

River Corridor Closure Contract

300 Area D4 Project Fiscal Year 2008 Building Completion Report

December 2008

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		
<i>If You Know</i>	<i>Multiply By</i>	<i>To Get</i>	<i>If You Know</i>	<i>Multiply By</i>	<i>To Get</i>
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 18 buildings in the 300 Area of the Hanford Site that were demolished in fiscal year 2008. 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

The 18 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, in Benton County, Washington. The 300 Area was constructed and operated as a reactor fuel fabrication and laboratory complex.

2.1 328 BUILDING

The 328 and 328A Buildings were known as the Mechanical Development Building; the Engineering Services and Safety Building; the Engineering, Management, and Technical Shops; and Annex Building (Figure 1).

Figure 1. 328 Building.



The 328 Building was turned over to WCH in 2005.

The 328 Engineering Services and Safety Shop was originally known as the Mechanical Development Building when it was constructed during the 1952-1953 expansion of the 300 Area. The 328 shop was known for its fabrication of specialized developmental equipment and providing craft and equipment services for the laboratories located in the 325, 326, 327, and 329 Buildings. The 328 Building and its annex were constructed to replace the wartime 3717 Instrument Shop and the two 3722 shops, rendered obsolete in 1952 by the specialized needs of the radiochemistry, radiometallurgy, and physics laboratories.

The 328 Building was rectangular with a bolted steel- frame. The original building (built in 1952) was 33.5 m by 67.7 m by 12.8 m (110 ft by 222 ft by 42 ft). In 1960, a 14 m by 14.6 m (46-ft by 48-ft) concrete block millwright's shop was added to the south end of the east facade. A year later a large concrete block annex known as the 328A sheet metal shop, measuring 7.6 m by 14.6 m (25 ft by 48 ft), was added to the north end of the east facade. With the additions, the facility dimensions were 33.8 m by 82 m by 12.8 m (110.8 ft by 270 ft by 42.25 ft) high with two concrete block additions on its east facade. The exterior walls were smooth steel insulated panels. The gable roof was built-up, covered with insulated, three-ply, asphalt felt. A plain metal cornice extended along the entire roofline. A reinforced concrete first floor supported a large shop area. The first floor contained a kitchen, lunch room, receiving room, tool crib, shops, conference room, mechanics room, restrooms, and welding shop.

2.2 328A BUILDING

The 328 Engineering Services and Safety Shop was originally known as the Mechanical Development Building when it was constructed during the 1952-1953 expansion of the 300 Area (Figure 2). The 328 shop was known for its fabrication of specialized developmental equipment and providing craft and equipment services, for the laboratories located in the 325, 326, 327, and 329 Buildings. The 328 Building and its annex (328A) were constructed to replace the wartime 3717 Instrument Shop and the two 3722 shops, rendered obsolete in 1952 by the specialized needs of the radiochemistry, radiometallurgy, and physics laboratories.

Figure 2. 328A Building.



The 328A Building was turned over for demolition in 2005.

The 328A Building was built in 1961 and was constructed of plain and decorative concrete block. The southern wall of 328A contained a large sliding plain metal door at its center with a corrugated metal roll-up door on either side of it. The building consisted of a concrete block annex and was known as the sheet metal shop. It measured 7.6 m by 14.6 m (25 ft by 48 ft).

2.3 328BA BUILDING

The 328BA Boiler Annex was built to supply steam to the 328 Building (Figure 3). All of the 300 Area boiler annexes were pre-engineered metal buildings on concrete slabs. The building was 5.3 m by 5.3 m by 3.7 m (17.5 ft by 17.5 ft by 12 ft). Each annex had 3-in. curbing around the sump and water softener. The buildings are electrically heated with one or two corner units installed in each annex.

Figure 3. 328BA Building.



The 328BA Building was turned over for demolition in 2005.

2.4 384 BUILDING

The 384 Building was known as the Power House and the Heating Plant (Figure 4). The building was constructed in 1943 to provide process, heating steam, and compressed air to the 300 Area. The original equipment configuration consisted of two 300 HP cross-drum boilers with horizontal stationary grates. Large double-swing doors were opposite each boiler, in the east end of the building, so coal could be hauled in on two-wheeled buggies. These buggies were hoisted up on a monorail system that ran above the front of the boilers; the coal was then dumped into a dual stoking unit that was above each boiler. The fire box was divided into two sections so that ash could be emptied into wheelbarrows from one while the other continued to provide heat. Steel breeching ran above the roof connecting the two boilers to the 45.7 m (150-ft) brick stack (stack was removed in approx. 1987). At the west end of the building, a concrete platform with grating walkways surrounds the boilers at the 4.9 m elevation (16 ft). This platform supports a deaerator and flash tank. Beneath this at ground level were various

service and boiler feedwater pumps. Water softening equipment was located in the west end of the building and a wooden tank with treated water for the boilers was located outside just west of this equipment.

Figure 4. 384 Building.



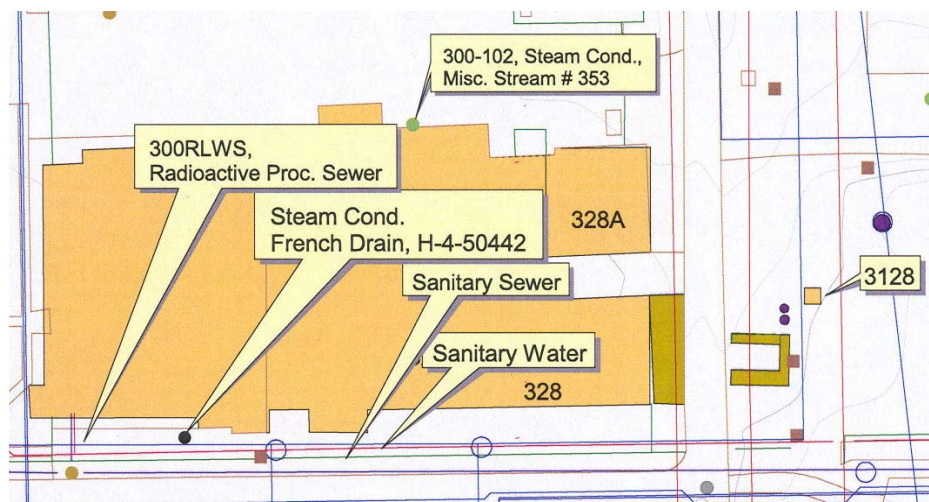
The building was vacated and turned over to surveillance and maintenance in the 1990s upon startup of the boiler annexes. WCH took over responsibility for the building in 2005.

The 384 Building's original construction consisted of steel framing, reinforced concrete, and concrete block. The foundation was reinforced concrete extending 1.2 m to 1.5 m (4 ft to 5 ft) below ground level and supported a 6-in. reinforced concrete floor. The original building dimensions were 31.85 m (104.5 ft) by 12.6 m (41.5 ft) by 9.91 m (32.5 ft). The walls consisted of concrete block, and the roof was pre-cast concrete slabs covered with tar and gravel supported by structural steel framing. The pre-demolition dimensions of the main building were approximately 27.1 m (89 ft) by 63.4 m (208 ft) by 8.8 m (29 ft).

2.5 3128 BUILDING

The 3128 Bottled Gas Storage Shed was built 1977 to support the 328 Building operations (Figure 5). The 3128 Building was a bottled gas storage shed located east of the 328 Building. It was a metal-frame shed with steel decking on the roof and sides, built on a 5-in. concrete slab with footings. It measured roughly 6 m by 3 m by 3 m (20 ft by 10 ft by 10 ft). It was built over a 0.41 m (16-in.) water line and a 0.15 m (6-in.) condensate line, both that ran north-south.

Figure 5. 3128 Building.



The building was turned over to WCH in 2005.

2.6 3503A BUILDING

The 3503A Building, also called Pit #2, was used to house electrical equipment connecting the 384 Building to the substation northwest of the 313 Building site (Figure 6). 3503A was a small rectangular structure with fluted metal walls and roof. The roof is gabled and oriented north-south. On the north wall, there is a single metal entry door. A four-pane, fixed window is located in the center of the south wall. No features are on the east or west walls except for fluted metal barriers connected to the walls.

Figure 6. 3503A Building.



The building was turned over for D4 activities in 2005.

2.7 3718 BUILDING

The 3718 Building was known as the Operation Support Services - Mechanical Building, the Central Storage Facility, and the Fast Reactor Thermal Engineering Facility (Figure 7). This building was constructed in the early 1960s and was a 24.4 m (80-ft) by 12.2 m (40-ft) by 5.5 m (18-ft) prefabricated metal storage building with gable roof, set on a 10.2 cm (4-in.) reinforced concrete slab foundation with footings. An office facility was added to the northeast corner of the building around 1963 and was 8.5 m (28 ft) by 6.7 m (22 ft) by 3.7 m (12 ft). This was constructed of concrete block set on a 10.2 cm (4-in.) reinforced concrete slab foundation with footings, and the roof was a 3-ply built up flat roof.

Figure 7. 3718 Building.



The building was vacated around 2005.

2.8 3718A BUILDING

The 3718A, 3718B, and 3718C Buildings were known as the Laboratory Equipment Pool Buildings (Figure 8). The 3718A and 3718B Buildings were constructed in the late 1950s and were built next to each other. Later a reinforced concrete slab was poured between the buildings so the two buildings could be joined together with a roofed annex. Each of the two buildings had dimensions of 12.2 m (40 ft) by 24.4 m (80 ft) by 5.5 m (18 ft).

3718A was constructed of metal framing placed on a reinforced concrete slab with partial concrete walls. The inside was sheet-rocked from the top of the partial wall to where the roof joists started. The outside consisted of metal siding and the roof was a metal roof. The annex that was built between 3718A and 3718B consisted of metal framing, siding on the ends, and metal roofing.

Figure 8. 3718A Building.



The building was vacated and turned over for demolition in February 2007.

2.9 3718B BUILDING

The 3718A, 3718B, and 3718C Buildings were known as the Laboratory Equipment Pool Buildings (Figure 9). The 3718A and 3718B Buildings were constructed in the late 1950s and were built next to each other. Later a reinforced concrete slab was poured between the buildings so the two buildings could be joined together with a roofed annex. Each of the two buildings had dimensions of 12.2 m (40 ft) by 24.4 m (80 ft) by 5.5 m (18 ft).

Figure 9. 3718B Building.



The building was vacated and turned over for demolition in February 2007.

3718B was constructed similarly to 3718A and consisted of metal framing placed on a reinforced concrete slab with partial concrete walls. The inside was sheet-rocked from the top of the partial wall to where the roof joists started. The outside of the building consisted of metal siding and the roof was a metal roof. The annex that was built between 3718A and 3718B consisted of metal framing, siding on the ends, and metal roofing.

2.10 3718C BUILDING

The 3718A, 3718B, and 3718C Buildings were known as the Laboratory Equipment Pool Buildings (Figure 10). The 3718C Building was of a similar construction as 3718A and 3718B and had dimensions of 40 ft by 80 ft by 18 ft. On the east side of the building, a covered area and enclosed storage area were added to the building during the 1960s. The total addition was 16 ft by 80 ft by 12 ft high and was set on a 6-in. reinforced concrete slab with footings. The addition was constructed of metal framing and corrugated metal on the sides and roof. The enclosed storage area was insulated with spray-on insulation.

Figure 10. 3718C Building.



The building was vacated and turned over for demolition in June 2006.

2.11 3718E BUILDING

The 3718E Building was an open truss structure with sheet metal siding and roof and it rested on a 2.5-ft-high concrete foundation wall (Figure 11). The floor of the 3718E Building was a concrete slab with a footprint of 3,000 ft².

Figure 11. 3718E Building.



The building was turned over to WCH in 2005.

2.12 3718G BUILDING

The 3718G Building was a rectangular one-story all metal pre-manufactured building erected on concrete foundations and slab (Figure 12). The footprint of the 3718G Building was 4,000 ft².

Figure 12. 3718G Building.



The building was turned over to WCH in 2005.

2.13 3718N BUILDING

The original purpose of the 3718N Building, which was built around 1975, was to support electrical maintenance personnel with offices, storage, and equipment (Figure 13). The most recent usage of the building was by Fluor Hanford's vegetation management operations, where herbicides were stored. This building was a 73-ft by 40.5-ft by 14-ft prefabricated metal storage building with a flat roof and sloped sides. The building was set on a 6-in. reinforced concrete slab with footings.

Figure 13. 3718N Building.



The Building was turned over to Washington Closure Hanford in December 2006.

2.14 3718S BUILDING

The 3718S Building was a single-level warehouse used principally as a research storage building (Figure 14). The 3718S Building was a 12 m (40-ft)-long by 6.1 m (20-ft)-wide metal building with a peaked roof and a concrete slab floor. It was located about 3 m (10 ft) west of the 321B Building. The electrical distribution and control systems for the 321, 321B, and 321C test facilities were removed from the 352D Building in 2002. The building was reallocated for storing chemicals and was renamed 3718S.

Figure 14. 3718S Building.



The building was turned over for demolition in 2005.

2.15 3721 BUILDING

The 3721 Building was generally referred to as the 300 Area Classified Scrap Incinerator (Figure 15). The 3721 Building was located in the central portion of the 300 Area. The building was constructed in 1965 as a concrete block structure with an on-grade concrete floor slab. The one-story building consisted of one single room that housed a paper incinerator. In 1982, the incinerator was replaced with a paper shredder and disintegrator.

Figure 15. 3721 Building.



The building was turned over for demolition in 2005.

The overall dimensions of the 3721 Building were 18 ft long (north-to-south) by 14 ft wide (east-to-west).

2.16 3727 BUILDING

The 3727 Building was used for the secure storage of classified documents and fuel pins (Figure 16). The 3727 Building was also equipped with storage racks designed for holding fuel pins until they were needed. Fuel pins held nuclear fuel and were formed when pellets were placed into rods. Fuel pins would be placed into bundles and delivered to the reactors.

Figure 16. 3727 Building.



The 3727 Building was turned over for demolition in 2005.

The 3727 Building was a concrete block structure with a concrete floor and flat roof. The building dimensions were 37.1 ft by 23.2 ft. The walls were 1-ft-thick concrete and the building sat on a poured concrete foundation. The building had no windows. Access was obtained through the double doors on the south wall; this door led to the vault foyer, a room that served as a buffer between the outside of the building and the vault door. This room contained a half-ton hoist on a ceiling track that ran north-south between the double doors and the wall just to the east of the vault door. The actual vault was accessed through a thick metal combination door. The northwest corner of the vault was enclosed with metal wire locked fencing that spanned from floor to ceiling.

The mechanical/electrical room was located in the southeast corner of the building. This room was accessed through a separate door and contained air conditioning, electrical equipment, and control boxes for the building.

2.17 3728 BUILDING

The 3728 Fast Flux Testing Facility (FFTF) Test Articles Storage Facility Building was built in 1980 (Figure 17). Minor modifications for the facility were planned during 1991 for use as the 3728 Geotechnical High-Bay Building. Since 1996, the 3728 Building has been used as an Environmental Sample Storage and Shipping Facility. The 3728 FFTF Test Articles Storage Facility was constructed in 1979 over the site of the demolished 3718-D Storage Building. The building was constructed for the purpose of storing full shipping containers used to transport test articles assemblies associated with FFTF operations. The test article shipping containers were to be stored at the 3728 Building until testing in the 300 Area was performed on them. The cover blocks for the vaults within the facility could be removed, and the shipping containers placed in the vaults using a rail-mounted A-frame-type crane. The edges of the cover blocks appear to be stepped to provide shielding for the test article shipping casks. No documentation could be found to determine if 3728 Building storage vaults ever were used to store shipping containers.

Figure 17. 3728 Building.



The 3728 Building was turned over to WCH in 2005.

The 3728 Building was a pre-engineered metal building with an overall length (north-south) of 24.4 m (80 ft), a width of 14.2 m (40 ft), and a height of 6.7 m (22 ft) at the eave of the low peak roof. The building had a concrete floor 15 cm (6 in.) above grade. The center of the floor had a below-grade concrete vault area that was 15.2 m (50 ft) long by 8 m (26.5 ft) wide by 1.8 to 2.1 m (6 to 7 ft) deep from building floor level to top of 0.3 m (1-ft) -thick vault concrete floor. The vault area had four storage vaults with approximately 0.305 m (1-ft)-thick concrete cover blocks that were sealed with grout for the most recent use of the facility. Until approximately 1996, a wheeled A-frame crane was in the facility for the removal of the vault cover blocks. This crane could be moved within the facility on steel rails located along the west and east walls of the building.

2.18 MO-036 BUILDING

MO-036 was manufactured in 1978 and brought on the Hanford Site in 1984 for use as offices for staff associated with the 340 facilities (Figure 18). MO-036 was placed inside the 340 compound midway along the western fence line. Because of the contents of the 340 facility, the compound was totally fenced with access restricted by locked vehicle gates and personnel gates that used Omni locks. From the acquisition date until the late 1990s, the trailer was used by the 340 organization; in the late 1990s the 340 facility was shut down and the staff was relocated to the 310 Treated Effluent Disposal Facility. At that time, the 327 project began using the trailer as office space for support staff. This continued for approximately 3 years until the 327 organization was reduced in size and moved into the 324 facility.

Figure 18. MO-036 Building.



The facility was vacated in around 2002 and turned over to WCH in 2005.

MO-036 was a double-wide trailer that contained six rooms used as offices, two rooms that were restrooms, one room used as a kitchen/lunchroom, and one closet that was used as the terminal for telephone and computer communication equipment. Construction was wood framing with a sheet metal exterior. The offices were wood paneled with carpeted floor. The flooring in the lunchroom and bathrooms was sheet vinyl. The roof was also sheet metal. The physical size of the trailer was 24 ft by 56 ft.

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 2006) 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.

Plant forces work reviews were prepared for the demolition of these 18 buildings to determine whether *Davis-Bacon Act of 1931* prevailing wage rates for the work were applicable. Table 1 summarizes the reviews performed. The D4 work on all 18 buildings was determined to be “not applicable” and the work was performed by plant forces.

Table 1. Plant Forces Work Reviews.

Building	PFWR Number	PFWR Title
3503A	8850-021-06, Rev. 0	300 Area Building Removal North
384	8850-022-06, Rev. 0	Demolition of 384 Powerhouse
328, 328A, 328BA, 3128, 3718, 3718A, 3718B, 3718C, 3718E, 3718G, 3718N, 3718S, 3721	8850-059-06, Rev. 0	Demolition of Various 300 Area Buildings
3727, 3728, MO-036	8850-027-07, Rev. 0	Demolition of 300 Area Buildings

Criticality screenings were performed for all buildings. These criticality evaluations showed that fissionable material inventories did not exceed threshold activity values and no criticality safety requirements or controls were needed for the buildings. In addition, all the buildings were below the 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]). Additionally, when D4 work began in the buildings, some standard industrial hazardous substances remained in the buildings (e.g., polychlorinated biphenyls [PCBs]), lead paint, mercury, Freon, asbestos, beryllium). The quantity of these nonradioactive hazardous substances also did not exceed the threshold quantities (“Threshold quantities” as defined in 20 *Code of Federal Regulations* 1910.119 or 40 CFR 68.130). Table 2 identifies the buildings and associated initial hazard categorization (IHC) documents for each.

Table 2. Initial Hazard Categorization Evaluations and Results.

Building	IHC Number
3503A	IHC-2005-0031, Rev. 1
328, 328A, 328BA, 384, 3128, 3718, 3718A, 3718B, 3718C, 3718N, 3718S, 3721, 3727, 3728, MO-036	IHC-2006-0017, Rev. 1
3718E, 3718G	Included with the 324 Building safety documentation.

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 buildings prior to demolition. In most cases, some Class II nonfriable asbestos containing material (roofing material, floor tile, and vinyl sheeting) was left in place and removed during the demolition phase of the project. In these cases, all building demolition waste was treated as asbestos waste, and controls to minimize asbestos fiber release (fixatives, wet methods, and air monitoring) were used throughout the demolition process.

Beryllium-contaminated equipment, including high-efficiency particulate air filters and duct work, were of particular concern in those buildings that were beryllium listed. These items were thoroughly characterized prior to removal, and work control methods to minimize airborne beryllium particulate (fixatives, wet methods, air monitoring, and hygiene practices) were implemented throughout the decommissioning and demolition process.

3.3 UTILITY AND DRAIN ISOLATION

Once the utilities were no longer needed in the building (prior to hazardous materials removal), all electrical, water, and telecommunications services were disconnected from the buildings. Floor 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 AND SITE RESTORATION

All 18 buildings addressed in this report were demolished and the slab and foundations (if any) were left in place. The slabs that were left in place will be removed at a later date by the D4 Closure Project or the Field Remediation Closure Project. The 3720 Building was demolished to slab on grade during fiscal year 2007 and the slab was removed during this reporting period.

All but one of the remaining slabs are within the 300 Area Radiologically Controlled Area fence. The 328BA slab is outside the 300 Area Radiologically Controlled Area. The slabs for the 328, 328A, 328BA, and 3128 Buildings have been completely downposted. The remaining sites with

the exception of 3718S are posted Radiological Buffer Area (RBA), Danger – Asbestos, or a combination of both pending completion of nearby work and final down posting. The 3718S Building slab is posted as a Contamination Area and an Inhalation Hazard for both beryllium and asbestos.

In general, for each building demolished (or for a given complex) a post-demolition summary report is prepared that documents the characterization and final status of the building at the completion of the D4 activities. Table 3 summarizes the as-left conditions of each building.

Table 3. Building As-Left Condition Summary.

Building	Slab Condition	Site Posting
328	Remains	None
328A	Remains	None
328BA	Remains	None
384	Remains	Asbestos Danger, Small RBA around building Pit
3128	Remains	None
3503A	Remains	Asbestos Danger
3718	Remains	RBA
3718A	Remains	RBA, Asbestos Danger
3718B	Remains	RBA, Asbestos Danger
3718C	Remains	RBA, Asbestos Danger
3718E	Remains	RBA, Asbestos Danger
3718G	Remains	RBA, Asbestos Danger
3718N	Remains	RBA
3718S	Remains	Contamination Area, Inhalation Hazard, Be, Asbestos
3721	Remains	RBA, Asbestos Danger
3727	Remains	RBA, Asbestos Danger
3728	Remains	RBA, Asbestos Danger
MO-036	Not Applicable	RBA

4.0 COST AND SCHEDULE

The following section details start and finish dates for major D4 activities in each of the 18 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 WCH. 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 year (fiscal year 2008). 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 18 buildings was \$2,167,608.

Table 4. 328 Building.

	Start Date	Completion Date	Cost
Engineering Planning	October 16, 2006	September 20, 2007	\$55,870
Building Deactivation	May 1, 2007	August 16, 2007	\$217,207
Building Demolition	October 1, 2007	November 5, 2007	\$90,500
Waste Loadout	November 20, 2007	December 18, 2007	\$85,499
TOTAL			49,076

Table 5. 328A Building.

	Start Date	Completion Date	Cost
Engineering Planning	October 30, 2006	September 27, 2007	\$4,839
Building Deactivation	May 1, 2007	May 17, 2007	\$14,915
Building Demolition	October 1, 2007	October 18, 2007	\$8,439
Waste Loadout	October 30, 2007	November 20, 2007	\$2,130
TOTAL			\$30,323

Table 6. 328BA Building.

	Start Date	Completion Date	Cost
Engineering Planning	August 13, 2007	November 5, 2007	\$854
Building Deactivation	August 13, 2007	August 16, 2007	\$22,899
Building Demolition	November 6, 2007	November 6, 2007	\$9,925
Waste Loadout	November 6, 2007	November 6, 2007	\$2,628
TOTAL			\$36,306

Table 7. 384 Building.

	Start Date	Completion Date	Cost
Engineering Planning	November 6, 2006	March 3, 2008	\$89,719
Building Deactivation	January 23, 2007	November 12, 2007	\$795,943
Building Demolition	January 14, 2008	May 13, 2008	\$304,138
Waste Loadout	February 12, 2008	September 30, 2008	\$198,413
TOTAL			\$1,388,213

Table 8. 3128 Building.

	Start Date	Completion Date	Cost
Engineering Planning	March 17, 2008	June 11, 2008	\$61
Building Deactivation	May 12, 2008	May 19, 2008	\$7,607
Building Demolition	June 11, 2008	June 11, 2008	\$2,990
Waste Loadout	July 7, 2008	July 7, 2008	\$733
TOTAL			\$11,391

Table 9. 3503A Building.

	Start Date	Completion Date	Cost
Engineering Planning	November 6, 2006	September 27, 2007	\$991
Building Deactivation	July 16, 2007	July 19, 2007	\$11,301
Building Demolition	February 25, 2008	February 26, 2008	\$3,631
Waste Loadout	February 25, 2008	February 26, 2008	\$667
TOTAL			\$16,590

Table 10. 3718 Building.

	Start Date	Completion Date	Cost
Engineering Planning	October 15, 2007	June 12, 2008	\$17,224
Building Deactivation	March 10, 2008	March 18, 2008	\$6,974
Building Demolition	June 10, 2008	June 11, 2008	\$12,432
Waste Loadout	October 20, 2008	October 23, 2008	\$5,909
TOTAL			\$42,539

Table 11. 3718A Building.

	Start Date	Completion Date	Cost
Engineering Planning	October 15, 2007	June 12, 2008	\$3,414
Building Deactivation	April 28, 2008	May 13, 2008	\$3,204
Building Demolition	June 12, 2008	June 12, 2008	\$6,598
Waste Loadout	November 3, 2008	November 6, 2008	\$4,054
TOTAL			\$17,270

Table 12. 3718B Building.

	Start Date	Completion Date	Cost
Engineering Planning	October 15, 2007	June 12, 2008	\$1,683
Building Deactivation	April 28, 2008	May 13, 2008	\$751
Building Demolition	June 12, 2008	June 12, 2008	\$1,823
Waste Loadout	November 3, 2008	November 6, 2008	\$1,763
TOTAL			\$6,020

Table 13. 3718C Building.

	Start Date	Completion Date	Cost
Engineering Planning	October 15, 2007	June 12, 2008	\$3,302
Building Deactivation	April 28, 2008	May 13, 2008	\$101
Building Demolition	June 16, 2008	June 16, 2008	\$1,439
Waste Loadout	November 3, 2008	November 6, 2008	\$2,355
TOTAL			\$7,197

Table 14. 3718E Building.

	Start Date	Completion Date	Cost
Engineering Planning	October 9, 2006	August 6, 2007	\$6,410
Building Deactivation	October 16, 2006	November 2, 2006	\$15,365
Building Demolition	June 17, 2008	June 17, 2008	\$3,071
Waste Loadout	November 3, 2008	November 6, 2008	\$5,388
TOTAL			\$30,234

Table 15. 3718G Building.

	Start Date	Completion Date	Cost
Engineering Planning	October 15, 2007	June 12, 2008	\$881
Building Deactivation	May 15, 2008	May 19, 2008	\$1,564
Building Demolition	June 17, 2008	June 17, 2008	\$11,100
Waste Loadout	July 24, 2008	July 24, 2008	\$6,974
TOTAL			\$20,519

Table 16. 718N Building.

	Start Date	Completion Date	Cost
Engineering Planning	January 21, 2008	June 17, 2008	\$5,038
Building Deactivation	March 4, 2008	March 19, 2008	\$2,935
Building Demolition	June 11, 2008	June 11, 2008	\$5,034
Waste Loadout	October 20, 2008	October 23, 2008	\$19,934
TOTAL			\$32,941

Table 17. 3718S Building.

	Start Date	Completion Date	Cost
Engineering Planning	February 7, 2007	October 16, 2007	\$396
Building Deactivation	February 1, 2007	April 4, 2007	\$17,491
Building Demolition	November 13, 2007	November 14, 2007	\$866
Waste Loadout	November 14, 2007	November 15, 2007	\$4,493
TOTAL			\$23,246

Table 18. 3721 Building.

	Start Date	Completion Date	Cost
Engineering Planning	March 3, 2008	June 16, 2008	\$4,212
Building Deactivation	May 12, 2008	May 19, 2008	\$7,211
Building Demolition	June 16, 2008	June 16, 2008	\$6,996
Waste Loadout	November 3, 2008	November 6, 2008	\$1,715
TOTAL			\$20,134

Table 19. 3727 Building.

	Start Date	Completion Date	Cost
Engineering Planning	October 15, 2007	June 12, 2008	\$6,545
Building Deactivation	May 5, 2008	May 19, 2008	\$304
Building Demolition	June 17, 2008	June 17, 2008	\$1,974
Waste Loadout	November 3, 2008	November 6, 2008	\$1,455
TOTAL			\$10,278

Table 20. 3728 Building.

	Start Date	Completion Date	Cost
Engineering Planning	October 15, 2007	June 16, 2008	\$3,169
Building Deactivation	April 30, 2008	May 13, 2008	\$304
Building Demolition	June 17, 2008	June 17, 2008	\$50,958
Waste Loadout	November 3, 2008	November 6, 2008	\$1,124
TOTAL			\$55,555

Table 21. MO-036 Building.

	Start Date	Completion Date	Cost
Engineering Planning	July 21, 2008	September 30, 2008	\$2,276
Building Deactivation	September 2, 2008	September 17, 2008	NC
Building Demolition	September 15, 2008	September 17, 2008	\$14,784
Waste Loadout	September 15, 2008	September 17, 2008	NC
TOTAL			\$17,060

5.0 WASTE DISPOSITION

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.

Waste generated during demolition of the 18 buildings demolished in fiscal year 2008 was characterized under 5 different waste profiles and shipped to ERDF. Roll-on/roll-off boxes were used to ship the debris, and the total number of these shipments ("cans"), tons of debris disposed of in ERDF, and the profiles used are listed in Table 22.

Table 22. Waste Transferred to ERDF.

Building	Number of Shipments	Tons	Waste Profile (s)
328	202	1441	WP328001
328A			
328BA			
384	429	5043	WP300UFPSB001, WP300UFSPB002, WP300UFSPB003
3503A			
3718	117	816	WP300LSF001
3718A			
3718B			
3718C			
3718E			
3718G			
3718N			
3718S			
3128			
3721			
3727			
3728			
MO-036			

6.0 OCCUPATIONAL EXPOSURES

6.1 PERSONNEL INJURIES

Washington Closure Hanford personnel worked a total of approximately 223,326 hours (manual and nonmanual, including subcontractors) on the 300 Area D4 project with one Occupational Safety and Health Administration recordable injury and no lost workday cases.

6.2 PERSONNEL RADIOLOGICAL EXPOSURES

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

7.0 REFERENCES

29 CFR 1910, "Occupational Safety and Health Standards," *Code of Federal Regulations*, as amended.

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

Davis-Bacon Act of 1931, 40 U.S.C. 276a, et seq.

DOE, 1997, *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, U.S. Department of Energy, Washington, D.C.

DOE-RL, 2005, *Removal Action Work Plan #1 for 300 Area Facilities*, DOE/RL-2004-77, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

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