

232Z Demolitions 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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Terms

CERCLA	<i>Comprehensive Environmental Response, Compensation, and Liability Act of 1980</i>
FHA	fire hazards analysis
HVAC	heating, ventilating, and air conditioning
PCB	polychlorinated biphenyl
PFP	Plutonium Finishing Plant
S&M	surveillance and maintenance

1 Introduction

The purpose of this report 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 232Z Waste Incinerator Facility. This report provides a summary of information relating to endpoint compliance consistent with the overall objectives of HNF-22401, which requires that relevant information about the remaining slabs be part of the final turnover package for transition to S&M.

The 232Z Waste Incinerator Facility recovered residual plutonium through leaching and incineration of contaminated waste scrap material. The 296Z014 exhaust stack provided ventilation for the building. The 232Z structures were part of the PFP Complex located in the 200 West Area of the Hanford Site in southeastern Washington State and were removed under separate CERCLA removal actions. Work on the 232Z structures was performed in accordance with 04-AMCP-0486, “Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Non-Time Critical Removal Action Memorandum for Removal of the 232Z Waste Incinerator Facility at the Plutonium Finishing Plant.” Work was implemented in accordance with DOE/RL-2004-61, 2004, *Removal Action Work Plan (RAWP) for the 232-Z Contaminated Waste Recovery Facility*.

2 Facility Description

The 232Z structure was in the southwest portion of the PFP Complex, near the location of the 2736ZB and 2736ZC structures (Figure 1).

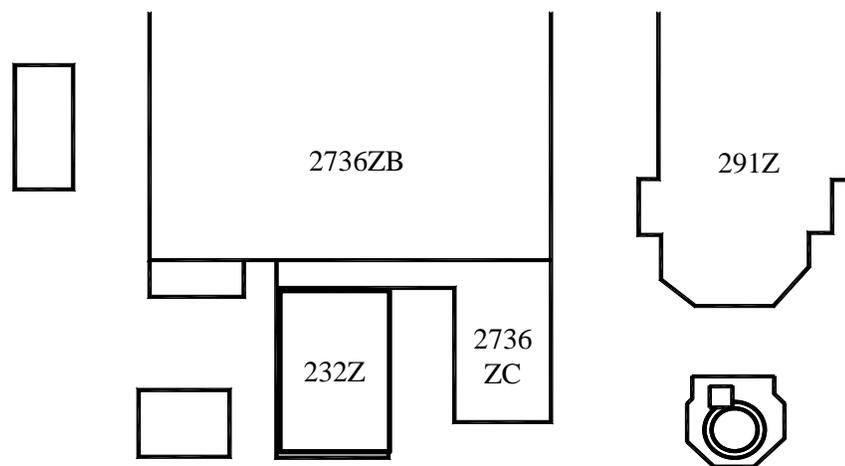
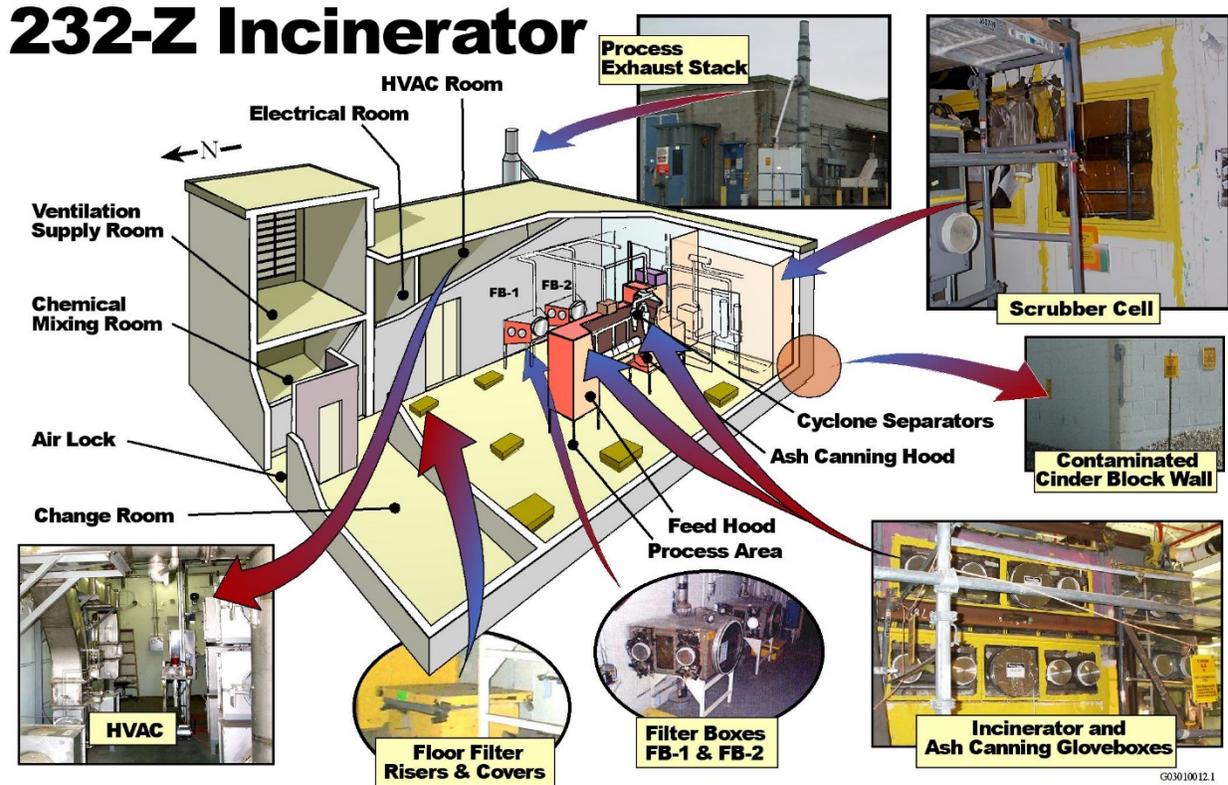


Figure 1. 232Z Slab Location

The 232Z Building was designed and built during the late 1950s and early 1960s to house a combustible waste incinerator. The building was approximately 11.3 m (37 ft) wide and 17.4 m (57 ft) long. It is a single story, over the process and storage areas, with two stories over the service areas at the north end. The walls are cinder block construction; the two roofs are 4.6 m (15 ft) and 5.8 m (19 ft), respectively, above-grade. They were constructed of concrete over metal decking with insulation and built-up asphalt covering. The 232Z Building is divided into functional areas, including the Process Room and Chemical Mixing Rooms, and the Storage, Change, Ventilation Supply, and Electrical Rooms (Figure 2).



HVAC = heating, ventilating, and air conditioning

Figure 2. 232Z Building Cutaway

Figures 3 and 4 show the 232Z Building and associated 296Z014 stack before and after demolition. Subsequent demolition of the 2736ZB and 2736ZC Buildings is addressed in CWR-PFP-00006, *2736Z Complex Demolition Report*.



Figure 3. 232Z Building and 296Z014 Stack Before Demolition



Figure 4. 232Z Slab

3 Demolition Documentation

The purpose of this section is to summarize the documentation associated with this removal action.

3.1 Endpoint Documentation

Endpoint completion and associated documentation for 232Z were addressed and compiled in HNF-29916, *232-Z Facility End Points Completion Document*. All applicable endpoints were addressed except for endpoint 17. The final sealing of the slab with material having a 20-year life was deferred to the PFP yard closure. Additionally, while the below-grade ducting from 232Z to 291Z was characterized, isolated, and grout filled up to 291Z, the disposition of the 232Z ducting in 291Z (shown in Figure 5) that was included in the original scope associated with 232Z, was deferred to the PFP removal action per 06-AMCP-0270, "Completion of Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) Interim Milestone M-083-40, "Complete Transition and Dismantlement of the 232Z Building Incinerator," due September 30 2006."

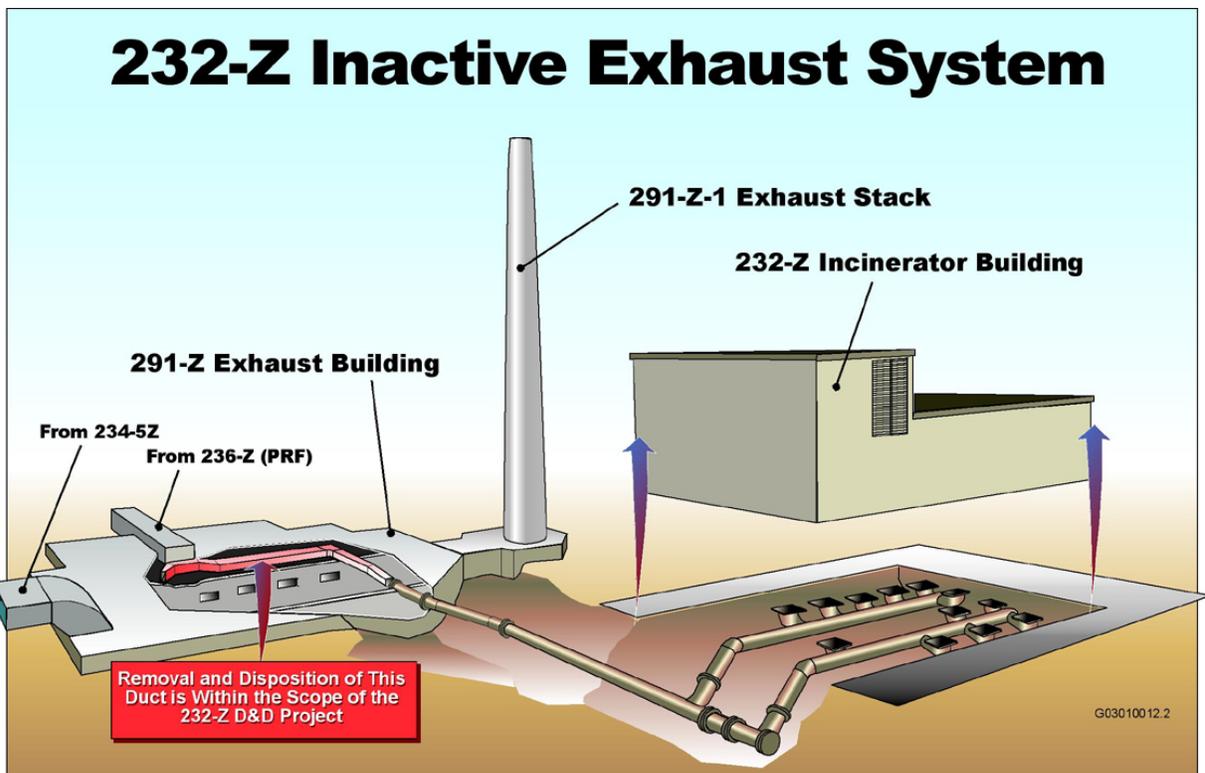


Figure 5. 232Z Inactive Exhaust System

3.2 Characterization

Although characterization information associated with the remaining 232Z slab was included in HNF-29916, as documentation of endpoint completion, CWR-PFP-00011-ADD1, *232Z Building Final Slab-on-Grade Characterization Report*, contains a copy of a letter report (M2300-06-010, *232-Z Building Final Slab-On-Grade Characterization Report*), which details the contamination left in the slab and in the below-grade duct.

3.3 Post-Demolition Stabilization

Fixative was applied to the 232Z Building slab (Figure 6), and it has been covered with gravel (Figure 7).



Figure 6. 232Z Slab with Fixative Applied



Figure 7. 232ZA Facility Slab As-Left Condition

3.4 Construction Completion Report

Completion of the activities under the CERCLA removal action was documented in HNF-31158, *232-Z Waste Incineration Building Removal Action Construction Completion Report*.

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 232Z slabs were left with fixative applied and covered with gravel (Figures 5 and 6). Buried line isolations were sealed at the slab boundaries; the below-grade duct between the slab and the 291Z Building was grout filled.

4.1.1 Key Documentation and Drawings

No drawings associated with the 232Z Building would be deemed essential or support drawings per current engineering configuration management requirements. H-2-23102, *Structural Foundation Plan and Details*, and H-2-23120, *Ventilation Exhaust Duct Details*, could be considered as information for future action. H-2-80191, *Piping Plan and Detail*, provides piping detail associated with the scrubber drain line out toward 241Z isolation valve.

4.1.2 Site Radiological and Hazardous Material Characterization

The remaining slab has fixed radiological contamination in the process areas. The highest radiological contamination is in the southwest corner where the scrubber cell was located. Hazardous materials associated with the slab, based on paint sample analysis, were arsenic, barium, beryllium, cadmium, lead, mercury, selenium, silver, and polychlorinated biphenyls (PCBs). Detailed radiological characterization is provided in CWR-PFP-00011-ADD1. The characterization report also indicated that the contaminated waste pipe that went from the scrubber cell to isolation valves near 241Z was drained to the extent possible from within the 232Z Building. Analysis of the liquid removed from the line detected americium-241 at a concentration of 3.8 E-04 micro Curies per milliliter with a neutral pH. PCBs were detected at approximately 23 micrograms per liter.

4.2 Endpoint Objectives

Table 1 evaluates the 10 measurable objectives outlined in Section VI of HNF-22401 that define the clean slab-on-grade objective.

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	No below-grade portions
Buried pipes and ducts will be drained and sealed.	Met	Below-grade duct grout filled and all piping penetrations sealed at the slab
The portion of concrete slab that is exposed to the weather will be free of dispersible radiological contamination.	Met; Subject to Change	The slab is near the 291Z demolition zone and will need further evaluation
The exposed surface of the slab will be free of tripping and puncture hazards.	Met	No comment

Table 1. Clean Slab-on-Grade Objectives

Objective	Status	Comment
The exposed surface of the slab will be suitable for exposure to the weather for at least 20 years.	Not met	Deferred to PFP yard closure
Subsurface radiological areas will be posted per regulations.	Met	Posted as part of the PFP fenced 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	No comment
All wastes are removed.	Met	No comment
No exposed surface soil contamination areas are allowed.	Met	No comment

4.3 Administrative Endpoint Review

The administrative endpoints specified in HNF-22401 will be formally evaluated for the overall project at completion. To facilitate the formal evaluation, the administrative endpoints applicable to the 232Z Complex were reviewed (Table 2) to ensure that 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.	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.	Not applicable ^b .
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.	Not applicable ^b .

Table 2. Administrative Endpoint Review

Checklist Number	Item ^a	Description ^a	Status
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.	Asbestos items were abated prior to demolition. Below-grade piping and ducting remaining is transite.
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 4.1.2.
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 disposes of property.	Not applicable ^b .
Admin-10	Provide an S&M Plan.	The transition and dismantlement project/contractor has the historic and current knowledge of the PFP Complex and will develop an 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 .
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.	Installation of a final contamination control cap for the 232Z slab and disposition of the 232Z duct in the 291Z Building were transferred to the PFP CERCLA action. See Section 3.1.
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 .

Table 2. Administrative Endpoint Review

Checklist Number	Item ^a	Description ^a	Status
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.	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 (i.e., 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 4.2.

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

b. These administrative criteria are not separately evaluated for 232Z. 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

5 References

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