CWR-PFP-00007
Revision 0

PFP Security Buildings Demolition Report

As Left Characterization

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

Contractor for the U.S. Department of Energy
under Contract DE-AC06-08RL14788

P.O. Box 1600
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Terms

ACM	asbestos-containing material
ERDF	Environmental Restoration Disposal Facility
FHA	fire hazards analysis
PFP	Plutonium Finishing Plant
S&M	surveillance and maintenance

1 Introduction

The purpose of this document is to provide the as-left condition of the Plutonium Finishing Plant (PFP) security buildings and compile information relating to endpoint compliance consistent with DOE/RL-2015-62, *Plutonium Finishing Plant Endpoint Criteria Checklist for Seven Ancillary Buildings*.

The PFP security buildings (2701ZA, 2701ZC, 2701ZD, 2701ZE, and 2705Z) were designed to control access of personnel and materials into PFP. The PFP security buildings were part of the PFP Complex, located in the 200 West Area of the Hanford Site in Washington State, and they were removed under the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* removal actions. Work on 2701ZC and 2701ZE was performed in accordance with DOE/RL-2010-22, *Action Memorandum for General Hanford Site Decommissioning Activities*, and DOE/RL-2010-33, *Removal Action Work Plan for the Central Plateau General Decommissioning Activities*. Work on 2701ZA, 2701ZD, and 2705Z was performed in accordance with DOE/RL-2005-13, *Action Memorandum for the Plutonium Finishing Plant Above-Grade Structures Non-Time Critical Removal Action*. Work was implemented in accordance with DOE/RL-2005-15, *Removal Action Work Plan for Plutonium Finishing Plant Above Grade Structures Ancillary Facility Demolition*.

Demolition of the PFP security buildings occurred in 2010. Actions required to complete deactivation, decontamination, decommissioning, and demolition of the PFP security buildings to comply with the endpoint criteria defined in the HNF-22401, *Plutonium Finishing Plant (PFP) Complex End Point Criteria* (also referred to by document number NMS-16404) were evaluated and described in DOE/RL-2015-62. Additionally, HNF-22401 requires that pertinent information about the remaining slab be part of the final turn over package for transition to surveillance and maintenance (S&M).

2 Building Description

The buildings were located east of the PFP outer fence and provided access control to the PFP protected areas (Figure 1). Buildings 2701ZA, 2701ZD, and 2705Z were all constructed onsite using concrete cinderblocks. Building 2701ZE was a small prefabricated structure, and 2701ZC was built onsite with metal framework and enclosed using a weatherproof tarp. Demolition of the buildings was initiated in August 2010 and completed in September 2010.

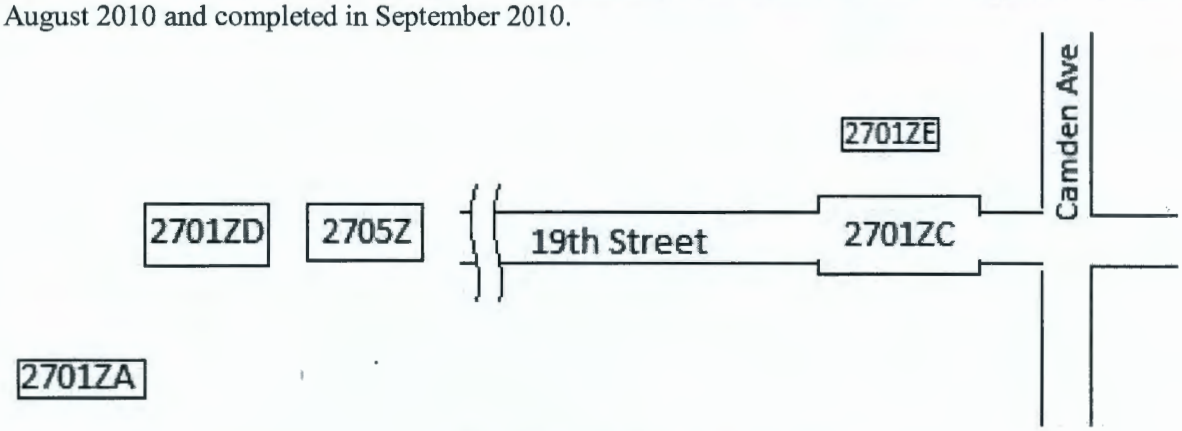

Figure 1. PFP Access Control

2.1 2701ZA Building

The 2701ZA Building (Figure 2), constructed in 1977, was approximately 1,300 ft^2. The building was located outside the PFP fenced area at longitude/latitude 119.63123/46.55144. The building was

constructed using concrete blocks for the walls, steel for the door and frames, and vinyl for the flooring. The 2107ZA Building was used by the security force as a central alarm monitoring station.

Figure 2. 2701ZA Building Before Demolition

2.2 2701ZD Building

Building 2701ZD (Figure 3), approximately 2,480 ft^2, was comprised of concrete walls with reinforced steel. The building, constructed in 1991, served as the PFP badge house. The building was located outside the PFP fenced area at longitude/latitude 119.63088/46.55156.

Figure 3. 2701ZD Building Before Demolition

2.3 2705Z Building

Building 2705Z (Figure 4) was approximately 1,100 ft^2 and constructed of steel with interior walls constructed of drywall on steel studs. The building, constructed in 1991, served as the PFP Operations Control Facility, which provided the first screening of personnel entering the PFP Complex. It also includes personnel monitors for logging in/out PFP personnel for accountability purposes required during emergencies. The building was located outside the PFP fenced area at longitude/latitude 119.63054/46.55152.

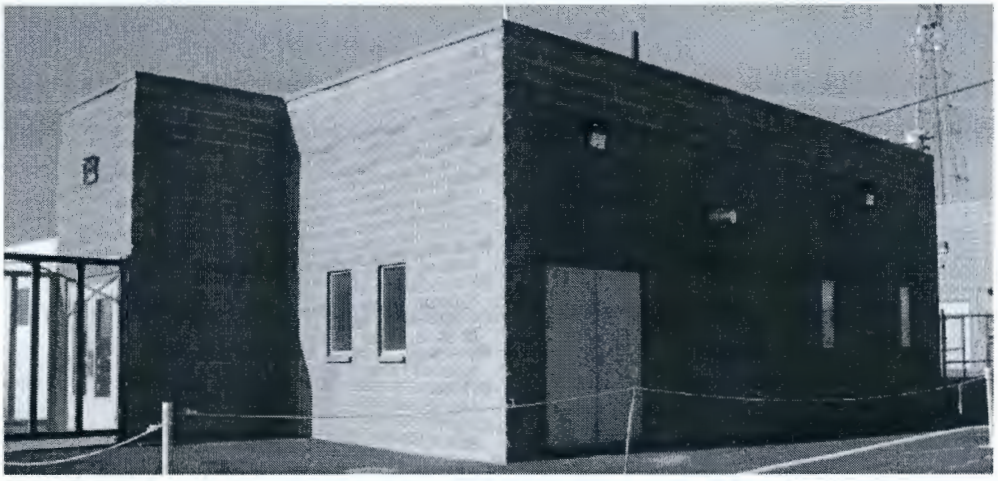

Figure 4. 2705Z Building Before Demolition

2.4 2701ZC Building

Building 2701ZC (Figure 5) was a large weather cover located next to Building 2701ZE and was used at the vehicle inspection portal to PFP. The building was located outside the PFP fenced area at longitude/latitude 119.62811/46.55156. The cover provided shelter for vehicles being inspected prior to PFP entry. Building 2701ZC was constructed of steel tubing formed to hold a canvas weather cover material. The structure, built in 2007, was anchored to the ground to stabilize it in the wind.

Figure 5. 2701ZC Building Before Demolition

2.5 2701ZE Building

Building 2701ZE (Figure 6) was a small wooden structure with an asphalt roof. The building was located outside the PFP fenced area at longitude/latitude 119.62815/46.55163. It was used by patrol personnel as a station for the vehicle preinspection building and was the control facility for the vehicle barrier located adjacent to the building. Building 2701ZE, constructed in 2007, was less than 100 ft^2.

Figure 6. 2701ZE Building Before Demolition

3 Demolition Preparation

Demolition of the buildings was performed under work package CP-10-02428, *2701ZA, ZC, ZD, ZE & 2705Z Demolition*. As part of the preparation for demolition, the buildings were characterized, electrically isolated, and cleaned out of hazardous materials. A predemoliton walkdown was performed to ensure that necessary predemolition actions were complete.

3.1 Predemolition Characterization

The buildings were characterized to prepare for demolition. The following aspects were subject to evaluation for the buildings (asbestos, waste disposal, radiological contamination, and beryllium hazards):

- A good faith inspection walkdown of the facilities was conducted prior to demolition (Appendix B).
- The buildings were characterized for radiological and chemical constituents based on process knowledge as documented in waste profile WPPFPAG001, which can be found in CWR-PFP-00007-ADD1, *PFP Security Buildings Endpoint Documentation*. Sealed sources and containerized radioactive material passed through the security portal, but radioactive material was not actively managed in the buildings. Predemolition surveys were performed and documented, indicating lack of radiological contamination. Copies of the predemolition surveys are attached to the work packages used to perform electrical and mechanical isolations for the various buildings.
- The buildings were characterized, based on process history, and were not considered beryllium buildings. A copy of the building beryllium assessment can be found in CWR-PFP-00007-ADD1.

The radiological, asbestos and beryllium evaluations found no evidence of radiological contamination, asbestos-containing material (ACM), or beryllium contamination associated with the buildings. Due to the complexity of the buildings, a radiological release evaluation was not completed and the material was not free released but managed as low radiological risk and disposed of at the Environmental Restoration Disposal Facility (ERDF).

3.2 Cold and Dark Process

As part of the cold and dark process in preparation for demolition of the buildings, electrical feeds to the buildings were isolated, air gapped, and sealed. The piping and drain to the lines beneath the buildings were plugged and grout filled. Results were documented in the Verifications of Hazardous Energy Isolation for each building (included in Appendix B). The cold and dark activities for each building were outlined in separate packages (identified in Appendix A), as well as in the referenced work package documents.

3.3 Demolition Preparation

Demolition preparation activities, performed in work package CP-10-02427, included removal of hazardous items summarized in the work packages. Predemolition preparations for each of the PFP security buildings were conducted between August 17, 2010 and September 10, 2010. Results of the walkdown were documented on a walkdown checklist to verify that predemolition conditions were met, including predemolition materials removal, adequate sealing of penetration, and preparations to support the removal were complete. A copy of the completed predemolition checklist is not available, but the author of this document participated in the walkdown.

3.4 Demolition and Document Review

Removal of the structures was uneventful. Demolition of buildings was initiated in August 2010 and completed in September 2010. Wastes associated with this demolition were characterized under waste profile WPPRCIF001 and disposed at ERDF. Waste materials from this demolition weighed approximately 9.0 tons.

4 As-Left Condition

This chapter summarizes the overall status of the site and provides pertinent information associated with the site.

4.1 As-Left Description

All buildings were left in a clean slab-on-grade condition with penetrations sealed.

4.1.1 2701ZA Building

The building was left in a clean slab-on-grade condition with all penetrations sealed (Figure 7).

Figure 7. 2701ZA Building After Demolition

4.1.2 2701ZC Building

The vehicle shelter frame over the roadway on 19th Avenue was removed (Figure 8).

Figure 8. 2701ZC Building After Demolition

4.1.3 2701ZD Building

The building was left in a clean slab-on-grade condition with all penetrations sealed (Figure 9).

Figure 9. 2701ZD Building After Demolition

4.1.4 2701ZE Building

The building was left in a clean slab-on-grade condition with all penetrations sealed (Figure 10).

Figure 10. 2701ZE Building After Demolition

4.1.5 2705Z Building

The building was in a clean slab-on-grade condition with all penetrations sealed (Figure 11).

Figure 11. 2705Z Building After Demolition

4.2 Key Documentation and Drawings

No drawings associated with either of the security buildings would be deemed "essential" or "support" drawings per engineering configuration management requirements. The following drawings could be considered historical information:

- H-2-27961, *Structural Foundation & Roof Framing Plans Sections & Details*, provides the details of 2701ZA remaining slab.
- H-2-81276, *Structural PFP Badgehouse Replacement Foundation Plan, Sect. and Det.'s*, provides the details of 2701ZD remaining slab.
- H-2-832902, *PFP Veh Insp Civil/Arch Plans & Elevs*, provides details regarding 2701ZE.
- H-2-82599, *Structural PFP Operations Control Facility Plan, Section and Details*, provides the details of 2705Z remaining slab.
- H-2-829507, *Civil Alignment C & E Plan & Profile*, provides the active sewer detail.
- H-2-82598, *Civil PFP Operations Control Facility Site Plan and Details*, provides 2705Z sewer detail.
- H-2-81273, *Civil PFP Badgehouse Replacement Site Plan*, provides 2705Z sewer detail.

4.3 Radiological and Hazardous Material Characterization

No radiological contamination above 10 CFR 835, "Occupational Radiation Protection," Appendix D, "Surface Contamination Values," levels was reported as a result of post-demolition surveys of the slabs. The buildings were evaluated for ACM by a certified inspector. Hazardous materials were removed prior to demolition. No hazardous material spills associated with the buildings were identified. No ACM was identified, but the report indicated that the roof of the oldest building (2701ZA) was not sampled because it could not be accessed. In the unlikely event that roofing material had ACM, it would have been Category I material unlikely to become friable during demolition.

4.4 Industrial Safety Hazards

No industrial hazards have been identified. No confined spaces were assigned to the building, but five confined spaces are associated with the electrical and sewer line for the facilities: one active manhole adjacent to the 2905Z slab, and four inactive confined spaces (CS-15, CS-48, CS-50 and C-51) (Figure 12).

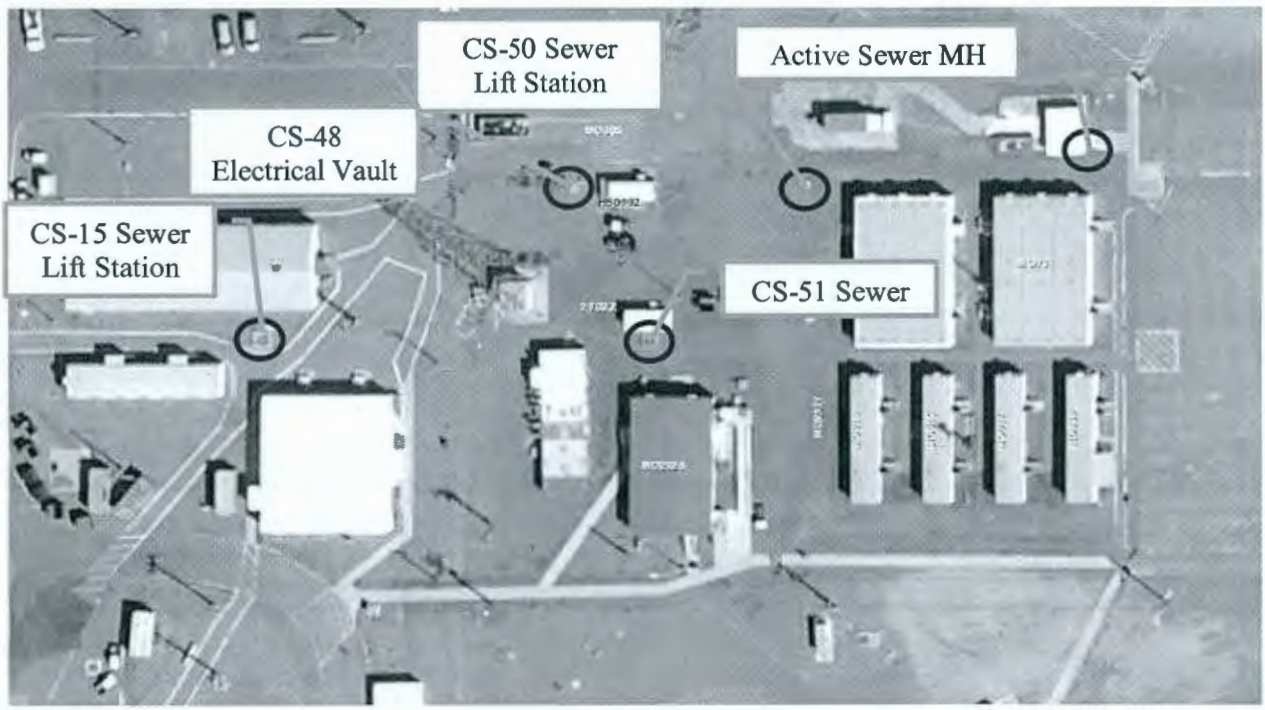

Figure 12. Sewer Manholes

4.5 Surveillance and Maintenance Considerations

No special requirements are identified.

4.6 Regulatory Information

There are no site specific regulatory requirements.

4.7 Endpoint Objectives

The 10 measurable objectives, outlined in section VI of HNF-22401 that define clean slab-on-grade objective, are evaluated in Table 1.

Table 1. Clean Slab-on-Grade Objectives

Objective	Status	Comment
Above-grade structures are removed.	Met	No comment
Below-grade portions of buildings will be emptied and stabilized.	Not applicable	None of the structure had below-grade areas
Buried pipes and ducts will be drained and sealed.	Met	Sanitary drain piping was sealed at the slab
The portion of concrete slab that is exposed to the weather will be free of dispersible radiological contamination.	Met	Slab was surveyed clean
The exposed surface of the slab will be free of tripping and puncture hazards.	Met	Vehicle traffic is flowing regularly over some of the slabs
The exposed surface of the slab will be suitable for exposure to the weather for at least 20 years.	Met	Concrete in good shape
Subsurface radiological areas will be posted per regulations.	Not required	Other than below-grade crib lines in the area, there is no need to post area
All penetrations through the slab (e.g., piping and conduits) will be sealed with grout or equivalent suitable for exposure to the weather for 20 years.	Met	Items were sealed at slab
All wastes are removed.	Met	No comment
No exposed surface soil contamination areas are allowed.	Met	No contamination in the area

4.8 Administrative Endpoints

Since the security buildings were located outside and on the edge of the PFP inner fence and demolition boundary, the slabs could be considered a final condition; administrative endpoints specified in HNF-22401 applicable to the security buildings were evaluated in Table 2, and applicable items are documented in the following section.

Table 2. Administrative Endpoint Review

Checklist Number	Item[a]	Description[a]	Status
Admin-1	Complete/close outstanding audit findings and occurrence reports.	A review of facility and site action tracking systems and open occurrence reports will be conducted and items will be addressed and closed.	Not applicable[b]

Table 2. Administrative Endpoint Review

Checklist Number	Item[a]	Description[a]	Status
Admin-2	Document configuration management performed in accordance with site standards.	The final configuration of the PFP Complex will be reviewed against controlled drawings to verify proper incorporation of structure and utility modifications/isolations.	Not applicable[b]
Admin-3	Provide essential drawings and a list of all facility drawings necessary for S&M.	This endpoint will be done in conjunction with the development of the draft S&M Plan. The essential drawing list will be updated to reflect the condition of the PFP Complex area at the end of the project. A separate list containing both the essential drawing and those required to support S&M.	See Section 4.2
Admin-4	Document remaining industrial hazards and compliance with industrial safety requirements.	This endpoint compiles the individual endpoints into one report reflecting the remaining industrial hazards.	Not applicable[b]
Admin-5	Document compliance with confined space program.	This endpoint compiles the individual endpoints into one report reflecting the remaining confined spaces.	Four sewer manholes and an electrical vault need to be addressed (see Section 4.4)
Admin-6	Document compliance with the asbestos program.	The post-demolition condition of the PFP Complex will be assessed for compliance with the site asbestos program.	See Section 4.3
Admin-7	Document amount and location of remaining hazardous substances and/or dangerous wastes.	This endpoint compiles the individual endpoints into one report reflecting the remaining hazardous substances/dangerous wastes.	See Section 4.3
Admin-8	Complete and provide current FHA.	An FHA will be completed reflecting the endpoint condition of the PFP Complex.	Not applicable[b]
Admin-9	Transfer facility physical property records.	The property records for the PFP Complex will be updated as the transition and dismantlement effort removes excess and or disposes of property.	The demolition status of the structures were documented via a Facility Status Change Form
Admin-10	Provide an S&M Plan.	The transition and dismantlement project/contractor has the historic and current knowledge of the PFP Complex. Therefore, they will develop a S&M Plan for the S&M organization. The oncoming project/contractor has the responsibility to release the S&M Plan under their document release procedures.	Not applicable[b]
Admin-11	Provide a current/updated building emergency plan.	The PFP Complex building emergency plan will be updated (or cancelled) to reflect the endpoint condition.	Not applicable[b]

Table 2. Administrative Endpoint Review

Checklist Number	Item[a]	Description[a]	Status
Admin-12	Provide S&M procedures and files.	Procedures utilized by the transition and dismantlement project/contractor to conduct S&M at the end of the project will be copied and placed in the completion package files.	Not applicable[b]
Admin-13	Provide identified regulatory commitments and regulatory documentation.	The transition and dismantlement project/contractor has the historic and current knowledge of the PFP Complex existing commitments and documentation. As such, the transition and dismantlement project/contractor will compile outstanding commitments and documentation to support the S&M organization to complete the commitments/documentation. These along with recently (within the last year of the project) completed commitments documentation (closure/completion letters) will be included in the completion package files.	Not applicable[b]
Admin-14	Transfer classified documents to repository.	All classified documents will be removed from the PFP Complex and placed in a site approved repository.	Not applicable[b]
Admin-15	Verify transition and dismantlement completion package contents are complete.	This is a final review of the document log for the completion package files. This will ensure the intended documentation provided in the files has not been removed or checked out and not returned.	Not applicable[b]
Admin-16	Provide existing regulatory permitting documentation.	The remaining regulatory permits and supporting documentation will be compiled and provided to the S&M organization.	Not applicable[b]
Admin-17	Compile available historical data including chemical and plutonium spills, holdup, releases, and constituents associated with building processing to support final remediation.	This endpoint is designed to capture useful information on the remaining structures/systems that has been kept by facility personnel (e.g., engineers, health physics, and operations) and is not available through other sources prior to their leaving the facility. This data will be compiled and placed in the completion package files. Documentation already maintained by the Hanford Site document control system and/or libraries will be referenced only.	See Section 4.3

a. Description is originated from HNF-22401, *Plutonium Finishing Plant (PFP) Complex End Point Criteria.*

b. These administrative criteria are not separately evaluated for the security buildings. All criteria will be addressed globally in the turnover package to Central Plateau S&M, and this document supports that evaluation.

FHA = fire hazards analysis

4.9 Endpoint Documentation

The endpoints applicable to the security buildings are addressed in Appendix A of CWR-PFP-00007-ADD1, and supporting documentation is provided in Appendix B of the addendum.

5 References

10 CFR 835, "Occupational Radiation Protection," Appendix D, "Surface Contamination Values," *Code of Federal Regulations*. Available at: http://www.gpo.gov/fdsys/pkg/CFR-2010-title10-vol4/xml/CFR-2010-title10-vol4-part835-appD.xml.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 USC 9601, et seq., Pub. L. 107-377, December 31, 2002. Available at: http://epw.senate.gov/cercla.pdf.

CWR-PFP-00007-ADD1, 2017, *PFP Security Buildings Endpoint Documentation*, Rev. 0, CH2M HILL Plateau Remediation Company, Richland, Washington.

DOE/RL-2005-13, 2005, *Action Memorandum for the Plutonium Finishing Plant Above-Grade Structures Non-Time Critical Removal Action*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: http://pdw.hanford.gov/arpir/pdf.cfm?accession=DA00914134.

DOE/RL-2005-15, 2005, *Removal Action Work Plan for Plutonium Finishing Plant Above Grade Structures Ancillary Facility Demolition*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: http://pdw.hanford.gov/arpir/pdf.cfm?accession=0084836.

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. Available at: http://pdw.hanford.gov/arpir/pdf.cfm?accession=0087977.

DOE/RL-2010-33, 2010, *Removal Action Work Plan for the Central Plateau General Decommissioning Activities*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: http://pdw.hanford.gov/arpir/pdf.cfm?accession=0084342.

DOE/RL-2015-62, 2015, *Plutonium Finishing Plant Endpoint Criteria Checklist for Seven Ancillary Buildings*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

H-2-27961, 1978, *Structural Foundation & Roof Framing Plans Sections & Details*, Rev. 1, Vitro Engineering Corporation, Richland, Washington.

H-2-81273, 1992, *Civil PFP Badgehouse Replacement Site Plan*, Rev. 1, Kaiser Engineers Hanford Company, Richland, Washington.

H-2-81276, 1992, *Structural PFP Badgehouse Replacement Foundation Plan, Sect. and Det.'s*, Rev. 1, Kaiser Engineers Hanford Company, Richland, Washington.

H-2-82598, 1992, *Civil PFP Operations Control Facility Site Plan and Details*, Rev. 1, Kaiser Engineers Hanford Company, Richland, Washington.

H-2-82599, 1992, *Structural PFP Operations Control Facility Plan, Section and Details*, Rev. 1, Kaiser Engineers Hanford Company, Richland, Washington.

H-2-829507, 1999, *Civil Alignment C & E Plan & Profile*, Rev. 1, Fluor Daniel Northwest, Inc., Richland, Washington.

H-2-832902, 2008, *PFP Veh Insp Civil/Arch Plans & Elevs*, Rev. 2, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

HNF-22401, 2004, *Plutonium Finishing Plant (PFP) Complex End Point Criteria* (also referred to as NMS-16404), Rev. 0, Fluor Hanford, Richland, Washington. Available at: http://pdw.hanford.gov/arpir/index.cfm/viewDoc?accession=D6455017.

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