TOTAL	\$33,294

4.3 3711 BUILDING

	<u>Start Date</u>	<u>Completion Date</u>	<u>Cost</u>
Engineering Planning	March 13, 2006	April 6, 2006	\$6,776
Characterization	March 20, 2006	April 6, 2006	NC
Building Deactivation	April 4, 2006	April 17, 2006	\$8,413
Building Demolition	April 20, 2006	April 26, 2006	\$25,663
Waste Loadout	April 26, 2006	April 27, 2006	NC
		TOTAL	\$40,852

4.4 3746D BUILDING

	<u>Start Date</u>	<u>Completion Date</u>	<u>Cost</u>
Engineering Planning	March 20, 2006	April 20, 2006	\$2,433
Characterization	April 10, 2006	April 17, 2006	NC
Building Deactivation	April 24, 2006	April 25, 2006	\$1,881
Building Demolition	April 26, 2006	April 27, 2006	\$4,561
Waste Loadout	April 27, 2006	May 5, 2006	NC
		TOTAL	\$11,875

4.5 MO-026 BUILDING^a

	<u>Start Date</u>	<u>Completion Date</u>	<u>Cost</u>
Engineering Planning	March 3, 2006	May 23, 2006	NC
Characterization	April 20, 2006	April 20, 2006	\$2,750
Building Deactivation	May 29, 2006	June 8, 2006	NC
Building Demolition	June 23, 2006	June 23, 2006	NC
Waste Loadout	June 26, 2006	June 29, 2006	NC
		TOTAL	\$2,750

^a Most costs for this building were collected along with the costs for the 3705 Building.

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 off site. Therefore, all of the debris for buildings identified in this report was shipped to the ERDF for disposal.

5.1 WASTE DISPOSAL

Waste generated during demolition of 303B, 3705, 3711, 3746D, and MO-026 was characterized under waste profile 300UFPSB001 and shipped to the ERDF. Roll-on/roll-off boxes were used to ship the debris, and the total number of these shipments ("cans"), waste volume, and tons of debris disposed of in the ERDF are listed in Table 2.

Table 2. Waste Transferred to ERDF.

Building	Number of Shipments	Waste Volume (ft ³)	Tons
303B	9	1,907	168
3705	60	12,713	583
3711	31	6,569	421
3746D	8	1,695	77
MO-026	17	3,602	254

6.0 OCCUPATIONAL EXPOSURES

6.1 PERSONNEL INJURIES

Washington Closure Hanford personnel worked a total of approximately 55,891 hours (manual and nonmanual, including subcontractors) on the 300 Area D4 project with no Occupational Safety and Health Administration 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.

7.0 REFERENCES

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

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