WCH-551
Rev. 0

River Corridor Closure Contract

100 Area/400 Area D4 Project Building Completion Report

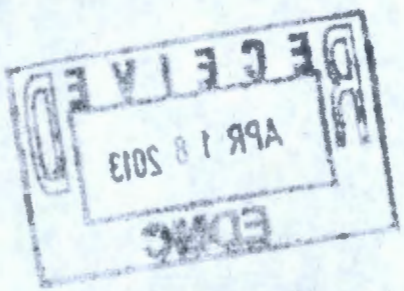
January 1, 2012, to December 31, 2012

February 2013

For Public Release

Washington Closure Hanford

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



DOCUMENT CONTROL 2/26/2013 -8

WCH-551
Rev. 0

STANDARD APPROVAL PAGE

Title: 100 Area/400 Area D4 Project Building Completion Report – January 1, 2012, to December 31, 2012

Author Name: T. T. Yamamoto, 100 Area D4 Engineer

Approval: M. E. Allen, 100 Area D4 Project Engineer

M E Allen
Signature

2-20-13
Date

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EXECUTIVE SUMMARY

This report documents the final status of buildings after the completion of deactivation, decontamination, decommissioning, and demolition (D4) activities at the U.S. Department of Energy's Hanford Site in the 100 and 400 Areas from January 1, 2012, to December 31, 2012. The following buildings are included in this report:

- 105-N Reactor Building
- 105-ND Remote Air Intake
- 105-NE Fission Products Trap
- 107-N Basin Recirculation Facility
- 109-N Heat Exchanger Building
- 181-N River Water Pump House
- 181-NA Pump House Guard Tower
- 181-NB #3 Diesel Enclosure
- 181-NE Hanford Generating Plant River Pump House
- 182-N High Lift Pump House
- 184-NA Power House Annex Building
- 1112-N Guard Station
- 1112-NA Microwave Tower Annex
- 1120-N Equipment Warehouse
- 1143-N Carpenter Shop
- 1303-N Spacer Silos
- 1607-N3 100-N Sanitary Sewer System No. 3
- 1607-N9 100-N Sanitary Sewer System No. 9
- 1900-N Water Supply Tank Foundation Rings
- 1902-D Sanitary Water Tank
- 1904-NB Sewage Lift Station #2
- 1904-NC Sewage Lift Station #3
- 1908-N Outfall Structure
- 1908-NE Hanford Generating Plant Outfall Structure
- HS0007 Hazardous Material Storage Container

- HS0008 Hazardous Material Storage Container
- MO-100 Mobile Office
- MO-403 Change House and Lunchroom Trailer
- MO-415 Administrative Office Trailer
- MO-425 Mobile Office
- MO-426 Mobile Office
- MO-427 Men's Change Room Trailer
- MO-765 Mobile Office Radiological Count Facility
- MO-889 Water Trailer
- MO-929 Water Trailer
- MO-980 Mobile Office Trailer
- 4702 Office Building

Demolition debris and soil associated with completion of these building closures were disposed at the Environmental Restoration Disposal Facility located at the Hanford Site. Post-demolition direct-hand instrument surveys and Global Positioning Environmental Radiological Surveyor (GPERS) surveys were performed on excavations after loadout of debris and prior to backfill.

The 100 Area D4/Interim Safe Storage Project personnel worked a total of approximately 128,788 hours (manual and non-manual, not including subcontractors) from January 1, 2012, to December 31, 2012. During this time there were six Occupational Safety and Health Administration first aid cases and zero recordable injuries.

There were two clothing contamination and no skin contamination incidents occurred during demolition of the 100 Area buildings. Workers received 3,342.8 person-mrem of radiological exposure from January 1, 2012, to December 31, 2012, during their support of D4 activities associated with the buildings discussed in this report. All boundary air sample results were below procedural action levels for the duration of the work performed.

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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	Millibecquerels	Millibecquerels	0.027	Picocuries

1.0 SCOPE

This report summarizes the deactivation, decontamination, decommissioning, and demolition (D4) and 105-N/109-N Safe Storage Enclosure activities of facilities in the 100 and 400 Areas of the Hanford Site in calendar year (CY) 2012.

The activities at these facilities generally included utility disconnection; planning; characterization; engineering; removal of hazardous and radiologically-contaminated materials; equipment removal; D4 of the above-grade structure; removal of the remaining slabs and foundation elements; and "load-out" of debris to Hanford's Environmental Restoration Disposal Facility (ERDF), followed by backfill. Activities also include the construction of the Interim Safe Storage (ISS) and the Safe Storage Enclosure (SSE) of the 105-N/109-N Reactor and Heat Exchanger Building. The backfill for a number of the buildings will be placed by the Washington Closure Hanford (WCH) Field Remediation (FR) Project.

As reference, previous D4 Building Completion Reports include the following:

- WCH-102, 100 Area D4 Project Semi-Annual 2006 Building Completion Report – August 2005 to April 2006
- WCH-185, 100 Area D4 Project Building Completion Report – May 2006 to June 2007
- WCH-319, 100 Area D4 Project Building Completion Report – July 2007 to December 2008
- WCH-410, 100 Area D4 Project Building Completion Report – December 2008 to December 2009
- WCH-473, 100 Area D4 Project Building Completion Report – January 1, 2010, to December 31, 2010
- WCH-523, 100 Area/400 Area D4 Project Building Completion Report – January 1, 2011, to December 31, 2011.

2.0 FACILITY DESCRIPTION AND CONDITIONS

The buildings detailed in this report were located in the 100 and 400 Areas of the Hanford Site. The Hanford Site was constructed and operated for the production of plutonium.

2.1 105-N REACTOR BUILDING

The 105-N Reactor was the only dual-purpose reactor, producing both special weapons grade nuclear material and generating steam for power production, via the 109-N Heat Exchanger Building, 1802-N Pipe Trestle and the 185-N Hanford Generating Plant (HGP), located south of the Reactor Building. Construction of the 105-N Reactor facility began in December 1959. The

facility operated from 1963 through 1987 as part of the original N-Reactor complex and was in a stand-by condition until it was permanently shut down in 1991. At this time, fuel was removed from the reactor and the Fuel Storage Basin (FSB). Deactivation was complete in 1998, which included shutdown and isolation of operational systems, cleanup of radiological and hazardous waste, inventory of remaining hazardous materials, sealing access areas, and securing both buildings. Additionally, contaminated hardware and equipment, sludge, and water was removed from the FSB and concrete cover blocks were placed over it to provide shielding and isolation.

Final decommissioning and decontamination of the facility began in mid-2007, under the Washington Hanford Closure, River Corridor Completion Contract (RCCC), and was mostly complete near the end of 2008 when demolition activities commenced. Demolition activities included the removal of significant portions of the 105-N and 109-N buildings up to the Safe Storage Enclosure (SSE) walls.

The 105-N Building was a 4,000-megawatt thermal nuclear reactor. The reactor core, which currently remains within the SSE, was a graphite-moderated, light water-cooled, horizontal pressure-tube design. 105-N shares its south wall with the 109-N Heat Exchanger Building (Figure 1). The 105-N reactor primary coolant water was circulated to steam generators inside of 109-N. From the steam generators, steam was either routed to the now demolished 185-N Hanford Generating Plant (185-N), to generate electricity, or sent to the dump condensers inside 109-N. The 185-N Building was an electrical generation facility owned and operated by the Washington Public Power Supply System that produced electricity for use by the public.

The 105-N Building contained the: control rooms, electrical and instrument rooms, reactor block, front and rear elevators, spent fuel receiving basin, fuel transfer area, fuel storage basin, pipe galleries, exhaust fans, ventilation supply, metal preparation and storage areas, a shop area, and offices (Figure 1). A below-grade exhaust ventilation duct connected 105-N with the 117-N Exhaust Air Filter Building.

The 105-N Building has three below-grade floor areas (-) 10-ft level, (-) 16-ft level, and (-) 21-ft level), a main floor area (0-ft level), and four above-grade floor areas 15-ft level, 28-ft level, 40-ft level, and 60-ft level. The original roof was at the plus 70-ft level and includes a penthouse structure (pressurizer building) that extends to 80-ft above grade. The 105-N Building contains a reinforced concrete enclosure that that serves as a shield/confinement zone (Zone I).

The reactor core is contained within Zone I. It is composed of interlocking graphite bars containing zirconium-alloy pressure tubes that held the zirconium allot-clad uranium-metal fuel elements. Reactivity and reactor power levels were controlled using horizontal control rods and a vertical ball-drop system. Boron was the primary neutron-absorbing material used in the control rods and ball-drop system. Zone 1 also contained inlet and outlet pipe galleries, exhaust fans, elevators for servicing the front and rear faces of the reactor, a gallery beneath the reactor for various monitoring purposes, and a receiving basin for spent fuel elements.

The irradiated reactor fuel was discharged from the rear face of the reactor to the FSB and placed into metal canisters. The FSB was an unlined, reinforced-concrete structure measuring 150-ft long, 50-ft wide, and 24-ft deep. The fuel was cooled and stored in the FSB to provide for radioactive decay of short-lived radionuclides before it was shipped for processing.

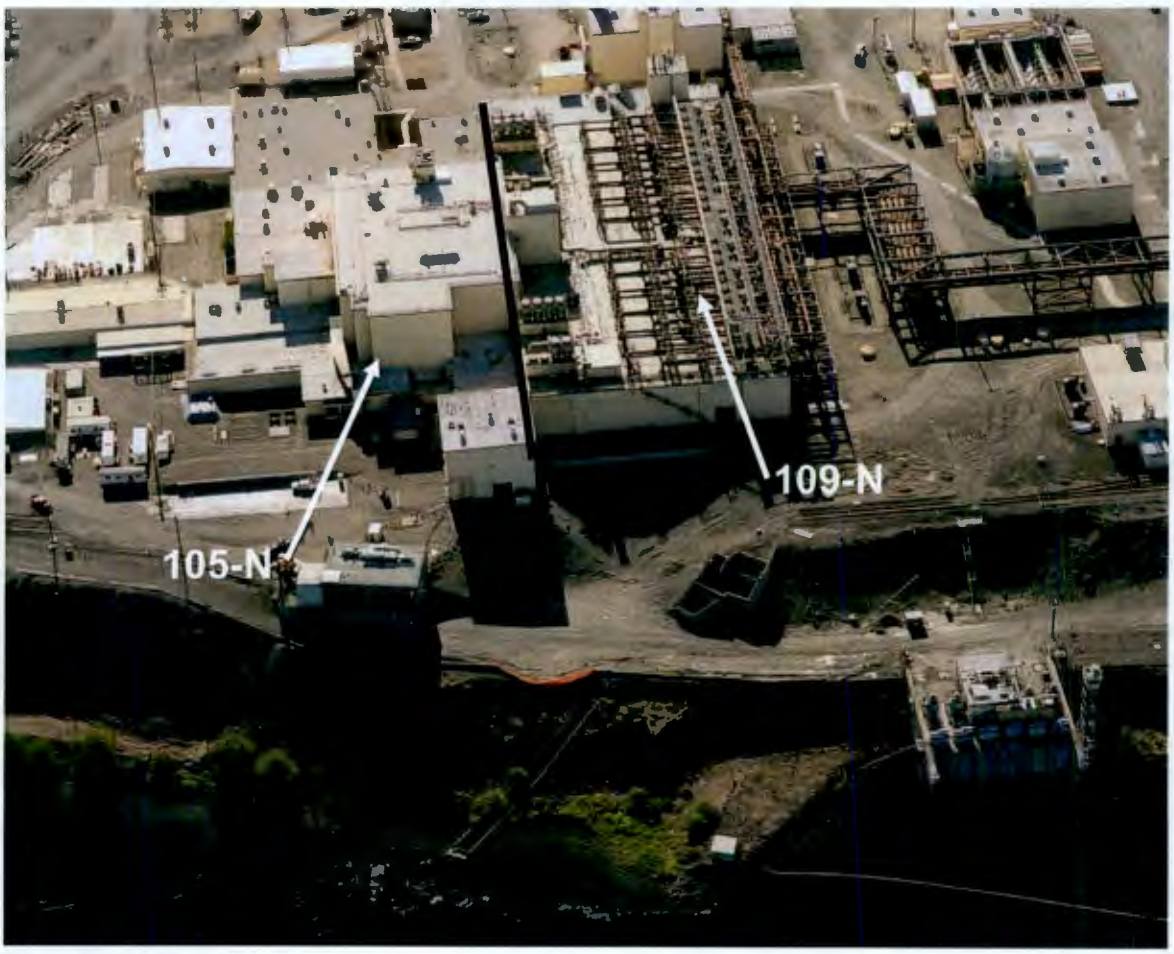
Surrounding the west, north, and east side of the reactor enclosure were rooms housing auxiliary facilities and supporting services. These consisted of offices, common facilities, the

main control room, electrical control rooms, shop area, ventilation supply rooms, gas dryer and cooler rooms, instrumentation rooms, metal preparation and storage facilities, spent fuel storage, examination facility, and a fuel transfer area. A zoned ventilation system maintained airflow in the direction of areas having the greatest potential risk of contamination. The control room had a dedicated refrigerated air conditioning system.

The 105-N Reactor was partially demolished and the Interim Safe Storage (ISS) was constructed around the Safe Storage Enclosure (SSE) boundary under the RCCC by May 3, 2012.

Numerous GPERS gamma/beta surveys and radiological down-posting surveys were conducted at the 105-N Building and some areas were found to be radiologically contaminated. Final radiological cleanup will be performed by Field Remediation (FR). A post-demolition GPS survey was performed on December 14, 2012, March 30, 2010, October 28, 2010, and July 14, 2010. Additional information is presented in CCN 165386, "Post-Demolition Summary Report for 105-N Reactor Building".

Figure 1. 105-N Reactor Building.



2.2 105-ND REMOTE AIR INTAKE

The 105-ND Remote Air Intake was used to provide emergency air for the personnel in the 105-N Control Room and the 182-N High Lift Pump House by the way of underground piping/ducting. The intake consisted of an above-grade concrete block approximately 6 by 8 ft wide and 12 ft tall. The intake had an internal screen and a manhole cover on top for access. The intake consisted of a 14-in. diameter pipe packed in a concrete trench, approximately 5 ft 9 in. wide by 3 ft 6 in. tall (Figure 2).

The 105-ND Remote Air Intake was demolished and loaded out under the River Corridor Closure Contract (RCCC) by April 5, 2012. The 105-ND Building was backfilled to existing grade.

Final D4 documentation includes a Global Positioning Environmental Radiological Surveyor (GPERS) survey, post-demolition global positioning system (GPS) survey, and sample data, all of which are included in CCN 165383, "Post-Demolition Summary Report for 105-ND Remote Air Intake."

Figure 2. 105-ND Remote Air Intake.

2.3 105-NE FISSION PRODUCTS TRAP

The 105-NE Fission Products Trap (also known as 1305-N) was used to provide a set of risers for elevating drainage from the 24-in. low-pressure flush line and the 12-in. low-pressure diversion effluent line to a point where the 36-in. pump discharge line from the lift station and the 10-in. radioactive drain line from 109-N for disposal to either the crib or to the 1310-N chemical waste tank.

The facility was a 17- by 19-ft reinforced concrete structure approximately 30 ft deep, located approximately 130 ft south of the 117-N Filter Building and 215 ft north of the 105-N Reactor. The above-grade portion of the structure was approximately 5-ft high with sloping sides and a flat top. A steel plate on the roof covered the above-grade access into the structure. The bottom of the structure had a circular pit 9 ft deep by 11 ft in diameter (Figure 3).

Facilities were provided at the trap for clean out and removal of crud and fission product material from the risers. The elevations of the riser outlets were such that sufficient head was available to maintain the drain lines full of water up to the primary coolant system blocking valves. The elevation of the crib weir box overflow was such that the drain lines from the Fission Products Trap to the weir box were maintained full of water. Check valves at the riser outlets prevented backflow into the risers. The full line condition was necessary to prevent water hammer damage from normal lift station pump operation or following actuation of the reactor emergency cooling and dump system with subsequent swing over to once through coolant to the low pressure flush line drain system.

A fission products cask rested on a cable-operated cart that moved on fixed rails at the bottom of the structure. Cables attached to each end of the cart ran through guides and were of sufficient length to remotely position the cask. Removal of the cask from the trap enclosure was accomplished by hoisting it through the top of the concrete enclosure. Draining of the risers into the fission products cask was accomplished remotely via flexible shaft terminals from the top of the concrete enclosure. No operational evidence could be found to indicate that the FPT was ever cleaned or that solids were ever removed.

The 105-NE Fission Products Trap was demolished and loaded out under the RCCC by June 5, 2012.

A GPERS beta/gamma survey was conducted at 105-NE and was found to be still radiologically contaminated. All additional information including post-GPS survey is presented in CCN 165392, "Post Demolition Summary Report for the 1303-N Spacer Silos."

Figure 3. 105-NE Fission Products Trap.

2.4 107-N BASIN RECIRCULATION FACILITY

The 107-N Basin Recirculation Facility operated from 1984 through 1989. The facility was designed to cool water from the 105-N irradiated Fuel Storage Basin and to filter the water for recirculation to reduce or eliminate the need to discharge water to the crib areas associated with N Reactor operations. The facility was a reinforced concrete structure with a steel-framed, metal-sided annex on the north end (Figure 4). The building had a basement and three building sumps. The annex was a concrete bermed area that held an acid and caustic tank with associated pumps and valving. A metal weather enclosure over the annex was added after construction.

The 107-N was located 328 ft west of the 105-N Reactor and 132 ft from the Columbia River. The facility was 47 ft long by 69 ft wide by 48 ft tall with the following components:

- A pump well and two recirculation pumps
- Two heat exchangers
- Two sand bed filters
- A sand filter backwash tank (T-1 tank)
- Three ion exchange vessels (2-cation, 1-anion)
- One caustic tank (NaOH)
- One acid tank (H2SO4)
- One regeneration waste collection tank (T-4 tank)
- One resin loadout tank (T-5 tank)
- Three building sumps
- One hydrogen peroxide tank and pump.

The 107-N Basin Recirculation Facility was demolished and loaded out under the RCCC by August 21, 2012.

A GPERS beta/gamma survey was conducted at the 107-N Building and radioactive contamination was still present. A post-demolition GPS survey was performed on December 14, 2012. Additional information is presented in CCN 169428, "Post-Demolition Summary Report for 107-N Basin Recirculation Facility and 1607-N3 Septic Tank."

Figure 4. 107-N Basin Recirculation Facility.

2.5 109-N HEAT EXCHANGER BUILDING

The 109-N Building was used to exchange heat between the 105-N Reactor's primary coolant loop and secondary loop, which in turn produced steam that was used to generate electrical power. The building was constructed from December 1959 through October 1963 as part of the N Reactor complex, operated from 1963 through 1987, and was in a stand-by condition until it was permanently shut down in 1991. Deactivation of the building was finalized in 1998 and included shutdown and isolation of operational systems, cleanup of a portion of the radiological and hazardous wastes, inventory of remaining hazardous materials, sealing access areas, and securing the facility.

The 109-N Building was a reinforced concrete and steel building with channeled steel siding, a concrete roof varying from 4 in. to 3 ft thick with polyurethane roofing insulation and interior concrete block walls. The exterior of the building had thirteen 6-ft diameter roof-confinement vent valves, steam generator headers, and piping. The remaining portion of the 109-N Building is immediately adjacent to, and shares its north wall with, the south wall of the 105-N Reactor Building (Figure 5).

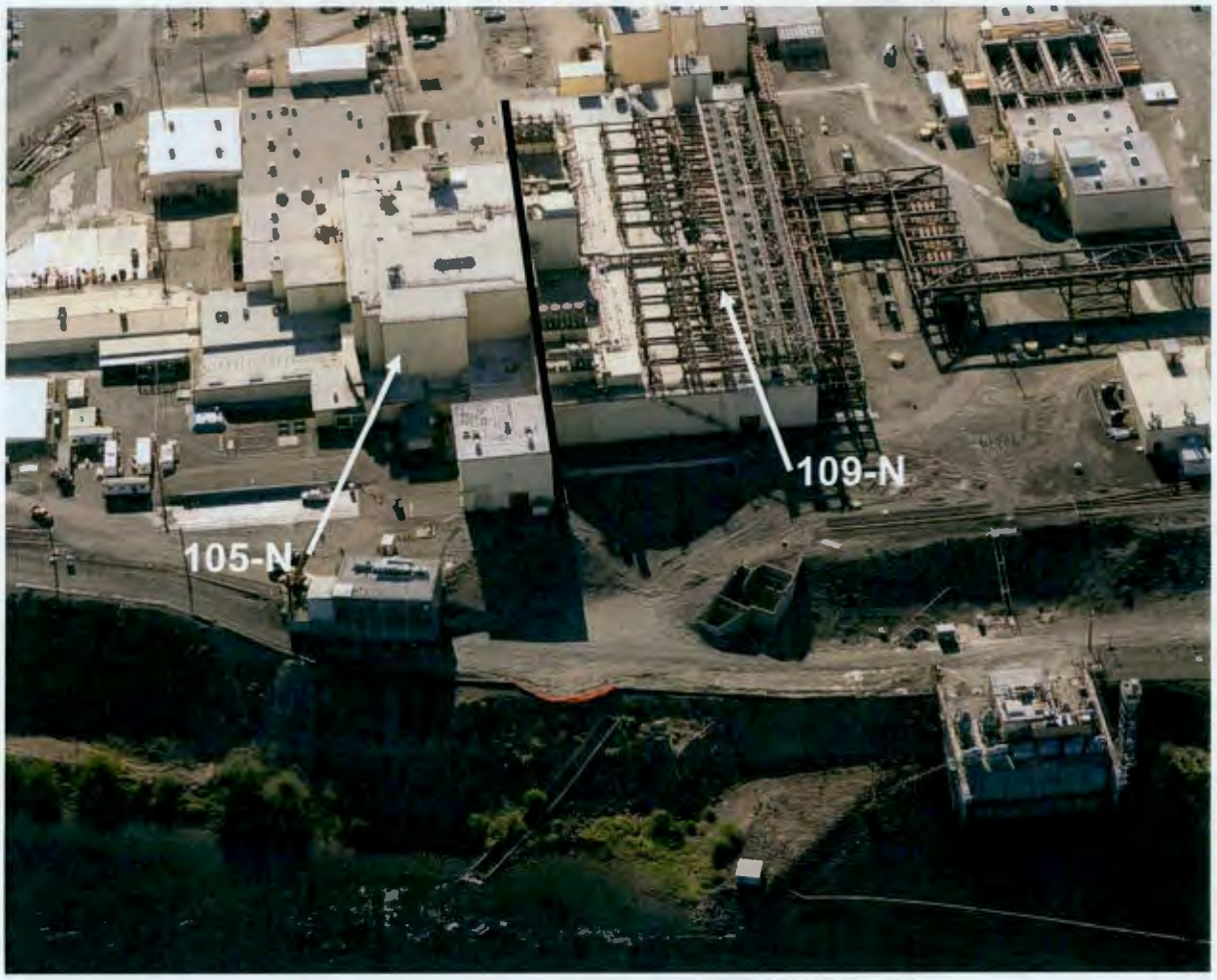
The outer dimensions of the 109-N Building were 206 ft by 383 ft by 39 ft high. It included a decontamination equipment area at minus 24 ft, a below-grade floor area at minus 16 ft, a main floor area at 0 ft, and two above-grade floor areas at 15 ft and 24 ft. The breakdown of these areas included three offices (810 ft^2), two shops (2,130 ft^2), common area (1,200 ft^2), and a processing area (123,000 ft^2). The 109-N Building also included a central penthouse area that contained a 44.5-ft high by 6.5-ft diameter pressure vessel weighing approximately 90 tons.

The 109-N Building contained a large pipe gallery on the north side that spanned six separate cells. Each cell currently houses two large steam generators (57 ft long by 10-ft in diameter, weighing approximately 170 tons each), a primary circulating pump, and associated piping. An auxiliary cell contains a heat exchanger system for the moderator cooling system. The pipe gallery and steam generator cells were intact and the walls around the steam generator cells are approximately 5 ft thick.

The 109-N Heat Exchanger Building was partially demolished and the Interim Safe Storage (ISS) was constructed around the Safe Storage Enclosure (SSE) boundary under the RCCC by March 25, 2010.

A GPERS gamma/beta survey and radiological down-posting survey was conducted at the 109-N Building and was found to be not radiologically contaminated. A post-demolition GPS survey was performed on September 10, 2009. Additional information is presented in CCN 165387, "Post-Demolition Summary Report for 109-N Turbine Building".

Figure 5. 109-N Heat Exchanger Building.



2.6 181-N RIVER WATER PUMP HOUSE

The 181-N River Water Pump House was used to supply the normal water requirements for the 100-N Area. River water from the building forebay flowed through bar screens and traveling screens before entering independent pump suction wells, the bottom of which were 61 ft below the operating floor. Floodgates normally left in the open position tied the wells together.

The 181-N was a rectangular building with a total outside foot print of 111 ft by 108 ft. The structure was constructed of reinforced concrete, masonry in fill walls, a flat concrete roof, and concrete wall foundation. The building contained two low-lift, diesel engine-driven and four remotely-operated, vertical, deep well pumps with submerged bowls and impellers (Figure 6).

Four deep-well pumps with a design rating of 105,000 gpm each at 112 ft of head supplied the circulating raw water system. Pumps 1 and 2 discharged into a 102-in. distribution header, and pumps 3 and 4 discharged into a second distribution header of equal size. Electric power pump motors 1 and 3 were supplied from Bonneville Power Authority (BPA) system (A-Bus), and motors 2 and 4 from the 100-N Turbo-Generator system (B-Bus).

The 181-N River Water Pump House was demolished and loaded out under the RCCC by May 24, 2012. The 181-N Building was backfilled to existing grade.

A GPERS survey was not conducted at this site because the 181-N River Water Pump House building was not radiologically contaminated. A post-demolition GPS survey of the 181-N Building was performed on June 27, 2012. Additional information is presented in CCN 165389, "Post-Demolition Summary Report for 181-N river Water Pump House, 181-NA Guard house and 181-NB #3 Diesel Enclosure."

Figure 6. 181-N River Water Pump House.

2.7 181-NA PUMP HOUSE GUARD TOWER

The 181-NA Pump House Guard Tower was used to provide housing and protection for security personnel to observe access to the N-Reactor facility from the riverside. It was constructed of a steel frame 60 ft high and 8 ft wide by 17 ft long with an enclosure at the top (Figure 7). The enclosure was made of heavy steel and bullet-resistant glass with several gun turrets located around the perimeter of the enclosure just above the floor level.

The 181-NA Pump House Guard Tower was demolished and loaded out under the RCCC by January 19, 2012.

A GPERS survey was not conducted at this site because the 181-NA Tower was not radiologically contaminated. A post-demolition GPS survey of the 181-NA Tower was performed on June 27, 2012. Additional information is presented in CCN 165389.

Figure 7. 181-NA Pump House Guard Tower.

2.8 181-NB #3 DIESEL ENCLOSURE

The 181-NB #3 Diesel Enclosure was added to provide additional emergency pumping capacity for the N-Reactor. It was a small, pre-engineered metal building with metal siding and reinforced concrete roof (Figure 8). It housed a small diesel engine, which drove an emergency water pump.

The 181-NB #3 Diesel Enclosure was demolished and loaded out under the RCCC by February 10, 2012.

A GPERS survey was not conducted at this site because the 181-NB Building was not radiologically contaminated. A post-demolition GPS survey of the 181-NB Building was performed on June 27, 2012. Additional information is presented in CCN 165389.

Figure 8. 181-NB #3 Diesel Enclosure.

2.9 181-NE HANFORD GENERATING PLANT RIVER PUMP HOUSE

The 181-NE Hanford Generating Plant (HGP) River Pump House was used to pump river water to the HGP's main condensers and auxiliary cooling water systems, and provide service water. The 181-NE was constructed in the mid-1960s as part of the N Reactor complex. The 181-NE Building was an 11,700 ft^2, rectangular, reinforced concrete structure with footings approximately 25-ft below average river level (Figure 9). The building housed four electrically driven deep well pumps. A cinderblock building at the southwest corner of the deck housed a diesel powered pump for the HGP fire water system and two electrically-driven back-up pumps. A pre-fabricated metal building on the southeast side of the operating deck housed pumps for the vacuum system and priming the main water pumps. The facility had an overhead bridge crane, six traveling "trash" screens, a trash sump with return line, two electrical substations, and supporting equipment.

The 181-NE HGP River Pump House was demolished and loaded out under the RCCC by May 30, 2012. The 181-NE Building was backfilled to existing grade.

A GPERS survey was not conducted at this site because the 181-NE Building was not radiologically contaminated. A post-demolition GPS survey of the 181-NE Building was performed on June 25, 2012. Additional information is presented in CCN 165390, "Post-Demolition Summary Report for 181-NE HGP River Pump House."

Figure 9. 181-NE Hanford Generating Plant River Pump House.

2.10 182-N HIGH LIFT PUMP HOUSE

The 182-N High-Lift Pump House supplied demineralized water to the primary and secondary cooling systems and cooling water to the rupture monitor and moderator cooling systems located in the 105-N and 109-N facilities. The 182-N was constructed in 1963 as part of the N Reactor complex. The 182-N Building is a 9,797-ft^2 concrete masonry structure with reinforced concrete roof panels (Figure 10). On the northwest corner of the structure was a small addition measuring 30 ft by 20 ft. The building had a single story and basement with a total volume of 442,430 ft^3. In addition to the demineralized water and cooling water pumps, the 182-N housed diesel emergency water pumps, a potable water supply tank, a fire supply system, air compressors, low- and high-pressure filtered water supply systems, an afterheat removal fill supply system, and a chlorine storage facility.

The 182-N High Lift Pump House was demolished and loaded out under the RCCC by May 11, 2012. The 182-N Building will be backfilled to existing grade by Field Remediation (FR).

A GPERS gamma survey and radiological down-posting survey was conducted at the 182-N Building and was found to be not radiologically contaminated. A post-demolition GPS survey was performed on June 19, 2012. Additional information is presented in CCN 165388, "Post-Demolition Summary Report for 182-N High-Lift Pump House."

Figure 10. 182-N High-Lift Pump House.

2.11 184-NA POWER HOUSE ANNEX BUILDING

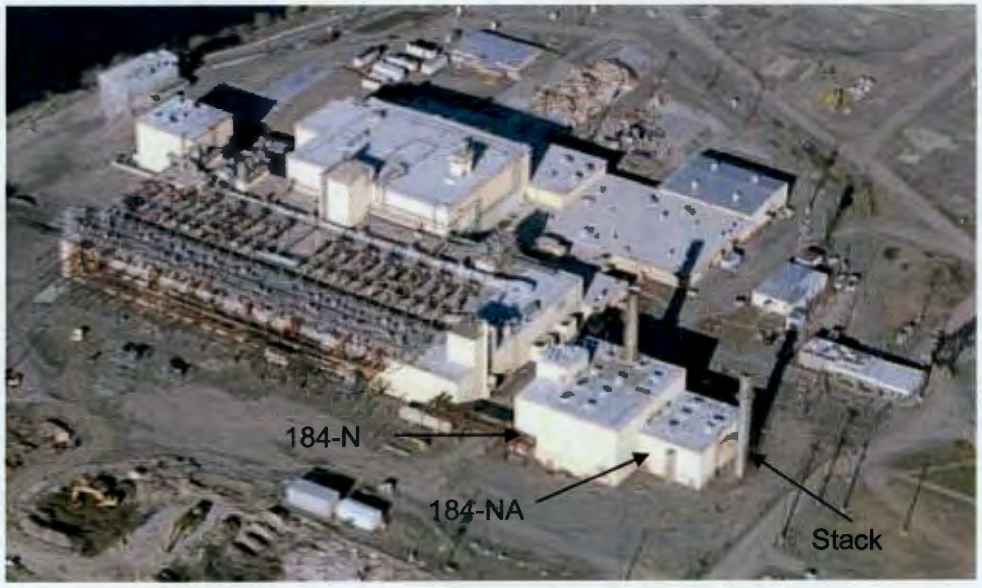
The 184-NA Power House Annex Building was used to provide two backup oil-fired burners that supported the main boiler in the 184-N Power House. Each of the two boilers had a rated capacity of 20,000 lbs of steam per hour at 450 psig. Prior to construction of the 184-NA Building, 184-N was required to operate continuously, even during a reactor outage. In addition to the Combustion Engineering (C/E) boilers that served as backups for 184-N, the building contained fuel oil and compressed air systems that were used to support the two boilers (e.g., pumps, fans, blowers, heaters).

The 184-NA was a one story, metal-frame building with channeled steel siding. It contained a typically 6-in thick reinforced concrete floor with some of the equipment foundations extending more than 5.5-ft below grade. The roof was comprised of pre-cast concrete panels with insulation and built-up roofing supported by a structural steel, beam-girder system. The west wall of 184-NA was a common wall with 184-N. A 100-ft tall stack was located immediately east of the 184-NA Building and was connected to the building by above-grade metal ductwork (Figure 11). The base of the stack measured 11.6 ft in diameter. The stack foundations extended 12 ft below grade, including 13.5 ft diameter, 3 ft thick reinforced concrete octagonal base.

The 184-NA Power House Annex Building was demolished and loaded out under the RCCC by April 12, 2012. The 184-NA Building was backfilled to existing grade.

A GPERS gamma/beta survey and radiological down-posting survey was conducted at the 184-NA Building and was found to be not radiologically contaminated. A post-demolition GPS survey was performed on May 1, 2012. Additional information is presented in CCN 167661, "Post-Demolition Summary Report for 184-NA Auxiliary Power Annex Stack."

Figure 11. 184-NA Power House Annex Building.



2.12 1112-N GUARD STATION

The 1112-N Guard Station was used originally as a security access control point to the 100-N Limited Access Area. The facility contained the servers, enabling data communications between the 100 Areas and offsite locations via a fiber optic cable. Following the 100-N Reactor shutdown, the facility served as document storage and later as an office space. The 92- by 25-ft trailer was constructed in 1978 as part of the H-525 security upgrade project (Figure 12). The 1112-N facility was located 460 ft east-southeast of the 105-N Reactor. The single story facility was constructed of tubular steel columns, steel beams, a metal roof, expanses of bullet resistant

glass, a concrete slab floor, concrete masonry unit hardened areas, and concrete veneer. A suspended ceiling of acoustical tile was present throughout the facility except for the phone bank room. There was a false floor in the server room, below which telecommunication and electrical power cabling was laid out.

The 1112-N Guard Station was demolished and loaded out under the RCCC by February 29, 2012. The 1112-N Building was backfilled to existing grade.

A GPERS gamma/beta survey and radiological down-posting survey was conducted at the 1112-N Building and was found to be not radiologically contaminated. A post-demolition GPS survey was performed on February 27, 2012. Additional information is presented in CCN 165376, "Post-Demolition Summary Report for 1112-N Document Control Building."

Figure 12. 1112-N Guard Station.

2.13 1112-NA MICROWAVE TOWER ANNEX

The 1112-NA Microwave Tower Annex was used as the central communications hub for the 100 Areas. The structure was made with a mixture of tubular and structural steel and measured approximately 82 ft in height, was anchored by four concrete piers, and had an approximate area at its base of 390 ft^2 (Figure 13). There was a small instrument shed at the base of the tower. The instrument shed was constructed of vertical, corrugated metal siding, and set on a concrete pad measuring approximately 9 ft on a side.

The 1112-NA Microwave Tower was demolished and loaded out under the RCCC by February 29, 2012. The 1112-NA Tower was backfilled to existing grade.

A GPERS gamma/beta survey and radiological down-posting survey was conducted at the 1112-NA Tower and was found to be not radiologically contaminated. A post-demolition GPS survey was performed on February 27, 2012. Additional information is presented in CCN 165377, "Post-Demolition Summary Report for1112-NA Microwave Tower."

Figure 13. 1112-NA Microwave Tower Annex.

2.14 1120-N STORAGE AND TRAININGBUILDING

The 1120-N Storage and Training Building was used as a warehouse, for offices, training, and portable water storage. The 150-ft by 80-ft by 20-ft building was constructed with a steel frame, exterior sheeting metal; interior walls out of sheetrock on metal studs; and metal panel partitions except the rooms in the bay area (Figure 14). The roof was metal panel on steel beams and columns. Ceilings in the office area consisted of drop acoustical tile, and the warehouse area ceiling consisted of foam panel insulation. The building sat on a reinforced concrete pad. A 5-

ton bridge crane spanned the width of the building. The 1120-N was located approximately 1,540 ft southeast of the 105-N Reactor.

The 1120-N Storage and Training Building and slab were demolished and loaded out under the RCCC by August 15, 2012. The 1120-N Building was backfilled to existing grade.

A GPERS gamma survey and radiological down-posting survey was conducted at the 1120-N Building and was found to be not radiologically contaminated. A post-demolition GPS survey was performed on September 11, 2012. Additional information is presented in the PDSR (CCN 167663, "Post-Demolition Summary Report for 1120-N Storage and Training Building."

Figure 14. 1120-N Storage and Training Building.

2.15 1143-N CARPENTER/PAINT SHOP

The 1143-N Carpenter/Paint Shop was used as a carpenter shop on the north half and a paint shop on the south half of the facility. A dust collection system in the carpenter shop consisted of varying diameter ducts and stationary tools running to the exhaust fan/collector located on the north end of the building. The paint shop area was converted to a heavy equipment mechanics shop in the mid-1990s.

The 1143-N was built in 1985 and was a 66- by 90-ft single story, pre-engineered metal building (Figure 15). The facility sat on a reinforced-concrete slab foundation. There were two roll-up doors, one on the north side and the second on the south side of the facility. A 30- by 90-ft concrete pad on the west side of the facility was covered by a steel roof extending from the

1143-N and used as an open air work area. A small 9- by 9-ft metal storage shed was located on the south end of the concrete pad.

The 1143-N Carpenter Shop and slab were demolished and loaded out under the RCCC by March 2, 2012. The 1143-N Building was backfilled to existing grade.

A GPERS gamma/beta survey and radiological down-posting survey was conducted at the 1143-N Building and was found to be not radiologically contaminated. A post-demolition GPS survey was performed on March 22, 2012. Additional information is presented in CCN 165393, "Post-Demolition Summary Report for 1143-N Carpenter/Paint Shop."

Figure 15. 1143-N Carpenter/Paint Shop.

2.16 1303-N SPACER SILOS

The 1303-N Spacer Silos were used to store spent irradiated fuel rod spacers prior to final disposal. The 1303-N Spacer Silos were located about 197 ft northwest of the 105-N Reactor, 82 ft north of the N Fuel Storage Basin, and about 262 ft east of the Columbia River. The facility consisted of three underground silos that were used to store irradiated spacer rods prior to final disposal. The silos were numbered "1," "2," and "3," from south to north. Silo 1 was a 12-in. thick reinforced concrete culvert, 13 ft in diameter and 25 ft long. Silos 2 and 3 were corrugated, galvanized-steel structures 17 ft in diameter and 35 ft long, extending 30 ft below grade. All three silos stood vertically on end with their tops approximately 5 ft above grade, and had open bottoms. Silo tops were covered with concrete lids. The silo tops were covered and surrounded with an earth berm, and a 100-ft reinforced concrete retaining wall along the west side (Figure 16).

Silo 1 began operation in 1963, and Silos 2 and 3 were added in 1967. During 100-N Reactor operation, the silos received radioactive metal fuel spacer rods for temporary storage. When a silo was completely full, the spacers were removed and shipped to the 200 Area burial grounds for permanent disposal. The spacers were transferred from the fuel storage basin to the silos by placing a spacer in a 3-in. spacer transfer line and then pushing it forward with the next spacer. N Basin water was used to dislodge spacers that became stuck in the transfer line. Non-contaminated water was sprayed into the silos in 1984 to prevent airborne contamination during the removal of spacers. However, it was decided the water spraying could potentially wash contamination into the soil and the practice was discontinued. Paint was used instead as a fixative to control contamination. All spacers (approximately 44,000) were removed from the silos in 1995, and the silos were inspected with video cameras to confirm they were empty.

The 1303-N Spacer Silos were demolished and loaded out under the RCCC by June 21, 2012.

A GPERS beta/gamma survey was conducted at 1303-N and was found to be still radiologically contaminated. All additional information including post GPS survey is presented in CCN 169427, "Post Demolition Summary Report for the 1303-N Spacer Silos."

Figure 16. 1303-N Spacer Silos.

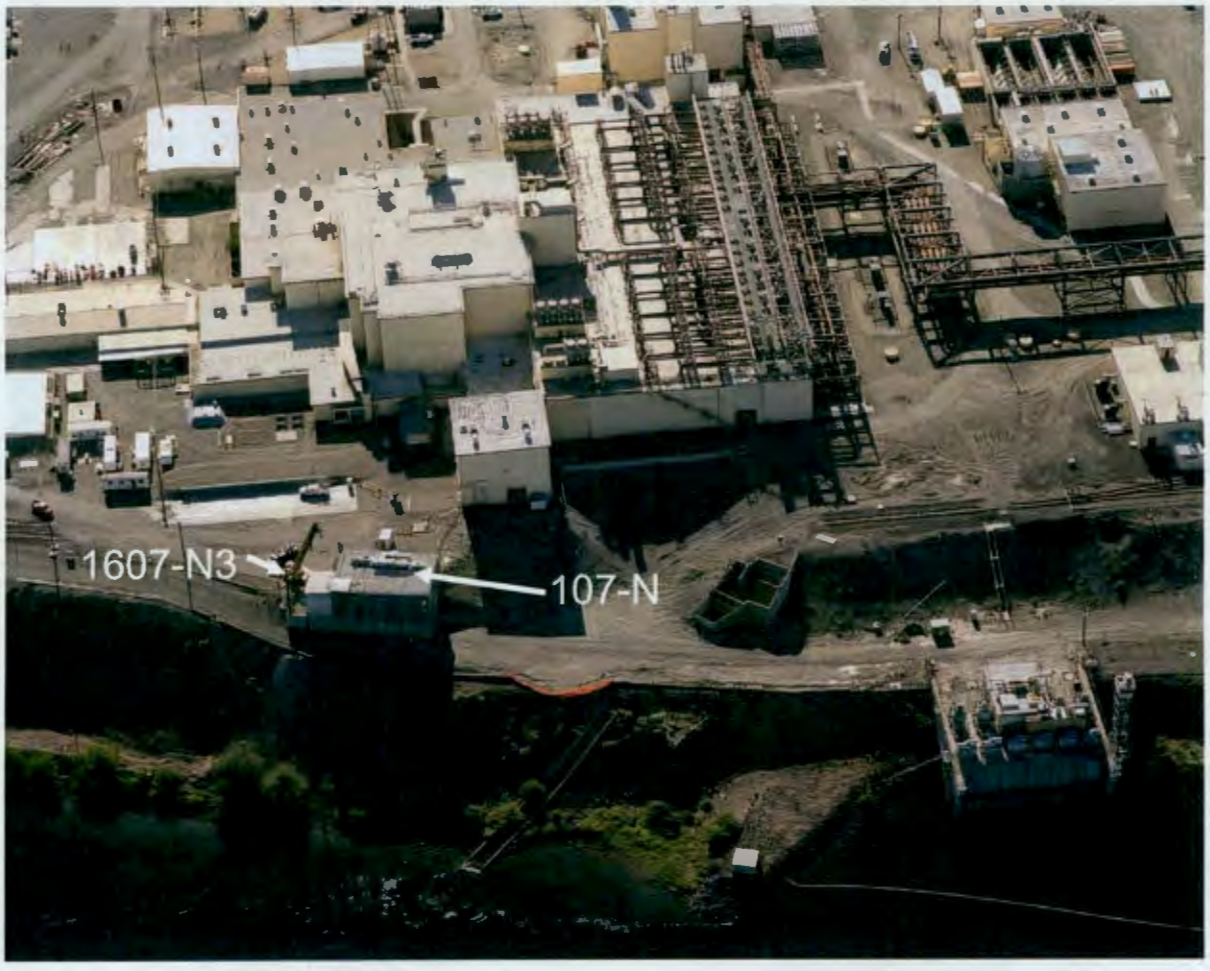
2.17 1607-N3 100-N SANITARY SEWER SYSTEM NO. 3

The 1607-N3 Sanitary Sewer System No. 3 was used as a cesspool consisting of a 500-gal precast, concrete-perforated pipe with a solid cover resting on a 2-ft thick pad of crushed stone (Figure 17). The septic system was a cesspool that served the 107-N Building tending to roughly 2 to 3 employees in the building as well as temporary construction workers. The septic tank was located just north of 107-N Building.

The 1607-N3 100-N Sanitary Sewer System No. 3 was demolished and loaded out under the RCCC by May 3, 2012.

A GPERS beta/gamma survey was conducted at the 1607-N3 system and radioactive contamination was still present. A post-demolition GPS survey was performed on December 14, 2012. Additional information is presented in CCN 169428.

Figure 17. 1607-N3 100-N Sanitary Sewer System NO. 3.



2.18 1607-N9 100-N SANITARY SEWER SYSTEM NO. 9

The 1607-N9 Sanitary Sewer System No. 9 was located 150 ft east of the 1120-N Storage and Training facility, which it serviced. The system consisted of two 3,000-gal capacity underground concrete tanks, and a 50- by 70-ft drain field consisting of 4-in. perforated PCV piping with seven 50-ft long lateral lines spaced 10 ft apart (Figure 18). The system was constructed in 1985.

The 1607-N9 100-N Sanitary Sewer System No. 9 was demolished and loaded out under the RCCC by August 28, 2012.

A GPERS gamma survey was conducted at the 1607-N9 system and was found to be not radiologically contaminated. A post-demolition GPS survey was performed on August 29, 2012. Additional information is presented in CCN 164009, "Post-Demolition Summary Report for 1903-N Septic System."

Figure 18. 1607-N9 100-N Sanitary Sewer System No. 9.

2.19 1900-N WATER SUPPLY TANK FOUNDATION RINGS

The 1900-N Water Supply Tanks consisted of four large steel tanks, a concrete silo, and associated above grade piping and valves. The after-heat removal water storage tank, demineralized water storage tank, filtered water storage tank, emergency raw water storage tank, and the concrete silo were located in the 100-N Area near the 182-N Building and were used to store, receive, and distribute water to the N-Reactor and process systems.

The tank's silo and above grade piping were removed and the area was backfilled with clean fill and graded to the natural slope of the surrounding terrain in August 2005 by Bechtel Hanford Inc. under the Environmental Restoration Contract (ERC) (Figure 19).

The 1900-N Water Supply Tank Foundation Rings were demolished and loaded out under the RCCC by July 11, 2012. The 1900-N Tank Rings were backfilled to existing grade.

A GPERS gamma survey and radiological down-posting survey was conducted at the 1900-N Tank Rings and was found to be not radiologically contaminated. A post-demolition GPS survey was performed on July 18, 2012. Additional information is presented in CCN 165397, "Post-Demolition Summary Report for the 1900-N Water Supply Tank Foundation Rings."

Figure 19. 1900-N Water Supply Tank Foundation Rings.

2.20 1902-D SANITARY WATER TANK

The 1902-D Sanitary Water Tower was an elevated cylindrical storage tank with a conical roof, located approximately 1,280 ft northwest of the 105-D Reactor Building, and south of the 184-D Power House (Figure 20). The 1902-D Sanitary Water Tank provided a source of fire and sanitary water in the event of an emergency, and was also tied directly into the sanitary water system. The tank received filtered water from pumps in the 183-D Filter Plant.

The original tank was made of wood, while the 100-ft tall tower supporting the tank consisted of four steel H-beams with reinforcing steel crossbeams. In 1954, the original wooden tank was replaced with a new welded steel tank of the same approximate size and capacity. The four flange steel columns were anchored to four reinforced concrete piers, which each measured 9.5 ft by 9.5 ft by 6 ft. Four pipes connected from the ground to the bottom of the tank, including the 10-in. sanitary water stand pipe, a 6-in. overflow line, a 1.5-in. steam line for heating purposes, and a 1.5-in. steam condensate return line. A steel ladder ran from the base of a column to a catwalk that encircled the tank. A 9 ft by 12 ft by 8.25 ft reinforced concrete valve pit, which was located directly below the tank, contained the main gate valves for the 10–in. sanitary water line. The valve pit also contained an 18–in. by 18-in. by 12-in. sump.

The 1902-D Sanitary Water Tower were demolished and loaded out under the RCCC by September 19, 2012. The 1902-D Tower was backfilled to existing grade.

A GPERS gamma survey and radiological down-posting survey was conducted at the 1902-D Tower and was found to be not radiologically contaminated. A post-demolition GPS survey was performed on September 27, 2012. Additional information is presented in CCN 167670, "Post-Demolition Summary Report for 1902-D Sanitary Water Tower."

Figure 20. 1902-D Sanitary Water Tower.

2.21 1904-NB SEWAGE LIFT STATION #2

The 1904-NB Sewage Lift Station # 2 was located approximately 260 ft southeast of the 1120-N Storage and Training facility. The 1904-NB utility was part of the piping system that transferred waste water from various 100-N facilities to the 1904-N Sewage Lagoon.

The utility consisted of two below-grade structures including a cylindrical 6-ft diameter concrete wet well and a rectangular concrete valve pit. Waste water entered the wet well through the northwest side of the structure and was pumped to the valve pit and through the rest of the system. The valve pit contained valves and metering equipment for controlling flow through the system (Figure 21).

The 1904-NB Sewage Lift Station #2 was demolished and loaded out under the RCCC by December 4, 2012. The 1904-NB utility was backfilled to existing grade.

A GPERS survey was not conducted, but a radiological down-posting survey was conducted at the 1904-NB utility and was found to be not radiologically contaminated. A post-demolition GPS survey was performed on December 12, 2012. Additional information is presented in CCN 167675, "Post Demolition Summary Report for 1904-NB Sewage Lift Station #2."

Figure 21. 1904-NB Sewage Lift Station #2.

2.22 1904-NC SEWAGE LIFT STATION #3

The 1904-NC Sewage Lift Station # 3 was located approximately 130 ft south of the 1310-N Golf Ball. The 1904-NC utility was part of the piping system that transferred waste water from various 100-N facilities to the 1904-N Sewage Lagoon.

The utility consisted of two below grade structures including a cylindrical 6-ft diameter concrete wet well and a rectangular concrete valve pit. The 6 ft diameter cylindrical wet well contained two pumps for transferring waste water into the valve pit, which contained valves and metering equipment, and had a gravel bottom for drainage (Figure 22). Waste water entered the wet well through the west side of the structure and was pumped to the valve pit and through the rest of the system.

The 1904-NC Sewage Lift Station #3 was demolished and loaded out under the RCCC by December 12, 2012. The 1904-NC utility was backfilled to existing grade.

A GPERS survey was not conducted, but a radiological down-posting survey was conducted at the 1904-NC utility and was found to be not radiologically contaminated. A post-demolition GPS survey was performed on December 12, 2012. Additional information is presented in CCN 169426, "Post Demolition Summary Report for 1904-NC Sewage Lift Station #3."

Figure 22. 1904-NC Sewage Lift Station #3.

2.23 1908-N OUTFALL STRUCTURE

The 1908-N Outfall Structure was used as a sump for several discharge lines and to drop the liquid discharge level for overflow to the river. The outfall also discharged to a flume, which was used as an alternative to the river pipelines. An unknown level of radioactive contamination existed within the structure because the discharge lines were associated with the reactor secondary steam system. The outfall structure had a 102-in. line discharged into the southeast face of the structure, and a 102-in. pipeline exited the northwest face to the Columbia River. The sealwell received more than 525 million gallons/ day of single pass raw water from the Circulating Raw Water (CRW) System, and discharged into the river. The CRW system supplied once-through untreated river water to 16 dump condensers and 7 surface condensers.

The 1908-N was located west of the 109-N Building, and south of the 1301-N Emergency Dump Tank on a steep bank that leads to the river. The sealwell structure was reinforced concrete with 1-ft thick walls and floor. The structure was 69 ft long by 33 ft wide by 23 ft deep (Figure 23).

The 1908-N Outfall was demolished and loaded out under the RCCC by June 7, 2012. The 1908-N Building was backfilled to existing grade.

A GPERS gamma survey and radiological down-posting survey was conducted at the 1908-N Building and was found to be not radiologically contaminated. A post-demolition GPS survey was performed on June 19, 2012. Additional information is presented in CCN 165384, "Post-Demolition Summary Report for 1908-N Sealwell (Outfall)."

Figure 23. 1908-N Outfall Structure.

2.24 1908-NE HANFORD GENERATING PLANT OUTFALL STRUCTURE

The 1908-NE HGP Outfall Structure was used to receive coolant water from the HGP and waste water discharged from 100-N-1 (HGP Settling Pond), and discharge this waste/effluent water, approximately 1,000 ft, into the Columbia River via an 11-ft diameter steel pipe. The 1908-NE was constructed in the mid-1960s as a reinforced concrete structure, partially situated in the Columbia River. The 1908-NE Building was a 76 ft wide, 102 ft long, and 49 ft tall with concrete walls and floors up to 2 ft thick (Figure 24). The 1908-NE did not have any structures on its operating deck except for a chain-link safety fence, some light stanchions, and an overhead bridge crane.

The 1908-NE HGP Outfall Structure was demolished and loaded out under the RCCC by May 22, 2012. The 1908-NE Building was backfilled to existing grade.

A GPERS survey was not conducted at this site because the 1908-NE building was not radiologically contaminated. A post-demolition GPS survey of the 1908-NE Building was performed on June 27, 2012. Additional information is presented in CCN 165391, "Post-Demolition Summary Report for 1908-NE HGP Outfall Structure."

Figure 24. 1908-NE Hanford Generating Plant Outfall Structure.

2.25 HS0007 AND HS0008 HAZARDOUS MATERIAL STORAGE CONTAINERS

The HS0007 and HS0008 Hazardous Material Storage Containers were used as chemical storage in the 100-N Area. HS0007 was a rectangular 64-ft^2 conex box, and HS0008 was a rectangular 240-ft^2 conex box. HS0007 and HS0008 were originally located at the 1330-N Waste Pad. In 2008, they were moved to a location east of the 1120-N Training Building (Figure 25).

The HS0007 and HS0008 Hazardous Material Storage Containers were demolished and loaded out under the RCCC by February 28, 2012.

A GPERS survey was not conducted at this site because the HS0007 and HS0008 were not radiologically contaminated. A post-demolition GPS survey of the HS0007 and HS0008 were performed on March 12, 2012. Additional information is presented in CCN 165382, "Post-Demolition Summary Report for the HS0007 and HS0008 Hazardous Material Storage Containers."

Figure 25. HS0007 and HS0008 Hazardous Material Storage Containers.

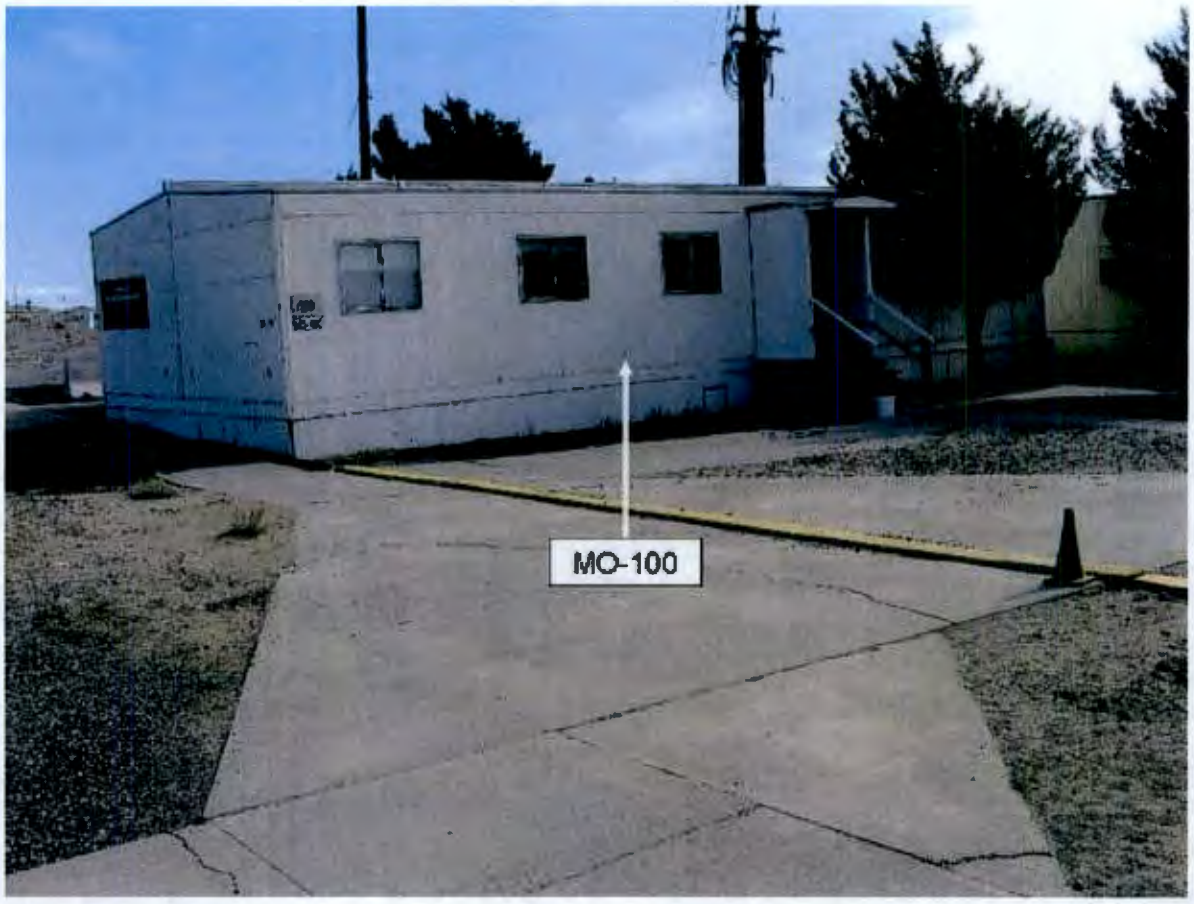
2.26 MO-100 MOBILE OFFICE

The MO-100 Mobile Office was used as office space for Radcon personnel to support D4 activities in the 100-N Area. The MO-100 Building consisted of two approximately 54- by 12-ft trailers joined along their long axis (Figure 26). The building was constructed of wood, metal, and interior finishing materials. Heating and cooling were supplied by external HVAC units. The MO-100 was located approximately 1,055 ft southeast of the 105-N Reactor Building.

The MO-100 Mobile Office was demolished and loaded out under the RCCC by July 18, 2012.

A GPERS gamma survey and radiological down-posting survey was conducted at the 1908-N Building and was found to be not radiologically contaminated. A post-demolition GPS survey was performed on July 31, 2012. Additional information is presented in CCN 165394, "Post-Demolition Summary Report for MO-100 Administration Mobile Office."

Figure 26. MO-100 Mobile Office.



2.27 MO-403 CHANGE HOUSE AND LUNCHROOM TRAILER

The MO-403 Change House and Lunchroom Trailer was used as an all craft break room for D4 activities in the 100-N Area. The trailer contained separate change facilities (showers, lockers, laundry handling), rest rooms, and a common lunchroom. The 68- by 44-ft trailer was installed in the 1980s and located 395 ft east of the 105-N Reactor Building (Figure 27).

The MO-403 Change House and Lunchroom Trailer was demolished and loaded out under the RCCC by February 10, 2012. The MO-403 Building was backfilled to existing grade.

A GPERS gamma/beta survey and radiological down-posting survey was conducted at the MO-403 Building and was found to be not radiologically contaminated. A post-demolition GPS survey was performed on February 23, 2012. Additional information is presented in CCN 164013, "Post-Demolition Summary Report for MO-403 (1119-N) Change House and Lunchroom Trailer."

Figure 27. MO-403 Change House and Lunchroom Trailer.

2.28 MO-415 ADMINISTRATION MOBILE OFFICE

The MO-415 Administration Mobile Office was used as administrative office space for personnel in the 100-N Area. The MO-415 Building consists of ten approximately 65- by 16-ft trailers, and four 65-ft by 13-ft trailers (Figure 28). The MO-415 was constructed of wood, metal, and interior finishing materials. Heating and cooling were supplied by external HVAC units. Electrical and sewer services are the only utilities supplied to MO-415. Potable water was supplied from a 500-gal tank located near the southeast corner of the building. The MO-415 was located approximately 1,030 ft southeast of the 105-N Reactor Building.

The MO-415 Mobile Office was demolished and loaded out under the RCCC by July 19, 2012. The MO-415 Building was backfilled to existing grade.

A GPERS gamma survey and radiological down-posting survey was conducted at MO-415 and was found to be not radiologically contaminated. A post-demolition GPS survey of the MO-415 Building was performed on July 31, 2012. Additional information is presented in CCN 164002, "Post-Demolition Summary Report for HO-64-6383 Office Trailer Building."

Figure 28. MO-415 Administration Mobile Office.

2.29 MO-425 MOBILE OFFICE

The MO-425 Mobile Office was used as the Environmental Analytical Laboratory (EAL). The trailer was a single-wide sheet metal and plywood trailer and was connected to MO-426 through an enclosed wooden breeze way constructed for that purpose (Figure 29). The trailer was located east of 1120-N. The trailer was installed in the 100-N Area in 1993 and was originally designed to be EAL. The EAL was closed in 1996 and has since been used by the industrial hygiene organization to calibrate and repair their instruments.

Located north and adjacent to the trailers were four underground poly tanks accessible by hinged plywood covers. These waste tanks were connected to the sink drains in MO-425 and MO-426; two tanks for each trailer. They were set up so the waste could be sampled before disposal to the sanitary sewer. The sampled tank would then be dumped to the lift station.

The MO-425 Mobile Office was demolished and loaded out under the RCCC by July 30, 2012. The MO-425 was backfilled to existing grade.

A GPERS survey was not conducted at this site because the MO-425 Building was not radiologically contaminated. A post-demolition GPS survey of the MO-425 Building was performed on July 31, 2012. Additional information is presented in CCN 167654, "Post-Demolition Summary Report for MO-425 and MO-426 Mobile Office Trailers."

Figure 29. MO-425 Mobile Office.

2.30 MO-426 MOBILE OFFICE

The MO-426 Mobile Office was used as the EAL. The trailer was a single-wide sheet metal and plywood trailer and was connected to MO-425 through an enclosed wooden breeze way constructed for that purpose (Figure 30). The trailer was located east of 1120-N. The trailer was installed in the 100-N Area in 1993 and was originally designed to be EAL. The EAL was closed in 1996 and has since been used by the industrial hygiene organization to calibrate and repair their instruments. Additionally, MO-426 was used as a sample receiving and preparation facility.

Located north and adjacent to the trailers were four underground poly tanks accessible by hinged plywood covers. These waste tanks were connected to the sink drains in MO-425 and MO-426; two tanks for each trailer. They were set up so the waste could be sampled before disposal to the sanitary sewer. The sampled tank would then be dumped to the lift station.

The MO-426 Mobile Office was demolished and loaded out under the RCCC by July 30, 2012. The MO-426 was backfilled to existing grade.

A GPERS survey was not conducted at this site because the MO-426 Building was not radiologically contaminated. A post-demolition GPS survey of the MO-426 Building was performed on July 31, 2012. Additional information is presented in CCN 167654.

Figure 30. MO-426 Mobile Office

2.31 MO-427 MEN'S CHANGE ROOM TRAILER

The MO-427 Men's Change Room Trailer was a single-wide transportable facility. MO-427, a 10- by 50-ft metal-sided trailer with a rubber membrane roof, was used as a men's change room (Figure 31). MO-427 was located approximately 20 ft east of MO-415 and 10 ft north of MO-868.

The MO-427 Men's Change Room Trailer was demolished and loaded out under the RCCC by July 17, 2012. The MO-427 Building was backfilled to existing grade.

A GPERS gamma survey and radiological down-posting survey was conducted at MO-427 and was found to be not radiologically contaminated. A post-demolition GPS survey of the MO-427 Building was performed on July 31, 2012. Additional information is presented in CCN 165396, "Post-Demolition Summary Report for the MO-427 Men's Change Room Trailer."

Figure 31. MO-427 Men's Change Room Trailer.

2.32 MO-765 MOBILE OFFICE RADIOLOGICAL COUNT FACILITY

The MO-765 Mobile Office was used as the 100-N Radiological Count Facility (RCF). The MO-765 was constructed in 2004. The MO-765 Building was approximately 10- by 40-ft trailer constructed of wood, metal, and miscellaneous interior finishing materials (Figure 32). The MO-765 was located approximately 100 ft south of the MO-415 Administration Building in the 100-N Area.

After completion of 1143-N demolition, MO-765 was moved to the 1143-N site, demolished, and loaded out under the RCCC by March 9, 2012.

A GPERS gamma/beta survey and radiological down-posting survey was conducted at MO-765 and was found to be not radiologically contaminated. A post-demolition GPS survey of the MO-765 Building was performed on March 7, 2012. Additional information is presented in CCN 164018, "Post-Demolition Summary Report for MO-765 Mobile Office Radiological County Facility."

Figure 32. MO-765 Mobile Office Radiological Count Facility.

2.33 MO-889 WATER TRAILER

The MO-889 Water Trailer was used to provide water for the MO-980 Office Trailer. The water trailer was 8- by 20-ft and located in the 100-DR Area (Figure 33).

The MO-889 Water Trailer was hauled to ERDF by Grant, a subcontractor to WCH, under the RCCC by August 28, 2012, and demolished in-cell.

A GPERS gamma/beta survey and radiological down-posting survey was conducted at MO-889 and was found to be not radiologically contaminated. A post-demolition GPS survey of the MO-889 Building was performed on November 19, 2012. Additional information is presented in CCN 167669, "Post-Demolition Summary Report for MO-889 Potable Water Trailer, MO-929 Potable Water Trailer and MO-980 Office Trailer."

Figure 33. MO-889 Water Trailer.

2.34 MO-929 WATER TRAILER

The MO-929 Water Trailer was used to provide water for the MO-980 Office Trailer. The water trailer was 8- by 12-ft and located in the 100-DR Area (Figure 34).

The MO-929 Water Trailer was hauled to ERDF by Grant, a subcontractor to WCH, under the RCCC by August 28, 2012, and demolished in-cell.

A GPERS gamma/beta survey and radiological down-posting survey was conducted at MO-929 and was found to be not radiologically contaminated. A post-demolition GPS survey of the MO-929 Building was performed on November 19, 2012. Additional information is presented in CCN 167669.

Figure 34. MO-929 Water Trailer.

2.35 MO-980 MOBILE OFFICE

The MO-980 Mobile Office was used to house personnel for the 100-D Area FR project. The office trailer was a 3,360-ft^2 facility located in the 100-DR Area(Figure 35).

The MO-980 Mobile Office was hauled to ERDF by Grant, a subcontractor to WCH, under the RCCC by August 29, 2012, and demolished in-cell.

A GPERS gamma/beta survey and radiological down-posting survey was conducted at MO-980 and was found to be not radiologically contaminated. A post-demolition GPS survey of the MO-980 Building was performed on November 19, 2012. Additional information is presented in CCN 167669.

Figure 35. MO-980 Mobile Office.

2.36 4702 ADMINISTRATION OFFICES BUILDING

The 4702 Administration Offices Building was used to house support personnel for the 400 Area Fast Flux Test Facility (FFTF) project. The building encloses approximately 21,548 ft^2, and consisted of three older buildings (Buildings "14," "15," and "16") of unknown vintage (likely 1950s), which were moved onto the site from the 100 Area. In 1972, the three buildings were connected using two newer buildings named the "West Annex" and the "East Annex." A 48.7- by 15.3-ft fireproof document vault, constructed of 7.5-in. cinderblock, was added to the west side of Building 14 when the buildings were assembled. Collectively, the buildings and vault were known as Building 4702 (Figure 36).

The 4702 Building was located on Adams Street along the east side of the 400 Area within the perimeter fence. The building consisted of wood-framed structures clad with transite supported on posts and cinderblock footing walls. Cinderblock firestop walls bisected both the West and East Annex buildings. The roof was covered with two layers of composition shingles. Floors were wood covered with numerous types of 9 and 12 in. floor tiles, vinyl floor sheeting, and carpets. Ceilings consisted of painted sheetrock and Masonite, locally covered with acoustical tile. Interior walls were sheetrock and Masonite, locally covered with paint, thin plaster skim-

coats, and/or acoustical tile. None of the wall plenums examined by breaching during the building inspection were insulated.

The potable water plumbing system was located in the attics, which were heated to prevent freezing until shortly before demolition began. Piping beneath the floors appears to have been for fire suppression and sewage systems. Heating in the building was provided by heating units in the attics and electric baseboards. Cooling was provided by roof-mounted swamp coolers, heat pumps, wall-mounted air conditioning units, and a large air conditioning unit in the north end of the attic of Building 16.

The 4702 Office Building and slab were demolished and loaded out under the RCCC by March 12, 2012. The 4702 Building was backfilled to existing grade.

A GPERS survey was not conducted at this site because the 4702 Building was not radiologically contaminated. A post-demolition GPS survey of the 4702 Building was performed on March 8, 2012. Additional information is presented in CCN 165378, "Post-Demolition Summary Report for 4702 Administration Building."

Figure 36. 4702 Office Building.

3.0 PROJECT ACTIVITIES

3.1 ENGINEERING AND PERMITS

The Removal Action Work Plan for 100-N Area Ancillary Facilities (RAWP) (DOE-RL 2002-70) and *The Removal Action Work Plan for River Corridor General Decommissioning Activities* (RAWP) (DOE/RL-2010-34) were prepared to satisfy the requirements of the action memorandums (Ecology et al. 1999 and DOE/RL-2010-22), outlining how compliance with and enforcement of applicable regulations will be achieved for cleanup of 100 Area facilities. Also includes the *Removal Action Work Plan for 105-N/109-N Buildings Interim Safe Storage and Related Facilities* and the *Action Memorandum for General Hanford Site Decommissioning Activities*. Additionally, the RAWPs and the *Environmental Control Plan for 100-N D4/ISS Activities* (WCH-79) and the *Environmental Control Plan for River Corridor General Decommissioning Activities* (WCH-402) serve as the decommissioning and project management plans, respectively, for the 100 Area project. The RAWPs were prepared in accordance with the

Tri-Party Agreement (Ecology et al. 1989) and were approved by the U.S. Department of Energy, Richland Operations Office and the appropriate lead regulatory agencies.

It was determined that the *Davis-Bacon Act of 1931* prevailing wage rates for 105-ND, 105-NE, 107-N, 181-N, 181-NA, 181-NB, 181-NE, 182-N, 184-NA, 1112-N, 1112-NA, 1120-N, 1143-N, 1303-N, 1607-N3, 1607-N9, 1900-N, 1902-D, 1904-NB, 1904-NC, 1908-N, 1908-NE, HS0007, HS0008, MO-100, MO-403, MO-415, MO-425, MO-426, MO-427, MO-765, and 4702 were not applicable for the buildings listed above, and the work was performed by plant forces.

The Plant Force Work Reviews, the Initial Hazard Categorizations, CCNs, and Excavation Permits for each building are in the following table:

Table 1. Building Documentation. (2 Pages)

Building	PFWR	IHC/FHC	CCN	Excavation Permit
105-N	8850-011-06 Rev. 0 8850-023-06 Rev. 0	0100N-CA-N0069, Rev. 1	165386	DAN-3549, DAN-3549-1, DAN-3549-2
105-ND	8850-017-06 Rev. 0	095435	165383	DAN12-0027
105-NE	8850-011-06 Rev. 0	0100N-CA-N0069 Rev. 1	165392	DAN-3390-1 DAN-3428-3
107-N	8850-011-04 Rev. 0	0100N-CA-N0065 Rev. 4	169428	DAN-2550, DAN3319, DAN-3319A, DAN11-0083
109-N	8850-011-06 Rev. 0	0100N-CA-N-0069, Rev. 1	165387	DAN-3549, DAN-3549-1, DAN-3549-2
181-N	8850-010-05 Rev. 0	095435	165389	DAN11-00019
181-NA	8850-009-08 Rev. 0	095435	165389	DAN11-00019
181-NB	8850-010-05 Rev. 0	095435	165389	DAN11-00019
181-NE	8850-009-08 Rev. 2	IHC-2006-0036 Rev. 2	165390	DAN11-00019
182-N	8850-011-05 Rev. 0 8850-003-06 Rev. 0	095435	165388	DAN-3026-1
184-NA	8850-041-95 Rev. 0 8850-005-06 Rev. 0	095435	142336 167661	DAN12-0041
1112-N	8850-028-06 Rev. 0	IHC-2006-0036 Rev. 2	165376	DAN-3557 and DAN12-0041
1112-NA	8850-008-10 Rev. 0	IHC-2006-0036 Rev. 2	165377	DAN-3557 and DAN12-0041
1120-N	8850-009-08 Rev. 0	IHC-2006-0036 Rev. 2	167663	DAN12-0040
1143-N	8850-057-06 Rev. 0	IHC-2006-0028	165393	DAN11-00020
1303-N	8850-009-08 Rev. 3	095435	169427	DAN11-0167
1607-N3	8850-009-08 Rev. 3	IHC-2006-0036 Rev. 2	169428	DAN11-0083
1607-N9	8850-009-08 Rev. 3	IHC-2006-0036 Rev. 2	167671	DAN-4073
1900-N	8850-005-05 Rev. 0	N/A	165397	DAN-3026-1

Table 1. Building Documentation. (2 Pages)

Building	PFWR	IHC/FHC	CCN	Excavation Permit
1902-D	8850-007-10 Rev. 0	N/A	167670	DAN-3767
1904-NB	8850-009-08 Rev. 0	IHC-2006-0036 Rev. 2	167675	DAN12-0144
1904-NC	8850-009-08 Rev. 0	IHC-2006-0036 Rev. 2	169426	DAN12-0144
1908-N	8850-009-08 Rev. 2	095435	165384	DAN11-00019
1908-NE	8850-009-08 Rev. 2	IHC-2011-0013	165391	DAN11-00019
HS0007	8850-009-08 Rev. 3	IHC-2006-0036 Rev. 3	165382	DAN11-00020
HS0008	8850-009-08 Rev. 3	IHC-2006-0036 Rev. 3	165382	DAN11-00020
MO-100	8850-009-08 Rev. 3	IHC-2006-0036 Rev. 0	165394	DAN12-0040
MO-403	8850-034-06 Rev. 0	IHC-2006-0036 Rev. 0	164013	DAN11-0249
MO-415	8850-009-08 Rev. 4	IHC-2006-0036 Rev. 0	165395	DAN12-0040
MO-425	8850-009-08 Rev. 0	IHC-2006-0036 Rev. 0	167654	DAN12-0040
MO-426	8850-009-08 Rev. 0	IHC-2006-0036 Rev. 0	167654	DAN12-0040
MO-427	8850-009-08 Rev. 0	IHC-2006-0036 Rev. 0	165396	DAN12-0040
MO-765	8850-009-08 Rev. 3	IHC-2006-0036 Rev. 0	164018	DAN11-00020
MO-889	N/A	N/A	167669	N/A
MO-929	N/A	N/A	167669	N/A
MO-980	N/A	N/A	167669	N/A
4702	8850-010-10 Rev. 0	IHC-2009-0006, Rev. 0	165378	DAN11-0155 and DAN-3993

N/A = Not Available

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 [PCBs]). All known hazardous materials were removed from inside and outside of the buildings prior to demolition.

3.3 UTILITY AND DRAIN ISOLATION

All electrical, water, and telecommunications services were disconnected from the buildings prior to hazardous material removal operations. 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 STRUCTURES

After the utilities were isolated, hazardous materials and equipment were removed and the above-grade structures were deemed ready for demolition. The building structures were then demolished using excavator-mounted hydraulic shears, hydraulic hammers, and bucket-and-thumb combination shovels. The foundations for these facilities were likewise removed. The debris was segregated for load-out and disposal. Standard ERDF roll-off containers with 6-mil liners were used to package and ship debris.

3.5 SITE RESTORATION

The remaining condition and posting of the aforementioned buildings are listed in Table 2.

Table 2. Site Conditions. (3 Pages)

Building	Remaining Conditions	Postings
105-N	105-N was placed into Interim Safe Storage (ISS) and the facilities outside the Safe Storage Enclosure (SSE) was demolished and portions backfilled with the remaining backfill TBD by FR.	Radiological postings will be downposted and released with the survey completion by FR.
105-ND	105-ND was demolished, and the debris was loaded out and sent to ERDF. Backfill completed.	Downposted and released.
105-NE	105-NE was demolished, and the debris was loaded out and sent to ERDF. Backfill TBD by FR.	Radiological postings will be downposted and released with the survey completion by FR.
107-N	107-N was demolished, and the debris was loaded out and sent to ERDF. Backfill TBD by FR.	Radiological postings will be downposted and released with the survey completion by FR.
109-N	109-N was placed into Interim Safe Storage (ISS) and the facilities outside the Safe Storage Enclosure (SSE) was demolished and portions backfilled with the remaining backfill TBD by FR.	Radiological postings will be downposted and released with the survey completion by FR.
181-N	181-N was demolished, and the debris was loaded out and sent to ERDF. Backfill completed	Downposted and released.
181-NA	181-NA was demolished, and the debris was loaded out and sent to ERDF.	Downposted and released.
181-NB	181-NB was demolished, and the debris was loaded out and sent to ERDF.	Downposted and released.
181-NE	181-NE was demolished, and the debris was loaded out and sent to ERDF. Backfill completed	Downposted and released.
182-N	182-N was demolished, and the debris was loaded out and sent to ERDF. Backfill TBD by FR.	Downposted and released.
184-NA	184-NA was demolished, and the debris was loaded out and sent to ERDF. Backfill completed.	Downposted and released.
1112-N	1112-N was demolished, and the debris was	Downposted and released.

Table 2. Site Conditions. (3 Pages)

Building	Remaining Conditions	Postings
	loaded out and sent to ERDF. Backfill completed.	
1112-NA	1112-NA was demolished, and the debris was loaded out and sent to ERDF. Backfill completed.	Downposted and released.
1120-N	1120-N was demolished, and the debris was loaded out and sent to ERDF. Backfill completed.	Downposted and released.
1143-N	1143-N was demolished, and the debris was loaded out and sent to ERDF. Backfill completed.	Downposted and released.
1303-N	1303-N was demolished, and the debris was loaded out and sent to ERDF. Backfill TBD by FR.	Radiological postings will be downposted and released with the survey completion by FR.
1607-N3	1607-N3 was demolished, and the debris was loaded out and sent to ERDF. Backfill TBD by FR.	Radiological postings will be downposted and released with the survey completion by FR.
1607-N9	1607-N9 was demolished, and the debris was loaded out and sent to ERDF. Backfill complete.	Downposted and released
1900-N	1900-N was demolished, and the debris was loaded out and sent to ERDF. Backfill completed.	Downposted and released.
1902-D	1902-D was demolished, and the debris was loaded out and sent to ERDF. Backfill completed.	Downposted and released.
1904-NB	1904-NB was demolished, and the debris was loaded out and sent to ERDF. Backfill completed.	Downposted and released.
1904-NC	1904-NC was demolished, and the debris was loaded out and sent to ERDF. Backfill completed.	Downposted and released.
1908-N	1908-N was demolished, and the debris was loaded out and sent to ERDF. Backfill completed.	Downposted and released.
1908-NE	1908-NE was demolished, and the debris was loaded out and sent to ERDF. Backfill completed.	Downposted and released.
HS0007	HS0007 was demolished, and the debris was loaded out and sent to ERDF.	Downposted and released.
HS0008	HS0008 was demolished, and the debris was loaded out and sent to ERDF.	Downposted and released.
MO-100	MO-100 was demolished, and the debris was loaded out and sent to ERDF.	Downposted and released.
MO-403	MO-403 was demolished, and the debris was loaded out and sent to ERDF.	Downposted and released.
MO-415	MO-415 was demolished, and the debris was loaded out and sent to ERDF.	Downposted and released.
MO-425	MO-425 was demolished, and the debris was loaded out and sent to ERDF. Backfill completed.	Downposted and released.
MO-426	MO-426 was demolished, and the debris was loaded out and sent to ERDF. Backfill completed.	Downposted and released.
MO-427	MO-427 was demolished, and the debris was loaded out and sent to ERDF.	Downposted and released.

Table 2. Site Conditions. (3 Pages)

Building	Remaining Conditions	Postings
MO-765	MO-765 was demolished, and the debris was loaded out and sent to ERDF.	Downposted and released.
MO-929	MO-929 was demolished, and the debris was loaded out and sent to ERDF.	Downposted and released.
MO-980	MO-980 was demolished, and the debris was loaded out and sent to ERDF.	Downposted and released.
4702	4702 was demolished, and the debris was loaded out and sent to ERDF. Backfill completed.	Downposted and released.

D4 = deactivation, decontamination, decommissioning, and demolition
ERDF = Environmental Restoration and Disposal Facility
FR = Field Remediation
GPERS = Global Positioning Environmental Radiological Surveyor
HCA = high contamination area
RA = radiation area
TBD = to be determined

4.0 COST AND COMPLETION

Building completion costs and dates are shown in Table 3.

Table 3. Cost and Completion Data. (2 Pages)

Building	Total Cost ($)	Completion Date
105-N	39,464,308	May 3, 2012
105-ND	26,153	April 5, 2012
105-NE	2,811,241	June 5, 2012
107-N	7,521,119	August 21, 2012
109-N	27,681,329	March 25, 2010
181-N	5,179,060	May 24, 2012
181-NA	136,695	January 19, 2012
181-NB	74,313	February 10, 2012
181-NE	4,303,631	May 30, 2012
182-N	4,840,511	May 11, 2012
184-NA	274,492	April 12, 2012
1112-N	137,520	February 29, 2012
1112-NA	72,568	March 5, 2012
1120-N	222,020	August 15, 2012
1143-N	80,228	March 2, 2012
1303-N	922,031	June 21, 2012

Table 3. Cost and Completion Data. (2 Pages)

Building	Total Cost ($)	Completion Date
1607-N3	11,985	May 3, 2012
1607-N9	69,600	August 28, 2012
1900-N	153,398	July 11, 2012
1902-D	145,662	September 19, 2012
1904-NB	92,367	December 4, 2012
1904-NC	37,358	December 12, 2012
1908-N	5,820	June 7, 2012
1908-NE	0	May 22, 2012
HS0007	293	February 28, 2012
HS0008	293	February 28, 2012
MO-100	21,849	July 18, 2012
MO-403	47,552	February 10, 2012
MO-415	77,537	July 19, 2012
MO-425	39,550	July 30, 2012
MO-426	26,345	July 30, 2012
MO-427	30,931	July 17, 2012
MO-765	5,115	March 9, 2012
MO-889	916	August 28, 2012
MO-929	255	August 28, 2012
MO-980	816	August 29, 2012
4702	608,909	March 13, 2012

5.0 RECYCLED MATERIAL AND WASTE DISPOSAL

One of the objectives of the 100 Area/400 Area demolition project is to support recycling and waste minimization. However, radiological contamination, primarily due to biological vectors (i.e., mud daubers and wasps), is prevalent throughout the site. Recycling material is minimal. In CY 2012, 209.36 tons of scrap metal were recycled, everything else was loaded-out to ERDF.

Waste volume transferred to ERDF from the 100-N Building demolition project is listed in Table 4.

Table 4. 100-N Demolition Project Waste Transferred to ERDF. (2 Pages)

Building	Number of ERDF Containers	Waste Volume (ft^3)	Net Weight (tons)
105-N	6,163	2,635,329	90,415
105-ND	6	2,755	124
105-NE	248	118,590	4,844
107-N	725	266,040	10,610
108-N	173	56,857	2,779
109-N	2,889	798,412	33,241
181-N	794	265,739	12,988
181-NA	N/A	N/A	N/A
181-NB	N/A	N/A	N/A
181-NE	592	209,684	9,145
182-N	733	249,851	10,617
184-NA	100	22,990	778.8
1112-N	91	32,525	1,045
1112-NA	26	11,936	754
1120-N	112	51,418	1,272
1143-N	55	23,308	515
1303-N	1212	533,086	23,452
1607-N3	1	459	8
1607-N9	76	34,891	1,467
1900-N	235	61,575	3,503
1902-D	57	17,480	862
1904-NB	32	16,047	665
1904-NC	24	11,958	479
1908-N	372	118,622	5,765
1908-NE	31	10,700	584
HS0007	1	459	4
HS0008	1	459	4
MO-100	24	11,018	280
MO-403	23	10,559	139
MO-415	89	40,577	604
MO-425	16	7,346	121
MO-426	15	6,886	115
MO-427	5	2,296	24
MO-765	7	1,381	35
MO-889	2	1,060	20
MO-929	1	530	10

Table 4. 100-N Demolition Project Waste Transferred to ERDF. (2 Pages)

Building	Number of ERDF Containers	Waste Volume (ft^3)	Net Weight (tons)
MO-980	2	1,060	20
4702	366	193,878	3,527

ERDF = Environmental Restoration Disposal Facility

6.0 OCCUPATIONAL EXPOSURES

6.1 PERSONNEL INJURIES

WCH personnel worked a total of approximately 128,788 hours (manual and non-manual, not including subcontractors) from January 1, 2012, to December 31, 2012, on the 100 Area/400 Area D4/ISS project. There were no Occupational Safety and Health Administration recordable injuries or lost work time incidents and six first aid cases during this time period associated with the 100 Area/400 Area D4/ISS Project.

6.2 PERSONNEL RADIOLOGICAL EXPOSURES

There were two clothing contamination and no skin contamination incidents occurred during demolition of the 100 Area/400 Area buildings discussed in this report. Workers received 3,342.8 person-mrem of radiological exposure from January 1, 2012, to December 31, 2012, during their support of D4 activities associated with the buildings discussed in this report. All boundary air sample results were below procedural action levels for the duration of the work performed.

7.0 LESSONS LEARNED

The following is lessons learned during the construction and demolition of the ISS around 105-N and 109-N:

- While supporting construction of the SSE, a 4100 Manitowoc Crane's "headache ball" struck the concrete wall of the 105-N Building when the wind caused the boom to swing over the 105-N Building. The Crane Operator (CO) stated that the swing brake handle had been moved to engage the brake, but only had twisted in the threaded connection. An Ironwork General Foreman was at the 60-ft elevation and noticed the crane line swinging toward the side of the building with no one directing the load. He radioed the CO to stop, but not before the boom had swung over the building causing the headache ball to strike the concrete wall. The corrective action was utilization of a locking nut at the connection point for the swing brake handle, which didn't allow the swing brake handle threads to spin. Additional

corrective and follow-up actions are documented in Do it Right The First Time (DIRTFT) Bulletin #2011-012.

- November 27, 2006 a D&D worker was cutting electrical lighting conduit that interfered with the removal of asbestos transite paneling. Plant electricians had switched breakers to remove power from the work area, but the lighting circuit was fed from different panels. The worker saw a spark when his portaband saw cut into the conduit. The employee was not injured. Several issues were determined that led to the event. D4 activities for all work should only be performed in facilities that are "Cold and Dark." This Lessons Learned is documented in RCCC-06-013.

- On July 14, 2009, an Equipment Operator experienced heat related fatigue and felt ill while sizing and sorting debris located on the minus 16-ft level of the 109-N demolition project. The operator was transported to the site occupational health provider for evaluation and released back to work without restrictions. Hydration is necessary when working in any conditions that may involve elevated temperatures. Monitoring of heated work conditions will assist in determining an individual's reaction to heat-related work. Monitoring of heat conditions should be conducted by persons other than the employee to ensure timely response if adverse conditions should arise. This Lessons Learned is documented in JIT-RCCC-2009-0002.

- On August 12, 2010, during welding activities a direct path-to-ground arc occurred. The metal cable of a worker's self-retracting lanyard (SRL) contacted the joist being welded and the arc damaged the cable. The lower portion of the SRL anchored to the concrete in the middle of the structure came in contact with the vent valve on which he was standing. When the lanyard contacted the joist that was being welded, it arced causing a gouge in the cable. These two points of contact from the SRL caused a direct path-to-ground. There were no shocks or injuries. Several corrective and follow-up actions are documented in DIRTFT Bulletin #2010-016.

- On September 13, 2010, an employee was working from a 60-ft genie aerial lift, installing bolts in plates that covered holes across the south side of the 109-N building. One of the plates was located behind a temporary 204-volt electrical panel mounted on a mobile Unistrut® frame that fed the 109-N roof. In the attempt to maneuver the lift basket closer, the worker stuck the panel. At this time he did not notice any damage and continued to install bolts on the plate in the areas that he could reach. He noticed that he moved the panel when he struck it with the lift basket. The employee attempted to straighten the panel and finished out the day without reporting to his supervisor. On September 16, 2010, another employee noticed that the panel was leaning. The Project Safety Representative (PSR) executed a Stop Work and WCH electricians were notified and locked out the panel. During inspection it was determined that the conduit coupling was broken in half 1.5-ft below grade. Inspection of the cables at the break in the conduit showed no damage. This Lessons Learned is documented in DIRTFT Bulletin #2010-019.

- On November 9, 2010, a worker began the shift operating a JLG 1932E2 Scissor Lift on the roof of the 109-N Building. During the function test, it was discovered the machine had a low charge. At this time, the worker exited the lift and plugged it back into the AC power cord to let it continue to charge. At approximately 1205 hours, the welder and fire-watch heard a loud boom as one of the batteries exploded. Smoke was noticed coming from

under the scissor lift and the fire-watch quickly unplugged the lift from the charger. The smoking stopped and no one was injured. The battery charger was inspected to determine if it was in proper working order. This Lessons Learned is documented in DIRTFT Bulletin #2010-028.

- Existing site facility drawings for the 105-N and 109-N facilities proved to be, in most cases, complete, detailed and accurate which was beneficial in planning and performing deactivation and demolition activities.

- During demolition preparations, planned precuts on the structure (concrete walls/slabs and structural members/connections) and on the utilities (pipe/electrical/ductwork) were successfully used to control separations to avoid damage to the SSE structure and to achieve proper fit up with the new roof and siding system.

8.0 REFERENCES

0100N-CA-N0069, 2006, *105-N & 109-N Final Hazard Categorization for ISS,* Rev. 1, Washington Closure Hanford, LLC., Richland, Washington.

CCN 095435, 2001, "Supersedes 066302 - 100-N Ancillary Facilities Preliminary Hazard Classification," CCN 095435 to J. J. McGuire from R. G. Egge, Environmental Restoration Contractor, Bechtel Hanford, Inc., Richland, Washington, December 18.

CCN 164009, 2012, "Post-Demolition Summary Report for 1903-N Septic System," CCN 164009 to M. E. Allen from C. S. Edwards, Washington Closure Hanford, LLC., Richland, Washington, February 16.

CCN 164013, 2012, "Post-Demolition Summary Report for MO-403 (1119-N) Change House and Lunchroom Trailer," CCN 164013 to M. E. Allen from T. T. Yamamoto, Washington Closure Hanford, LLC., Richland, Washington, March 22.

CCN 164018, 2012, "Post-Demolition Summary Report for MO-765 Mobile Office Radiological Count Facility," CCN 164018 to M. E. Allen from C. S. Edwards, Washington Closure Hanford, LLC., Richland, Washington, May 10.

CCN 165376, "Post-Demolition Summary Report for 1112-N Document Control Building," CCN 165376 to M. E. Allen from T. T. Yamamoto, Washington Closure Hanford, LLC., Richland, Washington, May 2.

CCN 165377, 2012, "Post-Demolition Summary Report for 1112-NA Microwave Tower," CCN 165377 to M. E. Allen from T. T. Yamamoto, Washington Closure Hanford, LLC., Richland, Washington, May 2.

CCN 165378, 2012, "Post-Demolition Summary Report for 4702 Administration Building CCN 165378 to M. E. Allen from W. H. Rodgers, Washington Closure Hanford, LLC., Richland, Washington, ," May 8.

CCN 165384, 2012, "Post-Demolition Summary Report for 1908-N Sealwell (Outfall)," CCN 165384 to M. E. Allen from T. T. Yamamoto, Washington Closure Hanford, LLC., Richland, Washington, June 19.

CCN 165386, "Post-Demolition Summary Report for 105-N Reactor Building," Washington Closure Hanford, LLC., Richland, Washington.

CCN 165387, 2012, "Post-Demolition Summary Report for 109-N Turbine Building," CCN 165387 to M. E. Allen from J. W. Comer, Washington Closure Hanford, LLC., Richland, Washington, October 30.

CCN 165388, 2012, "Post-Demolition Summary Report for 182-N High-Lift Pump House," CCN 165388 to M. E. Allen from C. S. Edwards, Washington Closure Hanford, LLC., Richland, Washington, July 18.

CCN 165389, 2012, "Post-Demolition Summary Report for 181-N River Water Pump House, 181-NA Guard house and 181-NB #3 Diesel Enclosure," CCN 165389 to M. E. Allen from T. T. Yamamoto, Washington Closure Hanford, LLC., Richland, Washington, June 27.

CCN 165390, 2012, "Post-Demolition Summary Report for 181-NE HGP River Pump House," CCN 165390 to M. E. Allen from C. S. Edwards, Washington Closure Hanford, LLC., Richland, Washington, July 16.

CCN 165391, 2012, "Post-Demolition Summary Report for 1908-NE HGP Outfall Structure," CCN 165391 to M. E. Allen from C. S. Edwards, Washington Closure Hanford, LLC., Richland, Washington, August 1.

CCN 165392, 2013, "Post-Demolition Summary Report for the 105-NE Fission Products Trap," CCN 165392 to M. E. Allen from W. H. Rodgers, Washington Closure Hanford, LLC., Richland, Washington, January 17.

CCN 165393, 2012, "Post-Demolition Summary Report for 1143-N Carpenter/Paint Shop," CCN 165393 to M. E. Allen from T. T. Yamamoto, Washington Closure Hanford, LLC., Richland, Washington, July 24.

CCN 165394, 2012, "Post-Demolition Summary Report for MO-100 Administration Mobile Office," CCN 165394 to M. E. Allen from C. S. Edwards, Washington Closure Hanford, LLC., Richland, Washington, August 9.

CCN 165395, 2012, "Post-Demolition Summary Report for MO-415 Administration Mobile Office," CCN 165395 to M. E. Allen from C. S. Edwards, Washington Closure Hanford, LLC., Richland, Washington, August 9.

CCN 165396, 2012, "Post-Demolition Summary Report for the MO-427 Men's Change Room Trailer," CCN 165396 to M. E. Allen from K. L. Wilkins, Washington Closure Hanford, LLC., Richland, Washington, August 9.

CCN 165397, 2012, "Post-Demolition Summary Report for the 1900-N Water Supply Tank Foundation Rings," CCN 165397 to M. E. Allen from K. L. Wilkins, Washington Closure Hanford, LLC., Richland, Washington, August 9.

CCN 167670, 2012, "Post-Demolition Summary Report for 1902-D Sanitary Water Tower," CCN 167670 to M. E. Allen from W. H. Rodgers, Washington Closure Hanford, LLC., Richland, Washington, December 13.

CCN 167675, "Post-Demolition Summary Report for the 1904-NB Sewage Lift Station #2," Washington Closure Hanford, LLC., Richland, Washington, Month ##.

CCN 167654, 2012, "Post-Demolition Summary Report for MO-425 and MO-426 Mobile Office Trailers," CCN 167654 to M. E. Allen from J. W. Comer, Washington Closure Hanford, LLC., Richland, Washington, August 22.

CCN 167661, 2012, "Post-Demolition Summary Report for 184-NA Auxiliary Power Annex Stack," CCN 167661 to M. E. Allen from T. T. Yamamoto, Washington Closure Hanford, LLC., Richland, Washington, September 27.

CCN 167663, 2012, "Post-Demolition Summary Report for 1120-N Storage and Training Building," CCN 167663 to M. E. Allen from W. H. Rodgers, Washington Closure Hanford, LLC., Richland, Washington, October 31.

CCN 169426, "Post-Demolition Summary Report for 1904-NC Sewage Lift Station #3," Washington Closure Hanford, LLC., Richland, Washington.

CCN 169427, 2013, "Post-Demolition Summary Report for the 1303-N Spacer Silos," CCN 169427 to M. E. Allen from W. H. Rodgers, Washington Closure Hanford, LLC., Richland, Washington, January 17

CCN 169428, 2013, "Post-Demolition Summary Report for 107-N Basin Recirculation Facility and 1607-N3 Septic Tank," CCN 169428 to M.E. Allen from T. T. Yamamoto, Washington Closure Hanford, LLC., Richland, Washington, January 15.

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

DOE/RL-2002-70, 2006, *Removal Action Work Plan for 100-N Area Ancillary Facilities,* Rev. 2, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE/RL-2005-43, 2006, *Removal Action Work Plan for 105-N/109-N Buildings Interim Safe Storage and Related Facilities*, Rev.0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE/RL-2010-34, 2010, *Removal Action Work Plan for River Corridor General Decommissioning Activities,* Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE/RL-2010-22, 2010, *Action Memorandum for General Hanford Site Decommissioning Activities*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington

Ecology, EPA, and DOE, 1989, *Hanford Federal Facility Agreement and Consent Order,* Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Olympia, Washington.

Ecology, 1999, "100 N Area Ancillary Facilities Action Memorandum," external letter 064829, to L. Piper, U.S. Department of Energy, Richland Operations Office, from M. A. Wilson, Washington State Department of Ecology, Richland, Washington, January 6.

IHC-2006-0036, 2007, *Initial Hazard Categorization, D4 of Miscellaneous Buildings in the 100 Area (See Table1), Including Loading and Disposal of All Generated Waste,* Rev. 1, Washington Closure Hanford, LLC., Richland, Washington.

IHC-2006-0036, 2008, *Initial Hazard Categorization, D4 of Miscellaneous Buildings and Ancillary Structures in 100N Area (See Table 1), Including Loading and Disposal of All Generated Waste,* Rev. 2, Washington Closure Hanford, LLC., Richland, Washington.

IHC-2009-0006, 2009, *Deactivation, Decontamination, Decommissioning, and Demolition, D4, of Miscellaneous Buildings in the 400 Area,* Rev. 0, Washington Closure Hanford, LLC., Richland, Washington.

WCH-79, 2011, *Environmental Control Plan for 100-N D4/ISS Activities*, Rev. 5, Washington Closure Hanford, LLC., Richland, Washington.

WCH-102, 2006, *100 Area D4 Project Semi-Annual 2006 Building Completion Report August 2005-April 2006,* Rev. 0, Washington Closure Hanford, LLC., Richland, Washington.

WCH-185, 2007, *100 Area D4 Project Building Completion Report May 2006-June 2007,* Rev. 0, Washington Closure Hanford, LLC., Richland, Washington.

WCH-319, 2009, *100 Area D4 Project Building Completion Report – July 2007 to December 2008,* Rev. 0, Washington Closure Hanford, LLC., Richland, Washington.

WCH-402, 2010, *Environmental Control Plan for River Corridor General Decommissioning Activities*, Rev. 0, Washington Closure Hanford, LLC., Richland, Washington

WCH-410, 2010, *100 Area D4 Project Building Completion Report – December 2008 to December 2009,* Rev. 0, Washington Closure Hanford, LLC., Richland, Washington.

WCH-473, *100 Area D4 Project Completion Report January 1, 2010, to December 31, 2010,* Washington Closure Hanford, LLC., Richland, Washington.

WCH-523, 2012, *100 Area/400 Area D4 Project Completion Report January 1, 2011, to December 31, 2011,* Rev. 0, Washington Closure Hanford, LLC. Richland, Washington.

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