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Revision 0

225WC 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

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P.O. Box 1600
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Approved for Public Release;
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Terms

ACM	asbestos-containing material
CERCLA	*Comprehensive Environmental Response, Compensation, and Liability Act of 1980*
FHA	Fire Hazards Analysis
PFP	Plutonium Finishing Plant
S&M	surveillance and maintenance
TEDF	Treated Effluent Disposal Facility

1 Introduction

The purpose of this report, supplemented by the associated addendum, is to provide information that will support the following activities:

- Document that the applicable actions required by HNF-22401, *Plutonium Finishing Plant (PFP) Complex End Point Criteria* (also referred to by document number NMS-16404), have been met.
- Prepare an overall turnover package documenting the "as-left" condition of the Plutonium Finishing Plant (PFP) site that will be transitioned to surveillance and maintenance (S&M).
- Develop a removal action report for the PFP *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA) removal action.
- Provide reference information for follow-on activities associated with the site.

This report describes the "as-left" condition of the 225WC Building slab and provides a summary of information relating to endpoint compliance consistent with overall objectives of HNF-22401. Additionally, HNF-22401 requires that relevant information about the remaining slab be part of the final turnover package for transition to S&M.

The 225WC Building was designed as a sampling facility for wastewaters from PFP that discharged via pipeline to the Treated Effluent Disposal Facility (TEDF). The 225WC Building was part of the PFP Complex located in the 200 West Area of the Hanford Site in Washington State and was removed under a CERCLA removal action authorized by 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-2011-03, *Removal Action Work Plan for the Deactivation, Decontamination, Decommissioning, and Demolition of the Plutonium Finishing Plant Complex*.

Demolition of the 225WC Building occurred in June 2016. Actions required to complete deactivation, decontamination, decommissioning, and demolition of 225WC to comply with the endpoint criteria evaluated and described in DOE/RL-2015-62, *Plutonium Finishing Plant Endpoint Criteria Checklist for Seven Ancillary Buildings*, are discussed and documented in the addendum to this document, CWR-PFP-00001-ADD1, *225WC Endpoint Documentation*.

The 225WC Building (Figure 1) was a pre-engineered 280 ft^2 building (approximately 20 by 14 ft) with fabricated steel walls and roof built onsite in 1994. The building was located outside the PFP fenced area at longitude/latitude 119.62954/46.54899. The 225WC Building was used to support PFP wastewater discharge to TEDF by verifying that all wastewater met TEDF waste disposal criteria. During the operation of the facility, no elevated radionuclide levels were detected. All that remains of the 225WC Building is the slab, which is approximately 20 by 18 ft (Figures 2 and 3) including the front apon.

Figure 1. 225WC Building Before Demolition

Figure 2. 225WC Building Slab Next to TEDF Manhole 4

Figure 3. 225WC Building Slab As-Left Condition

2 Demolition Preparation

The preparation for and demolition of the 225WC Building was performed under work package 2Z-16-0091, "Isolate and Demolish Building 225WC." As part of demolition preparation, the building was characterized, electrically isolated, and hazardous materials removed. A pre-demolition walkdown was performed to ensure necessary pre-demolition actions were complete.

2.1 Characterization

The building was characterized as part of demolition preparation. The following reports were prepared to document the evaluation of the building for asbestos, waste disposal, radiological contamination, and beryllium hazards:

- CHPRC-02853, *Asbestos NESHAP Thorough Inspection Report at 225-WC*
- CHPRC-02824, *Evaluation of Chemical Content in Rubble from 2735-Z, 225-WC, and MO-671 Demolition*
- Auxiliary Buildings Radiological Characterization Summary Report, Building 225WC (included in CWR-PFP-00001-ADD1 and as an attachment to work package 2Z-16-0091).
- Beryllium verification report for 225WC, dated May 31, 2016 (included in CWR-PFP-00001-ADD1 and as an attachment to work package 2Z-16-0091).

The radiological, asbestos, and beryllium evaluations found no evidence of radiological contamination, asbestos-containing material (ACM), or beryllium contamination associated with the 225WC Building. The rubble evaluation identified some pre-demolition materials to be addressed (i.e., refrigerant and light bulbs that were removed from the area prior to demolition). No residual radiological, chemical, asbestos, or beryllium hazards associated with remaining exposed slab have been identified.

2.2 Cold and Dark Process

As part of the cold and dark process in preparation for demolition of the building, electrical feeds to the building were isolated, air gapped, and sealed. In addition, the piping and drain to the TEDF line beneath the building were plugged and filled with grout. The process was documented in work package 2Z-16-0091 and is summarized in CWR-PFP-00001-ADD1.

2.3 Pre-Demolition Walkdown

A pre-demolition walkdown of the 225WC Building was conducted on June 2, 2016. The results of the walkdown were documented on a walkdown checklist to verify that the pre-demolition conditions were met, including pre-demolition material removal, adequate sealing of penetrations, and completion of preparations to support the removal. A copy of the completed pre-demolition checklist is provided in Appendix B of CWR-PFP-00001-ADD1 and was included as an attachment to work package 2Z-16-0091.

2.4 Demolition, Post-Demolition Walkdown, and Document Review

A post-demolition walkdown was conducted to assure final conditions meet endpoint requirements. A copy of the completed post-demolition walkdown checklist is provided in CWR-PFP-00001-ADD1.

3 Endpoint

Section VI of HNF-22401 contains project transition objectives to be achieved and administrative requirements to be achieved for final project turnover to S&M.

3.1 Endpoint Objectives

The "clean slab-on-grade" objective was described in 10 measurable objectives outlined in Section VI of HNF-22401. The completion of the 10 items, as applicable, was evaluated and reviewed during the post-demolition walkdown of the site. Post-demolition punchlist items documented on the post demolition walkdown checklist were addressed and appropriately dispositioned. The applicability and status of these objectives are discussed in Chapter 4.

3.2 Endpoint Checklist Documentation

CWR-PFP-00001-ADD1 provides the transition endpoint checklist documentation associated with the 225WC Building. Appendix A of CWR-PFP-00001-ADD1 contains the information from requirements of Table 3-1 in DOE/RL-2015-62 and identifies how completion of each applicable criterion was documented. Appendix B of CWR-PFP-00001-ADD1 provides supporting documentation.

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

The 225WC slab was left in a clean slab-on-grade condition (Figure 4).

Figure 4. 225WC Building Slab Piping Sealed Area with Belowgrade Radiological Posting

4.1.1 Key Documentation and Drawings

No drawings associated with the 225WC Building are considered "essential" per current engineering configuration management requirements.

Because of the relationship of the 225WC Building to the active TEDF system, drawing H-2-140336, sheet 1, Rev. 3, *CIVIL LINE C STA 0-34.22 TO STA 8+51.54*, as modified by ECR-16-000066, *Isolate building 225-WC (Water Closet)*, which provides the detail of the remaining slab and belowgrade piping, could be considered a "support" drawing.

Note: Drawing H-2-140336, sheet 1, is by the Tank Farm contractor, due to the transfer of responsibility for the TEDF.

4.1.2 Site Radiological and Hazardous Material Characterization

There is no history of spills, releases, or identified radiological or chemical hazards associated with the site. The pre-demolition radiological, asbestos, and beryllium evaluations found no evidence of radiological contamination, ACM, or beryllium contamination. In accordance with the pre-demolition waste planning evaluation (CHPRC-02824), hazardous materials (e.g., refrigerant and light bulbs) were removed from the area prior to demolition. Data from the Hanford Environmental Information System database for TEDF water samples taken in the 225WC Building were reviewed, and all results were within radiological drinking water limits. The TEDF pipeline is labeled as potentially radioactively contaminated due to historical contamination in upstream piping.

4.1.3 Industrial Safety Hazards

As discussed in Section 4.1.4, the TEDF manholes adjacent to the site represent a confined space hazard. These confined spaces are properly marked and are currently managed under the PFP confined space program. A post-demolition walkdown issue of potential puncture hazards associated with items protruding from the slab was identified and addressed prior to package closeout.

4.1.4 Surveillance and Maintenance Considerations

At the time of this report, steam condensate and some surface drains continue to discharge to TEDF. The TEDF manholes (MH-3 and MH-4) adjacent to the slab (Figure 5) remain accessible and managed under the PFP confined space program to support maintenance and sampling of the active TEDF system. The area around the 225WC is considered an underground material radioactive area, due to adjacent waste sites and the TEDF line beneath the slab. The manholes remain active and are properly posted in accordance with the site confined space requirements, as shown in Figure 5. Final disposition of the manholes is deferred to overall endpoint administrative checklist item 5, which addresses remaining confined spaces.

Figure 5. TEDF Manholes 3 and 4

4.1.5 Regulatory Information – TEDF Interface Agreement

Interface agreement HNF-SD-W049H-ICD-001, *200 Area Treated Effluent Disposal Facility Interface Control Document*, defines the requirements and responsibilities for all parties supporting 200 Area TEDF operation. This agreement is used to manage effluents to meet requirements of 12-NWP-090, "*State Waste Discharge Permit Number ST0004502* (200 Area Treated Effluent Disposal Facility)".

4.2 Endpoint Objectives

The 10 measurable objectives outlined in Section VI of HNF-22401 that define the "clean slab-on-grade" objective reviewed as part of the post demolition walkdown and are discussed in Table 1.

Table 1. Clean Slab-on-Grade Objectives

Objective	Status	Comment
Abovegrade structures are removed.	Met	No comment.
Belowgrade portions of buildings will be emptied and stabilized.	Not applicable	Not applicable.
Buried pipes and ducts will be drained and sealed.	Met	Piping to the TEDF line has been drained and sealed.
The portion of concrete slab that is exposed to the weather shall be free of dispersible radiological contamination.	Met	Slab should be outside PFP demo zone.
The exposed surface of the slab shall be free of tripping and puncture hazards.	Met	Items identified in the walkdown were addressed.
The exposed surface of the slab shall be suitable for exposure to the weather for at least 20 years.	Met	Slab should be outside PFP demo zone.
Subsurface radiological areas will be posted per regulations.	Met	Posting due to TEDF drain.
All penetrations through the slab (e.g., piping, conduits) shall be sealed with grout or equivalent suitable for exposure to the weather for 20 years.	Met	No comment.
All wastes are removed.	Met	No comment.
No exposed surface soil contamination areas are allowed.	Met	No comment.

TEDF = Treated Effluent Disposal Facility

4.3 Administrative Endpoint Review

The administrative endpoints specified in HNF-22401 will be formally evaluated for the overall project at the end of the project. To facilitate the formal evaluation, the administrative endpoints applicable to the 225WC Building were reviewed (Table 2) to ensure applicable documentation is available for this review.

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].
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.	The drawing identified in Section 4.1.1 of this document is currently the responsibility of the Tank Farm contractor.
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 4.1.1 of this document for the applicable drawings to be included.
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.	Remaining hazards are addressed by Admin-5.
Admin-5	Document compliance with confined space program.	This endpoint compiles the individual endpoints into one report reflecting the remaining confined spaces.	See Section 4.1.3 of this document for a discussion of active TEDF manholes 3 and 4 next to the 225WC slab.
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.	No asbestos; see Section 4.1.2 of this document.
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.	No hazardous substances; see Section 4.1.2 of this document.
Admin-8	Complete and provide current Fire Hazards Analysis (FHA).	An FHA will be completed reflecting the endpoint condition of the PFP Complex.	Not applicable[b].

Table 2. Administrative Endpoint Review

Checklist Number	Item[a]	Description[a]	Status
Admin-9	Transfer facility physical property records.	The property records for the PFP Complex will be updated as the transition & dismantlement effort removes excess and or disposes of property.	The demolition status of the facility will be documented via a Facility Status Change Form.
Admin-10	Provide a Surveillance & Maintenance Plan (S&M).	The transition & dismantlement project/contractor has the historic and current knowledge of the PFP Complex. Therefore, they will develop a S&M Plan for the Surveillance and Maintenance 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 end point condition.	Not applicable[b].
Admin-12	Provide S&M procedures and files.	Procedures utilized by the transition & dismantlement project/contractor to conduct surveillance and maintenance at the end of the project will be copied and placed in the completion package files.	Applicable if TEDF drains remain operational. See Section 4.1.4 of this document.
Admin-13	Provide identified regulatory commitments and regulatory documentation.	The transition & dismantlement project/contractor has the historic and current knowledge of the PFP Complex existing commitments and documentation. As such, the transition & 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.	See Section 4.1.5 of this document.
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 have 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.	See Section 4.1.5 of this document.

Table 2. Administrative Endpoint Review

Checklist Number	Item[a]	Description[a]	Status
Admin-17	Compile available historical data including chemical and plutonium spills, holdup, releases, and constituents associated with building processing to support final remediation.	This end point is designed to capture useful information on the remaining structures/systems that has been kept by facility personnel (i.e., engineers, health physics, 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.	No history of spills at 225WC. See Section 4.1.2 of this document.

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

b. These administrative criteria are not separately evaluated for 225WC. All criteria will be addressed globally in the turnover package to Central Plateau S&M, and this documents supports that evaluation.

PFP = Plutonium Finishing Plant

S&M = surveillance and maintenance

TEDF = Treated Effluent Disposal Facility

4.4 Observations and Lessons Learned

The deactivation and demolition was routine. Removal of the structure was uneventful.

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