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# Environmental Assessment

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Deactivation of the Plutonium Finishing Plant, Hanford Site,  
Richland, Washington

U.S. Department of Energy  
Richland Operations Office  
Richland, Washington 99352

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**GLOSSARY****Acronyms and Initialisms**

ALARA	As low as reasonably achievable
CERCLA	<i>Comprehensive Environmental Response, Compensation, and Liability Act of 1980</i>
CFR	Code of Federal Regulations
CX	categorical exclusion
D&D	decontamination and decommissioning
DNFSB	Defense Nuclear Facility Safety Board
DOE	U.S. Department of Energy
DOE-RL	U.S. Department of Energy, Richland Operations Office
DOT	U.S. Department of Transportation
EA	environmental assessment
EE/CA	engineering evaluation/cost assessment
EIS	environmental impact statement
ERDF	Environmental Restoration Disposal Facility
FR	Federal Register
IPMP	integrated project management plan
LCF	latent cancer fatality
NDA	nondestructive assay
NEPA	<i>National Environmental Policy Act of 1969</i>
PFP	Plutonium Finishing Plant
PNNL	Pacific Northwest National Laboratory
POC	pipe overpack container
ROD	record of decision
S&M	surveillance and maintenance
SA	supplement analysis
SHPO	State Historic Preservation Office
Tri-Party Agreement	<i>Hanford Federal Facility Agreement and Consent Order</i>
WAC	Washington Administrative Code
WIPP	Waste Isolation Pilot Plant

## DEFINITIONS

The following definitions are found in the *Hanford Federal Facility Agreement and Consent Order* (Ecology et al. 1996).

**Deactivation:** Activities associated with removing facility systems and/or areas from operational service with the intent of being ready for facility transition to either convert the facility for another use or move to permanent shutdown. These activities could include the removal of fuel, draining and/or de-energizing of systems, removal of accessible stored radioactive and hazardous materials and other actions to place the facility systems and/or areas in a safe and stable condition so that a surveillance and maintenance program will be able to most cost effectively prevent any unacceptable risk to the public or the environment until ultimate disposition of the facility. (Note: These activities are usually conducted during the facility transition phase.)

**Decontamination and Decommissioning (D&D)**-(as defined by DOE Order 5840.2 for the D&D Program):

- **Decontamination:** The process of removing radioactive and/or hazardous contamination from facilities, equipment, or soils by physical removal, washing, heating, chemical action, mechanical cleaning or other techniques to achieve a stated objective or end condition.
- **Decommissioning:** Actions taken to reduce the potential health and safety impacts of U.S. Department of Energy (DOE) contaminated facilities, including activities to stabilize, reduce, or remove radioactive materials or to demolish the facilities.

**Dismantlement:** The process of disassembly and/or demolition of all or portions of a facility, and appropriate disposal of the residue.

**Facility Transition Phase:** A period of time during which activities necessary to place the subject facility in a safe, stable, and environmentally sound condition, suitable for an extended period of surveillance and maintenance pending final disposition are completed. Facility transition starts with termination of operations, includes the establishment of a surveillance and maintenance (S&M) program, and ends with the achievement of facility-specific end point criteria.

These actions could include the collective conversion of the facility for potential other uses or permanent shutdown; by the removal of fuel, draining and/or de-energizing of systems, removal of accessible stored radioactive and hazardous materials and other deactivation actions to place the facility in a safe and stable condition for the surveillance and maintenance program. This phase usually involves stabilization and deactivation processes and may also include some decontamination activities necessary to effectively result in reduced S&M cost for the facility. (Note: Facility transition documentation describing end point criteria for regulated units and hazardous substances that will remain in the facility following transition will be approved by the regulators.)

**Stabilization:** In this environmental assessment, stabilization is the process of stabilizing plutonium-bearing materials to the current DOE plutonium packaging standard, *Criteria for Safe Storage of Plutonium Metals and Oxides* (DOE-STD-3013-96).

**METRIC CONVERSION CHART**

If you know	Multiply by	To get
<b>Length</b>		
centimeters	0.39	inches
meters	3.28	feet
kilometers	0.54	nautical miles
kilometers	0.62	statute miles
<b>Area</b>		
square kilometers	0.39	square miles
<b>Mass (weight)</b>		
grams	0.035	ounces
kilograms	2.2	pounds
kilograms	0.001	metric tons (tonnes)
metric tons (tonnes)	0.984	tons (long)
<b>Volume</b>		
liters	0.264	gallons
cubic meters	1.31	cubic yards

Source: CRC Handbook of Chemistry and Physics, Robert C. Weast, Ph.D., 70th Ed., 1989-1990, CRC Press, Inc., Boca Raton, Florida.

**SCIENTIFIC NOTATION CONVERSION CHART**

Multiplier	Equivalent
$10^{-1}$	0.1
$10^{-2}$	0.01
$10^{-3}$	0.001
$10^{-4}$	0.0001
$10^{-5}$	0.00001
$10^{-6}$	0.000001
$10^{-7}$	0.0000001
$10^{-8}$	0.00000001

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## 1.0 PURPOSE AND NEED FOR AGENCY ACTION

The U.S. Department of Energy (DOE) needs to transition the Plutonium Finishing Plant (PFP) complex in the 200 West Area of the Hanford Site to a state of low-risk, low-cost, long-term surveillance and maintenance pending final disposition. The purpose of this transition is to mitigate radiological and chemical hazards associated with structures (and any remaining processing equipment and ancillary hardware) in the PFP Complex such that the PFP Complex's main plutonium processing structures would be ready for final disposition to be determined under the *Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980*.

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## 2.0 BACKGROUND

The PFP Complex is located on the Hanford Site in the 200 West Area (Figure 1), approximately 51 kilometers (32 miles) northwest of Richland, Washington. Construction of the PFP Complex started in 1947, and production of plutonium metal began in July 1949. Production operations stopped in 1989. The PFP Complex consists of processing, support, and administrative buildings occupying approximately 23 hectares (58 acres). Additional description of the PFP Complex is provided in Appendix A of DOE/EIS-0244-F, *Plutonium Finishing Plant Stabilization Final Environmental Impact Statement* (PFP EIS). A detailed layout of the PFP Complex is provided in Figure 2.

### 2.1 FACILITY BACKGROUND

The PFP Complex was used to conduct plutonium processing, storage, and support operations for national defense. Those operations included the following:

- Special nuclear material handling and storage
- Plutonium recovery
- Plutonium conversion
- Laboratory support
- Waste handling
- Shutdown and operational facility surveillances.

As a result of plutonium processing activities, the PFP Complex contained an inventory of approximately 3,600 kilograms (7,900 pounds) of a variety of reactive plutonium-bearing materials. For analysis in the PFP EIS, the reactive materials were grouped into the following four inventory categories.

- (1) Plutonium-bearing solutions
- (2) Oxides, fluorides, and process residues
- (3) Metals and alloys
- (4) Polycubes and combustibles.

In addition to the listed plutonium-bearing materials, the PFP Complex contains approximately 50 kilograms (110 pounds) of plutonium-bearing materials in systems (e.g., ventilation, process equipment, piping, walls, floors, etc.). This material accumulated gradually over approximately 40 years of processing; the accumulated material is referred to as hold-up material.

During the early 1990's, DOE authorized a number of equipment, instrumentation, and containment upgrades in the PFP Complex in preparation to stabilize remaining plutonium-bearing materials. In the mid-1990s, several "interim stabilization" measures were developed and completed, including thermal stabilization of some plutonium-bearing materials, removing plutonium-contaminated equipment to reduce dose, and remediating nearby soils, trenches, and sumps.

In October 1996, the DOE issued a shutdown order that stated the operation of the PFP Complex as a production processing facility was no longer required and directed U.S. Department of Energy, Richland Operations Office (DOE-RL) to "initiate deactivation and the transition of the PFP in preparation for decommissioning" (Ahlgrimm 1996). In 1996, planning was initiated for integrating deactivation activities with the ongoing plutonium-bearing material stabilization activities to transition the PFP Complex into a

low-risk/low-cost surveillance and maintenance condition. In 1997, the *PFP Deactivation Project Management Plan* (HNF-SD-CP-PMP-008) was issued. This document established a deactivation sequence for the PFP Complex. This plan called for transitioning PFP processing facilities to a deactivated state with vault de-inventory to be completed by 2029 and demolition to be completed by 2038. Subsequent to issuance of this plan, DOE-RL instructed PFP to find a more cost-effective plan that would support acceleration of the Hanford Site cleanup.

In November 1997, an alternate transition concept was presented to the Hanford Site Advisory Board. This alternative called for the PFP Complex to be deactivated, including vaults being de-inventoried, by 2014 and the process and vault facilities to be transitioned to a dismantled state by 2016. The dismantlement end point would be removal of abovegrade structures to the first floor concrete slab (slab-on-grade). The remaining concrete slab and belowground structures, utilities, and systems would be transferred to the deactivation and decommissioning Surveillance and Maintenance Program pending final disposition.

Current PFP Complex transition planning is provided in HNF-3617, Revision 1, *Integrated Project Management Plan for the Plutonium Finishing Plant Nuclear Material Stabilization Project*, which was issued in 2001. This integrated project management plan (IPMP) focuses on special nuclear material stabilization and packaging activities required in the Defense Nuclear Facilities Safety Board (DNFSB) 94-1/2000-1 *An Implementation Plan for Stabilization and Storage of Nuclear Material* and the initiation of more detailed deactivation planning for transition of the facilities in the PFP Complex to a low-risk/low-cost surveillance and maintenance condition. Stabilization and packaging activities associated with DNFSB 94-1/2000-1 are scheduled to be completed by May 2004.

## 2.2 ENVIRONMENTAL DOCUMENTATION

In 1995, the environmental impacts of stabilizing the four groups of plutonium-bearing materials and cleaning out hold-up material from four systems (i.e., gloveboxes and hoods, ductwork, process piping vacuum system, and the Plutonium Reclamation Facility canyon floor within the 234-5Z and 236-Z Buildings) were analyzed in the PFP EIS. Materials either could be packaged for storage in the existing PFP Complex vaults or for transfer to an onsite waste management facility for storage. The PFP EIS was issued in May 1996; a Record of Decision (ROD) was issued in July of 1996 (61 FR 36352, July 10, 1996). As a result of the ongoing stabilization activities analyzed in the PFP EIS and subsequent supplement analyses, approximately 3,600 kilograms (7,900 pounds) of plutonium-bearing materials will be packaged for storage in the PFP Complex vaults and/or disposal.

To accelerate deactivation of the PFP Complex, facilities that no longer have a viable mission have been identified and are undergoing deactivation in parallel with ongoing plutonium-bearing material stabilization and cleanout activities. These facilities are the 232-Z, 241-Z, and ancillary buildings (listed in Appendix A). The scope of these accelerated deactivation activities was addressed in the following categorical exclusions (CXs):

- *Categorical Exclusion for Transition of the 232-Z Contaminated Waste Recovery Facility at the Plutonium Finishing Plant, 200 West Area, Hanford Site, Richland, Washington* (Schlender 2002a)
- *Categorical Exclusion for Transition of the 241-Z Liquid Waste Treatment Facility at the Plutonium Finishing Plant, 200 West Area, Hanford Site, Richland, Washington* (Schlender 2002b)

- *Categorical Exclusion for Deactivation and Demolition of Ancillary Buildings at the Plutonium Finishing Plant, 200 West Area, Hanford Site, Richland, Washington (Schlender 2002c).*

The general activities under these categorical exclusions include the following: preventative maintenance and calibrations; appropriate solid waste repackaging, recycling, and/or removal/transfer of solid waste materials to appropriate storage/disposal facilities; onsite treatment by generator, and storage and transport of liquid waste to existing facility(s); equipment removal/disposition; radioactive decontamination/stabilization; utilities disconnection and/or modifications (e.g., excavation/capping of pipelines and installation of electrical control panels); and demolition. In addition, some asbestos insulation could be encountered, requiring appropriate methods for removal, handling, encapsulation, and disposal of asbestos-containing materials.

In addition to the activities described, specific activities would be required within the individual facilities. Within the 241-Z Building (and including the 241-ZA and 241-ZG Buildings), activities include radioactive decontamination/stabilization of cells and tanks, isolation of the tank system from tank farms, and utilities disconnection and/or modifications (e.g., capping of pipelines for steam and water feeding).

Within the 232-Z Building, activities include dismantling, removing, and dispositioning the inactive section of 232-Z duct located in the 291-Z Building. Inactive underground ductwork between the 232-Z Building and the 291-Z Building would be characterized (e.g., remotely using a pipe crawler) for residual contamination and structural integrity. Residual soil contamination outside the southwest corner of the 232-Z Building would be stabilized and/or removed.

### 2.3 EA SCOPE

The deactivation activities described in this environmental assessment (EA) support the transition objectives established in the IPMP.

This EA focuses on (1) removing residual nuclear material inventory present in the major buildings (refer to Appendix B) and other systems and structures within the PFP Complex, and (2) deactivation of the PFP Complex. Activities (as analyzed in the PFP EIS and DOE/EIS-0244-FS/SA9) to remove hold-up material from the four systems within two buildings and accelerated deactivation activities within the scope of the activity-specific CXs (Section 2.2) have been initiated and are ongoing. This EA assumes that material stabilization and hold-up removal activities from the PFP EIS, accelerated deactivation activities from the activity-specific CXs, and the proposed deactivation activities (Section 3.1) would be conducted concurrently.

For analysis in this EA, it is assumed that approximately 100 kilograms (220 pounds) of residual nuclear material [including the 50 kilograms (110 pounds) of hold-up material analyzed in the PFP EIS] remain in systems and structures at the PFP Complex, providing the basis for radiological dose calculations (refer to Section 5.1.1).

The projected end state of the PFP Complex at completion of the activities described in this EA is deactivated structures (i.e., exterior walls, roofs, foundations and substructures) requiring minimal surveillance and maintenance before dismantlement.

## **2.4 TRANSITION UNDER THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT (CERCLA) OF 1980**

At the completion of stabilization and packaging activities described in the PFP EIS, residual contamination (radiological and chemical) hazards would remain in the PFP Complex. The PFP Complex has been identified as a Key Facility under the *Hanford Federal Facility Agreement and Consent Order* (Ecology et al. 2001) (Tri-Party Agreement) and as such is slated for final disposition under CERCLA.

While stabilization and deactivation activities are being conducted, appropriate CERCLA documentation will be prepared to address final disposition of the PFP Complex. Some of the activities addressed in this EA might be included in the CERCLA documentation. Implementation of actions as approved by the CERCLA lead agency could be initiated before completion of all actions addressed in this EA.

### 3.0 PROPOSED ACTION AND ALTERNATIVES

The proposed action and the alternatives are discussed in the following sections.

#### 3.1 PROPOSED ACTION

The proposed action is to deactivate the PFP Complex, involving those activities necessary to take the PFP Complex to a state suitable for long-term, low-risk/low-cost surveillance and maintenance pending final disposition. The scope of this EA includes deactivation of systems no longer necessary when stabilization and storage activities and planned legacy holdup removal have been concluded; removal/disposition of equipment/components; contamination characterization and reduction/mitigation; packaging plutonium holdup material meeting waste acceptance criteria; maintaining and running muffle furnace operations, as needed, for removed plutonium holdup material; and demolition of non-process ancillary buildings.

The proposed action includes deactivation activities or activities to prepare and place a facility in a safe and stable condition to minimize the long-term cost of a surveillance and maintenance program while being protective of personnel, the public, and the environment until demolition of former processing and material storage buildings occurs. These activities would include those actions foreseeably necessary for implementation of the proposed action, such as associated transportation activities, waste removal and disposal, and award of grants and contracts. Specific actions could include the following:

- Draining and/or de-energizing systems as appropriate
- Stabilizing contaminated areas (e.g., with fixatives, sealants, paint)
- Stabilizing or removing gloveboxes, process equipment, tanks, piping, fume hoods, and support equipment
- Removing fencing and paved parking areas adjacent to facilities
- Installing alternate environmental monitoring, surveillance, and safety components (e.g., lighting, fencing) if required
- Removing/packaging radioactive and hazardous materials and waste, including stabilization and/or removal of asbestos, and removal, cleanup, and disposition of polychlorinated biphenyls and other regulated materials and transportation to waste management facilities
- Removing equipment and system components
- Size-reducing process equipment for disposal as waste
- Performing physical or chemical treatment processes (e.g., neutralization, solidification, filtering) to render a material less hazardous or to reduce the volume
- Excessing surplus equipment

- Removing excess combustible material
- Disconnecting utilities, piping, and network service systems (if the systems are not necessary to maintain required environmental monitoring or building safety systems), including associated excavation. Note that potential excavation would be minimal and limited to the immediate vicinity of utilities and piping
- Ensuring adequate freeze and heat protection
- Stabilizing, consolidating, or removing outside contaminated areas within the PFP Complex
- Sealing cracks, gratings, and openings to the building exterior, and repairing roofs
- Removing or reducing radioactive or hazardous contamination from facilities and equipment by washing, heating, chemical or electrochemical action, mechanical cleaning, or other techniques
- Removing residual plutonium holdup material, which might remain throughout the PFP Complex after stabilization activities described in the PFP EIS have been completed; packaging residual plutonium holdup meeting waste acceptance criteria for shipment to an onsite waste management facility<sup>1</sup>, or thermally stabilizing material in muffle furnace operations and packaging for storage in existing PFP Complex vaults
- Designing and executing modifications to operating systems and/or structures necessary to place a facility in surveillance and maintenance, pending demolition
- Conducting final process operations to stabilize or eliminate residual operational materials or effluents, such as final process runs; cleaning vessels, pits and trenches; operation of small evaporators; flushing piping systems; and removal or replacement of filters
- Demolishing non-process ancillary buildings.

The proposed action also might require actions to conserve energy, demonstrate potential energy conservation, promote energy efficiency, or provide routine maintenance of operating portions of PFP.

## 3.2 ALTERNATIVES TO THE PROPOSED ACTION

Alternatives to the proposed action are described in the following sections.

### 3.2.1 No Action Alternative

Under the no action alternative, after stabilization and holdup removal activities under the PFP EIS and the deactivation activities (described in Section 2.0 for 232-Z, 241-Z, and ancillary buildings) are complete, the PFP Complex would be subjected to minimal system deactivation and decontamination

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<sup>1</sup>The ultimate disposition of transuranic waste would be shipment to the Waste Isolation Pilot Plant (WIPP) for disposal. These materials are within the estimated waste stream volume from Hanford analyzed in the 1997 Final WIPP Supplemental EIS (DOE/EIS-0026-S2).

activities, leaving residual contaminants in tanks, vessels, piping, and on interior surfaces of structures. Some individual systems would be shut down and de-energized. Surveillance and maintenance activities would be conducted while CERCLA documentation is prepared and final disposition decisions are made.

This alternative does not support mitigation of radiological and chemical hazards to achieve a long-term, low-risk/low-cost surveillance and maintenance state for the PFP Complex after cessation of plutonium-bearing stabilization activities pending CERCLA decisions. Additionally, under this alternative, the remaining hazards would require a higher level of surveillance and maintenance (compared to the proposed action) with the attendant costs for safeguards, security, and utility assessments.

### 3.2.2 Cleanout of Systems to Minimize Surveillance and Maintenance

Under the cleanout of systems alternative, the entire PFP Complex would be cleaned out for surveillance and maintenance pending final disposition under CERCLA. That is, residual plutonium material from areas other than those described in the PFP EIS would be removed to the point where criticality would be considered an incredible event. Any residual plutonium material and other generated wastes would be packaged to meet the waste acceptance criteria for transfer to an onsite waste management facility. Some process equipment would be removed, as needed, to facilitate the removal and disposition of any residual plutonium material. As needed, plutonium hold-up material would be stabilized thermally in muffle furnace operations and packaged for storage in existing PFP Complex vaults. Decontamination activities would be conducted on equipment and interior surfaces of structures, fixatives would be applied to remaining contamination, and all non-essential utilities and systems would be deactivated/drained. The PFP Complex would be transitioned to surveillance and maintenance pending final disposition.

This alternative does not support mitigation of radiological and chemical hazards to the level sufficient to achieve a long-term, low-risk/low cost surveillance and maintenance condition for the PFP Complex.

### 3.2.3 Complete Cleanout to Remove All Radiological Hazards and Dangerous Waste

Under this alternative, after cessation of stabilization and legacy removal activities as described in previous environmental reviews (refer to Section 2.2), the entire PFP Complex would be cleaned out. That is, residual plutonium material from areas other than those described in the PFP EIS would be removed. Any residual plutonium material and other generated wastes would be packaged to meet the waste acceptance criteria for transfer to an onsite waste management facility. As needed, plutonium holdup material would be stabilized thermally in muffle furnace operations and packaged for storage in existing PFP Complex vaults; all interior building surfaces, equipment, and systems would be decontaminated to remove all radiological hazards (i.e., either contamination or dose) to meet free release standards and/or cleaned, drained, and flushed (e.g., triple rinsed) to remove all chemical contaminants (i.e., dangerous waste) to meet the definition of empty under the WAC 173-303, *Dangerous Waste Regulations*. Equipment (vessels, piping, gloveboxes) would be removed for re-use/recycling, or reduced and disposed, depending on release standard achieved. All non-essential utilities would be deactivated/de-energized. The PFP Complex would be left in a condition suitable for long-term surveillance and maintenance activities pending final disposition.

The unique nature of the equipment (used for plutonium-processing/stabilization) limits viable re-use (regardless of contamination levels) at other onsite facilities or elsewhere within the DOE Complex.

Costs associated with decontaminating equipment to a free-release standard are considered to be prohibitive, far outweighing unit costs for new procurement and/or disposal.

Differences among the aforementioned alternatives are presented in Table 1.

Table 1. Differences Among PFP Deactivation Alternatives.

Activity	Alternatives			
	Proposed	No action	Cleanout of systems to minimize surveillance and maintenance	Complete cleanout to remove all radiological hazards and dangerous waste
Remove readily retrievable contamination	X		X	X
Remove equipment	X			X
Remove all radioactive/hazardous contamination				X
Systems surveillance and maintenance	X	X	X	X

#### 4.0 AFFECTED ENVIRONMENT

Details regarding the Hanford Site can be found in the *Hanford Site 2001 Environmental Report* (PNNL-13910) and *Hanford Site National Environmental Policy Act (NEPA) Characterization* (PNNL-6415).

The cities of Richland, Pasco, and Kennewick constitute the nearest population centers and are located southeast of the Hanford Site. The 2000 census figures indicate the distribution of the Tri-Cities population by city as follows: Richland 39,350; Pasco 33,010; and Kennewick 55,780. The Hanford Site has a semiarid climate with 15 to 18 centimeters (6 to 7 inches) of annual precipitation, and infrequent periods of high winds of up to 128-kilometers (80-miles) per hour. Tornadoes are extremely rare; no destructive tornadoes have occurred in the region surrounding the Hanford Site. The probability of a tornado hitting any given location on the Hanford Site is estimated at 1 chance in 100,000 during any given year. The region is categorized as one of low to moderate seismicity.

The PFP is not located within a wetland or a floodplain. The PFP Complex is an industrialized area with construction and processing activities being conducted. The final end state of the PFP Complex, to be developed through the aforementioned CERCLA process, would determine ultimate land use. Presently, the *Hanford Comprehensive Land-Use Plan Environmental Impact Statement Record of Decision* (64 FR 61615, November 12, 1999) states that the Central Plateau (i.e., the 200 Areas that include the PFP Complex) geographic area is designated Industrial-Exclusive.

Threatened and endangered plants and animals identified on the Hanford Site, as listed by the federal government (50 CFR 17) and Washington State (Washington Natural Heritage Program 1997), generally are not found in the vicinity of the PFP Complex, and are discussed in PNNL-6415. However, migratory birds (including the house finch, Say's phoebe, barn swallow, violet-green swallow, American robin, and western kingbird) and/or their nests have been observed within the PFP Complex.

No plants or mammals on the federal list of threatened and endangered wildlife and plants (50 CFR 17) are known to be on the Hanford Site. Two species of birds (Aleutian Canada goose and bald eagle) on the federal list of threatened and endangered species have been observed on the Hanford Site but are not present at the PFP Complex. Additional details regarding the protection and enhancement of the bald eagle Hanford Site habitat are provided in DOE/RL-94-150, *Bald Eagle Site Management Plan for the Hanford Site, South-Central Washington*.

The Columbia River and other water bodies on the Hanford Site provide valuable habitat for aquatic organisms. The Hanford Reach represents the only remaining significant mainstream Columbia River spawning habitat for stocks of upriver bright fall chinook salmon and white sturgeon. The Upper Columbia River spring run chinook salmon, Middle Columbia River steelhead, and Upper Columbia River steelhead have been placed under the protection of the *Endangered Species Act*. These fish spawn in or migrate through the Hanford Reach. No species of aquatic organisms are present at the PFP Complex.

As discussed in PNNL-6415, natural plant communities have been altered by Euro-American activities that have resulted in the proliferation of nonnative species. Of the 590 species of vascular plants recorded for the Hanford Site, approximately 20% of all species are considered nonnative. The biodiversity inventories conducted by The Nature Conservancy of Washington have identified

85 additional taxa<sup>2</sup>, establishing the actual number of plant taxa on the Hanford Site at 675. Cheatgrass is the dominant nonnative species at the PFP Complex. No species of the natural plant communities are found within the PFP Complex.

General information regarding the cultural resources on the Hanford Site can be found in PNNL-6415. A number of site-specific biological and cultural resource reviews for deactivating and dismantling the PFP Complex have been conducted. Those reviews are listed in Appendix C. Findings and/or restrictions have been identified in these reviews and have been summarized in Section 5.1.1.3.1, Ecological, and Section 5.1.1.3.2, Cultural and Historical, of this EA.

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<sup>2</sup> Orderly classifications of plants and animals according to their presumed natural relationships.

## 5.0 ENVIRONMENTAL IMPACTS

The following sections present quantitative information on those potential environmental impacts that have been identified as a result of activities being proposed for the deactivation of the PFP Complex. Both planned deactivation activities (including hold-up material removal, material stabilization and packaging, waste packaging activities, and transportation) and accident scenarios are analyzed in Sections 5.1 and 5.2 respectively.

The proposed action is not expected to result in substantial radiological or hazardous material releases to the environment. All activities would comply with current DOE Orders and federal and state regulations.

There would be radiation exposure associated with residual plutonium in equipment and structures. However, the relatively low level of radioactivity associated with the PFP Complex after cessation of stabilization activities makes the risks associated with the deactivation of the plutonium processing systems small when compared to the stabilization activities.

A toxicological hazard also would exist because of the presence of residual process chemicals. However, the chemical hazards at the PFP Complex have been identified (HNF-13971, Rev. 0, *Plutonium Finishing Plant Residual Chemical Hazards Assessment Report*) and are being managed appropriately. The current potential storage configurations would not release chemicals that would create a potential health hazard. A representative list of chemicals based on data in HNF-13971 is provided in Appendix D.

It is projected that potential personnel exposure to both radiation and hazardous materials during planned deactivation activities would be no greater than existing conditions at the PFP Complex. As materials continue to be removed and stabilized, background dose rates would be expected to decrease. Appropriate methods would continue to be in place to ensure minimum exposure to radiation and hazardous materials [in keeping with as low as reasonably achievable (ALARA) principles] and to ensure personnel and public safety. Potential impacts associated with both planned deactivation activities and accidents are described in the following sections.

### 5.1 PROPOSED ACTION: IMPACTS FROM PLANNED DEACTIVATION ACTIVITIES

Impacts from planned deactivation activities are described in the following sections. Because noise levels would be comparable to existing conditions on the Hanford Site and the amount of equipment and materials to be used, such as fuel for transportation, represents a minor commitment of nonrenewable resources, no additional discussion of noise or nonrenewable resources impacts is provided.

#### 5.1.1 Radiological and Toxicological Impacts during Deactivation

Radiological or toxicological exposure to personnel or the general public might occur as a result of planned deactivation operations. Materials would be handled in a manner consistent with radiological and toxicological control procedures in effect at the time. Hanford Site personnel handle these types of materials daily. Routine methods (e.g., use of appropriate personnel protective clothing), specific training, and equipment safeguards are in place, and are adequate to ensure the safe handling of these materials.

Basis of Radiological Impacts

The potential for radiation exposure or release of plutonium during deactivation exists. However, appropriate controls would be in place to maintain occupational radiation exposure well below the DOE limit of 5,000 millirem per year (10 CFR 835), in keeping with ALARA principles. Administrative controls, personnel training, and radiation work permit(s) would be in place before any proposed activities. Also, radiation and hazardous chemical personnel exposure levels would be monitored during the proposed action (i.e., personal dosimeters and continuous air monitors as required).

The analysis in this EA considers 100 kilograms (220 pounds) of material, in the form of pure/impure plutonium oxides and/or alloys, and sludges, as the basis for radiological dose consequences. The 100 kilogram (220-pound) amount is comprised of a conservative nondestructive assay (NDA) inventory value [75 kilograms (165 pounds)] and a contingency [25 kilograms (55 pounds)]. Current conservative NDA values<sup>3</sup> for residual nuclear material contained throughout the PFP Complex processing systems are estimated to be 75 kilograms (165 pounds)<sup>4</sup>. This 75 kilograms (165 pounds) of plutonium includes the 50 kilograms (110 pounds) of hold-up material identified in the PFP EIS (see Section 2.3 of this EA for detailed information on this hold-up material). Because of the inherent limitations of NDA analyses and potential locations within the PFP Complex that have not undergone NDA, an additional 25 kilograms (55 pounds) also are included as contingency. The total inventory is provided in Table 2.

Table 2. Plutonium Inventory for EA Analysis.

Basis	Plutonium Inventory (kilograms)
NDA measurements (high-end ranges)	75
Contingency	25
Total	100

Material Recovery/Deactivation Activities

Material recovery/deactivation activities would result in worker doses. Recent activities associated with initial holdup recovery and equipment removal (i.e., glovebox cleanout as described in DOE/EIS-0244-FS/SA9) indicate that removal of approximately 1 kilogram (2.2 pounds) of plutonium resulted in a dose of 1.5 person-rem for the directly involved workers.

On this basis, and extrapolating potential worker dose for 100 kilograms (220 pounds) of plutonium, it would be expected that the directly involved workers would receive approximately 150 person-rem during deactivation. The aforementioned glovebox cleanout activities, which have been completed, were relatively simple (e.g., known inventories, straightforward configurations, and ease of accessibility) compared to planned deactivation activities. Accordingly, for the purposes of this EA, these dose consequences are doubled (i.e., 300 person-rem) to bound uncertainties associated with planned deactivation efforts. Based on a dose-to-risk conversion factor of  $6 \times 10^{-4}$  latent cancer fatalities (LCF) per person-rem (DOE 2002), no LCFs would be expected (specifically, this equates to 0.2 LCFs). This

<sup>3</sup> Conservative values are based on the total of the upper ranges of the NDA measurements taken.

<sup>4</sup> NDA inventory estimates indicate that a best value of approximately 60 kilograms (132 pounds) of plutonium in hold-up material are located throughout the entire PFP Complex. The 'best' value represents an average of a range of NDA measurements taken throughout the PFP Complex.

maximum worker dose is considered to be conservative, because: (a) the presumed residual inventory of 100 kilograms (220 pounds) of plutonium is at the extreme high end of projected inventory; (b) shielding, ALARA, and lessons learned as deactivation continues would all contribute to dose reduction; and (c) removal activities continually would reduce remaining background exposure.

### Material Disposition

The potential disposition pathways of this residual inventory involve either thermal stabilization/packaging into 3013 containers (DOE-STD-3013-96) or packaging waste to meet waste acceptance criteria [e.g., pipe overpack containers (POCs), solid waste burial boxes, drums, debris containers]. For conservative estimates, worker doses are based on extrapolating material quantity [i.e., the aforementioned 100 kilograms (220 pounds) of plutonium] versus projected doses from DOE/EIS-0244-FS/SA2 (thermal stabilization/packaging) and DOE/EIS-0244-FS/SA4 (packaging into POCs)<sup>5</sup>. It is recognized that both pathways would be used, resulting in projected PFP worker dose between the ranges established by both processes.

In DOE/EIS-0244-FS/SA2, approximately 3,200 kilograms (7,000 pounds) of plutonium-bearing metals, oxides, and process residues were identified as candidates for thermal stabilization. Potential PFP worker dose was 960 person-rem. Extrapolating for 100 kilograms (220 pounds) of plutonium, the potential PFP worker dose would be 30 person-rem. It is noted that this is a conservative estimate, because the values are based on activities in the 234-5Z Building. Some of the thermal stabilization associated with deactivation would be conducted in 2736-ZB Building, a more modern structure that provides lower background radiation doses than the 234-5Z Building.

Similarly, in DOE/EIS-0244-FS/SA4, approximately 0.3 metric tonnes (600 pounds) of plutonium was identified as candidate material for POC packaging. The estimated PFP worker dose was approximately 61 person-rem. Extrapolating for 100 kilograms (220 pounds) of plutonium, the potential PFP worker dose would be approximately 20 person-rem. Therefore, a total estimated PFP worker dose associated with material disposition would be between the 30 person-rem projected for thermal stabilization/packaging activities and the 20 person-rem associated with packaging waste into POCs. For analysis, an average value of 25 person-rem is used in this EA for representation of worker dose during material disposition.

### Radiological Impacts to Workers

Based on the assessments of material recovery/deactivation and material disposition, the collective dose to PFP workers is projected to be 300 person-rem from deactivation and material recovery activities and approximately 25 person-rem for material disposition. These potential doses are provided in Table 3.

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<sup>5</sup> It is assumed for this EA that packaging material into POCs represents bounding dose consequences for disposition of material suitable for discard using any approved waste container.

Table 3. Estimated Worker Doses and Health Effects from PFP Deactivation.

	Person-rem	LCFs*
Material Recovery	300	0.2
Material Disposition	25	0.02
Total	325	0.2

\*LCF value for worker populations is the calculated number of potential fatal cancers due to the given dose.

It would be expected that potential exposure to workers from excavation activities (e.g., blanking utilities) would be a small fraction of that calculated for material recovery and disposition.

#### Radiological Impacts to the Public

Minimal public exposure to radiation above that currently experienced from routine Hanford Site operations would be anticipated as a result of these proposed actions. The current DOE radiation limit for an individual member of the public is 100 millirem per year, and the national average dose from natural sources is 300 millirem per year (PNNL-13910). The low doses associated with the inventory of plutonium within the scope of this EA [i.e., no more than 100 kilograms (220 pounds)] would not contribute substantially to offsite public exposure. Calculated abated exposure to the maximally exposed member of the public due to the proposed action [assuming particulate matter with a release factor of  $1 \times 10^{-3}$ , an activity coefficient for plutonium-239 of 0.062 curie per gram, a dose conversion factor of 11 millirem per curie to the maximally exposed individual offsite as a result of PFP releases (HNF-3602), one stage of high-efficiency particulate air filtration (99.95 percent efficiency; or a release fraction of 0.0005), and a 5 year duration] is:

$$(100,000 \text{ g}) \times (1 \times 10^{-3}) \times (0.062 \text{ curies/g}) \times (11 \text{ millirem/curie}) \times (0.0005) / (5 \text{ years}) = 0.007 \text{ millirem per year.}^6$$

This is a small fraction of the aforementioned DOE radiation limit of 100 millirem per year. With no substantial additional offsite exposure involved with the deactivation of the PFP Complex, no adverse health effects to the public would be expected.

Radioactive material, radioactively contaminated equipment, and mixed waste at the PFP Complex would continue to be appropriately packaged, stored, and/or disposed at existing facilities on the Hanford Site. Waste produced from Hanford Site cleanup operations includes radioactive, mixed, or hazardous waste. Radioactive waste is categorized as transuranic, high-level, and low-level. Mixed waste has both radioactive and hazardous nonradioactive substances. It is anticipated that the nature and quantity of the PFP Complex deactivation waste would be a small fraction of the total waste volume generated on the Hanford Site. Specifically, life-cycle waste forecasts for the PFP Complex deactivation (including demolition, through fiscal year 2009) are approximately 6,100 cubic meters of low-level waste, 160 cubic meters of mixed waste, and 4,500 cubic meters of transuranic waste (HNF-EP-0918, Rev. 12, Vol. 1). For perspective, in a single year (i.e., calendar year 2001) approximately 1,100 cubic meters of mixed

<sup>6</sup> Potential releases due to minor excavation activities (e.g., blanking utilities) would be expected to be a small fraction of releases due to material recovery and disposition and not a substantial contributor to the projected low doses.

waste and approximately 5,700 cubic meters of radioactive waste were generated on the Hanford Site (PNNL-13910)<sup>7</sup>.

#### Other Waste Management Impacts

Asbestos, beryllium, and polychlorinated biphenyls would be removed and dispositioned appropriately. Small quantities of hazardous materials (e.g., solvents, cleaning agents) that might be generated during the proposed action at the present storage locations would be managed and disposed in accordance with applicable federal and state regulations. Toxicological exposure would be minimized by application of appropriate methods and administrative controls (e.g., personnel training and protective equipment).

##### **5.1.1.1 Air Quality**

Many deactivation activities would take place within ventilated structures, exhausting through filters. Specific emission estimates from excavation were not calculated because particulate matter emissions would be controlled by using appropriate wetting procedures, resulting in compliance with federal and state air quality standards. It would be expected that overall deactivation operations within the scope of this EA would not exceed regulatory thresholds.

##### **5.1.1.2 Water Quality**

No direct discharges of contaminated liquid effluents to the environment would occur as a result of planned deactivation activities. The management of aqueous contaminated waste generated during cessation of stabilization activities and throughout deactivation would be similar to, and consistent with, current practices at PFP. That is, liquid effluents would be sampled to verify waste composition and subjected to any necessary processing to meet applicable acceptance criteria before being routed to existing permitted waste treatment and/or disposal facilities. Sanitary waste would be routed to existing onsite 200 Areas sanitary sewer system(s).

##### **5.1.1.3 Land Use**

It would be expected that the PFP Complex would continue to be managed as an industrialized area, pending the final endstate to be developed through the aforementioned CERCLA process.

##### **5.1.1.3.1 Ecological**

It would be expected that excavation activities would be limited to the immediate vicinity of previously disturbed areas. It would be expected that continued operations and/or expansion would be consistent with DOE/RL-96-32 and DOE/RL-96-88. An ecological resource review is conducted annually at the PFP Complex (Appendix C). As appropriate, certain restrictions might be applied as a result of these surveys. For example, during nesting periods (i.e., late April through late July), active nests for species protected under federal and state laws should not be moved/destroyed or the structure supporting the nest should not be deactivated/dismantled until the young have fledged (left the nest). Future specific ecological reviews would be conducted as needed.

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<sup>7</sup> Waste quantities in PNNL-13910 are provided in mass units. The assumed conversion factor is  $3.3 \times 10^{-3}$  cubic meters per kilogram.

### 5.1.1.3.2 Cultural and Historical

The impacts of deactivation on the cultural and historical resources identified within the PFP Complex have been documented within the Cultural Resource Reviews and associated responses [Washington State Historic Preservation Officer (SHPO)] provided in Appendix C. The Cultural Resources Review conducted for this project ensured compliance with the requirements of the National Historic Preservation Act of 1966 (as amended) and the *Programmatic Agreement Among the U.S. Department of Energy, Richland Operations Office, the Advisory Council on Historic Preservation, and the Washington State Historic Preservation Office for the Maintenance, Deactivation, Alteration, and Demolition of the Built Environment on the Hanford Site, Washington* (DOE/RL-96-77).

Eleven buildings (i.e., 232-Z, 234-5Z, 234-5ZA, 236-Z, 242-Z, 2701-ZA, 2704-Z, 2736-Z, 2736-ZA, 2736-ZB, and 291-Z) are eligible for listing in the National Register of Historic Places as contributing properties within the Manhattan Project and Cold War Era Historic District. Of these 11 buildings, four buildings (i.e., 234-5Z, 291-Z, 232-Z, and 2736-Z) have been recommended by DOE-RL for preservation for public education and interpretation through heritage tourism (DOE/RL-97-1047).

In addition, building walkthroughs of the PFP Complex historic buildings have been conducted in accordance with DOE/RL-96-77 to assess their contents and to locate any artifacts that might have interpretive or educational value as potential exhibits within local, state, or national museums. Artifacts within the PFP Complex have been identified and tagged.

Mitigation of the adverse effects on the physical structures within the PFP Complex resulting from their deactivation has been accomplished through individual building documentations and a detailed discussion of the history and role of the PFP Complex within Section 5 "Plutonium Finishing" of Chapter 2 of the book *History of the Plutonium Production Facilities at the Hanford Site Historic District, 1943-1990*. Mitigation measures directed at public education, site interpretation, and artifact curation were presented in an Interpretive Plan and Curation Plan for this project (Hebdon 2002b). The Interpretive Plan focused primarily on the four buildings recommended by DOE-RL to be preserved in-place for public education and interpretation through heritage tourism. The Curation Plan considered the disposition of all artifacts tagged for interpretive purposes.

In January 2003, the SHPO provided final concurrence to DOE-RL regarding the recommendations arrived at within the interpretive plan and curation plan (Griffith 2003). In summary, the SHPO agreed that because of public health and safety concerns posed by high radiological contamination levels, public access would be highly unlikely; therefore, deactivation activities can proceed. In addition, DOE-RL is evaluating potential long-term curation facility(s). PFP artifacts would be stored within the PFP Complex while deactivation activities are being completed or suitable storage space is obtained, and until an interpretive center is established. PFP artifacts that are not contaminated will be retained; contaminated artifacts will be disposed after the objects are thoroughly documented. As noted previously in this EA (Section 2.0), the 232-Z Building is part of an accelerated ongoing deactivation activity at the PFP Complex. Mitigation in the form of a Historic American Engineering Record document was prepared for 232-Z Building in 1994 so demolition or alteration could proceed during source term reduction activities being conducted in the mid-1990s (Lloyd 1995; Look 1995; Nissley 1994); subsequently, this determination regarding 232-Z Building was reconfirmed with the SHPO in 2002 (Griffith 2002; Hebdon 2002a).

In September 2003 DOE-RL concurred with findings of a Cultural Resource Review (CRR) pertaining to decontamination and decommissioning of the PFP Complex. Those findings concluded that the

aforementioned decontamination and decommissioning activities would not affect historic properties. DOE-RL provided the SHPO documentation supporting those findings (Hebdon 2003).

### 5.1.2 Transportation

Impacts of incident-free, intra-site truck transport of waste materials have been considered. Typically, incident-free impacts are based on consideration of traffic congestion and pollutants emitted from the vehicles during normal transportation. Vehicular traffic impacts as a result of the proposed action would be expected to peak during the deactivation phase of any particular structure. Occasional interference with normal traffic flow onsite would be mitigated by appropriate administrative controls (e.g., warning signs and traffic markers) and scheduling truck traffic during nonpeak hours.

Potential impacts associated with transportation are projected to be small. As stated in Section 5.1.1, a total of approximately 6,100 cubic meters of low-level waste is forecasted for the proposed PFP Complex deactivation activities (through 2009). For perspective, in one month (July 2002), the Hanford Site low-level burial grounds received approximately 130 cubic meters of low-level waste (0.4 cubic meters from PFP alone). It would be expected that the impacts of truck trips from PFP to Hanford Site solid waste management facilities for waste would be short in distance [e.g., approximately 3.2 kilometers (2 miles) to the Central Waste Complex], and would be small when considered in conjunction with day-to-day transport of waste generated during ongoing operations at PFP and on the Hanford Site. Overall, ERDF transportation has driven over 8.9 million kilometers (5.5 million miles) without an at fault accident, while receiving over 3 million tons of waste since inception.

The types of pollutants that could be present and might impact the public include sulfur oxides, particulates, nitrogen oxides, carbon monoxide, hydrocarbons, and photochemical oxidants. It would be anticipated that emissions would not impact substantially the existing air quality on the Hanford Site. Pollution prevention policies and procedures have been established for the Hanford Site. It is expected that such administrative controls in effect at the time, such as vehicle maintenance and consideration of alternative fuel sources, would minimize potential impacts.

## 5.2 PROPOSED ACTION: IMPACTS FROM ACCIDENTS

Impacts from general occupational accidents and deactivation-specific accident scenarios are discussed in the following sections.

### 5.2.1 General Occupational Accidents

Personnel injuries, such as back strains or minor abrasions, would receive appropriate medical treatment. Administrative controls, proper training, and specification of detailed procedures used in handling the materials would be in place, all of which would minimize the potential of any effects of such an accident.

It would be expected that personnel occupational safety would remain consistent with existing Hanford Site statistics. Total recordable cases are work-related deaths, illnesses, or injuries that resulted in loss of consciousness, restriction of work or motion, transfer to another job, or required medical treatment for first aid. Lost workday cases involve days away from work or days of restricted work activity or both. Lost workdays are the number of workdays (consecutive or not), beyond the day of injury or onset of

illness, an employee was away from work or limited to restricted work activity because of an occupational injury or illness. Fatalities are the number of occupation-related deaths. Specifically, the PFP Complex has maintained statistical improvements in each reporting category over the past 4 calendar years. This improvement is most pronounced in reduction of recordable injury rates that averaged 8.0 (per 200,000 work hours) during the early months of 1999 and only 2.3 (per 200,000 work hours) for all of 2002.

The proposed action would involve a small subset of Hanford Site personnel involved in radioactive industrial types of activities. Specifically, projected deactivation staffing profiles indicate an average of approximately 400 personnel (including crafts, nuclear operators, scientists and engineers, management and administrative staff) per year for 6 years. It would be expected that the risks, including probabilities and consequences, would be no greater than those described previously for the entire Hanford Site. For perspective, on the Hanford Site, in May 2001, the Environmental Restoration Contractor team of 700 employees reached one million work hours without a lost-time accident. Additionally, personnel providing essential infrastructure services including fleet and transportation operations have achieved two periods of one million work hours without a lost workday.

### 5.2.2 Deactivation-Specific Accident Scenarios

A suite of postulated accidents associated with the deactivation of the PFP Complex has been considered. Those accidents include: waste container fires, equipment fires, facility fires, container explosions, equipment explosions, room explosions, liquid spills, containerized solid spills, glovebox loss of containment/confinement, uncontainerized solid spills, external events, natural phenomena events, and criticality. Two bounding deactivation accidents are discussed: an unmitigated fire in the 234-5Z Building and an unmitigated seismic-induced event followed by a fire involving PFP facilities.

**Fire in 234-5Z.** This postulated event is the potential release of radiological material because of a postulated full facility fire involving the 234-5Z Building during deactivation activities. Flammable or combustible material is expected to be present in rooms or areas where deactivation activities are occurring. Materials present include rags, wood, cleaning solvents, hydraulic fluid from tools, paints, forklift propane, and flammable gases used for welding or cutting. Additionally, the waste generated by deactivation activities and accumulated in storage containers might be combustible. Ignition sources include sparks/heat from cutting torches, lasers, electrical arcs or short circuits, sparks/heat from power tools (cutting and grinding operations), heat generated by temporary heaters or forklifts, and heat generated through exothermic chemical reactions in waste or discarded material (e.g., organic/nitric acid reactions). The facility inventory affected by the fire is assumed to cause a release of radiological material from confinement. For analysis, approximately 80 kilograms (176 pounds) of plutonium is assumed to be present from holdup in the equipment, polyjars of plutonium oxide from other facilities staged in a glovebox, and a transuranic waste staging area, and is assumed to be affected by the fire event. Because this material is distributed throughout the fire area, the duration of release will be relatively long; therefore, this scenario was modeled assuming plume meander (Van Leuven 2003). This event is evaluated as an anticipated event; i.e., an event that would be expected to occur one or more times during the lifetime of the facility (a frequency between  $10^{-2}$  per year and  $10^{-1}$  per year).

The risk to the directly involved worker is highly dependent upon the worker's specific location and nature of the accident. A worker remaining adjacent to the accident for an extended period of time could be subjected to a large dose of radiation (approximately  $1.9 \times 10^5$  rem). However, workers wear required protective clothing and follow administrative controls in accordance with a radiation work permit and

hazardous materials permit. Monitoring equipment and alarms would alert workers immediately to evacuate the vicinity in the event of a release of radioactive material. Appropriate emergency procedures would mitigate the impacts of the postulated accident.

The maximum onsite and offsite dose consequences associated with this event are calculated to be approximately  $6 \times 10^3$  rem and 16 rem, respectively<sup>8</sup>. These doses are due to the inhalation of radionuclides, primarily plutonium-239/240, released as a result of this accident. These doses are due to the internal deposition of the inhaled radionuclides, and are expressed as committed effective dose equivalents that are the doses over the remaining lifetime, up to 50 years, to the exposed individuals. The aforementioned dose-to-risk conversion factor of  $6 \times 10^{-4}$  LCF per rem is not applicable to doses as large as the calculated dose ( $6 \times 10^3$  rem) for the onsite worker. Approximately 10 percent of this dose (i.e., 600 rem) would be delivered during the first year following the accident. This would be sufficient dose to cause substantial physiological impacts, potentially leading to a fatality. The dose-to-risk conversion factor is applicable to the 16 rem dose for the maximally exposed offsite individual, and would equate to a risk of 0.01, or 1 in 100, of a fatal cancer. This risk is substantially less than the current lifetime risk of approximately 1 in 4 of a fatal cancer in the general U.S. population.

**Seismic/Fire Event.** This postulated event is the potential release of radiological material resulting from a postulated seismic event and follow-on fire in multiple PFP facilities. Material is assumed to be released initially due to impact from an earthquake, with additional release caused by an ensuing fire. The inventory affected by the fire is assumed to cause a release of radiological material from confinement. Approximately 100 kilograms (220 pounds) of plutonium is assumed to be present and affected by the fire event. This event is evaluated as an unlikely event; i.e., an event that could occur during the lifetime of the facilities, but with low probability (a frequency between  $10^{-4}$  per year and  $10^{-2}$  per year).

As discussed previously with the 234-5Z Building fire, a worker remaining adjacent to the accident for an extended period of time could be subjected to a large dose of radiation (approximately  $1.9 \times 10^5$  rem). Appropriate emergency procedures would mitigate the impacts of the postulated accident. The maximum onsite and offsite dose consequences associated with this event are calculated to be approximately  $6 \times 10^3$  rem and 30 rem respectively. These doses are due to the internal deposition of the inhaled radionuclides, and are expressed as committed effective dose equivalents that are the doses over the remaining lifetime, up to 50 years, to the exposed individuals. As stated previously with the 234-5Z Building fire, the dose-to-risk conversion factor of  $6 \times 10^{-4}$  LCF per rem is not applicable to doses as large as the calculated dose ( $6 \times 10^3$  rem) for the onsite worker. However, the aforementioned dose-to-risk conversion factor is applicable to the 30 rem dose for the maximally exposed offsite individual, and would equate to a risk of 0.02, or 2 in 100, of a fatal cancer. This risk is substantially less than the current lifetime risk of approximately 1 in 4 of a fatal cancer in the general U.S. population.

### 5.2.3 Transportation

Potential accidents associated with the intra-site transportation of waste from deactivation activities have been considered. On the Hanford Site, no accidents involving prime contractor transport of low-level waste from PFP to the low-level burial grounds have occurred. Incident-free transport involving multiple shipments of drums and POCs from PFP to the Central Waste Complex occur weekly. It would be

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<sup>8</sup> The onsite individual is assumed to be approximately 100 meters (330 feet) from the facility. The maximum offsite individual is assumed to be 12,500 meters (41,000 feet) from the facility.

expected that transportation of packaged waste from deactivation activities at the PFP Complex would not contribute disproportionate risks to ongoing intra-site transport.

### 5.3 PROPOSED ACTION: SOCIOECONOMIC IMPACTS

The proposed action would not result in substantial socioeconomic impacts. It would be expected that the existing Hanford Site workforce would provide the bulk of necessary personnel to support deactivation activities. Current PFP Complex staff involved with stabilization would continue to be phased into other positions to support deactivation. The fiscal year 2003 staffing is approximately 590, and future staffing profiles are expected to range from 600 to 1,000 personnel during PFP deactivation. There would be no discernible impact to employment levels within Benton and Franklin counties.

### 5.4 PROPOSED ACTION: ENVIRONMENTAL JUSTICE

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, directs federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of their programs and activities on minority and low-income populations. Based on the analysis in this EA, it is not expected that there would be any disproportionately high and adverse impacts to any minority or low-income populations.

### 5.5 PROPOSED ACTION: CUMULATIVE IMPACTS

The risks associated with deactivation of the PFP Complex and transportation of waste material onsite are small. The transportation of the waste materials from deactivation activities would not be expected to contribute substantially to existing personnel and public exposure from natural background radiation, or the existing toxicological background environment.

The proposed action would involve existing construction and operations personnel; therefore, no substantial change in the Hanford Site workforce would be expected. There would be no adverse socioeconomic impacts or any high or disproportionately adverse impacts to any minorities or low-income portion of the community.

The proposed action involves buildings and artifacts with historic significance. The adverse effects of demolition have been mitigated through written documentation in accordance with applicable stipulations in DOE/RL-96-77. PFP artifacts would be stored within the PFP Complex while deactivation activities are being completed or suitable storage space is obtained, and until an interpretive center is established. PFP artifacts eventually could be integrated with other Hanford Site artifacts (e.g., DOE-RL's Manhattan Project and Cold War artifacts collection managed by the Columbia River Exhibition of History, Science and Technology in Richland, Washington).

It would be expected that the proposed action would provide a small contribution to existing radiological risks already present at PFP. That is, the ongoing stabilization and hold-up retrieval activities (as addressed in DOE/EIS-0244-FS/SA9) would continue while deactivation is initiated. For perspective, the consequences associated with the aforementioned activities were based on retrieval of 50 kilograms (110 pounds) of plutonium, which is a subset of the 100 kilograms (220 pounds) providing the basis for

calculations in this EA. The total calculated PFP Facility worker dose for retrieval of the 50 kilograms (110 pounds) of plutonium was approximately 200 person-rem. In this EA, the calculated dose-to-worker for retrieval of 100 kilograms (220 pounds) is 300 person-rem. Thus, an additional worker dose of approximately 100 person-rem conservatively is calculated to result from the proposed action. Based on a dose-to-risk conversion factor of  $6 \times 10^{-4}$  LCFs per person-rem (DOE 2002), no additional LCFs would be expected (specifically, this equates to 0.06 LCFs).

The proposed action would result in radioactive air emissions consisting predominantly of filtered particulate matter from deactivation, and minor amounts of excavation activities. As discussed in Section 5.1.1, minimal public exposure to radiation above that currently experienced from routine Hanford Site operations would be anticipated as a result of these proposed actions. Specifically, as discussed in Section 5.1.1 of this EA, the calculated abated exposure to the maximally exposed member of the public due to the proposed action is 0.007 millirem per year. As reported in PNNL-13910, the potential dose to the maximally exposed individual during calendar year 2001 from Hanford Site operations was 0.009 millirem. The 2001 average dose to the population was 0.0008 millirem per person. Collectively, the potential dose to the local population of 486,000 persons [within 80-kilometer (50-mile) radius of center of Hanford Site] from 2001 operations was 0.4 person-rem. These doses are well below the current DOE radiation limit for an individual member of the public of 100 millirem per year, and the national average dose from natural sources of 300 millirem per year (PNNL-13910). The low doses associated with the inventory of plutonium within the scope of this EA would not result in substantial offsite public exposure. No adverse health effects to the public would be expected.

The proposed action would result in nonradioactive air emissions also consisting predominantly of particulate matter from deactivation and excavation activities. The Hanford Site and surrounding areas are in attainment with ambient air quality standards. Particulate concentrations can reach relatively high levels in eastern Washington State because of exceptional natural events (i.e., dust storms, volcanic eruptions, and large brushfires) that occur in the region. Washington State ambient air quality standards have not considered 'rural fugitive dust' from exceptional natural events when estimating the maximum background concentrations of particulates in the area east of the Cascade Mountain crest. The potential low concentrations of particulate emissions from PFP Complex deactivation activities would not be expected to contribute substantially to recent releases. The Washington State Department of Ecology in 1998 conducted offsite monitoring near the Hanford Site for particulate matter. Particulate matter was monitored at one location in Benton County, at the Tri-Tech Vocational Center, near the Hanford Site network's Vista Field meteorological monitoring site in Kennewick. During 1998, the 24-hour and annual particulate matter standards established by Washington State were not exceeded. The highest and second highest 24-hour particulate matter concentrations recorded in 1998 were 123 micrograms per cubic meter and 90 micrograms per cubic meter respectively. The arithmetic mean for 1998 was 18 micrograms per cubic meter (most recent data as provided in PNNL 6415).

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## 6.0 PERMITS AND REGULATORY REQUIREMENTS

It is DOE policy to carry out operations in compliance with all applicable federal, state, and local laws and regulations.

### 6.1 FACILITY COMPLIANCE

Particulate emissions are regulated by the Washington State Department of Ecology pursuant to WAC 173-400, "General Regulations for Air Pollution Sources". Toxic air pollutant emissions are regulated by the Washington State Department of Ecology pursuant to WAC 173-460, "Controls for New Sources of Toxic Air Pollutants". The need for a notice of construction addressing nonradioactive air emissions will be evaluated.

Radioactive air emissions are regulated by the Washington State Department of Health pursuant to WAC 246-247, "Radiation Protection – Air Emissions". Current hold-up material recovery activities are addressed under DOE/RL-96-79, Revision 0G, *Radioactive Air Emissions Notice of Construction for Stabilization of Plutonium Metal and Oxides in the Muffle Furnaces at the Plutonium Finishing Plant*. A notice of construction addressing potential radioactive air emissions during activities within the scope of this EA will be prepared.

All generated solid waste would be handled in a manner compliant with applicable federal and state regulations and DOE Orders. Appropriate permitting, as needed, would be addressed under the *Resource Conservation and Recovery Act of 1980* for treatment, storage, and/or disposal of regulated waste, as regulated by WAC 173-303, "Dangerous Waste Regulations". In addition, under the Tri-Party Agreement, the Washington State Department of Ecology, U.S. Environmental Protection Agency, and DOE-RL negotiated a series of milestones to measure progress and to reduce the safety and environmental risks and costs associated with long-term surveillance and maintenance of the PFP Complex. The M-83-01-03 change request was approved by the three parties in October 2002.

### 6.2 TRANSPORTATION REQUIREMENTS

The transportation of the waste materials from the PFP Complex deactivation activities would comply with applicable regulations, orders, and guidance promulgated by agencies such as the DOE and the U.S. Department of Transportation. These agencies have developed comprehensive regulations covering the performance of the shipping, packaging, vehicle safety, routing of shipments, and physical protection.

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## 7.0 CONSULTATION AND COORDINATION

No agencies were consulted during preparation of this EA. Before approval of this EA, a draft version was made available for a 30-day comment period. Among those provided copies of the draft EA were the following:

- Nez Perce Tribe
- Confederated Tribes of the Umatilla Indian Reservation
- Yakama Nation
- Confederated Tribes of the Colville Reservation
- Wanapum
- U.S. Environmental Protection Agency, Region 10
- U.S. Fish and Wildlife Service
- Oregon Office of Energy
- Port of Benton
- State Historic Preservation Office
- Washington State Department of Ecology
- Washington State Department of Fish and Wildlife
- Washington State Department of Health
- Benton County
- Franklin County
- City of Kennewick
- City of Pasco
- City of Richland
- City of West Richland
- Hanford Advisory Board
- Heart of America
- Physicians of Social Responsibility.

The draft was available in the DOE Reading Room (Consolidated Information Center at Washington State University Tri-Cities), Richland Public Library, and placed on the Hanford Site Homepage (<http://www.hanford.gov/netlib/ea.asp>).

Comments on the draft EA were received from the Oregon Office of Energy, Washington State Department of Ecology, and the Washington State Department of Fish and Wildlife. Their comments and specific responses from DOE are provided in Appendix E.

**This page intentionally left blank.**

## 8.0 REFERENCES

- 50 CFR 17, *Wildlife and Fisheries, United States Fish and Wildlife Service, Department of the Interior, Endangered and Threatened Wildlife and Plants*, U.S. Code of Federal Regulations..
- 64 FR 61615, *Hanford Comprehensive Land-Use Plan Environmental Impact Statement Record of Decision*, U.S. Department of Energy, Richland, Washington.
- Ahlgrimm, 1996, Letter, J. Ahlgrimm to J. D. Wagoner, RL, "Approval to Initiate Deactivation and Transition of the Plutonium Finishing Plant", dated October 7, 1996.
- DNFSB 94-1/2000-1, *An Implementation Plan for Stabilization and Storage of Nuclear Material, The Department of Energy Plan in Response to DNFSB Recommendation 2000-1, Revision 2*, July 2002, U. S. Department of Energy, Washington, D.C.
- DOE, 2002, Memorandum, A. Lawrence, "Radiation Risk Estimation from Total Effective Dose Equivalents (TEDEs)", Office of Environmental Policy & Guidance, U.S. Department of Energy, Washington, D.C.
- DOE/EIS-0026-S2, *Waste Isolation Pilot Plant Disposal Phase Final Supplemental Environmental Impact Statement*, U. S. Department of Energy, Washington, D.C.
- DOE/EIS-0244-F, *Final Environmental Impact Statement Plutonium Finishing Plant Stabilization*, U.S. Department of Energy, Washington, D.C.
- DOE/EIS-0244-FS/SA2, *Increasing Batch Size for Thermal Stabilization of Plutonium Finishing Plant Metals, Oxides, and Process Residues, 200 West Area, Hanford Site, Richland, Washington*.
- DOE/EIS-0244-FS/SA4, *Changes to the Immobilization Alternative, Plutonium Finishing Plant, 200 West Area, Hanford Site, Richland, Washington*.
- DOE/EIS-0244-FS/SA9, *Hold-up Plutonium-Bearing Material, Mixed Oxide Materials, and Alloy/Oxide and Metal Materials Disposition at the Plutonium Finishing Plant, 200 West Area, Hanford Site, Richland, Washington*.
- DOE/RL-94-150, *Bald Eagle Site Management Plan for the Hanford Site, South-Central Washington*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- DOE/RL-96-32, *Hanford Site Biological Resources Management Plan*, U.S. Department of Energy, Richland Operations Office, Richland, Washington, August 2001.
- DOE/RL-96-77, *Programmatic Agreement Among the U.S. Department of Energy, Richland Operations Office, the Advisory Council on Historic Preservation, and the Washington State Historic Preservation Office for the Maintenance, Deactivation, Alteration, and Demolition of the Built Environment on the Hanford Site, Washington*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

U.S. Department of Energy

DOE/RL-96-79, Revision 0G, *Radioactive Air Emissions Notice of Construction for Stabilization of Plutonium Metal and Oxides in the Muffle Furnaces at the Plutonium Finishing Plant.*

DOE/RL-96-87, *Draft, Hanford Site Biological Resources Mitigation Strategy*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE/RL-97-1047, *History of the Plutonium Production Facilities at the Hanford Site Historic District, 1943-1990*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE-STD-3013-96, *Criteria for Safe Storage of Plutonium Metals and Oxides* [current standard dated 2000].

Ecology, EPA, and DOE-RL, 1996, *Hanford Federal Facility Agreement and Consent Order*, Washington State Department of Ecology, U.S. Environmental Protection Agency, U.S. Department of Energy, Richland Operations Office, Olympia, Washington, amended periodically.

Griffith, 2002, Letter to J. Hebdon, RL, "Re: Demolition of 232-Z Facility HCRC 2002-200-047", log no. 090402-24-DOE, dated September 4, 2002.

Griffith, 2003, Letter to J. Hebdon, RL, "Re: Deactivation and Decommissioning of Historic Buildings at the PFP Complex, HCRC 2002-200-021", log no. 011503-01-DOE, dated January 29, 2003.

Hebdon, 2002a, Letter to, A. Brooks, SHPO, "Transmittal of Two Cultural Resource Reviews: Laydown Yard to Support Deactivation and Dismantling of the Plutonium Finishing Plant (PFP) (HCRC #2002-200-063) and Demolition of 232-Z Facility (HCRC #2002-200-047)", 02-RCA-0527, dated August 26, 2002.

Hebdon, 2002b, Letter to A. Brooks, SHPO, "Cultural Resources Review (CRR) for the Plutonium Finishing Plant (PFP) Decommissioning Project—Demolition of Ten Buildings that are Eligible for Listing in the National Register of Historic Placed (HCRC #2002-200-021)", 03-RCA-0082, dated December 5, 2002.

Hebdon, 2003, Letter to A. Brooks, SHPO, "Cultural Resources Review (CRR) of Decontamination and Decommissioning of the Plutonium Finishing Plant Complex to Slab on Grade (HCRC #2003-200-039)", 03-RCA-0365, dated September 3, 2003.

HNF-3602, *Calculating Potential-to-Emit Releases and Doses for FEMPs and NOCs*, Fluor Hanford, Richland, Washington.

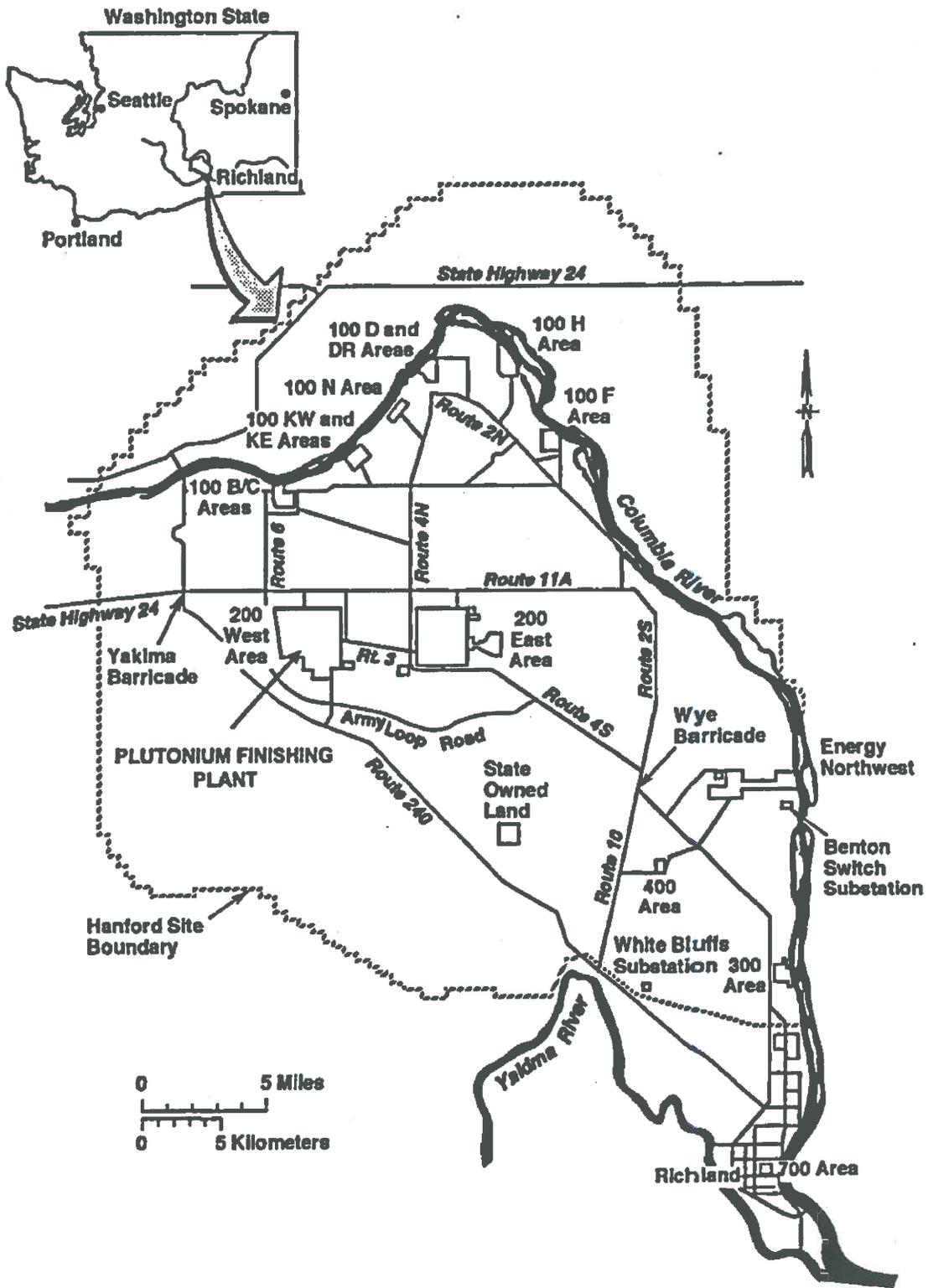
HNF-3617, *Integrated Project Management Plan for the Plutonium Finishing Plant Nuclear Material Stabilization Project*, Rev. 1, Fluor Hanford, Richland, Washington.

HNF-13971, Rev. 0, *Plutonium Finishing Plant Residual Chemical Hazards Assessment Report*, April 2003, Fluor Hanford, Richland, Washington.

HNF-EP-0918, Rev. 12, *Solid Waste Integrated Forecast Technical (SWIFT) Report, FY2003-FY2046, 2003.0*, Vol. 1, Fluor Hanford, Richland, Washington.

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- PNNL-13910, *Hanford Site 2001 Environmental Report*, Pacific Northwest National Laboratory, Richland, Washington.
- Schlender, 2002a, "Contract No. DE-AC06-96RL13200—Categorical Exclusion (CX) for the 232-Z Contaminated Waste Recovery Process Facility at the Plutonium Finishing Plant, 200 West Area, Hanford Site, Richland, Washington", Correspondence No. 025198, dated November 1, 2002.
- Schlender, 2002b, "Contract No. DE-AC06-96RL13200—Categorical Exclusion for Transition of the 241-Z Liquid Waste Treatment Facility at the Plutonium Finishing Plant, 200 West Area, Hanford Site, Richland, Washington", Correspondence No. 0204839, dated October 8, 2002.
- Schlender, 2002c, "Contract No. DE-AC06-96RL13200—Submittal of National Environmental Policy Act of 1969 Categorical Exclusion for Deactivation and Demolition of Ancillary Buildings at the Plutonium Finishing Plant, 200 West Area, Hanford Site, Richland, Washington", Correspondence No. 0203751, dated August 9, 2002.
- Schlender, 2002d, "Contract No. DE-AC06-96RL13200—Draft Approval Memorandum for Initiation of Engineering Evaluation/Cost Analysis for the 232-Z Waste Incinerator Facility and National Environmental Policy Act (NEPA) and Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Path Forward for Deactivation and Building Dismantlement of the Plutonium Finishing Plant (PFP)", 03-PTD-0030, dated December 6, 2002.
- Van Leuven, 2003, "Transmittal of the Revised Plutonium Finishing Plant Deactivation and Decommissioning Documented Safety Analysis and Technical Safety Requirements for Approval", FH-0302321.3, correspondence dated September 17, 2003.

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H97020271.4R1

Figure 1. Hanford Site.

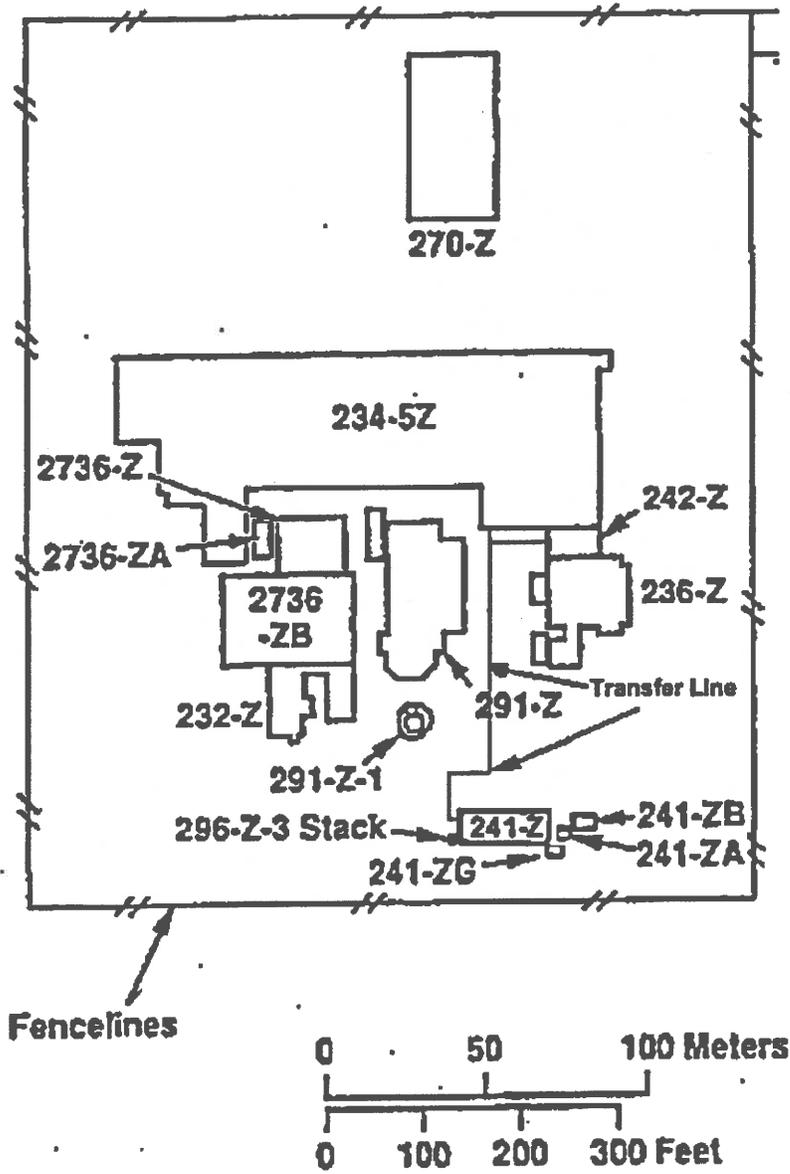


Figure 2. Detailed Layout of PFP Complex.

## APPENDIX A

## LIST OF ANCILLARY BUILDINGS

234-ZB	Construction forces quonset hut and sheds
234-ZC	Waste drum storage facility
241-ZB	Bulk chemical storage tank
2715-Z	Oil/solvent storage building (painters' shack)
2731-Z	Plutonium reclamation can storage building
2734-Z	Gas cylinder storage shed
2734-ZA	Gas cylinder storage shed
2734-ZB	Gas cylinder storage shed
2734-ZC	Gas cylinder storage shed
2734-ZD	Gas cylinder storage shed
2734-ZF	Gas cylinder storage shed
2734-ZG	Gas cylinder storage shed
2734-ZH	Gas cylinder storage shed
2734-ZJ	Liquid nitrogen storage pad and tank
2734-ZK	Gas cylinder storage shed
2734-ZL	Hydrogen Fluoride Facility
	Plutonium Process Support Laboratories Office Annex
MO-834, MO-839	Construction forces mobile offices and connecting meeting room
	Conex boxes
	Construction forces laydown areas
2735-Z	Bulk chemical storage tanks
2902-Z	Elevated water storage tank and tower
2904-ZA	Liquid effluent monitoring station
2904-ZB	Liquid effluent monitoring station
	Abandoned steam line in north corner (isolation area)

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## APPENDIX B

LIST OF STRUCTURES WITHIN EA SCOPE  
(also see Appendix A)

Building Number	Building Description
216Z9A	Contaminated Soil Removal Building
216Z9B	Z-9 Mining Facility
216Z9C	216-Z-9 Weather Enclosure
225WC	PFP Wastewater Sampling Facility
234-5Z	PFP Pu Processing & Storage
234-5Z HWSA	Hazardous Waste Storage
234-5ZA	PFP Change Room Addition
236-Z	Plutonium Reclamation Building
242Z	Waste Treatment Facility
243Z	Low-Level Waste Treatment Facility
243ZA	Low-Level Waste Treat Facility Tanks and Sump Pit
243ZB	Cooling Towers and Concrete Pad
267Z	Fire Riser #9 Valve House
270Z	PFP Operations Support Building
291Z	Ventilation Exhaust Fan House
291Z001	Main Exhaust Air Stack for 234-5Z, 236-Z, and 242-Z
2701ZA	Patrol Central Alarm Monitoring Station/Z Plant
2701ZD	PFP Badgehouse
2702Z	Microwave Tower and Support Building
2704Z	Office Administration Building
2705Z	PFP Operations Control Facility
2712Z	Stack Sampling and Monitoring Station
2721Z	Emergency Generator Service Building
2727Z	Supply Storage Building
2729Z	Storage Building
2731ZA	Container Storage Building
2736Z	Plutonium Storage Support Facility
2736ZA	Plutonium Storage Ventilation Structure
2736ZB	Plutonium Storage Vault Building
2736ZC	Cargo Restraint Transport Dock
2736ZD	Fuel Storage Cask Structure
MO-014	Mobile Office
MO-428	Mobile Office
MO-429	Mobile Office
MO-432	Mobile Office
MO-264	Mobile Office

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## APPENDIX C

LISTING OF CULTURAL AND ECOLOGICAL EVALUATIONS  
CONDUCTED AT THE PLUTONIUM FINISHING PLANT

Letter, J. Hebdon, RL, to A. Brooks, State Historic Preservation Officer, Washington Department of Community, Trade and Economic Development, "Cultural Resources Review for Plutonium Finishing Plant (PFP) Decommissioning Project—30 Ancillary Buildings (HCRC# 2002-200-048)", 02-RCA-0451, dated July 9, 2002.

Letter, G. Griffith, Deputy State Historic Preservation Office, State of Washington Office of Community Development, to J. Hebdon, RL, "HCRC 2002-200-048, Plutonium Finishing Plant (PFP) Decommissioning Project—30 Ancillary Buildings", Log 071702-23-DOE, dated July 17, 2002.

Letter, J. Hebdon, RL, to A. Brooks, State Historic Preservation Officer, Washington Department of Community, Trade and Economic Development, "Transmittal of Two Cultural Resource Reviews: Laydown Yard to Support Deactivation and Dismantling of the Plutonium Finishing Plant (PFP) (HCRC #2002-200-063) and Demolition of 232-Z Facility (HCRC #2002-200-047)", 02-RCA-0527, dated August 26, 2002.

Letter, G. Griffith, Deputy State Historic Preservation Office, State of Washington Office of Community Development, to J. Hebdon, RL, "Demolition of 232-Z Facility HCRC 2002-200-047", Log 090402-24-DOE, dated September 4, 2002.

Letter, G. Griffith, Deputy State Historic Preservation Office, State of Washington Office of Community Development, to J. Hebdon, RL, "Laydown Yard to Support Deactivation and Dismantling of PFP Facility, HCRC 2002-200-063", 090402-27-DOE, dated September 4, 2002.

Letter, J. Hebdon, RL, to A. Brooks, State Historic Preservation Officer, Washington Department of Community, Trade and Economic Development, "Cultural Resources Review (CRR) for the Plutonium Finishing Plant (PFP) Decommissioning Project—Demolition of Ten Buildings that are Eligible for Listing in the National Register of Historic Places (HCRC # 2002-200-021)", 03-RCA-082, dated December 5, 2002.

Letter, G. Griffith, State of Washington Office of Community Development, Office of Archaeology and Historic Preservation, to J. Hebdon, RL, log no. 011503-01-DOE, "Interpretive Plan and Curation Plan for the Deactivation and Decommissioning of Historic Buildings at the PFP Complex HCRC 2002-200-021," dated January 15, 2003.

Letter, G. Griffith, Deputy State Historic Preservation Officer, State of Washington Office of Community Development, to J. Hebdon, RL, Log 011503-01-DOE, "Deactivation and Decommissioning of Historic Buildings at the PFP Complex, HCRC 2002-200-021," dated January 29, 2003.

Letter, J. Hebdon, RL, to G. Griffith, Deputy State Historic Preservation Officer, Washington Department of Community, Trade and Economic Development, "Response to State Historic Preservation Officer Letter, Log: 011503-01-DOE", 03-RCA-0131, dated January 30, 2003.

Letter, M. H. Schlender, RL, to D. B. Van Leuven, FH, "Contract No. DE-AC06-96RL13200—Deactivation and Decommissioning of Ten Historic Buildings at the Plutonium Finishing Plant (PFP) Complex," 03-PTD-0051, dated March 11, 2003.

Letter, M. R. Sackschewsky, PNNL, to B. Nelson-Maki, FH, "Blanket Biological Review of Plutonium Finishing Plant, 200 W Area, ECR #2003-200-036", dated May 14, 2003.

Letter, M. R. Sackschewsky, PNNL, to B. Nelson-Maki, FH, "Biological Review Update of the PFP Deactivation Laydown Yard, 200 West Area, ECR #2002-200-063a", dated May 16, 2003.

Letter, J. Hebdon, RL, to A. Brooks, State Historic Preservation Officer, Washington Department of Community, Trade and Economic Development, "Cultural Resources Review (CRR) of Decontamination and Decommissioning of the Plutonium Finishing Plant Complex to Slab on Grade (HCRC #2003-200-039)", 03-RCA-0365, dated September 3, 2003.

U.S. Department of Energy



Department of Energy  
Richland Operations Office  
P.O. Box 550  
Richland, Washington, 99352

02-RCA-0451

JUL 09 2002

Dr. Allyson Brooks  
State Historic Preservation Officer  
Office of Archaeology and Historic Preservation  
Washington Department of Community,  
Trade and Economic Development  
P.O. Box 48343  
Olympia, Washington 98504

Dear Ms. Brooks:

**CULTURAL RESOURCES REVIEW FOR PLUTONIUM FINISHING PLANT (PFP)  
DECOMMISSIONING PROJECT - 30 ANCILLARY BUILDINGS (HCRC# 2002-200-048)**

Enclosed is a cultural resources review completed by the U.S. Department of Energy, Richland Operations Office on June 26, 2002, for the subject project located on the Hanford Site, Richland, Washington. The results of the records and literature review conducted by staff at the Hanford Cultural Resources Laboratory are described in the attached cultural resources review. The results indicate that this undertaking will have no effect to historic properties. Pursuant to 36 CFR 800.2 (4) we are providing documentation to support these findings and to involve your office as a consulting party in the National Historic Preservation Act of 1966, Section 106 Review process. If you have any questions or require additional information, please contact Annabelle L. Rodriguez, of my staff, on (509) 372-0277.

Sincerely,

Handwritten signature of Joel Hebdon in black ink.

Joel Hebdon, Director  
Regulatory Compliance and Analysis Division

RCA:ALR

Enclosure

cc: See page 2

## Pacific Northwest National Laboratory

Operated by Battelle for the  
U.S. Department of Energy

June 26, 2002

*No Historic Properties Identified  
30-Day Review Required by SHPO and Tribes*

Ms. Brita Nelson-Maki  
Fluor Hanford  
Plutonium Finishing Plant Environmental Compliance  
MSIN T5-50

Subject: Cultural Resources Review for Plutonium Finishing Plant (PFP) Decommissioning Project -  
30 Ancillary Buildings (HCRC# 2002-200-048).

Dear Ms Nelson-Maki

In response to your request received May 24, 2002, staff of the Hanford Cultural Resources Laboratory (HCRL) conducted a cultural resources review of the subject project located in the 200 West Area of the Hanford Site. This project is located in the 200 West area of the Hanford Site, Richland, Washington and will entail the deactivation and demolition of approximately 30 ancillary buildings/structures that are part of the PFP complex. These buildings/structures are no longer needed to support the nuclear material stabilization and packaging activities. Excavation will not exceed 1 foot in depth. The following ancillary buildings/structures to be deactivated and demolished as part of this scope of work are located throughout the PFP complex.

Building	Description
234-ZB	Quonset hut and associated connex boxes/sheds
234-ZC	Waste Drum Storage Facility
241-ZB	Bulk Chemical Storage Tank
2715-Z	Painter's Shack
2731-Z	PR Can Storage Building
2734-Z	Bottle Racks
2734-ZA	Bottle Racks
2734-ZB	Bottle Racks
2734-ZC	Bottle Racks
2734-ZD	Bottle Racks
2734-ZE	Bottle Racks
2734-ZG	Bottle Racks
2734-ZH	Bottle Racks
2734-ZK	Bottle Racks
2734-ZJ	Liquid Nitrogen Storage Pad and Tank

Telephone (509) 376-4826 ■ Email [ellen.prendergast@pnl.gov](mailto:ellen.prendergast@pnl.gov) ■ Fax (509) 376-2210

Ms. Britta Nelson-Maki  
June 26, 2002  
Page 2.

2734-ZL	Hydrogen Fluoride Facility
PSSL Office Annex	
MO834	Mobile Offices
MO839	Mobile Offices
2735-Z	Bulk Chemical Storage Tanks
2902-Z	Water Tank
2904-ZB	Liquid Effluent Monitoring Stations
2904-ZA	Liquid Effluent Monitoring Stations

#### Notifications and Public Involvement On June 26, 2002:

- Per 36 CFR 800, the State Historic Preservation Officer (SHPO) and Tribes were notified of this cultural resources review request and the Area of Project Effect (APE). The Area of Potential Effect is defined as the ancillary buildings and their greater association with the PFP complex and the Manhattan Project/Cold War Era Historic District (District)

**Results of the Identification of Historic Properties Survey (Literature and Records Review)**  
A preliminary records and literature review conducted by HCRL staff on June 26, 2002, revealed that according to the *Programmatic Agreement Among the U. S. Department of Energy Richland Operations Office, The Advisory Council on Historic Preservation, and The Washington State Historic Preservation Office For the Maintenance, Deactivation, Alteration, and Demolition of the Built Environment on the Hanford Site, Washington (DOE/RL-96-77) (PA)*, none of these facilities are eligible to the National Register of Historic Places (Register). The remaining facilities slated for decommissioning, many of which are eligible to the Register, will be reviewed under separate cover.

The project area has not been surveyed for archaeological resources, but aerial photographs indicate that the PFP complex is located in a disturbed area. Cultural resource surveys conducted within 1 kilometer of the APE have only located one historic property, the White Bluffs Road (H3-121) that has been determined eligible to the Register. Overall, however, the project is located in an area of low archaeological sensitivity and the potential for the presence of subsurface archaeological resources is low.

#### Findings and Actions Required

It is the finding of HCRL that this project will not affect historic properties, as no historic properties are known to be located within the APE.

**RL's Hanford Cultural Resources Program will submit official documentation to the SHPO, Tribes and interested parties of our findings. Pursuant to 36CFR Section 800, SHPO and tribes have 30 days to respond in receipt of this letter. No project activities can begin until the SHPO has concurred with our findings stated above.**

Ms. Britta Nelson-Main

June 26, 2002

Page 3

The workers must be directed to watch for cultural materials (e.g., bones, artifacts) during all work activities. If any are encountered, work in the vicinity of the discovery must stop until an HCRL historian has been notified to assess the significance of the find, and, if necessary, arrange for mitigation of the impacts to the find. HCRL must be notified if any changes to project location or scope are anticipated. This project is a Class 6 involving demolition/remodeling of structures construction in a disturbed low-sensitivity area. If you have any questions, please call me at 376-4626. Please use the HCRC# above for any future correspondence concerning this project.

Very truly yours,



Ellen Prendergast, M. A.  
Research Scientist/Anthropologist  
Cultural Resources Project

Concurrence:   
D. C. Stapp, Project Manager  
Cultural Resources Project

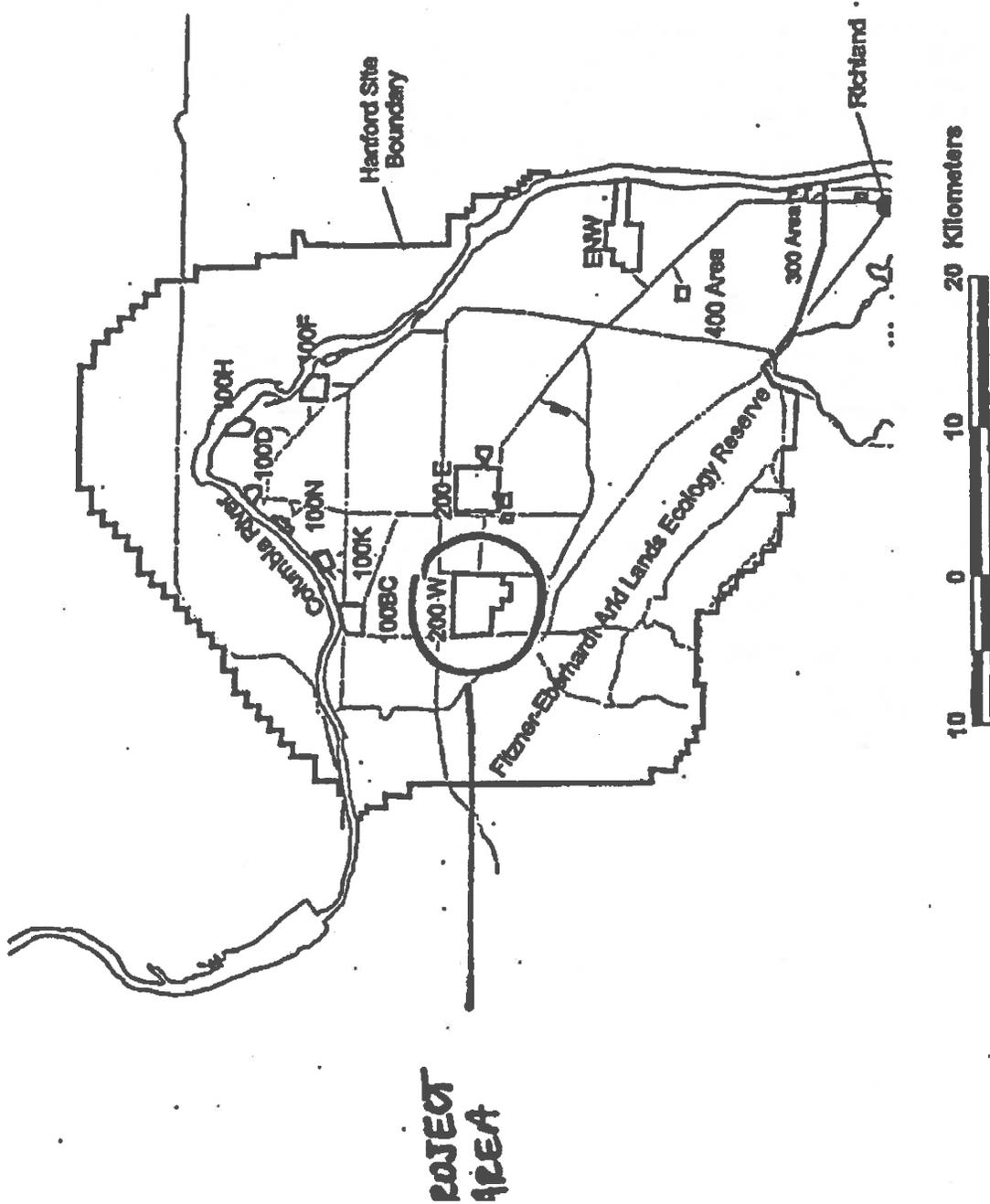
Review and Concurrence:

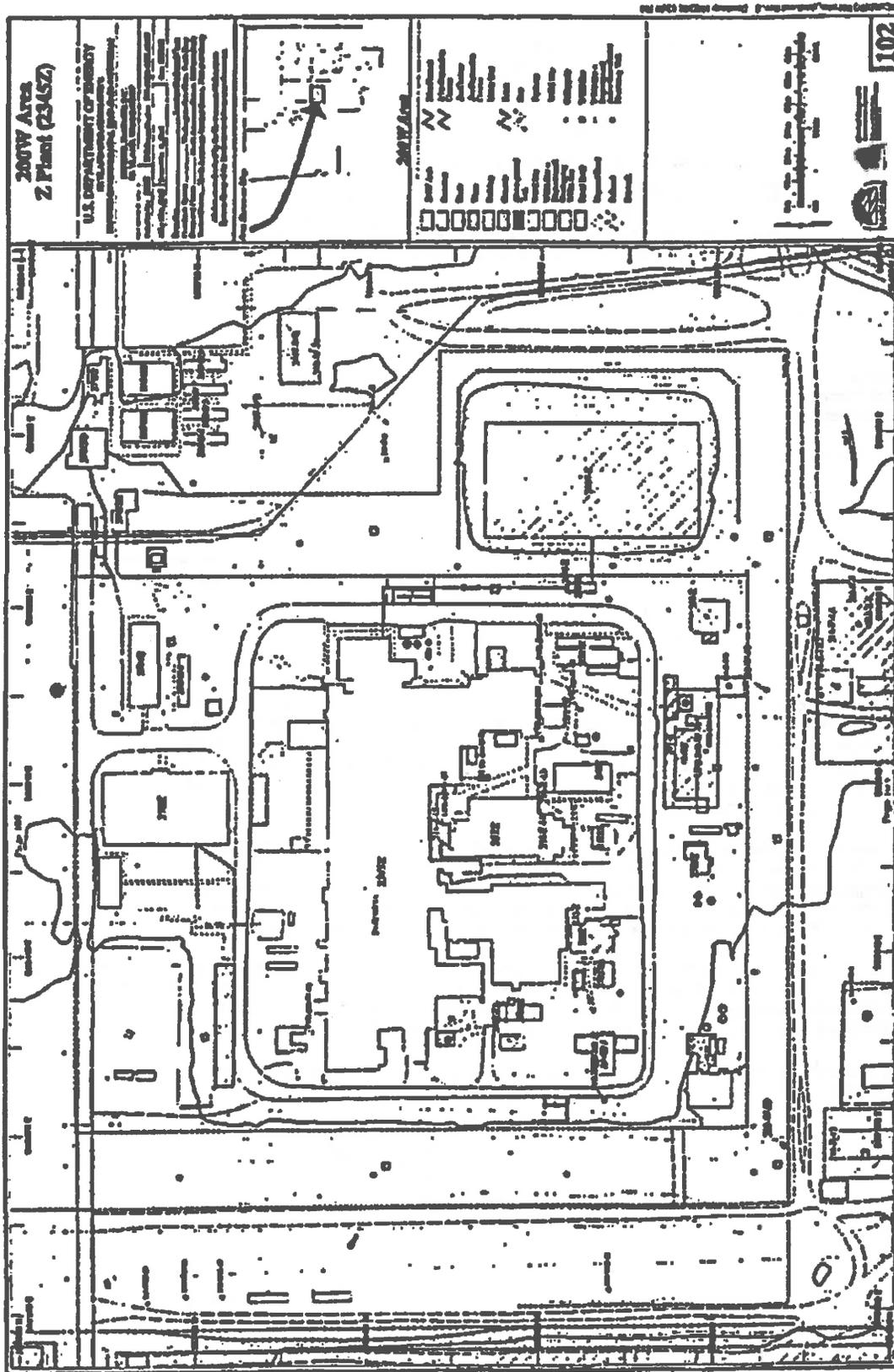
A. L. Rodriguez

DOE, Richland Operations Office, Hanford Cultural Resources Program

cc:   
Environmental Portal, A3-01  
KR. Welsh, N1-25  
File/LB

# Hanford Site







STATE OF WASHINGTON

**OFFICE OF COMMUNITY DEVELOPMENT**  
**Office of Archaeology and Historic Preservation**  
 1063 S. Capitol Way, Suite 106 - Olympia, Washington 98501  
 (Mailing Address) PO Box 48343 - Olympia, Washington 98504-8343  
 (360) 586-3065 Fax Number (360) 586-3067

July 17, 2002

Mr. Joel Heddon  
 Department of Energy  
 Richland Operations Office  
 P.O. Box 550  
 Richland, Washington 99352

In future correspondence, please refer to:

Log: 071702-23-DOE  
 Re: HCRC 2002-200-048, Plutonium Finishing Plant (PFP)  
 Decommissioning Project-30 Ancillary Buildings

Dear Mr. Heddon:

Thank you for contacting the Washington State Office of Archaeology and Historic Preservation (OAHP) regarding the above referenced action. This consultation is in adherence to the National Historic Preservation Act of 1966 (as amended) and implementing regulations 36 CFR Part 800.4. From your communication, I understand that the Department of Energy (DOE) proposes to demolish approximately 30 ancillary buildings/structures that are part of the Plutonium Finishing Plant (PFP) complex in the 200 West area. I also understand that these buildings/structures are no longer needed to support the nuclear material stabilization and packaging activities.

In response and on behalf of the State Historic Preservation Officer (SHPO), I concur with your determination that this action will have no effect on characteristics and qualities that qualify the Hanford Site for listing in the National Register of Historic Places. Buildings/structures to be removed by this action have been evaluated and determined as not contributing to the historic significance of the PFP complex or the Hanford Site in its entirety. For other facilities in the PFP complex that are National Register and that will be decommissioned at a later date, consultation will occur under separate cover.

In view of concurrence on the effect of this action, further contact with OAHP on this matter is not necessary. However, should additional information come to light, or should the project scope change significantly, contact should be made with OAHP for further consultation. In the event that archaeological resources are uncovered during any ground disturbing activities, associated work should be halted immediately and contact made with OAHP and interested tribal representatives.

Again, thank you for the opportunity to review and comment on this action. Should you have any questions, please feel free to contact me at 360-586-3073.

Sincerely,

Gregory Griffith  
 Deputy State Historic Preservation Officer

**RECEIVED**  
 JUL 23 2002  
 DOE-RL/RLCC



Department of Energy  
Richland Operations Office  
P.O. Box 550  
Richland, Washington 99352

**AUG 26 2002**

02-RCA-0527

Dr. Allyson Brooks  
State Historic Preservation Officer  
Office of Archaeology and Historic Preservation  
Washington Department of Community,  
Trade and Economic Development  
P.O. Box 48343  
Olympia, Washington 98504

Dear Dr. Brooks:

**TRANSMITTAL OF TWO CULTURAL RESOURCE REVIEWS: LAYDOWN YARD TO SUPPORT DEACTIVATION AND DISMANTLING OF THE PLUTONIUM FINISHING PLANT (PFP) (HCRC #2002-200-063) AND DEMOLITION OF 232-Z FACILITY (HCRC #2002-200-047)**

Enclosed are two cultural resources reviews completed by the Hanford Cultural Resources Laboratory (HCRL) for the U.S. Department of Energy, Richland Operations Office (RL) for the PFP Facility located in the 200 West Area of the Hanford Site, Richland, Washington. The results of the records and literature review conducted by staff at the Hanford Cultural Resources Laboratory (HCRL) are described in the attached reviews.

The results indicate that the proposed undertaking for the Laydown Yard will have no effect to historic properties (Enclosure 1). The results for the Demolition of the 232-Z Facility indicate that the undertaking will have an effect to historic properties (Enclosure 2). Per the 1994 Memorandum of Agreement (MOA) signed by RL and the Washington State Historic Preservation Officer and accepted by the Advisory Council on Historic Preservation, RL has complied with the stipulations in the MOA in the decommissioning of the 232-Z Facility. On June 2, 1995, the National Park Service accepted the Historic American Engineering Record for the 232-Z Facility. Pursuant to 36CFR 800.2 (4), we are providing documentation to support these findings and to involve your office as a consulting party in the NHPA Section 106 Review process.

Dr. Allyson Brooks  
02-RCA-0527

-2-

AUG 26 2002

If you have any questions, please contact Annabelle L. Rodriguez, of my staff, on (509) 372-0277.

Sincerely,



Joel Hebdon, Director  
Regulatory Compliance and Analysis Division

RCA:ALR

Enclosure

cc w/encl:

M. Brown, BRMA  
J. Crisler, ACHP  
A. Fyall, Benton County  
J. Gaston, USFWS  
A. Heriford, HWBP  
A. Hulse, EBCHS  
J. Sonderman, FCHS  
A. P. Vinther, HRA

cc w/o encl:

E. L. Prendergast, PNNL

**Pacific Northwest  
National Laboratory**

Operated by Battelle for the  
U.S. Department of Energy

July 31, 2002

*No Historic Properties Identified  
No Effect to Historic Properties  
30 Day SHPO and Tribal Review Required*

Britta Nelson-Maki  
Fluor Hanford  
TS-50  
Richland, Washington 99352

**Subject: Laydown Yard to Support Deactivation and Dismantling of Plutonium Finishing Plant (PFP) facility (HCRC #2002-200-063)**

Dear Ms. Nelson-Maki,

In response to your request received July 29, 2002, staff of the Hanford Cultural Resources Laboratory (HCRL) conducted a cultural resources review of the subject project. The Plutonium Finishing Plant (PFP), located in the 200 West area of the Hanford Site, is establishing a laydown yard to support deactivation and dismantling (D&D) activities to bring the facility to slab-on-grade by 2009. The area will be mechanically graded to eliminate irregular surfaces. The estimated maximum cut depth will be less than 1 foot. Six inches of base-course rock will be applied, spread and compacted. In addition, barriers may be installed around three existing wells and a solar panel/sampler. The laydown yard site is located at the northeast corner of Camden Avenue and 19<sup>th</sup> street intersection (see attached map). The selected area would extend from Camden Avenue east approximately 200 feet. The total area is approximately 40,000 square feet (0.92 acres). The work is scheduled to begin September 1, 2002, and the laydown is expected to be used throughout the life of the PFP D&D project.

**Notifications and Public Involvement  
On July 29, 2002:**

- Per 36 CFR 800, the State Historic Preservation Officer (SHPO) and Tribes were notified of this cultural resources review request and the Area of Project Effect (APE). The Area of Potential Effect is defined as the project area delineated in the attached map.

**Results of the Identification of Historic Properties Survey (Literature and Records Review)**  
The project area has not been surveyed for cultural resources in the past. HCRL staff conducted a site visit of the project area on July 31, 2002, and concluded that the project area had been disturbed in the recent past, most likely from waste burial activities taking place in the immediate area. Vegetative growth also indicated disturbance in the project area. No historic properties were identified. The laydown site is considered to be a low sensitivity area due to the low density of archaeological resources identified both in the APE and in the vicinity of the APE.

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**AUG 1 8 2002**

U.S. DEPARTMENT OF ENERGY • Form 100-174 (Rev. 11/97) • Fax (509) 974-7210

Britta Nelson-Maki  
July 31, 2002  
Page 2

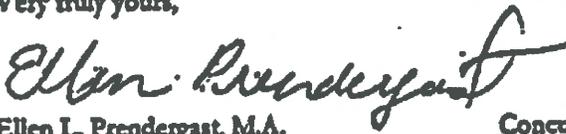
**Findings and Actions Required**

It is the finding of HCRL that this project will have no effect to historic properties, as no historic properties were identified during survey of the APE.

**RL's Hanford Cultural Resources Program will submit a letter of official documentation to the SHPO, Tribes and interested parties of our findings. Pursuant to 36CFR Section 800, these parties have 30 days to respond in receipt of this letter. No project activities can begin until this 30-day review period has ended.**

The workers must be directed to watch for cultural materials (e.g., historic artifacts) during all work activities. If any are encountered, work in the vicinity of the discovery must stop until an HCRL historian has been notified to assess the significance of the find, and, if necessary, arrange for mitigation of the impacts to the find. HCRL must be notified if any changes to project location or scope are anticipated. This project is a Class 3 case involving new construction in a disturbed, low sensitivity area. If you have any questions, please call me at 376-4626. Please use the HCRC# above for any future correspondence concerning this project.

Very truly yours,

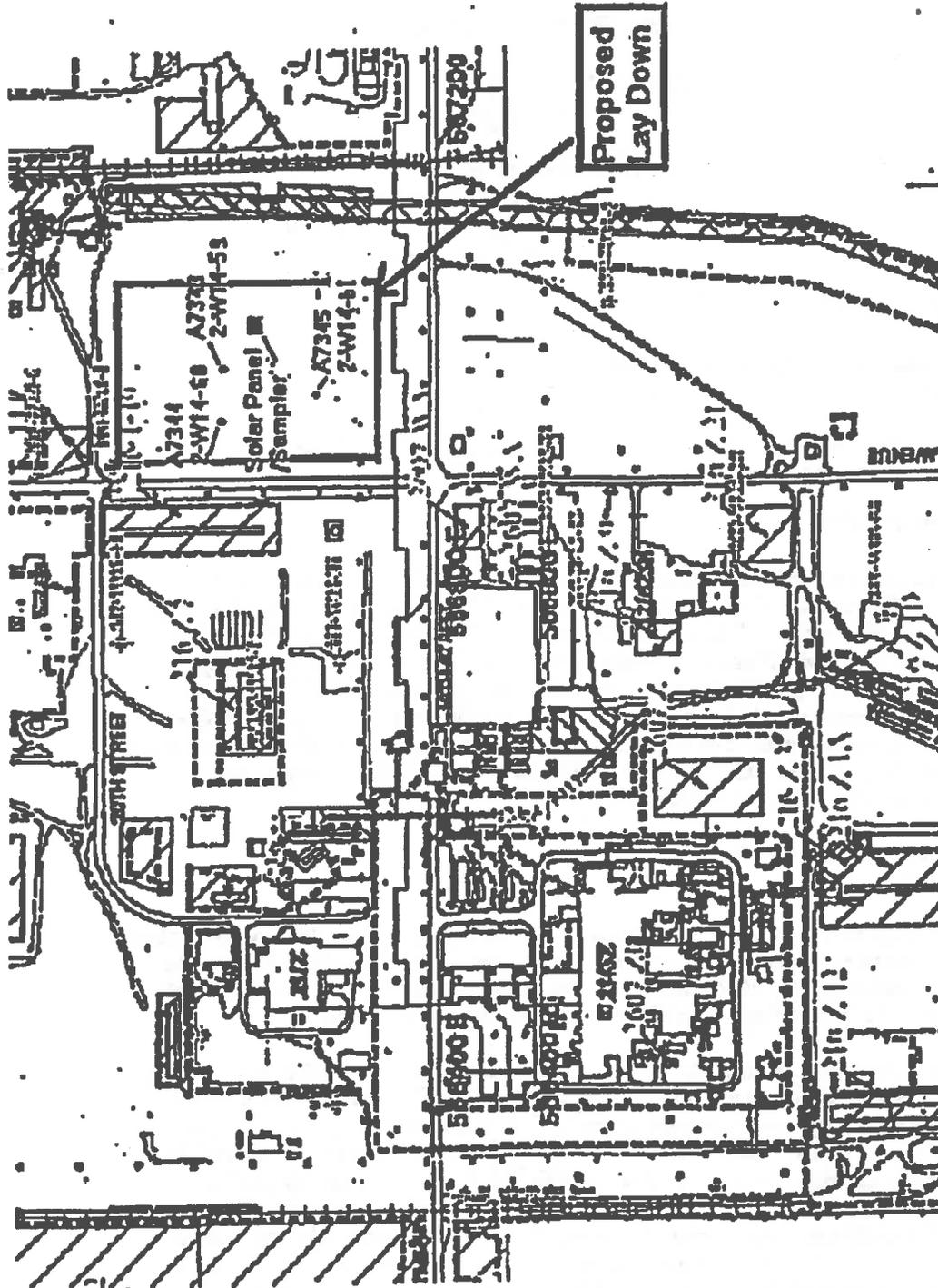
  
Ellen L. Prendergast, M.A.  
Research Scientist/Anthropologist  
Cultural Resources Project

Concurrence:   
D. C. Stapp, Project Manager  
Cultural Resources Project

Review and Concurrence:   
A. L. Rodriguez  
DOE, Richland Operations Office, Hanford Cultural Resources Program

ELP: aa

cc: A. L. Rodriguez, A5-58 (2)  
Environmental Portal, A3-01  
K.R. Welsh, N1-25  
File/LB



## Pacific Northwest National Laboratory

Operated by Battelle for the  
U.S. Department of Energy

July 8, 2002

*Adverse Effect to Historic Properties  
Mitigation completed (MOA)  
SHPO review required.*

Ms. Britta Nelson-Maki  
Fluor Hanford  
Plutonium Finishing Plant Environmental Compliance  
MSIN T5-50

Subject: Cultural Resources Review for Plutonium Finishing Plant (PFP) Decommissioning Project -  
Demolition of 232-Z Facility (HCRC# 2002-200-047)

Dear Ms Nelson-Maki

In response to your request received June 21, 2002, staff of the Hanford Cultural Resources Laboratory (HCRL) conducted a cultural resources review of the subject project located in the 200 West Area of the Hanford Site. This project is located in the 200 West area of the Hanford Site, Richland, Washington and will entail the deactivation and demolition of the 232-Z Building. Activities include removing residual nuclear material from all equipment and building surfaces, removing all equipment from the building, disconnecting all utilities not necessary for monitoring. This project will not entail excavation at this time. Other facilities at PFP are being reviewed under separate cover 30 ancillary buildings (HCRC# 2002-200-048) and 10 buildings eligible to the National Register of Historic Places (HCRC# 2002-200-021).

Notifications and Public Involvement  
On July 8, 2002

- Per 36 CFR 800, the State Historic Preservation Officer (SHPO) and Tribes were notified of this cultural resources review request and the Area of Potential Effect (APE). The APE is defined as the 232-Z Building and its greater association with the PFP complex and the Manhattan Project/Cold War Era Historic District (District)

Results of the Identification of Historic Properties Survey (Literature and Records Review)  
A preliminary records and literature review conducted by HCRL staff on June 28, 2002, revealed that according to the *Programmatic Agreement Among the U. S. Department of Energy Richland Operations Office, The Advisory Council on Historic Preservation, and The Washington State Historic Preservation Office For the Maintenance, Deactivation, Alteration, and Demolition of the Built Environment on the Hanford Site, Washington* (DOE/RL-96-77) (PA), the 232-Z Building is eligible for inclusion in the National Register of Historic Places under criterion A as a contributing property within the Hanford Site Manhattan Project and Cold War Era Historic District recommended for mitigation. It has been further recommended that it be preserved for public education and interpretation through heritage tourism (DOE/RL-97-1047). A Historic American Engineering Record (HAER) document has been completed for the 232-Z Building.

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JUL 12 2002

Tel: (509) 376-4626 ■ Email: ellen.branderaast@pnl.gov ■ Fax: (509) 376-2818

MS. BYRON NELSON-MAFI  
July 8, 2002  
Page 2

Decommissioning of the 232-Z Facility was reviewed by HCRL in 1993 (HCRC# 93-200-152). As there was no PA in place at that time a MOA was signed by SHPO and DOE in 1994 directing mitigation of the 232-Z Building.

The project area has not been surveyed for archaeological resources, but aerial photographs indicate that the 232-Z building is located in a disturbed area. Cultural resource surveys conducted within 1 kilometer of the APE have only located one historic property, the White Bluffs Road (H3-121) that has been determined eligible for inclusion in the National Register of Historic Places. Overall, however, the project is located in an area of low archaeological sensitivity and the potential for the presence of subsurface archaeological resources is low.

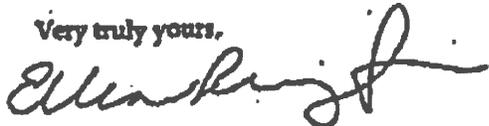
#### Findings and Actions Required

It is the finding of HCRL that this undertaking is an adverse effect to the 232-Z facility. However, all effects have been mitigated as outlined in the MOA.

- RL's Hanford Cultural Resources Program will submit official documentation to the SHPO, Tribes and interested parties of our findings. Pursuant to 36CFR Section 800, SHPO and tribes have 30 days to respond in receipt of this letter. No project activities can begin until the SHPO has concurred with our findings stated above.

The workers must be directed to watch for cultural materials (e.g., bones, artifacts) during all work activities. If any are encountered, work in the vicinity of the discovery must stop until an HCRL historian has been notified to assess the significance of the find, and, if necessary, arrange for mitigation of the impacts to the find. HCRL must be notified if any changes to project location or scope are anticipated. This project is a Class 6 involving demolition/remodeling of structures construction in a disturbed low-sensitivity area. If you have any questions, please call me at 376-4626. Please use the HCRC# above for any future correspondence concerning this project.

Very truly yours,



Ellen Prendergast, M. A.  
Research Scientist/Anthropologist  
Cultural Resources Project

Concurrence:   
D. C. Stapp, Project Manager  
Cultural Resources Project

Review and Concurrence:   
P. A. L. Rodriguez  
DOE, Richland Operations Office, Hanford Cultural Resources Program

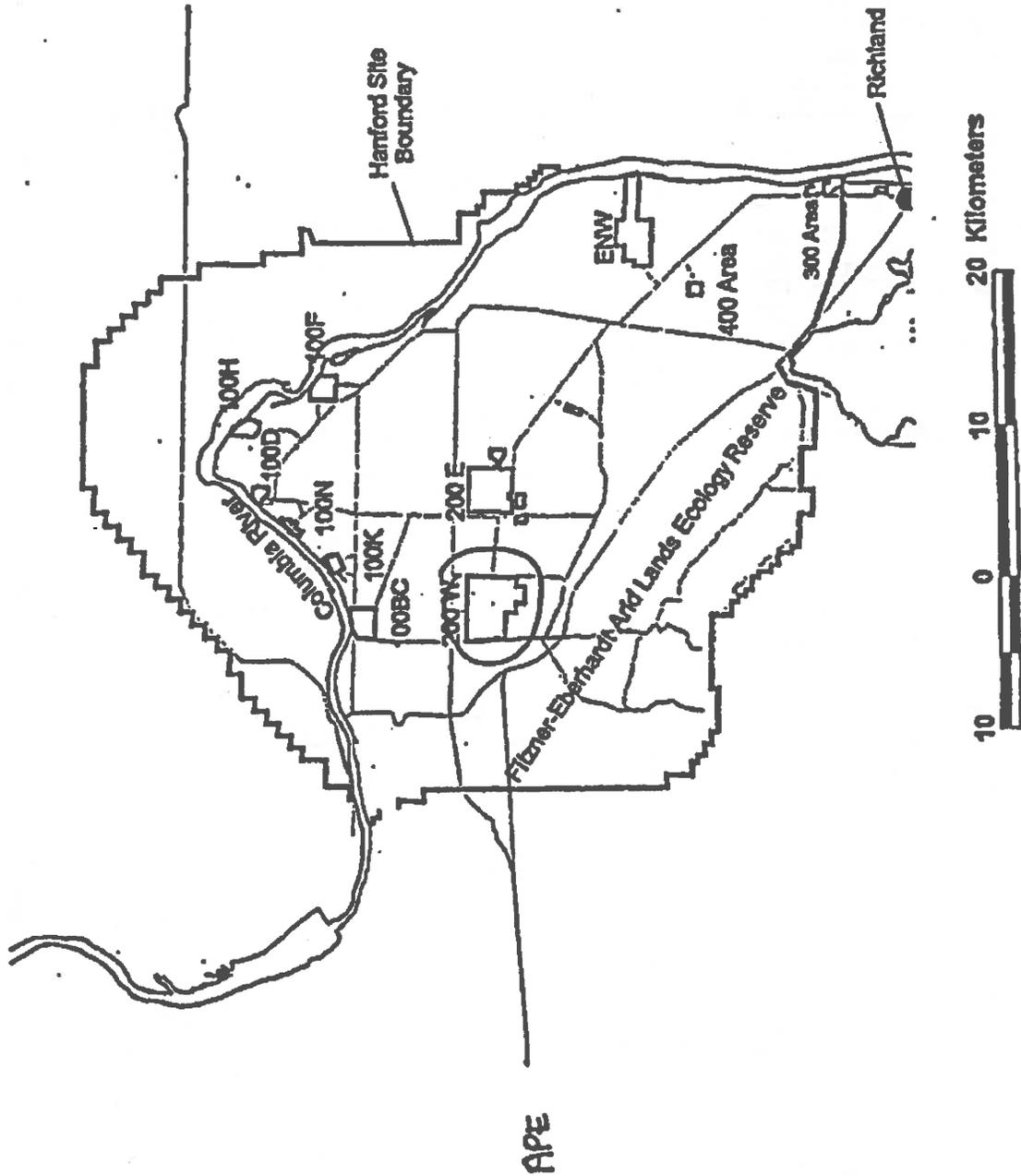
cc: A. L. Rodriguez, AS-58 (2)  
Environmental Portal, AS-01

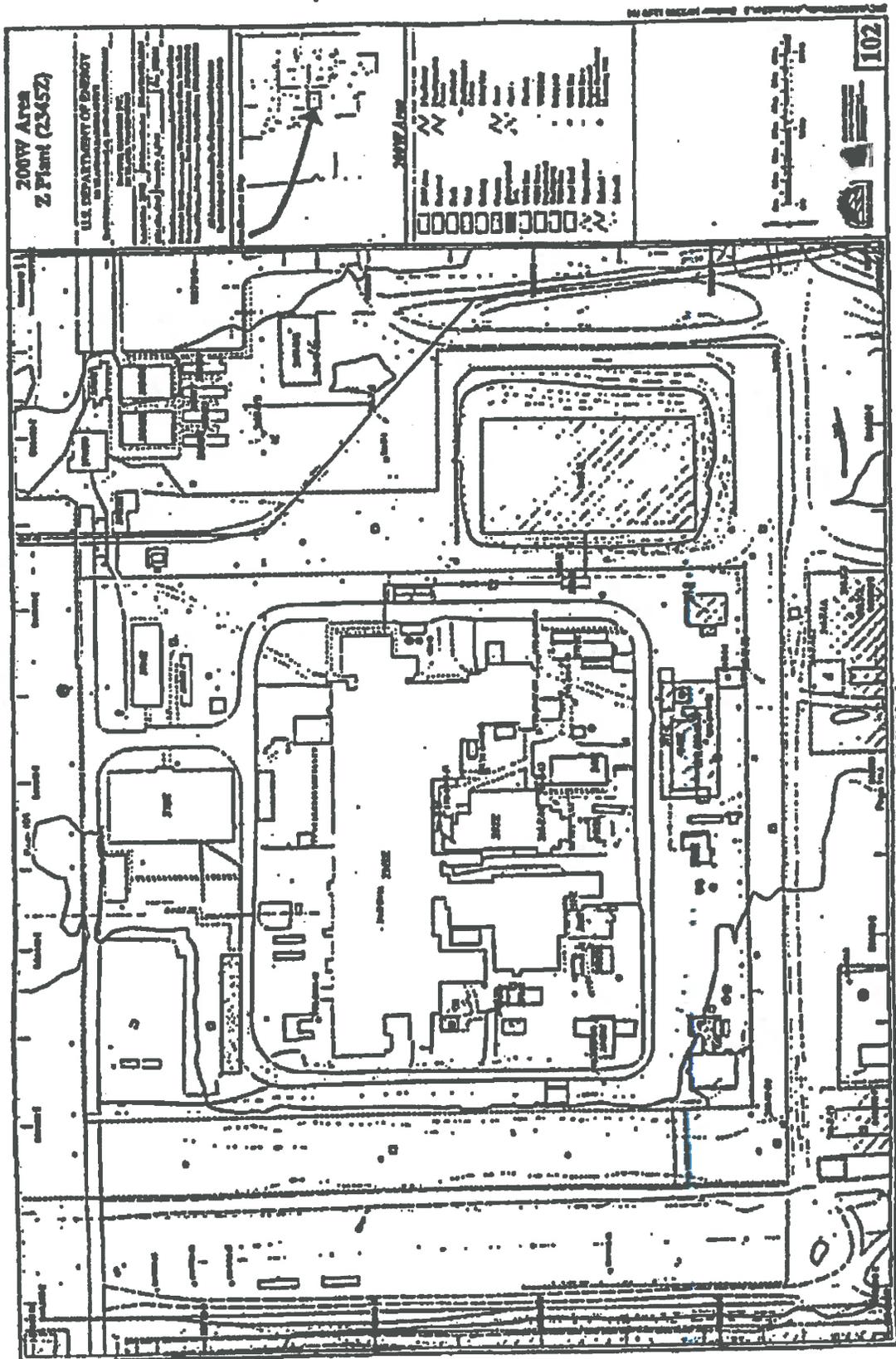
**Ms. Britta Nelson-Maki  
July 8, 2002  
Page 3**

**K.R. Welsch, N1-25  
File/LB**



# Hanford Site







STATE OF WASHINGTON

**OFFICE OF COMMUNITY DEVELOPMENT**  
**Office of Archaeology and Historic Preservation**  
1063 S. Capitol Way, Suite 106 - Olympia, Washington 98501  
(Mailing Address) PO Box 48343 - Olympia, Washington 98504-8343  
(360) 586-3065 Fax Number (360) 586-3067

September 4, 2002

Mr. Joel Heddon  
Department of Energy  
Richland Operations Office  
P.O. Box 550  
Richland, Washington 99352

In future correspondence, please refer to:  
Log: 090402-24-DOE  
Re: Demolition of 232-Z Facility HCRC 2002-200-047

Dear Mr. Heddon:

Thank you for contacting the Washington State Office of Archaeology and Historic Preservation (OAHP) regarding the above referenced proposal. This consultation is in adherence to the National Historic Preservation Act of 1966 (as amended) and implementing regulations 36 CFR Part 800. From your correspondence I understand that the Department of Energy (DOE) proposes to undertake activities resulting in the decommissioning and demolition of the 232-Z incinerator in the 200 West Area.

In response and on behalf of the State Historic Preservation Officer (SHPO), I concur with your determination that this action will have an adverse effect the National Register of Historic Places eligible 232-Z Facility and the Hanford Site Historic District. However, in recognition of mitigation already completed in fulfillment of the Memorandum of Agreement (MOA) and the Programmatic Agreement Among the U.S. Department of Energy Richland Operations Office, The Advisory Council on Historic Preservation, and the Washington State Historic Preservation Officer for the Maintenance, Deactivation, and Demolition of the Built Environment on the Hanford Site, Washington, further mitigating measures related to this action are not required. However, in the event archaeological resources are discovered during any ground disturbing activities, work should be halted immediately and contact made with OAHP and interested tribal representatives.

Again, thank you for the opportunity to review and comment on this action. Should you have any questions, please feel free to contact me at 360-586-3073.

Sincerely,

  
Gregory Griffith  
Deputy State Historic Preservation Officer

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SEP 10 2002

**DOE-RL/RLCC**



STATE OF WASHINGTON  
**OFFICE OF COMMUNITY DEVELOPMENT**  
**Office of Archaeology and Historic Preservation**  
1063 S. Capitol Way, Suite 106 - Olympia, Washington 98501  
(Mailing Address) PO Box 48343 - Olympia, Washington 98504-8343  
(360) 586-3085 Fax Number (360) 586-3087

September 4, 2002

Mr. Joel Heddon  
Department of Energy  
Richland Operations Office  
P.O. Box 550  
Richland, Washington 99352

In future correspondence, please refer to:  
Log: 090402-27-DOE  
Re: Laydown Yard to Support Deactivation and  
Dismantling of PFP Facility, HCRC 2002-200-063

Dear Mr. Heddon:

Thank you for contacting the Washington State Office of Archaeology and Historic Preservation (OAHP) regarding the above referenced proposal. This consultation is in adherence to the National Historic Preservation Act of 1966 (as amended) and implementing regulations 36 CFR Part 800. From your correspondence I understood that the Department of Energy (DOE) proposes to mechanically grade to eliminate irregular surfaces to no more than 1 foot to bring the PFP facility to slab on-grade.

In response and on behalf of the State Historic Preservation Officer (SHPO), I concur with your determination that this action will have no effect on the National Register of Historic Places eligibility status of PFP Facility and the Hanford Site Historic District. In view of our concurrence, further contact with OAHP on this matter is not necessary. However, should the project scope of work change significantly or should archaeological resources become evident during excavation, work should be halted immediately and contact OAHP and interested tribal representatives for further consultation.

Again, thank you for the opportunity to review and comment on this action. Should you have any questions, please feel free to contact me at 360-586-3073.

Sincerely,

Gregory Griffith  
Deputy State Historic Preservation Officer

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SEP 10 2002

DOE-RL/RLCC



Department of Energy  
Richland Operations Office  
P.O. Box 550  
Richland, Washington 99352

03-RCA-0082

DEC 5 2002

Dr. Allyson Brooks  
State Historic Preservation Officer  
Office of Archaeology and Historic Preservation  
Washington Department of Community,  
Trade and Economic Development  
P.O. Box 48343  
Olympia, Washington 98504

Dear Dr. Brooks:

**CULTURAL RESOURCES REVIEW (CRR) FOR THE PLUTONIUM FINISHING PLANT (PFP) DECOMMISSIONING PROJECT – DEMOLITION OF TEN BUILDINGS THAT ARE ELIGIBLE FOR LISTING IN THE NATIONAL REGISTER OF HISTORIC PLACES (HCRC # 2002-200-021)**

Enclosed is a CRR completed by the U.S. Department of Energy, Richland Operations Office's (RL) Hanford Cultural Resources Laboratory (HCRL) (Enclosure 1). The closure project plan for PFP entails the deactivation and demolition of the entire complex to slab-on-grade by 2009. Completion of pending environmental decision documentation is required before the demolition planning can be completed. Due to the requirement for soil cleanup and facility cleanout to reduce mortgage costs and risk to workers, the public, and the environment, baseline planning assumes removal of the buildings so that cleanup near and under the building foundation can occur, if necessary.

The ten buildings that are the subject of the enclosed CRR have been designated as having historic significance. RL concurs with the HCRL finding that the undertaking will affect the ten buildings. However, the adverse effects of demolition have been mitigated through written documentation in accordance with applicable stipulations of the "Programmatic Agreement (PA) among RL, the Advisory Council on Historic Preservation, and the Washington State Historic Preservation for the Maintenance, Deactivation, Alteration, and Demolition of the Built Environment on the Hanford Site, Washington (DOE/RL-96-77)." [Note: A CRR for 232-Z was sent in letter number 02-RCA-0527 entitled, "Transmittal of Two Cultural Resources Review (CRR): Laydown Yard to Support Deactivation and Dismantling of the Plutonium Finishing Plant (PFP) (HCRC #2002-200-063) and Demolition of 232-Z Facility (HCRC #2002-200-047)," dated August 26, 2002. Your office concurred with our finding, Log: 090402-24-DOE, that mitigation of 232-Z was completed under the PA].

The "History of the Plutonium Production Facilities at the Hanford Site Historic District, 1943-1990," recommended that four of the ten buildings (i.e., 234-5Z, 291-Z, 232-Z, and 2736-Z) be preserved in-place for heritage tourism; however, because of public safety and national security concerns, preservation of these four buildings is not expected. Discussion in Chapter 4 of that document anticipated that not all buildings recommended for preservation could or would be preserved.

Dr. Allyson Brooks  
03-RCA-0082

-2-

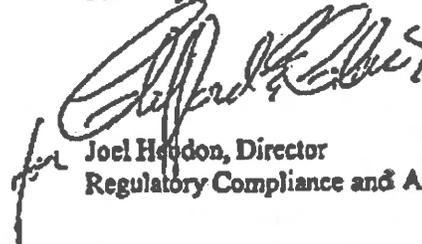
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The enclosed Interpretation and Curation Plan (Enclosure 2) also contains a list of artifacts/equipment that have been tagged. Some of the tagged artifacts are located in contaminated regions. RL plans to attempt to decontaminate artifacts located in radiation areas, e.g., the RMA line, but if decontamination techniques prove impractical during field implementation, the release of these artifacts will probably not be achieved. The ability to free release radiological contaminated items is most likely low. A PFP onsite interpretation center will be contingent upon pending environmental decision documentation.

The issue with radiologically contaminated artifacts is that artifacts cannot be released to the public domain if they are found to have levels of radiological contamination above established release criteria. In some cases, it may be impossible to achieve such release criteria. Artifacts/equipment that have been identified will first need to be surveyed for contamination, and those that pass this survey will then need to be reviewed by security personnel to confirm there are no classification issues. Once this is done, the artifacts that can be released will be transferred to a storage facility.

Pursuant to 36 CFR 800.2 (4), we are providing documentation to support these findings and involve your office as a consulting party in the National Historic Preservation Act Section 106 Review. If you have any questions, please contact Annabelle L. Rodriguez, of my staff, on (509) 372-0277.

Sincerely,

for Joel Heddon, Director  
Regulatory Compliance and Analysis Division

RCA:ALR

Enclosures

cc w/encls:

J. Crisler, ACHP  
A. Fyall, Benton County  
A. B. Heriford, HWBP  
A. Hulse, EBCHS  
J. Sonderman, FCHS  
A. P. Vinther, HRA

cc w/o encls:

D. W. Harvey, PNNL  
B. B. Nelson-Maki, FHI  
D. S. Takasumi, FHI

## Pacific Northwest National Laboratory

Operated by Battelle for the  
U.S. Department of Energy

July 8, 2002

**REVISED ON October 29, 2002**

*Adverse Effect to Historic Properties  
SHPO review required*

Ms. Britta Nelson-Maki  
Fluor Hanford  
Plutonium Finishing Plant Environmental Compliance  
MSIN T5-50

**Subject:** REVIS<sup>E</sup>D Cultural Resources Review for Plutonium Finishing Plant (FPF) Decommissioning Project - Demolition of 10 Buildings that are eligible for listing in the National Register of Historic Places (HCRC# 2002-200-021).

Dear Ms Nelson-Maki

In response to your request received July 1, 2002, staff of the Hanford Cultural Resources Laboratory (HCRL) conducted a cultural resources review of the subject project located in the 200 West Area of the Hanford Site. This project is located in the 200 West area of the Hanford Site, Richland, Washington and will entail the deactivation and demolition of 10 Buildings that are part of the PFP complex. These buildings/structures will be removed and disposed, and all buildings will be demolished to slab on grade. Below grade work is not included as part of this work scope. 232-Z and 30 Ancillary Buildings were reviewed under separate cover (HCRC# 2002-200-048) and (HCRC# 2002-200-047). The following is a list of the historic buildings/structures to be deactivated and demolished and the status of work completed under the Programmatic Agreement Among the U. S. Department of Energy Richland Operations Office, The Advisory Council on Historic Preservation, and The Washington State Historic Preservation Office For the Maintenance, Deactivation, Alteration, and Demolition of the Built Environment on the Hanford Site, Washington (DOE/RL-96-77) (PA).

Building	Description	HPIE/EXHIF Completed	Walkthroughs
234-5Z	Plutonium Finishing Plant	Yes	Yes
234-5ZA	234 5X South Annex	Yes	Yes
236-Z	Plutonium Reclamation Facility	Yes	Yes
242-Z	Waste Treatment Facility	Yes	No*
2701-ZA	Central Alarm Station	Yes	No*
2704-Z	Office Building	Yes	Yes
2736-Z	Primary Plutonium Storage Facility	Yes	Yes
2736-ZA	Primary Plutonium Storage Annex	Yes	Yes
2736-ZB	Primary Plutonium Storage Support	Yes	Yes
291-Z	Plant Air Filter and Exhaust Stack	Yes	Yes

\*Unable to obtain access due to health and safety and/or security reasons.

902 Battelle Boulevard • P.O. Box 999 • Richland, WA 99352

Telephone (509) 376-4626 ■ Email [ellen.prendergast@pnl.gov](mailto:ellen.prendergast@pnl.gov) ■ Fax (509) 376-2210

Ms. Britta Nelson-Maki  
July 8, 2002  
Page 2

### Notifications and Public Involvement

On July 8, 2002

- Per 36 CFR 800, the State Historic Preservation Officer (SHPO) and Tribes were notified of this cultural resources review request and the Area of Potential Effect (APE). The APE is defined as the 10 buildings eligible to the National Register and their greater association with the PFP complex and the Manhattan Project/Cold War Era Historic District (District)

**Results of the Identification of Historic Properties Survey (Literature and Records Review)**  
A preliminary records and literature review conducted by HCRL staff on July 1, 2002, revealed that according to the PA all of these facilities are eligible for listing in the National Register of Historic Places as contributing properties to the Manhattan Project and Cold War Era Historic District. Documentation of the PFP Complex buildings was done by Historic Property Inventory Forms (HPIFs) or Expanded Historic Property Inventory Forms (ExHPIFs) and also included in the narrative in *The Hanford Site Historic District* (DOE/RL-97-1047). All facilities have also had walkthroughs completed and artifacts with the potential for educational and interpretive value have been identified and tagged. Below is a list of facilities and artifacts tagged:

1. 2704-Z: classified documents vault; typology of "cans" poster; vintage fluorescent light fixtures in the janitor closet
2. 2736-Z: storage vaults and contents (28 pedestals used to store plutonium oxide and metals)
3. 2736-ZB: dry air glovebox in Room 636; radiation detection device (Radiation Detection 246)
4. 234-5Z/-5ZA: entire RMC line and control room (234-5Z-1798-1, HC-7C Feed and Prep Panel; 234-5Z-1798-2, HC-13MD Charge Prep Panel; 234-5Z-1798-3, HC-175BB Button Weighing and Sampling; 234-5Z-4199-4, Mixing Bowl; 234-5Z-4199-5, Crucible); entire RMA line and control room (234-5Z-1798-4, line and control panels, including 7 photo albums)
5. 234-5Z Analytical Laboratory: 234-5Z-1798-5, mass spectrometer in room 132; 234-5Z-1A, spectrograph in room 137; 234-5Z-2A, emissions spectrometer in room 136; 234-5Z-3A, Radio Flyer Wagon/fixed array wagon in room 145; 234-5Z-4A, Sintering Company press/glovebox in room 145; 234-5Z-5A, gloveboxes and hoods in room 144; 234-5Z-6A, sample prep area gloveboxes and hoods in room 139; 234-5Z-7A, emissions spectrometer camera in room 133; 234-5Z-8A, maintenance dolly in room 235A; 234-5Z-9A, MI-M2 storage container in room 234A)
6. Photographs albums in Building 270-Z (Room 51).

Although *The Hanford Site Historic District*, Chapter 4, recommends that 234-5Z, 291-Z, 232-Z and 2736-Z be preserved in place, for reasons of public safety as well as national security, this currently is not the plan (DOE/RL-97-1047).

Ms. Britta Nelson-Maki  
July 8, 2002  
Page 3

The project area has not been surveyed for archaeological resources, but aerial photographs indicate that these buildings are located in a disturbed area.. Cultural resource surveys conducted within 1 kilometer of the APE have only located one historic property, the White Bluffs Road (H3-121) that has been determined eligible for listing in the National Register. Overall, however, the project is located in an area of low archaeological sensitivity and the potential for the presence of subsurface archaeological resources is low.

**Findings and Actions Required**

It is the finding of HCRL that this undertaking is an adverse effect to all 10 facilities. To complete mitigation of these adverse effects, the following actions are recommended:

1. Develop an interpretive plan for the PFP complex that would support heritage tourism.
2. Develop a plan to identify, collect and curate artifacts with support from Columbia River Exhibition of History, Science and Technology (CREHST):

**RL's Hanford Cultural Resources Program will submit official documentation to the SHPO, Tribes and interested parties of our findings. Pursuant to 36CFR Section 800, SHPO and tribes have 30 days to respond in receipt of this letter. No project activities can begin until the SHPO has concurred with our findings stated above.**

The workers must be directed to watch for cultural materials (e.g., bones, artifacts) during all work activities. If any are encountered, work in the vicinity of the discovery must stop until an HCRL historian has been notified to assess the significance of the find, and, if necessary, arrange for mitigation of the impacts to the find. HCRL must be notified if any changes to project location or scope are anticipated. This project is a Class 6 involving demolition/remodeling of structures construction in a disturbed low-sensitivity area. If you have any questions, please call me at 376-4626. Please use the HCRC# above for any future correspondence concerning this project.

Very truly yours,

  
Ellen Prendergast, M. A.  
Research Scientist/Anthropologist  
Cultural Resources Project

Concurrence:   
D. C. Stapp, Project Manager  
Cultural Resources Project

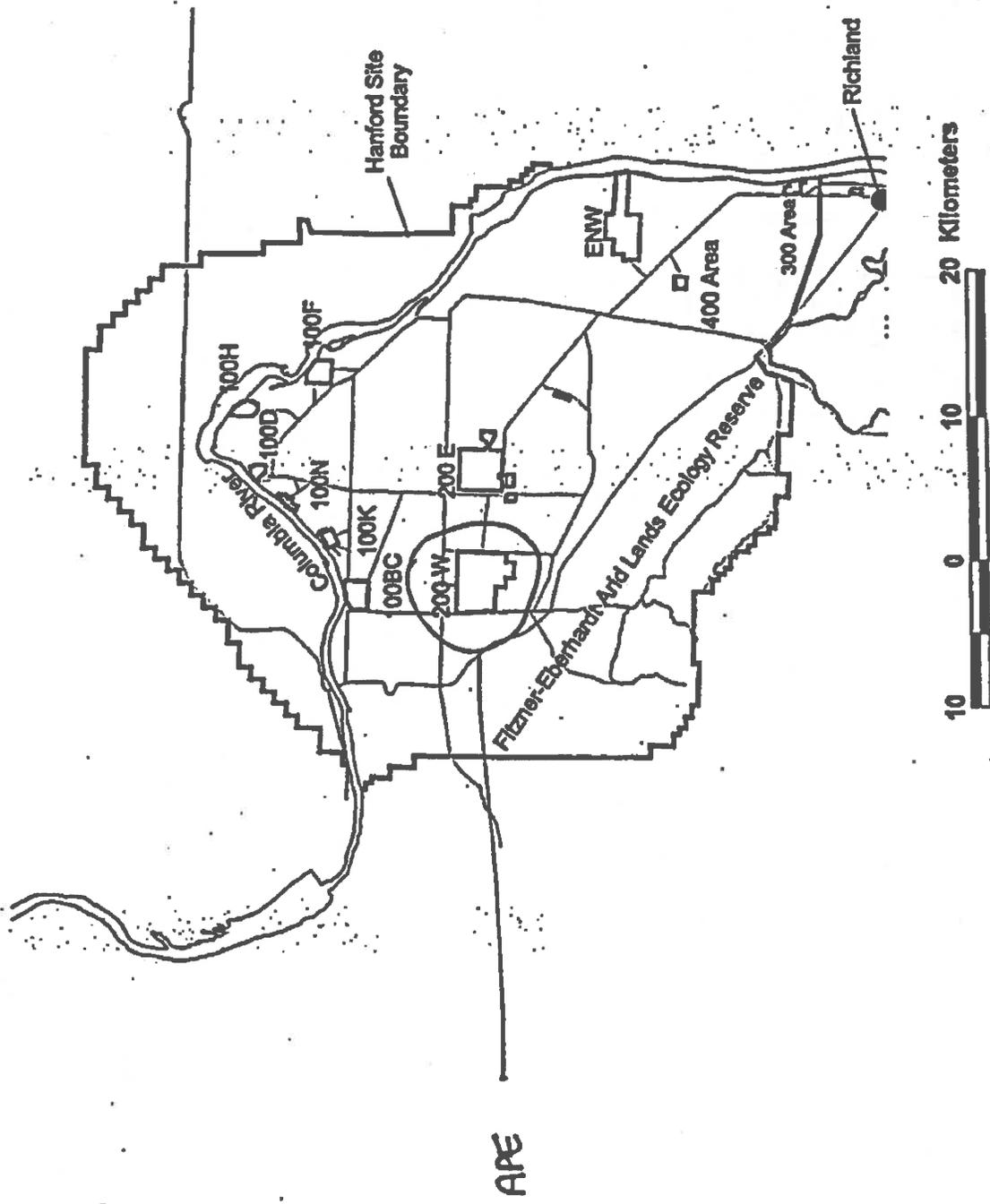
Review and Concurrence:   
A. L. Rodriguez  
DOE, Richland Operations Office, Hanford Cultural Resources Program

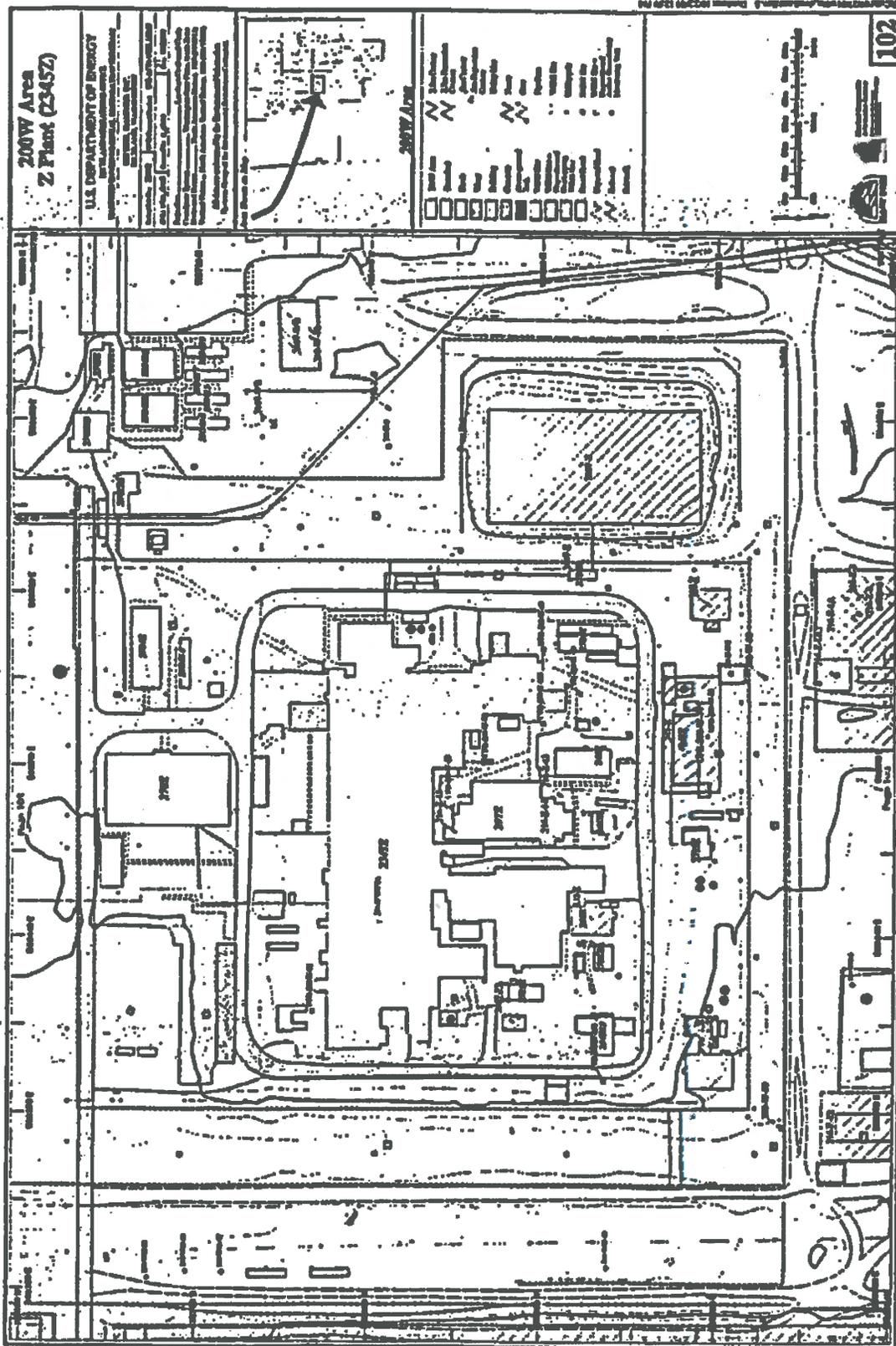
cc: A. L. Rodriguez, A5-58 (2)  
Environmental Portal, A3-01  
K.R. Welsch, N1-25

Ms. Britta Nelson-Maki  
July 8, 2002  
Page 4

File/LB

# Hanford Site





RL-035 (10/00)		<b>REQUEST FOR CULTURAL AND/OR ECOLOGICAL RESOURCES REVIEW FOR THE HANFORD SITE</b>		Review Tracking Number	
<b>ERC Projects (BHI, CH2M HILL)</b> Direct Form and Cultural Resource Questions To: Teri Marceau Phone 372-9289 Fax 372-9654 MSIN H0-23  Direct Form and Ecological Resource Questions To: Ken Gano Phone 372-9316 Fax 372-9654 MSIN H0-23		<b>All Other Hanford Projects (PHMC, PNNL, Other)</b> Direct AF Forms and Cultural Resource Questions To: Ellen Prndergest Phone 376-4626 Fax 373-2958 MSIN K6-75  Direct Ecological Resource Questions To: Mike Sackachewsky Phone 376-2554 Fax 372-3515 MSIN K6-85			
Date Sent: 3/12/02		Date Findings Requested By: 3/18/02			
Primary Contact: Britta Nelson-Maki  E-mail: Telephone: 372-3058		Company/Organization: FH/PPF Environmental Compliance  Fax: 373-4274 MSIN: T5-57			
Secondary Contact: Karl Hadley  Telephone: 372-2852		Company/Organization: FH/PPF Environmental Compliance  Fax: 373-4274 MSIN: T5-57			
Project Name: D&D of PFP Facility to Slab-on-Grade Project Number/COA: 116502 RL Project Manager: George Dragsath					
REQUESTOR SHOULD SUBMIT A COPY OF THIS REQUEST TO THE RL PROJECT MANAGER UNDER WHOM THEIR PROJECT FALLS WITHIN 6 DAYS.					
<b>Project Description, including Time Period over which proposed action will occur:</b> During FY 2002 through FY 2016, the PFP facility will be cleaned out, systems will be deactivated, equipment will be removed and disposed, and all buildings will be demolished to slab-on-grade. Below-grade work is not included as part of this work scope. NOTE: This work may be accelerated for completion by FY 2008-9 (as funds for acceleration are received by DOE-HQ). PFP has 11 buildings that have been designated as having historic significance; a HAER package has been prepared for 232-Z, and HPIFs and expanded HPIFs have been prepared for the remaining buildings. Also, historic artifacts have been identified and tagged.					
<b>Project Dimensions:</b> All buildings within the PFP fenceline and three buildings outside the PFP fenceline (i.e., 225-WC, 2904-2A and 2904-2B).					
Depth of Excavation(s):					
<b>Project Location:</b> <input type="checkbox"/> 100 Area <input type="checkbox"/> 200 East Area <input checked="" type="checkbox"/> 200 West Area <input type="checkbox"/> 300 Area <input type="checkbox"/> 400 Area <input type="checkbox"/> 600 Area <input type="checkbox"/> 700 Area <input type="checkbox"/> Other:					
Township _____ N, Range _____ E		UTM: Easting: _____ Northing: _____			
Please also provide the following: 1. Overview map showing project location (or other suitable map to assist in finding the project site) 2. Map or scale drawing showing all excavation areas (including water, sewer, and power lines, etc.), parking, topsoil storage areas, equipment staging areas, access roads, and utility corridors.					
Submitted By: Britta Nelson-Maki				Telephone: 372-3058	

Letter Report

**Interpretive Plan and Curation Plan for the  
Deactivation and Decommissioning of  
Historic Buildings at Plutonium Finishing  
Plant Complex (HCRC# 2002-200-021)**

**D. W. Harvey**

October 2002

Prepared for  
the U.S. Department of Energy  
under Contract DE-AC06-76RL01830

Pacific Northwest National Laboratory  
Richland, Washington 99352

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## Introduction

The baseline plan for the Plutonium Finishing Plant (PFP) is to decommission the entire complex to slab-on-grade by the year 2009. The Hanford Cultural Resources Laboratory (HCRL) of the Pacific Northwest National Laboratory (PNNL) is developing an interpretive plan and curation plan to complete the Request for Cultural Resources Review (HCRC# 2002-200-021) of the deactivation and decommissioning of the PFP. HCRC# 2002-200-021 encompasses 10 buildings that have been designated as having historic significance. Four of the buildings, 234-5Z, 291-Z, 232-Z and 2736-Z, have been recommended by RL for preservation for public education and interpretation through heritage tourism. In addition, HCRC# 2002-200-021 references the need for developing an interpretive plan for the four buildings and a curation plan for the artifacts identified/tagged in all of the historic buildings at PFP.

The cultural resources review will ensure that the project complies with the requirements of the National Historic Preservation Act of 1966 (as amended) and the Programmatic Agreement (PA) Among the U.S. Department of Energy, Richland Operations Office (DOE-RL), the Advisory Council on Historic Preservation, and the Washington State Historic Preservation Office for the Maintenance, Deactivation, Alteration, and Demolition of the Built Environment on the Hanford Site, Washington (DOE/RL-96-77).

As noted, ten buildings at PFP have been designated as having historic significance: 234-5Z/234-5ZA, 236-Z, 242-Z, 2701-ZA, 2704-Z, 2736-Z, 2736-ZA, 2736-ZB, 291-Z, and 232-Z. Mitigation through written documentation has been completed for all of the ten historic buildings in accordance with the stipulations outlined in the PA using either a historic property inventory form (HPIF), an expanded historic property inventory form (ExHPIF) or a Historic American Engineering Record (HAER) form. Table 1 lists the buildings designated as having historic significance along with the appropriate level of documentation that was completed for each building.

The PA also required RL to complete walkthroughs of the historic buildings that required individual documentation/mitigation to assess the contents of these facilities to locate and identify any artifacts that may have interpretive or educational value as potential exhibits within local state, or national museums. Artifacts were identified and tagged in Buildings 2704-Z, 2736-Z, 2736-ZB, 234-5Z, and 236-Z. Table 2 provides a list of the artifacts along with information regarding locations, dimensions, and preliminary qualitative radiological contamination.

The interpretive plan focuses on historic Buildings 234-5Z, 291-Z, 232-Z, 2736-Z, which are recommended by DOE-RL to be preserved in-place for public education and interpretation through heritage tourism (DOE 2002). The curation plan provides recommendations for the transfer of artifacts identified and tagged during walkthroughs of historic buildings at PFP to a DOE-approved storage and/or interpretive facility. Recommendations made in these two plans by HCRL provide direction on the resolution of the issues involved in the final mitigation of the historic buildings and curation of Cold War era artifacts identified at PFP.

## Interpretive Plan

### Heritage Tourism

The DOE-RL and a Federal/Public working group recommended that selected buildings on the Hanford Site be preserved in-place for public education and historical interpretation through heritage tourism (DOE 2002). PFP, like much of the Hanford Site, still retains the potential for in-place public interpretation. "The working group reasoned that a full appreciation of the Hanford Site could only be obtained by ensuring that selected structures across the site be maintained in place so as to present to the visitor the true scale of the industrial landscape" (DOE 2002, p. 4.2).

At PFP, Buildings 234-5Z, 291-Z, 232-Z, and 2736-Z were selected by the working group and Department of Energy to interpret the plutonium finishing process at the Hanford Site. DOE has determined that these four buildings are eligible for inclusion in the National Register of Historic Places as contributing properties to the Hanford Site Manhattan Project and Cold War Historic District and recommended for individual documentation/mitigation. Historic documentation of the four facilities has been completed (see Table 1).

**Table 1. Buildings at PFP Having Historic Significance and Mitigated Through Individual Documentation**

Building Number	Name	Documentation
232-Z	Contaminated Waste Recovery Facility	HAER <sup>(a)</sup>
291-Z	Air Filter and Exhaust Stack	HPIF <sup>(b)</sup>
234-5Z/234-5ZA	Plutonium Finishing Plant/ South Annex	ExHPIF <sup>(c)</sup>
236-Z	Plutonium Reclamation Facility	ExHPIF
242-Z	Americium Facility	ExHPIF
2701-ZA	Central Alarm Station	HPIF
2704-Z	Office Building	HPIF
2736-Z	Primary Plutonium Storage Facility	ExHPIF
2736-ZA	Primary Plutonium Storage Facility Annex	HPIF
2736-ZB	Primary Plutonium Storage Support Facility	HPIF
(a) Historic American Engineering Record. (b) Historic Property Inventory Form. (c) Expanded Historic Property Inventory Form.		

Building 232-Z, however, is not subject to consideration for preservation through heritage tourism. Prior to the adoption of the Programmatic Agreement for the Built Environment (DOE/RL-96-77), a Memorandum of Agreement (MOA) was signed between DOE-RL, Advisory Council on Historic Preservation, and the State Historic Preservation Officer outlining steps to mitigate Building 232-Z (DOE 1994). Mitigation in the form of a HAER documentation of Building 232-Z was stipulated in the MOA and was completed the following year. The MOA stated that once HAER documentation of 232-Z had been completed and the National Park Service had reviewed the final documentation for conformance to

HAER standards and accepted the document, demolition or alteration of 232-Z could proceed (DOE 1994). Assessment of the contents of 232-Z was conducted as well, and no artifacts were identified.

The working group felt that a site tour focusing on the facilities associated with the major plutonium production processes, including PFP was the best way to interpret Hanford's primary mission of producing plutonium. The plutonium production process at Hanford began with the manufacturing of fuel elements from uranium in the 300 area, followed by the irradiation of the fuel elements to make plutonium in the 100 Area reactors, and then the separation of the plutonium from the base uranium in the 200 Area's chemical separation canyon buildings. PFP played a critical role as the fourth and final stage in the plutonium production process -- refining and then shaping the plutonium for use in atomic weapons. The final processing of plutonium nitrate to metallic plutonium was accomplished at PFP.

## Radiological Contamination

While the Federal/Public working group identified Buildings 234-5Z, 291-Z, 2736-Z, and 232-Z (Building 232-Z is not being considered for preservation; see paragraph above) for preservation consideration through heritage tourism, the Group recognized that

a number of the structures selected for preservation are highly contaminated and may never be available for public access. Others . . . may be demolished because of existing Tri-Party Agreement milestones that may not be alterable . . . for those that are not . . . irreversibly contaminated, the cost of stabilization and long-term maintenance will depend on the current condition of the building, its size, and complexity, and its intended use in public education and interpretation; for instance, visiting the interior or only viewing the exterior . . . (DOE 2002, p. 4.7).

DOE-RL has health and safety and security concerns that could affect public access to the entire 200 Areas for many years to come, and, thus, have ramifications on preservation options for facilities and artifacts in PFP. The PFP Decommissioning Project (Project) supports DOE-RL's preservation initiatives and current policy to promote public interpretation and education through heritage tourism. The current baseline budget, however, does not include funding for implementation of the interpretive/curation plan recommendations in this study. Reasonable costs for mitigating the impacts of taking the PFP Complex to slab-on-grade and for decontaminating artifacts for potential public use still need to be determined and subsequently incorporated into the Project budget.

Finally, the costs of decontamination and long-term maintenance and stabilization of Buildings 234-5Z, 291-Z, and 2736-Z for public access are not known at this time.

## Recommendations

The deactivation and decommissioning of the entire PFP complex to slab-on-grade and removal of all the historic buildings would seriously diminish the ability to communicate to the Hanford Site visitor the complete story of the plutonium production process at Hanford. In light of this situation, and realizing the daunting complexities that health and safety issues and security concerns present, and the unpredictability of decontamination and long-term maintenance and stabilization costs, HCRL recommends an alternative course of action. Assuming public access for heritage tourism to the 200 Areas is resolved, HCRL

recommends the retention of a noncontaminated support structure (e.g., 270-Z office building; 2704-Z office building; OCF) in the PFP complex to serve as an interpretive center that could illustrate the history and significance of PFP. Displays in the facility consisting of industrial/scientific artifacts, posters, signs, panels, posters, models, mockups, and oral history recordings could adequately illustrate the heritage of this important complex to the site visitor.

## Curation Plan

Walkthroughs/assessments of the ten historic buildings have been completed. Artifacts were identified and tagged in five of the ten buildings: 2704-Z, 2736-Z, 2736-ZB, 234-SZ and 236-Z. (A walkthrough was also conducted of Building 2736-ZC, a non-historic building, because of the potential of significant artifacts in the facility. Two artifacts associated with vault storage were tagged.) HCRL was not able to conduct walkthroughs of historic Buildings 242-Z and 2701-ZA due to health and safety and/or security concerns.

To complete the cultural resources review of the project, walkthroughs were conducted of all the facilities where artifacts had been previously identified and tagged to assess their condition, locations, and, when possible, their dimensions. Dimensions were taken to obtain the size of the artifacts in order to estimate the space needed for their curation and storage. In several instances, new artifacts were identified and tagged, and walkthroughs were conducted of facilities (i.e., Building 236-Z) that previously were not available for assessment due to health and safety concerns. One previously identified artifact was not found, and another artifact has been broken and subsequently discarded.

Table 2 lists the identified and tagged artifacts at PFP. In many cases, dimensions of the tagged artifacts are included.

Table 2. Identified Artifacts at PFP

Item Number	Building	Location	Description	Dimensions	Radiologically Contaminated?		
					Yes	Unlikely <sup>(a)</sup>	Potentially <sup>(b)</sup>
234-SZ-1798-5	234-SZ	Analytical Lab, Room 132	Mass Spectrometer	7 ft high, 4 ft wide, 2 ft deep			X
234-SZ-1A	234-SZ	Analytical Lab, Room 137	Spectrograph	9 ft wide, 6 ft deep, 4.5 ft high			X
234-SZ-2A	234-SZ	Analytical Lab, Room 136	Emissions Spectrometer	10 ft long, 3 ft high, 3 ft deep <sup>(c)</sup>	X		
234-SZ-3A	234-SZ	Analytical Lab, Room 145	Radio Flyer Wagon/Fixed Array Wagon	3 ft long, 1.5 ft wide, 2 ft high			X
234-SZ-4A	234-SZ	Analytical Lab, Room 145	Sintering Company Glove box	14 ft long, 9 ft high, 3.5 ft wide	X		
234-SZ-5A	234-SZ	Analytical Lab, Room 144	Process Support Laboratory (glove boxes and hoods)	10 ft long, 3 ft high, 3 ft deep <sup>(c)</sup>	X		
234-SZ-6A	234-SZ	Analytical Lab, Room 139	Sample Prep Area (glove boxes and hoods)		X		
234-SZ-7A	234-SZ	Analytical Lab, Room 133	Emissions Spectrometer Camera	10 ft long, 3 ft high, 3 ft deep <sup>(c)</sup>	X		

Table 2. (contd)

Item Number	Building	Location	Description	Dimensions	Radiologically Contaminated?		
					Yes	Unlikely <sup>(a)</sup>	Potentially <sup>(b)</sup>
234-SZ-8A	234-SZ	Room 235D	Maintenance Dolly (Universal Dolly)	44 in. deep, 82 in. high, 23 in. wide			X
234-SZ-9A	234-SZ	Room 234A	Button Storage Container	16 in. deep, 16 in. wide, 25 in. high			X
	234-SZ		RMC Line and Control Room		X <sup>(a)</sup>		
234-SZ-1798-1	234-SZ	Room 229	HC-7C Feed and Prep Panel and Desk	86 in. high, 4 in. deep, 44 in. wide (panel); 15.5 in. deep, 32 in. wide, 35 in. high (desk)			X
234-SZ-1798-2	234-SZ	Room 229	HC-13MD Charge Prep Desk	30 in. wide, 15.5 in. deep, 35 in. high			X
234-SZ-1798-3	234-SZ	Room 229	HC-17SBB Button Weighing and Sampling Desk (There is no panel for this station)	24 in. wide, 15.5 in. deep, 35 in. high			X
234-SZ-4199-4	234-SZ	Room 229	Mixing Bowl <sup>(c)</sup>		NA <sup>(d)</sup>	NA	NA
234-SZ-4199-5	234-SZ	Room 229	Crucible <sup>(c)</sup>		NA	NA	NA
234-SZ-1798-4	234-SZ	Room 233/233A	RMA Line and Control Room, including desks, panels, and 7 photo albums	24 in. long by 17 in. wide (desks 13, 14, 15); desk 9C - 36 in. wide by 17.5 in. high; 80 in. high by 24 in. wide (panel 14); panel 9A - 48 in. wide by 86 in. high	X <sup>(a)</sup>		
PPF-2002-4	234-SZ	Room 320	RMB Helium Pressure Controller				X
PPF-2002-5	234-SZ	Room 320	Glove box containing blower that serviced the RMA and RMB lines		X		
2704-Z-1	2704-Z	Room 7	Cans Typology Poster			X	
2704-Z-2	2704-Z	Room 11	Demonstration/Training Cans			X	
2704-Z-3	2704-Z	Classified Documents Vault	Classified documents when/if they become unclassified			X	
2736-Z-1	2736-Z		Storage Vaults and Contents (28 pedestals used to store plutonium oxides and metals)				X
2736-ZB-1	2736-ZB	Room 636	Dry Air Glove box		X		
PPF-2002-3	2736-ZB		Radiation Detection Device #246				X

Table 2. (contd)

Item Number	Building	Location	Description	Dimensions	Radiologically Contaminated?		
					Yes	Unlikely <sup>(a)</sup>	Potentially <sup>(b)</sup>
PPF-2002-1	2736-ZC	Loading Dock	14-container metal pedestals from 2736-Z (Vault 4) used for storage of plutonium oxide and metal (7.5 in. cans)	85 in. high by 12 in. wide			X
PPF-2002-2	2736-ZC	Loading Dock	Wooden mockup of storage pedestals (similar to pedestals used in Vault 1, 2736-Z)	25.5 in. wide by 95 in. high		X	
PRF-1	236-Z	4 <sup>th</sup> Floor	Plutonium Flow Schematic for Plutonium Nitrate Reclamation Facility Poster				X
PRF-2	236-Z	4 <sup>th</sup> Floor	Control Room Panels (No. B-3/B-4)				X

(a) Unlikely implies that the artifact is located in an area that is not radiologically controlled (e.g., an administrative office area) and consequently, no radiological contamination would be expected to be found when surveyed.

(b) Potentially implies that because of where the artifact is located (i.e., in areas controlled for radiological purposes, including areas where individuals are allowed to walk around in their street clothes) there is the potential to encounter radiological contamination on surfaces of the artifact when it is surveyed.

(c) Dimensions are for the glove box that houses the instrument. Height does not include legs of the glove box.

(d) The Remote Mechanical C (RMC) Line, which houses plutonium processing and stabilization equipment, is highly contaminated. The equipment in RMC Control Room has the potential to be radiologically contaminated.

(e) This item was not located during the assessment for preparing the mitigation/curation plan.

(f) Not applicable

(g) This item was not located during the assessment for preparing the mitigation/curation plan. Upon further investigation, plant personnel reported that this item was broken inadvertently during routine surveillances and was discarded.

(h) The Remote Mechanical A (RMA) Line, which houses plutonium processing and stabilization equipment, is highly contaminated. The equipment in RMA Control Room has the potential to be radiologically contaminated.

## Curation of Artifacts

The dimensions/size of artifacts, existence of adequate artifact repositories, and radiological contamination are issues and concerns for the transfer of artifacts from PFP facilities to a DOE-approved storage repository.

## Radiological Contamination

The issue of radiological contamination of tagged artifacts is a major concern. For artifacts to be transferred from the Hanford Site to a museum or any other public use, they need to be released in accordance with the requirements of DOE Order 5400.5 including radiological release surveys as described in HNF-IP-0718, Release Surveys for Material and Equipment. An artifact cannot be released to the public domain if it is found to have radiological contamination in excess of established release criteria. If a piece of equipment or machinery has the potential of radiological contamination, then a scientist and/or craftsman will be required to take apart an artifact so all surfaces that are contaminated or potentially contaminated can be thoroughly surveyed and decontaminated as necessary to meet such established release criteria. During the decontamination process, the RCT can do a survey of the

Individual parts of the artifact to determine levels of contamination. This process will need to be done in order to be able to determine whether a contaminated artifact can be decontaminated and released or not.

From a radiological standpoint there is no reason why the items can't be released if they meet the criteria of the release procedure. If any of them are deconed or have been deconed, they will have to meet the 95% confidence level survey, which is very time consuming for potential alpha activity, especially for large items. Even the survey of the picture book could be very time consuming if every page requires survey. It's sometime helpful for the HPT to have a release plan to indicate exactly what they're to do . . . Some HPTs won't survey wood if they see a potential for absorption into the wood. The same goes for items with internal parts; some HPTs won't release instruments without them being torn to pieces. The procedure says to try to assay internal surfaces through vents or openings, but sometimes this can't be done thoroughly. If any of the equipment has grease, this can cause difficulty, as it becomes a volumetric survey, which is expensive. Additionally, some of this equipment may contain radioactive material in the form of consumer products that can be difficult to distinguish from Hanford activity (Ortley 2002, pp. 1-2).

Items in a glove box in the RMA or RMC Lines, for instance, are obviously so contaminated that obtaining unrestricted release is very remote. Alternatively, clean glove boxes exist elsewhere on site for potential exhibit purposes. If an artifact has been painted at Hanford, it most likely was done so to reduce exposure to significant levels of contamination, so it would probably require extensive decontamination in order to release the artifact.

The costs of decontamination of artifacts are unknown at this time because estimates for disassembling, conducting radiological surveys, and re-assembling identified artifacts at PFP have not been determined yet; however, it is anticipated that these costs would be significant.

Finally, the Project feels that not only will identified artifacts need to be surveyed for radiological contamination, but artifacts that may be released for public use will need to be reviewed by Security personnel to make sure there are no classification issues.

### Storage of Artifacts

The transfer of artifacts from PFP to a DOE-approved storage and/or interpretive facility presents numerous challenges. The Columbia River Exhibition of History, Science and Technology (CREHST) manages the Manhattan Project and Cold War artifacts collection for the DOE-RL. The current CREHST storage facility located in Building 55 in the Columbia Generating Station Exclusion area at Energy Northwest, however, has almost reached full capacity and does not meet minimum museum standards for curation and preservation of artifacts, even as an interim curation facility (USACE 2000). The DOE-RL Cultural Resource Program is looking to transfer the Manhattan Project/Cold War artifact collection from Building 55 and placed in a more suitable and larger area so that adequate long-term maintenance of the artifacts and records could be provided.

Another concern with the current artifact storage facility at Energy Northwest is that due to heightened security concerns at Energy Northwest, the previous lease of the facility to CREHST has been cancelled and replaced with a new agreement that allows Energy Northwest to cancel use of the storage area at anytime, only having to give CREHST 30 days to vacate (Energy Northwest 2002). Thus, the lack of a long-term storage repository for the Manhattan Project and Cold War artifact collection, and the current

and tenuous use of a substandard storage facility could have major ramifications on the future integrity and transfer of the artifacts at PFP.

One issue that is not currently a concern is the transporting of artifacts from various site locations to Building 55. Fluor Hanford has been moving artifacts to the Energy Northwest facility at no additional cost for CREHST.

## Recommendations

As noted in the interpretive plan, the preferred course of action would be the establishment of a storage and/or interpretive center for PFP artifacts located at PFP. CREHST is currently working with DOE-RL to secure long-term curation facilities. HCRL recommends that the Project set aside storage space within the PFP facility for placement of the PFP artifacts while deactivation and decommissioning activities are being completed or suitable storage space is obtained, and until an interpretive center is established. The preferable course of action would be to have the Project and DOE-RL preserve a noncontaminated facility at PFP (2704-Z; 270-Z; OCF) to be used as an interpretive center in the future.

In Building 2704-Z, the Classified Documents Vault contains documents that may be of historical research interest. HCRL recommends that if/when the classified documents become unclassified, then the DOE-RL Cultural Resources Program should be contacted before any documents are destroyed so personnel can review the documents to determine if they may contain historically significant information.

An assessment was conducted in 2000 for DOE-RL of potential curation facilities at the Hanford Site by the Corps of Engineers' Mandatory Center of Expertise for the Curation and Management of Archaeological Collections in St. Louis. Five DOE-RL facilities were evaluated. While ratings of the facilities varied from good to fair to poor, each of the ones examined would need to undergo complete rehabilitation before being able to serve as a long-term curation facility for the Hanford collection. This report also noted that Building 55, which currently holds the collection, is substandard, even as an interim curation facility (USACE 2000).

HCRL also recommends that if identified artifacts are found to be contaminated and, therefore, not economically feasible for decontaminating for public use, they will need to be documented with additional video and photographic recordation in order to complete the mitigation of the tagged artifacts due to the potential loss of these items.

The fate of artifacts at PFP depends also on whether DOE-RL can secure a long-term storage facility that meets professional museum/curation standards. As noted, the preferable course of action would be if DOE could secure a facility at PFP for artifact storage and/or interpretation to illustrate the heritage of PFP and the significant role it played in the Cold War.

Finally, due to the complexities of the type of research and production carried out in many of the historic buildings, and the myriad of equipment and other technological and industrial features at PFP, HCRL believes that as decommissioning progresses numerous scientific items, including photographs, drawings, publications, models, will inevitably be found that may have significant interpretive and potential museum exhibit value, which were overlooked during walkthroughs. Hopefully these items can be set

aside to allow HCRL staff to assess whether they have interpretive and/or potential exhibit value for curation into the Hanford collection.

## References

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## Pacific Northwest National Laboratory

Operated by Battelle for the  
U.S. Department of Energy

July 8, 2002  
**REVISED ON October 29, 2002**

*Adverse Effect to Historic Properties  
SHPO review required*

Ms. Britta Nelson-Maki  
Fluor Hanford  
Plutonium Finishing Plant Environmental Compliance  
MSIN T5-50

**Subject:** REVIS~~E~~D Cultural Resources Review for Plutonium Finishing Plant (PFP) Decommissioning Project - Demolition of 10 Buildings that are eligible for listing in the National Register of Historic Places (HCRC# 2002-200-071)

Dear Ms Nelson-Maki

In response to your request received July 1, 2002, staff of the Hanford Cultural Resources Laboratory (HCRL) conducted a cultural resources review of the subject project located in the 200 West Area of the Hanford Site. This project is located in the 200 West area of the Hanford Site, Richland, Washington and will entail the deactivation and demolition of 10 Buildings that are part of the PFP complex. These buildings/structures will be removed and disposed, and all buildings will be demolished to slab on grade. Below grade work is not included as part of this work scope. 232-Z and 30 Ancillary Buildings were reviewed under separate cover (HCRC# 2002-200-048) and (HCRC# 2002-200-047). The following is a list of the historic buildings/structures to be deactivated and demolished and the status of work completed under the Programmatic Agreement Among the U. S. Department of Energy Richland Operations Office, The Advisory Council on Historic Preservation, and The Washington State Historic Preservation Office For the Maintenance, Deactivation, Alteration, and Demolition of the Built Environment on the Hanford Site, Washington (DOE/RL-96-77) (PA).

Building	Description	HPIF/EXHIF Completed	Walkthroughs
234-5Z	Plutonium Finishing Plant	Yes	Yes
234-5ZA	234 5X South Annex	Yes	Yes
236-Z	Plutonium Reclamation Facility	Yes	Yes
242-Z	Waste Treatment Facility	Yes	No*
2701-ZA	Central Alarm Station	Yes	No*
2704-Z	Office Building	Yes	Yes
2736-Z	Primary Plutonium Storage Facility	Yes	Yes
2736-ZA	Primary Plutonium Storage Annex	Yes	Yes
2736-ZB	Primary Plutonium Storage Support	Yes	Yes
291-Z	Plant Air Filter and Exhaust Stack	Yes	Yes

\*Unable to obtain access due to health and safety and/or security reasons.

902 Battelle Boulevard • P.O. Box 999 • Richland, WA 99352

**RECEIVED**

Telephone (509) 378-4626 ■ Email [ellen.brandemast@oni.gov](mailto:ellen.brandemast@oni.gov) ■ Fax (509) 378-2240

NOV 20 2002

Ms. Britta Nelson-Maki  
July 8, 2002  
Page 2

**Notifications and Public Involvement**  
On July 8, 2002

- Per 36 CFR 800, the State Historic Preservation Officer (SHPO) and Tribes were notified of this cultural resources review request and the Area of Potential Effect (APE). The APE is defined as the 10 buildings eligible to the National Register and their greater association with the PFP complex and the Manhattan Project/Cold War Era Historic District (District)

**Results of the Identification of Historic Properties Survey (Literature and Records Review)**  
A preliminary records and literature review conducted by HCRL staff on July 1, 2002, revealed that according to the PA all of these facilities are eligible for listing in the National Register of Historic Places as contributing properties to the Manhattan Project and Cold War Era Historic District. Documentation of the PFP Complex buildings was done by Historic Property Inventory Forms (HPIFs) or Expanded Historic Property Inventory Forms (ExHPIFs) and also included in the narrative in *The Hanford Site Historic District* (DOE/RL-97-1047). All facilities have also had walkthroughs completed and artifacts with the potential for educational and interpretive value have been identified and tagged. Below is a list of facilities and artifacts tagged:

1. 2704-Z: classified documents vault; typology of "cans" poster; vintage fluorescent light fixtures in the janitor closet
2. 2736-Z: storage vaults and contents (28 pedestals used to store plutonium oxide and metals)
3. 2736-ZB: dry air glovebox in Room 636; radiation detection device (Radiation Detection 246)
4. 234-5Z/-5ZA: entire RMC line and control room (234-5Z-1798-1, HC-7C Feed and Prep Panel; 234-5Z-1798-2, HC-13MD Charge Prep Panel; 234-5Z-1798-3, HC-175BB Button Weighing and Sampling; 234-5Z-4199-4, Mixing Bowl; 234-5Z-4199-5, Crucible); entire RMA line and control room (234-5Z-1798-4, line and control panels, including 7 photo albums)
5. 234-5Z Analytical Laboratory: 234-5Z-1798-5, mass spectrometer in room 132; 234-5Z-1A, spectrograph in room 137; 234-5Z-2A, emissions spectrometer in room 136; 234-5Z-3A, Radio Flyer Wagon/fixed array wagon in room 145; 234-5Z-4A, Sintering Company press/glovebox in room 145; 234-5Z-5A, gloveboxes and hoods in room 144; 234-5Z-6A, sample prep area gloveboxes and hoods in room 139; 234-5Z-7A, emissions spectrometer camera in room 133; 234-5Z-8A, maintenance dolly in room 235A; 234-5Z-9A, MI-M2 storage container in room 234A)
6. Photographs albums in Building 270-Z (Room 51).

Although *The Hanford Site Historic District*, Chapter 4, recommends that 234-5Z, 291-Z, 232-Z and 2736-Z be preserved in place, for reasons of public safety as well as national security, this currently is not the plan (DOE/RL-97-1047).

Ms. Britta Nelson-Maki  
July 8, 2002  
Page 3

The project area has not been surveyed for archaeological resources, but aerial photographs indicate that these buildings are located in a disturbed area. Cultural resource surveys conducted within 1 kilometer of the APE have only located one historic property, the White Bluffs Road (H3-121) that has been determined eligible for listing in the National Register. Overall, however, the project is located in an area of low archaeological sensitivity and the potential for the presence of subsurface archaeological resources is low.

#### Findings and Actions Required

It is the finding of HCRL that this undertaking is an adverse effect to all 10 facilities. To complete mitigation of these adverse effects, the following actions are recommended:

1. Develop an interpretive plan for the PFP complex that would support heritage tourism.
2. Develop a plan to identify, collect and curate artifacts with support from Columbia River Exhibition of History, Science and Technology (CREHST):

**RL's Hanford Cultural Resources Program will submit official documentation to the SHPO, Tribes and interested parties of our findings. Pursuant to 36CFR Section 800, SHPO and tribes have 30 days to respond in receipt of this letter. No project activities can begin until the SHPO has concurred with our findings stated above.**

The workers must be directed to watch for cultural materials (e.g., bones, artifacts) during all work activities. If any are encountered, work in the vicinity of the discovery must stop until an HCRL historian has been notified to assess the significance of the find, and, if necessary, arrange for mitigation of the impacts to the find. HCRL must be notified if any changes to project location or scope are anticipated. This project is a Class 6 involving demolition/remodeling of structures construction in a disturbed low-sensitivity area. If you have any questions, please call me at 376-4626. Please use the HCRC# above for any future correspondence concerning this project.

Very truly yours,

*Ellen Prendergast*

Ellen Prendergast, M. A.  
Research Scientist/Anthropologist  
Cultural Resources Project

Concurrence: *D.C. Stapp*  
D. C. Stapp, Project Manager  
Cultural Resources Project

Review and Concurrence: *Anabelle Rodriguez*

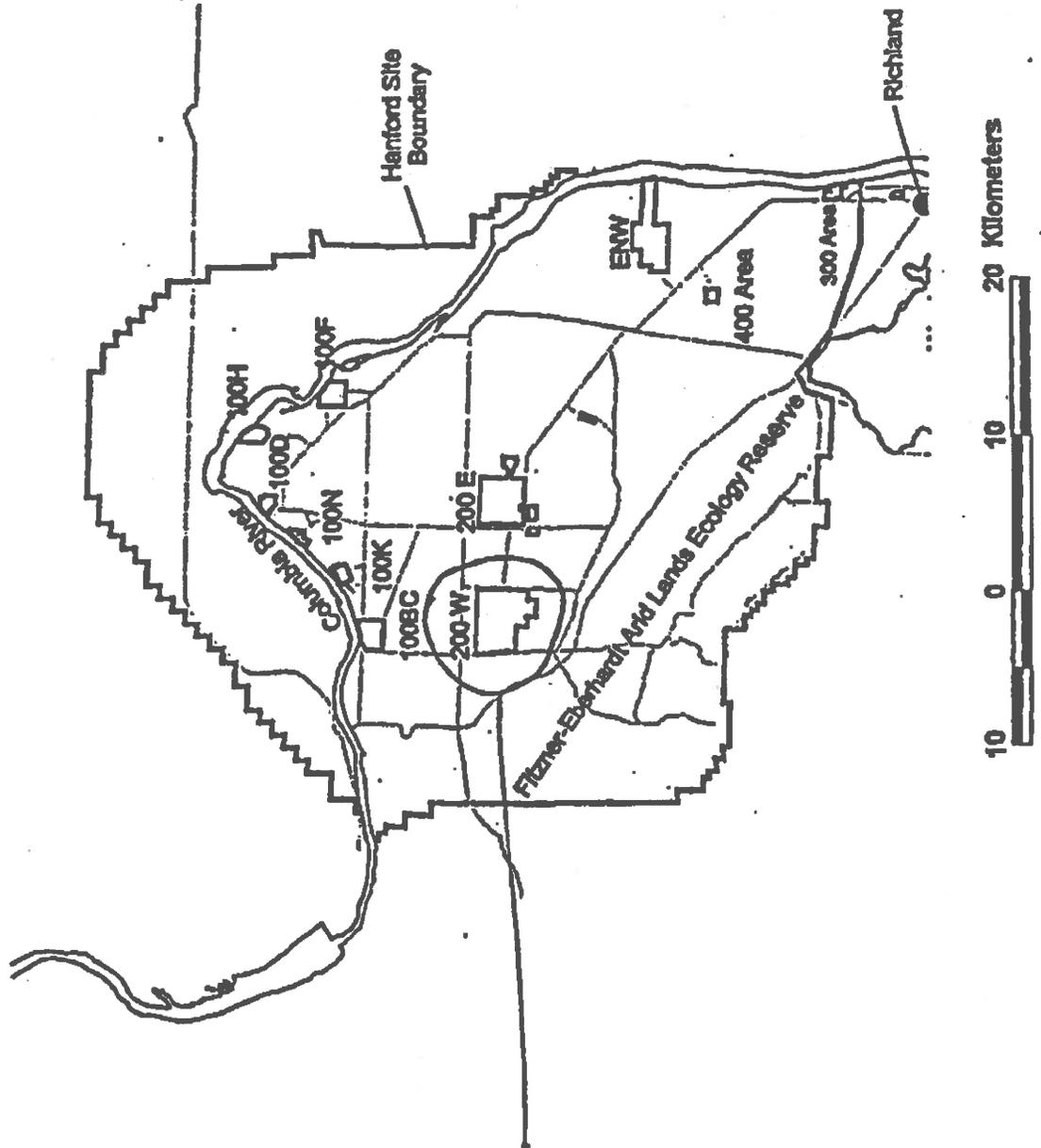
A. L. Rodriguez  
DOE, Richland Operations Office, Hanford Cultural Resources Program

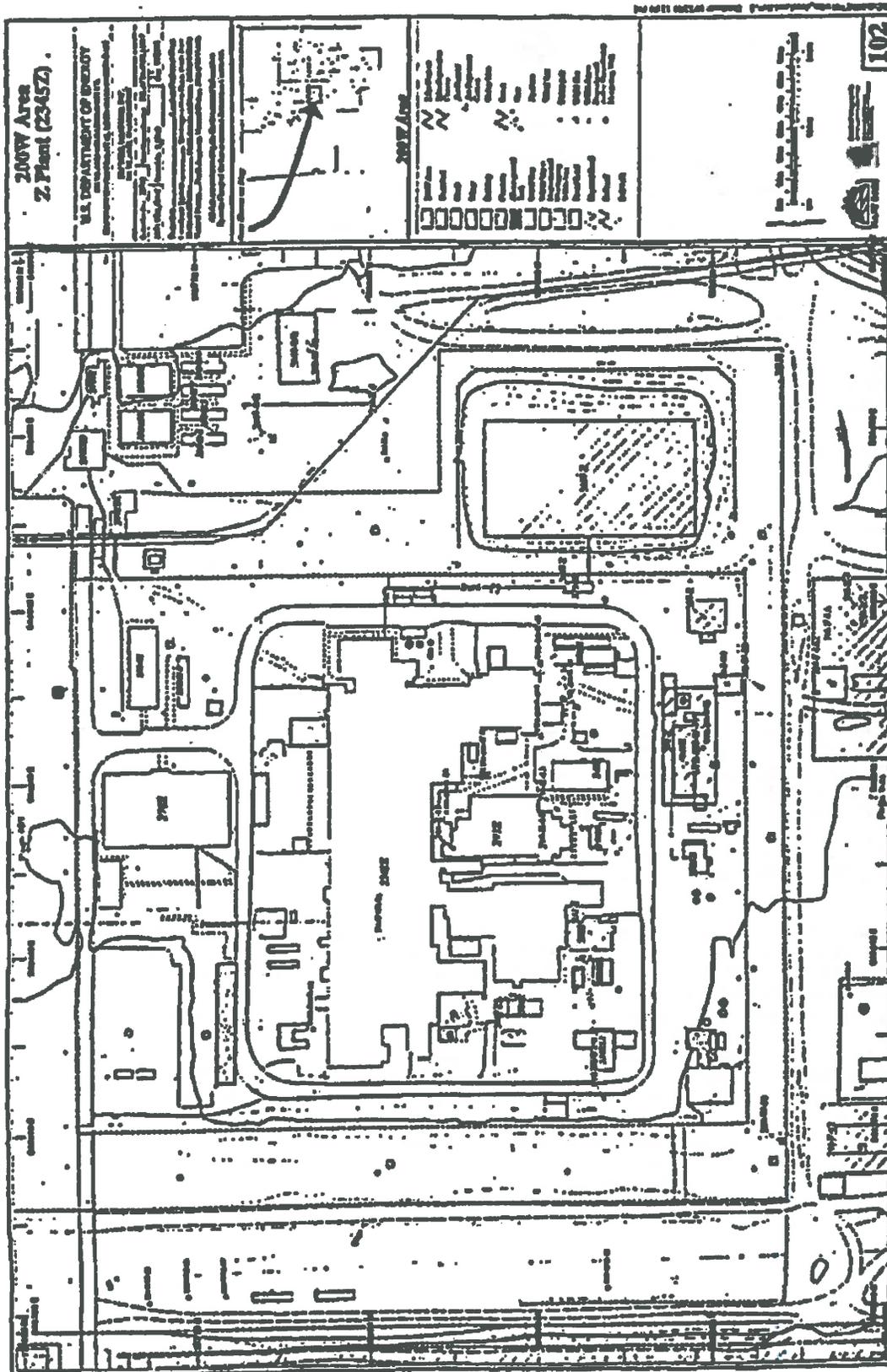
cc: A. L. Rodriguez, A5-58 (2)  
Environmental Portal, A3-01  
K.R. Welsch, N1-25

**Ms. Britta Nelson-Maki  
July 8, 2002  
Page 4**

**File/LB**

# Hanford Site







STATE OF WASHINGTON

**OFFICE OF COMMUNITY DEVELOPMENT**  
**Office of Archaeology and Historic Preservation**  
 1063 S. Capitol Way, Suite 106 - Olympia, Washington 98501  
 (Mailing Address) PO Box 48343 • Olympia, Washington 98504-8343  
 (360) 886-3085 Fax Number (360) 886-8067

January 15, 2003

Mr. Joel Heddon  
 Department of Energy  
 Richland Operations Office  
 P.O. Box 350  
 Richland, Washington 99153

In future correspondence, please refer to:

Log: 011503-01-DOE

Re: Interpretive Plan and Curation Plan for the  
 Deactivation and Decommissioning of Historic  
 Buildings at the PFP Complex HCRC 2002-200-021

Dear Mr. Heddon:

Thank you for contacting the Washington State Office of Archaeology and Historic Preservation (OAHWP) regarding the above referenced action. This information has been reviewed on behalf of the State Historic Preservation Officer (SHPO) under provisions of Section 106 of the National Historic Preservation Act of 1966 (as amended) and 36 CFR Part 800. From your communication, I understand that the U.S. Department of Energy (DOE) proposes to demolish ten historic buildings at the Plutonium Finishing Plant (PFP) in the 200 Area at Hanford by 2002.

In response and on behalf of the SHPO, I have reviewed the Interpretive Plan and Curation Plan for the Deactivation and Decommissioning of Historic Buildings at the PFP by David Harvey. As a result of this review, I am submitting a few comments:

- In general, I concur with the recommendations and conclusions arrived at in this document. The report makes it clear that public health and safety concerns posed by high radiological contamination levels in Buildings 234-SZ, 291-Z, and 232-Z make access by the public highly unlikely. Clearly, public health and safety is a paramount concern when considering options for interpretation.
- On page 3, the report states "...the costs of decontamination and long-term maintenance and stabilization of Buildings 234-SZ, 291-Z, and 232-Z for public access are not known at this time." Based on this statement, it is recommended that the Department first arrive at cost estimates on decontamination, long-term maintenance, and stabilization of buildings before final decisions are made regarding demolition. Such cost estimates should be calculated not only for preservation of all three, but also for one or two of these buildings, even if it is just to preserve a remnant of this very significant complex.
- I concur with the recommendations on pages 3 and 4, that use of non-contaminated support structures at PFP for an interpretive center would be a satisfactory alternative if cost estimates and contamination questions are not favorable to preservation of all three historic buildings (234-SZ, 291-Z, and 232-Z).

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JAN 21 2003

DOE-RL/RLCC

Mr. Joel Heddon  
January 15, 2003  
Page Two

- I also concur with conclusions and recommendations regarding the curation of artifacts. Again recognizing issues of health and security as priorities, it is recommended that cost estimates be developed that would identify options for preservation. Again, this step would be appropriate in order to make decisions about preservation versus destruction of artifacts.
- For artifacts that are too contaminated or found to be too costly to decontaminate, I concur with the report that these artifacts should be carefully documented before disposal. It is also recommended that an attempt be made to locate non-contaminated examples of the same or similar artifacts for eventual interpretation.
- The effort that entities at Hanford are making to preserve buildings and artifacts at PFP is noted and appreciated by OAHF. Specifically recognized are efforts by DOE, Fluor Hanford, and Battelle to transport artifacts for CREHST and to provide for proper and adequate storage facilities at the Site.

Again, thank you for the opportunity to review and comment on the Interpretive and Curation Plans. The document makes a clear and concise statement that issues surrounding the preservation of contaminated properties are complex and expensive. Should you have any questions of myself concerning the above comments, please feel free to contact me at 360-586-3073 or [gregg@rted.wa.gov](mailto:gregg@rted.wa.gov).

Sincerely,

  
Gregory Griffin  
Deputy State Historic Preservation Officer

Cc: Lisbeth Henning



STATE OF WASHINGTON  
**OFFICE OF COMMUNITY DEVELOPMENT**  
**Office of Archaeology and Historic Preservation**  
 1863 S. Capitol Way, Suite 106 - Olympia, Washington 98501  
 (Mailing Address) PO Box 48343 - Olympia, Washington 98504-8343  
 (360) 536-3065 Fax Number (360) 536-3067

January 29, 2003

Mr. Joel Heddon  
 Department of Energy  
 P.O. Box 550  
 Richland, Washington 99352

In future correspondence, please refer to:  
 Log: 011503-01-DOE  
 Re: Deactivation and Decommissioning of Historic  
 Buildings at the PFP Complex, HCRC 2002-200-021

Dear Mr. Heddon:

Thank you for your response to my letter of January 15, 2003 concerning on the "Interpretive Plan and Curation Plan for the Deactivation and Decommissioning of the Historic Buildings at the Plutonium Finishing Plant (PFP)." Your letter and the information contained therein has been reviewed on behalf of the State Historic Preservation Officer (SHPO) under provisions of Section 106 of the National Historic Preservation Act of 1966 (as amended) and 36 CFR Part 800.

In response and on behalf of the SHPO, I want to thank you and your staff for thoughtful consideration of issues raised in my letter and your effort to respond to my questions. In essence your cost figures enable me to better understand the large costs and technological hurdles that would be involved in decontaminating these facilities in order to achieve public access, not including long term maintenance and preservation costs that need to be factored into any long term management strategy.

In regard to questions about use of the 2704-Z office building and the OCF as possible venues for an interpretative center at PFP, I understand your response to be that a decision has not yet been made by Department of Energy. I understand that these buildings will be retained in the interim and a decision reached later this year. I understand that possible contamination at these buildings is also a possibility that must be addressed before allowing public access. Nevertheless, I recommend that the Department work to explore all options for an interpretation center at PFP before properties are irretrievably lost.

Finally, I understand that the Department intends to retain artifacts that are not contaminated. Contaminated artifacts pose health and safety risks and will be disposed of. I concur that contaminated artifacts pose a public health and safety issue which takes priority over public access and interpretation. However, I recommend that before contaminated artifacts are disposed of, these objects should be thoroughly documented to serve as a permanent record. I also recommend that the Department adopt as policy an ongoing effort to locate and retain non-contaminated examples of the same or similar artifacts that have interpretive value.

Again, thank you for response to my comments. Your effort to provide clarification is appreciated. Should you wish to contact me, I may be reached at 360-536-3073 or gregg@ched.wa.gov.

Sincerely,

Gregory Offish  
 Deputy State Historic Preservation Officer

cc: Lisbeth Hensling



Department of Energy  
Richland Operations Office  
P.O. Box 550  
Richland, Washington 99352

JAN 8 0 2003

03-RCA-0131

Mr. Gregory Griffith  
Deputy State Historic Preservation Officer  
Office of Archaeology and Historic Preservation  
Washington Department of Community,  
Trade and Economic Development  
P.O. Box 48343  
Olympia, Washington 98504

Dear Mr. Griffith:

**RESPONSE TO STATE HISTORIC PRESERVATION OFFICE LETTER,  
LOG: 011503-01-DOE**

This is in response to your letter to me, "Interpretive Plan and Curation Plan for the Deactivation and Decommissioning of Historic Buildings at the PFP Complex, HCRC 2002-200-021," dated January 15, 2003. Your comments were in response to the receipt of the U.S. Department of Energy's (DOE) letter, same subject, dated December 5, 2002. Annabelle Rodriguez, of my staff, worked with the DOE PFP Oversight Organization to address your comments on cost estimates for decontamination. Information for Bullets 2, 3, 4 are provided below.

**Bullet 2:** "...it is recommended that the Department first arrive at cost estimates on decontamination, long-term maintenance, and stabilization of buildings before final decisions are made regarding demolition. Such cost estimates should be calculated not only for preservation of all three, but also for one or two of these buildings, even if it is just to preserve a remnant of this very significant complex."

**Response:** The current estimated cost to deactivate and decontaminate three facilities (i.e., 234-5Z, 291-Z, and 2736-Z) to a level considered safe for dismantlement or low-level waste disposal is \$106M. This does not include overall PFP project management, waste disposal costs, and other requirements. If these costs are included, the deactivation and decontamination costs are estimated to exceed \$362M. The cost for long-term surveillance and maintenance of the PFP Complex after completion of the deactivation and decontamination activities, assuming they were deactivated to approximately the same level as the PUREX and B Plant Canyon facilities, has been estimated at \$15M/year or greater (\$450M present value based upon 30 years).

Thus, it is not considered technically feasible to decontaminate these facilities and the associated process equipment that might be judged of historical significance to achieve public access or interaction after completion of the PFP decommissioning mission. Therefore, given the technological difficulties at this time, a cost estimate for decontaminating facilities and associated process equipment for public access and interaction is not feasible.

Mr. Gregory Griffith  
03-RCA-0131

-2-

JAN 30 2003

Bullet 3: "...that use of non-contaminated support structures at PFP for an interpretive center would be a satisfactory alternative if cost estimates and contamination questions are not favorable to preservation of all three historic buildings (234-5Z, 291-Z, and 2736-Z)."

Response: We evaluated the potential use of a non-contaminated support building for a future interpretation center at PFP (for example, 2704-Z office building or the OCF building). These buildings might serve as an interpretive center for the display of non-contaminated artifacts (Table 2, of the Curation Plan). This assumption of public access outlined in the recommendation section assumes that public access is resolved. However, the U.S. Department of Energy, Richland Operations Office (RL) continues to have health, safety and security concerns that could affect public access to the entire 200 Area for many years to come. In addition, there may be inherent risks to the public due to the potential residual fixed contamination or soil contamination from follow-on environmental remediation work in the 200 Area. For the interim period, RL will retain the OCF building for future use contingent upon resolution of the 200 Area plan and/or the final underground environmental documentation (Comprehensive, Environmental, Response, Compensation, and Liability Act, Engineering Evaluation and Cost Analysis).

Bullet 4: "I also concur with conclusions and recommendations regarding the curation of artifacts. Again recognizing issues of health and security as priorities, it is recommended that cost estimates be developed that would identify options for preservation..."

Response: We performed walkthroughs and assessments of the artifacts of historical significance and have identified and tagged those artifacts of significance as stated in the Curation Plan, Table 2. We intend to retain as many of the Table 2 listed artifacts that do not pose health, safety and security concerns. However, artifacts listed in Table 2 as being radiologically contaminated do pose risk to the health of the public due to the technical feasibility to decontaminate any piece of equipment. In general, to decontaminate and release artifacts, each piece will need to be disassembled entirely, every surface will need to be surveyed to determine if it meets the free release standard within DOE's radiological control manual, and then the piece of equipment will need to be re-assembled. This decontamination process would not preclude preserving those artifacts that are not contaminated and these artifacts do not pose a security question for future historical use.

Thank you for your comments on the Interpretative and Curation Plan. If you have questions, please call Annabelle Rodriguez on (509) 372-0277.

Sincerely,



Joel Hebbon, Director  
Regulatory Compliance and Analysis Division

RCA:ALR

cc: L. Henning; WTHP





Department of Energy  
Richland Operations Office  
P.O. Box 550  
Richland, Washington 99352

03-PTD-0051

MAR 11 2003

Mr. D. B. Van Leuven  
Executive Vice President and  
Chief Operating Officer  
Fluor Hanford, Inc.  
Richland, Washington 99352

Dear Mr. Van Leuven:

**CONTRACT NO. DE-AC06-96RL13200 - DEACTIVATION AND DECOMMISSIONING OF  
TEN HISTORIC BUILDINGS AT THE PLUTONIUM FINISHING PLANT (PPF) COMPLEX**

- References: (1) RL ltr. to G. Griffith, SHPO, from J. B. Hebdon, "Response to State Historic Preservation Officer Letter, Log-011503-01-DOE," 03-RCA-0131 dtd. January 30, 2003.
- (2) SHPO ltr. to J. B. Hebdon, RL, from G. Griffith, "011503-01-DOE Deactivation and Decommissioning of Historic Buildings at the PFP Complex, HCRC 2002-200-021," dtd. January 29, 2003.
- (3) SHPO ltr. to J. B. Hebdon, RL, from G. Griffith, "011503-01-DOE Interpretive Plan and Curation Plan for the Deactivation and Decommissioning of Historic Buildings at the PFP Complex HCRC 2002-200-021," dtd. January 15, 2003.

Enclosed are References (2) and (3) providing concurrence to demolish contaminated structures or ten historic buildings (e.g., Buildings 234-5Z, 2736-Z, and 291-Z) at the PFP Complex, as outlined in the Curation Plan.

In addition, retention for the interim of a non-contaminated support building structure for an interpretive center (e.g., Office Building 2704-Z or the Operations Control Facility Building) as outlined in the Curation Plan for future use, is contingent upon the PFP underground environmental documentation and planning for the 200 Area.

Finally, non-contaminated artifacts should be considered for retention and artifacts with radiological contamination are to be thoroughly documented to serve as a permanent record, as outlined in the Curation Plan. If during field activities it is discovered that a non-contaminated artifact poses potential contamination concerns, please contact Annabelle Rodriguez, Regulatory Compliance and Analysis Division, for coordination with the Deputy State Historic Preservation Officer.

Mr. D. B. Van Leuven  
03-PTD-0051

-2-

MAR 11 2003

If there are any questions, please contact me, or your staff may contact Annabelle Rodriguez on (509) 372-0277.

Sincerely,



Michael H. Schlender  
Deputy Manager

PTD:GD

Enclosures

cc w/encls:

G. W. Jackson, FHI  
M. T. Jansky, FHI  
R. E. Heineman, FHI  
A. M. Hopkins, FHI  
B. B. Nelson-Maki, FHI

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## Pacific Northwest National Laboratory

Operated by Battelle for the  
U.S. Department of Energy

May 14, 2003

Ms. Britta Nelson-Maki  
Fluor Daniel Hanford, Inc.  
P. O. Box 1200, MSIN T5-54  
Richland, WA 99352

Dear Ms. Nelson-Maki:

**BLANKET BIOLOGICAL REVIEW OF PLUTONIUM FINISHING PLANT, 200 West Area,  
ECR #2003-200-036.**

**Project Description:**

- This blanket biological review covers all routine maintenance and operations activities within the fenced boundaries of the PFP and the mobile offices around the parking lot just east of the PFP fence line. This letter may be used as a reference for NEPA CX checklists and for support of excavation permits within the area of coverage.
- This review also specifically covers the demolition of the following buildings: 234-ZB, 234-ZC, 241-ZB, 2715-Z, 2731-Z, 2734-ZA, 2734-ZB, 2734-ZC, 2734-ZD, 2734-ZF, 2734-ZG, 2734-ZH, 2734-ZI, 2734-ZK, 2734-ZL, 2735-Z, 2902-Z, 2904-ZA, 2904-ZB, MO-834, MO-839, the construction forces laydown areas within the PFP perimeter fences, the abandoned steam line structures, and the removal of Connex storage containers.

**Survey Objectives:**

- To determine the occurrence in the project area of plant and animal species protected under the Endangered Species Act (ESA), candidates for such protection, and species listed as threatened, endangered, candidate, sensitive, or monitor by the state of Washington, and species protected under the Migratory Bird Treaty Act.
- To evaluate and quantify the potential impacts of disturbance on priority habitats and protected plant and animal species identified in the survey.

**Survey Methods:**

- Pedestrian and ocular reconnaissance of the proposed project site were performed by C. A. Duberstein, and M. R. Sackschewsky on 29 April 2003.

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Telephone (509) 376-3801 | E-mail: <mailto:corey.duberstein@pnl.gov> | FAX: (509) 372-3515

Ms. Britta Nelson-Maki  
2003-200-036  
Page 2 of 5

- Priority habitats and species of concern are documented as such in the following: Washington Department of Fish and Wildlife (1994, 1996), Washington State Department of Natural Resources (1997), and for migratory birds, U.S. Fish and Wildlife Service (1985). Lists of animal and plant species considered Endangered, Threatened, Proposed, or Candidate by the USFWS are maintained at 50 CFR 17.11 and 50 CFR 17.12.

#### Survey Results:

- The surveyed area is industrialized and there is virtually no vegetation present except for the maintained landscaping around the 270-Z building and widely scattered weedy plants.
- Migratory birds and/or their nests observed in the survey area include the following species: house finch (*Carpodacus mexicanus*), Say's phoebe (*Sayornis saya*), barn swallow (*Hirundo rustica*), cliff swallow (*H. pyrrhonota*), American robin (*Turdus migratorius*), western kingbird (*Tyrannus verticalis*). Species observed within the survey area that are not covered under the Migratory Bird Treaty Act include the European starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*), and the rock dove or common pigeon (*Columba livia*).

#### Specific migratory bird nesting activity that was observed includes:

- 232-Z: A barn swallow nest on the east side.
- 2342-C: An active house finch nest on a roof beam above the southwest building corner.
- 234-5Z: A barn swallow nest on the east side, an inactive cliff swallow nest on the south side adjacent 2736-ZA, 2 inactive western kingbird nests on pipe supports on the north and east sides, and a male house finch singing from the roof on the west side.
- 236-Z: A barn swallow nest and an active house finch nest on the east side, and a cliff swallow nest under a beam on an external stairwell on the south side.
- 270-Z: Active American robin nests on lights above the north and south entrances, and an active house finch nest on a power box west of the south entrance.
- 2731-Z: A house finch nest on the north side.

Ms. Britta Nelson-Maki  
2003-200-036  
Page 3 of 5

- **2734-ZB:** An active house finch nest under the roof.
- **291-Z:** An active barn swallow nest in doorwell 692 on near the northeast corner.
- **291-Z Plenum:** Ten inactive cliff swallow nests.
- **MO-032:** A barn swallow nest above the eastern entrance.

**Considerations and Recommendations:**

- No plant or animal species protected under the ESA, candidates for such protection, or species listed by the Washington state government as threatened or endangered were observed within the PFP boundary.
- Although many of the above mentioned nests were inactive at the time of the survey, some of the bird species have not began nesting at the time of the survey. Therefore it is recommended that any work activity near any of the above mentioned nests should not move or destroy the nest or the structure supporting the nest until the young have fledged (left the nest). If any further nesting activity is discovered further consultation with ECAP staff is advised.
- No adverse impacts to species, habitats, or other biological resources are expected to result from the proposed actions.
- This Ecological Compliance Review is valid until 30 April 2004.

Sincerely,

 for:

Michael R. Sackschewsky  
Ecological Compliance Assessment Project

MRS:cad

Ms. Britta Nelson-Maki  
2003-200-036  
Page 4 of 5

#### REFERENCES

- U. S. Fish and Wildlife Service. 1985. Revised List of Migratory Birds; Final Rule. 50 FR 13708 (April 5, 1985).
- Washington Department of Fish and Wildlife. 1994. Species of Special Concern in Washington. (April 1994).
- Washington Department of Fish and Wildlife. 1996. Priority Habitats and Species List. (January 1996).
- Washington Department of Natural Resources. 1997. Endangered, Threatened & Sensitive Vascular Plants of Washington (August 1997).



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## Pacific Northwest National Laboratory

Operated by Battelle for the  
U.S. Department of Energy

16 May 2003

Ms. Britta Nelson-Maki  
Fluor Hanford, Inc.  
P. O. Box 1000, MSIN T5-50  
Richland, WA 99352

Dear Ms. Nelson-Maki:

**BIOLOGICAL REVIEW UPDATE OF THE PFP DEACTIVATION LAYDOWN YARD, 200 West Area, ECR #2002-200-063a.**

**Project Description:**

- Grade and resurface a 40,000 sq. ft. laydown yard.

**Survey Objectives:**

- To determine the occurrence in the project area of plant and animal species protected under the Endangered Species Act (ESA), candidates for such protection, and species listed as threatened, endangered, candidate, sensitive, or monitor by the state of Washington, and species protected under the Migratory Bird Treaty Act.
- To evaluate and quantify the potential impacts of disturbance on priority habitats and protected plant and animal species identified in the survey.

**Survey Methods:**

- Pedestrian and ocular reconnaissance of the proposed project site were performed by C. A. Duberstein and K. D. Hand on 15 May 2003.
- Priority habitats and species of concern are documented as such in the following: Washington Department of Fish and Wildlife (1994, 1996), Washington State Department of Natural Resources (1997), and for migratory birds, U.S. Fish and Wildlife Service (1985). Lists of animal and plant species considered Endangered, Threatened, Proposed, or Candidate by the USFWS are maintained at 50 CFR 17.11 and 50 CFR 17.12.

**Survey Results:**

- The project area has been previously disturbed and has since partially recovered. It has a sparse gray rabbitbrush (*Chrysothamnus nauseosus*) overstory with a cheatgrass (*Bromus tectorum*) and Sandberg's bluegrass (*Poa secunda*) understory.

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Telephone (509) 376-3801 □ E-mail: [corey.duberstein@pnl.gov](mailto:corey.duberstein@pnl.gov) □ FAX: (509) 372-3515

Ms. Britta Nelson-Maki  
2002-200-063a  
Page 2 of 2

- A Washington State Watch List plant species of concern, the stalked-pod milkvetch (*Astragalus sclerocarpus*), was observed in the project area.
- No migratory birds were observed within the project vicinity.

**Considerations and Recommendations:**

- No plant or animal species protected under the ESA, candidates for such protection, or species listed by the Washington state government as threatened or endangered were observed in the vicinity of the proposed laydown yard site.
- The stalked-pod milkvetch is relatively common throughout the 200 West area, therefore even if the few individuals within the project area are disturbed, it is not likely the overall local population will be adversely affected. The Watch List is the lowest level of listing for plant species of concern in the State of Washington.
- No adverse impacts to any other species, habitats, or other biological resources are expected to result from the proposed actions.
- This Ecological Compliance Review is valid until 15 April 2004.

Sincerely,



Michael R. Sackschewsky  
Project Manager  
Ecological Compliance Assessment Project

MRS:cad

**REFERENCES**

- U. S. Fish and Wildlife Service. 1985. Revised List of Migratory Birds; Final Rule. 50 FR 13708 (April 5, 1985).
- Washington Department of Fish and Wildlife. 1994. Species of Special Concern in Washington. (April 1994).
- Washington Department of Fish and Wildlife. 1996. Priority Habitats and Species List. (January 1996).
- Washington Department of Natural Resources. 1997. Endangered, Threatened & Sensitive Vascular Plants of Washington (August 1997).



Department of Energy  
Richland Operations Office  
P.O. Box 550  
Richland, Washington 99352

03-RCA-0365

SEP 3 2003

Dr. Allyson Brooks  
State Historic Preservation Officer  
Office of Archaeology and Historic Preservation  
Washington Department of Community,  
Trade and Economic Development  
P.O. Box 48343  
Olympia, Washington 98504

**CULTURAL RESOURCES REVIEW (CRR) OF DECONTAMINATION AND  
DECOMMISSIONING OF THE PLUTONIUM FINISHING PLANT COMPLEX TO SLAB ON  
GRADE (HCRC# 2003-200-039)**

Dear Dr. Brooks:

Enclosed is a CRR completed by the U.S. Department of Energy, Richland Operations Office's (RL) Hanford Cultural Resources Laboratory (HCRL) on August 12, 2003, for the subject project located on the Hanford Site, Richland, Washington. The results of the records and literature review conducted by HCRL staff are described in the enclosed CRR. RL concurs with the findings that this undertaking will not affect historic properties, as no historic properties are known to be located in the project areas. Pursuant to 36CFR 800.2 (4), we are providing documentation to support these findings and to involve your office as a consulting party in the National Historic Preservation Act of 1966, Section 106 Review process. If you have any questions, please contact Annabelle L. Rodriguez, of my staff, on (509) 372-0277.

Sincerely,

A handwritten signature in black ink that reads "Joel Hebbon".

Joel Hebbon, Director  
Regulatory Compliance and Analysis Division

RCA:ALR

Enclosure

cc w/o encl:  
E. L. Prendergast, PNNL

U.S. Department of Energy

**Pacific Northwest  
National Laboratory**

August 18, 2003

Operated by Battelle for the  
U.S. Department of EnergyBritta Nelson-Maki  
PFP Environmental Compliance  
Fluor Hanford T5-57*No effect to historic properties,  
SHPO, Tribes and interested parties  
30 day review required*Subject: Cultural Resources Review of D & D of the PFP Complex to Slab on Grade  
(HCRC#2003-200-039)

Dear Ms. Nelson-Maki,

The PFP Decommissioning Project will deactivate and demolish the PFP Complex to slab-on-grade by FY 2009. PFP is located in the 200 West Area of the Hanford Site, Richland, Washington (Figure 1). This Cultural Resources Review (CRR) request encompasses activities associated with all remaining systems and structures within the PFP complex not covered by previous reviews (i.e., HCRC# 2002-200-021, 2002-200-047, 2002-200-048, and 2002-200-063) and systems and structures approximately 1000 feet outside the PFP Complex fence line. Activities will include excavation for blanking, repairing, re-rerouting, and removing existing utilities/pipes; digging holes/trenches for sampling and characterization; and removal of soil or underground supports. Activities may require excavation to a depth of approximately 20 feet. Buildings covered by this review include:

Building Number	Building Name	Exemption Status
216-Z-9-A	Contaminated Soil Removal Building	Liquid Waste Site Support
216-Z-9-B	Z-9 Mining Facility	Liquid Waste Site Support
216-Z-9-C	216-Z-9 Weather Enclosure	Liquid Waste Site Support
225-WC	PFP Wastewater Sampling Facility	Post 1990
241-Z	Waste Storage and Treatment Facility	Solid Waste Site Support
241-ZA	Waste Disposal Sample Loadout Building	Solid Waste Site Support
241-ZG	Change Facility	Solid Waste Site Support
243-Z	Low-Level Waste Treatment Facility	Modular Building
243-ZA	Low-Level Waste Treatment Facility Tanks	Modular Building
243-ZB	Cooling Towers and Concrete Pad	Non Contributing
267-Z	Fire Riser #9 Valve House	Modular Building
270-Z	PFP Operations Support Building	Contributing - No Documentation Required
2701-ZD	PFP Badge House	Post 1990
2702-Z	Microwave Tower and Support Building	Towers
2705-Z	PFP Operations Control Facility	Post 1990
2712-Z	Stack Sampling and Monitoring Station	Modular Building
2721-Z	Emergency Generator Service Building	Non Contributing

902 Battelle Boulevard • P.O. Box 999 • Richland, WA 99352

Telephone (509) 376-4626 ■ Email [ellen.prendergast@pnl.gov](mailto:ellen.prendergast@pnl.gov) ■ Fax (509) 376-2210

Britta Nelson-Maki  
August 18, 2003  
Page 2

2727-Z	Supply Storage Building	Modular Building
2729-Z	Storage Building	Modular Building
2731-ZA	Container Storage Building	Modular Building
2736-ZC	Cargo Restraint Transport Dock	Modular Building
2736-ZD	Fuel Storage Casks Structure	Underground Structure
MO-014		Mobile Office
MO-264		Mobile Office
MO-428		Mobile Office
MO-429		Mobile Office
MO-432		Mobile Office
* Marceau, T.E., 1998, Table A-6. All other data from Table A-7		

Some pieces of miscellaneous equipment (like transformers) have been given a structure number but do not appear on the listing above. Some unnumbered buildings and structures have not been explicitly identified on this list even though they are within the area described above. Although the scope of this CRR includes the PFP Complex and the area 1000 feet beyond the PFP fence line, the 231-Z Plutonium Isolation Plant is not included as it is under the responsibility of another organization. When appropriate, a CRR will be conducted for the 231-Z Building.

#### Notifications and Public Involvement

On August 12, 2003, a notification letter was sent to the following:

- Per 36 CFR 800, the (SHPO) and Tribes were notified of this cultural resources review request and the Area of Potential Effect (APE). The (APE) was defined as delineated in the attached map (Figure 2).

On Aug 12, 2003, SHPO concurred with the definition of APE.

**Identification of Historic Properties, Results of the Records Search and Literature Review.** According to the *Programmatic Agreement Among the U.S. Department of Energy, Richland Operations Office, and Advisory Council on Historic Preservation, and the Washington State Historic Preservation Office for the Maintenance, Deactivation, Alteration, and Demolition of the Built Environment on the Hanford Site, Washington (DOE/RL-96-77)*, none of the facilities listed above are eligible for inclusion in the National Register of Historic Places as a contributing property within the Hanford Site Manhattan Project and Cold War Era Historic District. None has been recommended for mitigation.

The project area has not been surveyed for cultural resources; however surveys conducted within 1 km of the project area suggest a dearth of cultural resources in the vicinity of the project area (HCRC# 87-200-016, 88-200-005, 88-200-038, 96-200-058, 2000-600-023, 2002-200-015). A few pre-contact and post-contact isolated finds associated with the White Bluffs Road (H13-121) have been located (HI-88-026 an isolated can, HI-96-003 bottle fragments, HI-88-014 a historic can, and HI-88-002 a large CCS flake). The White Bluffs Road (H13-121), an historic property determined eligible for listing in the National Register of Historic Places, is located within 1 km of the APE. However, the portion of H13-121 that runs within 1 km of the APE is considered to be a non-contributing segment as it has been extensively disturbed by Hanford construction activities.

Britta Nelson-Maki  
August 18, 2003  
Page 3

A pre-contact archaeological site predictive model was constructed for the Hanford Site by the Hanford Cultural Resources Laboratory (HCRL) in the fall of 2001. This model was developed using the statistically based Weights of Evidence extension in conjunction with ArcView 3.2 Geographic Information Systems (GIS) software. The predictive model illustrates that the interior Hanford dune fields (in which the project is located) are the lowest predictive areas found throughout the Hanford Site. This is likely the result of a lack of resources (particularly water) utilized by Native peoples in these areas. Pre-contact use is low, limited to travel via the White Bluffs Road, across the Hanford Sites between resource gathering and use areas.

A records search of General Land Office (GLO) maps from the 1880s, 1917 USGS maps, and 1943 real estate plat maps confirm that the White Bluffs Road is the only post-contact land use activity occurring in the area.

According to aerial photographs taken in 2002, all of the project area has been disturbed by existing utilities, infrastructure and construction activities related to the PFP complex (Figure 3).

#### Findings and Actions Required

HCRL has determined no historic properties will be affected by this project as there are no historic properties known to be located in the APE. This finding is based on the extensive disturbance in the project area, dearth of eligible sites near the APE, the lack of cultural features found on historic maps and aerial photographs, and the low archaeological site probability defined by the Hanford pre-contact archaeological site predictive model.

The U.S. Department of Energy Cultural and Historic Resources Program will submit an official letter of documentation to the SHPO, Tribes and interested parties of our findings. Pursuant to 36CFR Section 800, SHPO, tribes and interested parties have 30 days to respond in receipt of this letter. No project activities should begin until the SHPO has concurred with the findings stated above.

All workers should be directed to watch for cultural materials (e.g. bones, artifacts) during all work activities. If any are encountered, work in the vicinity of the discovery must stop until an archaeologist has been notified, assessed the significance of the find, and, if necessary arranged for mitigation of the impacts to the find. The SHPO must be notified if any changes to project location or scope are anticipated. If you have any questions, please call me at 376-4626. Please use the HCRC# above for any future correspondence concerning this project.

Very truly yours,

  
Ellen L. Prendergast, M. A.  
Research Scientist/Anthropologist  
Cultural Resources Project

Concurrence:

  
D. C. Stupp, Project Manager  
Cultural Resources Project

Concurrence:

  
Annabelle Rodriguez, Cultural and Historical Resources Program Manager  
U. S. Department of Energy, Richland Operations Office

Britta Nelson-Maki  
August 18, 2003  
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cc: File/LB  
Environmental Portal, A3-01  
Kim Welsch, N1-25

Britta Nelson-Maki  
August 18, 2003  
Page 5

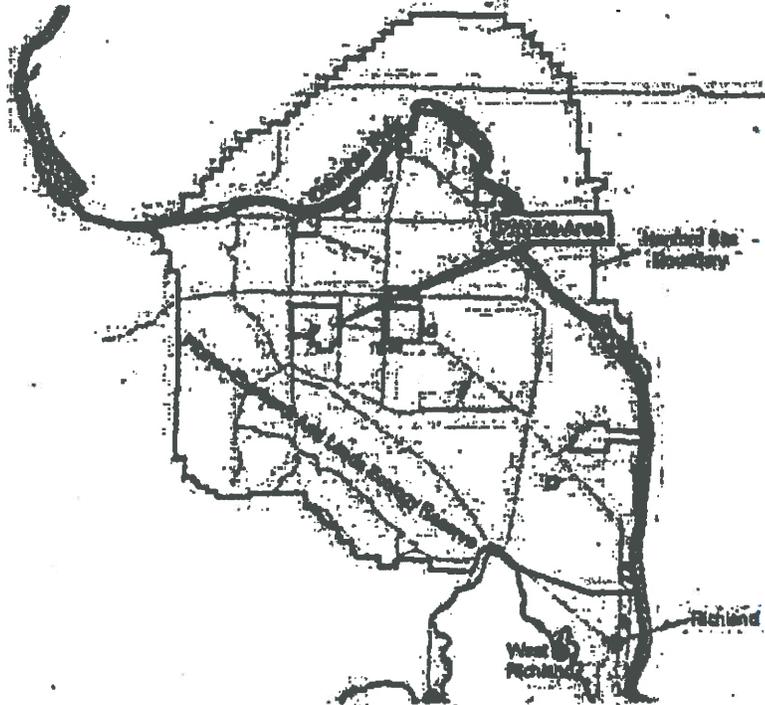


Figure 1. HCRC# 2003-200-659 - Project location and Area of Potential Effect (APE) in relation to the Hanford Site.

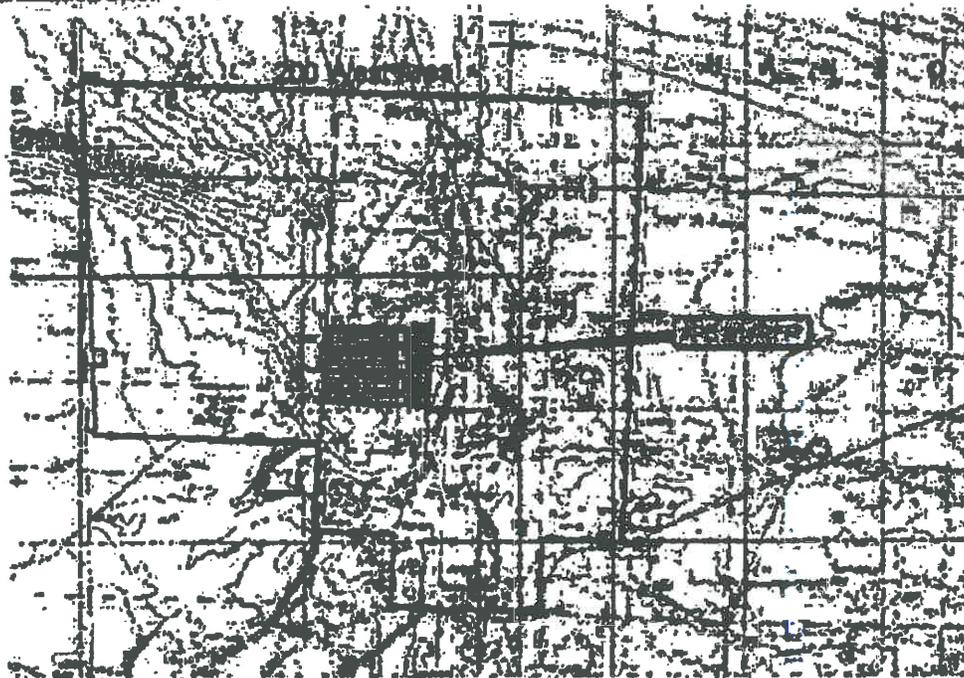


Figure 2. HCRC# 2003-200-659 - Close-up APE and project areas.

Britta Nelson-Maki  
August 18, 2003  
Page 6

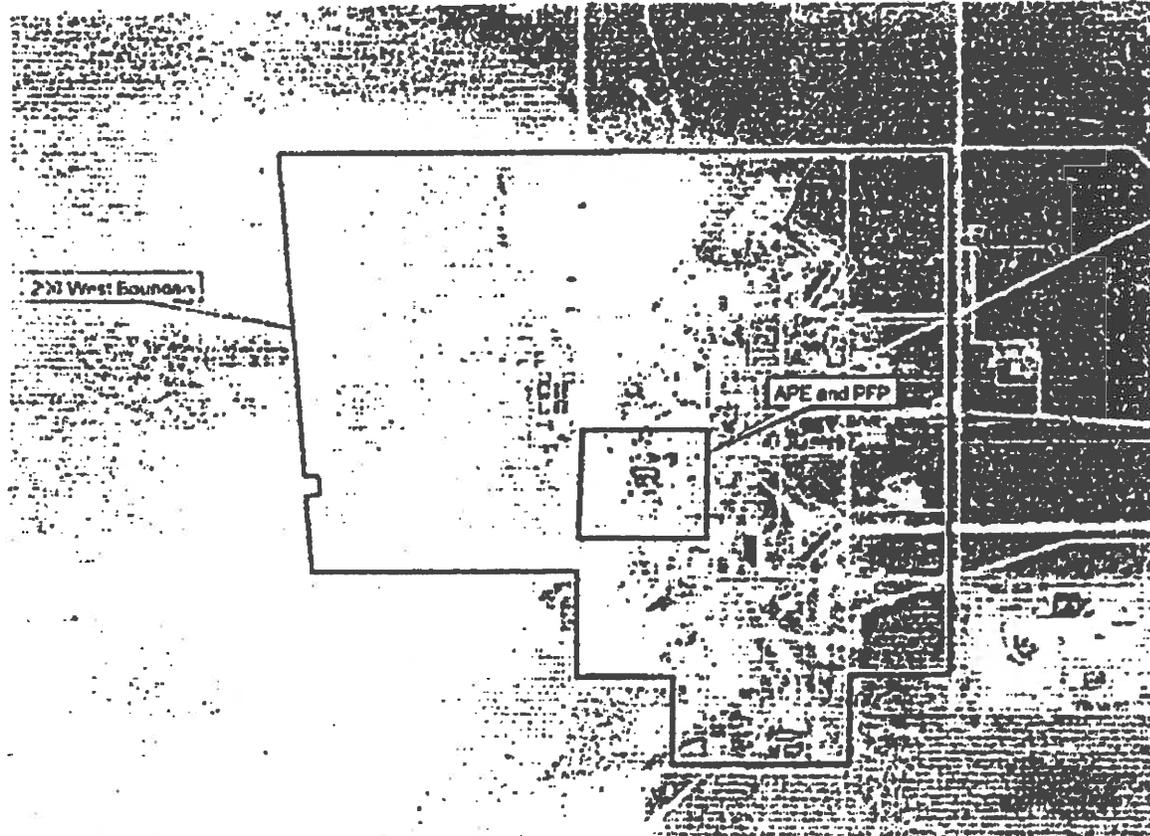


Figure 3. HCRC# 2003-200-039 - Close up APE and project areas shown on 2002 aerial photographs.

## APPENDIX D

REPRESENTATIVE CHEMICAL HAZARDS AT  
THE PLUTONIUM FINISHING PLANT

Representative List of Chemicals Used in PFP  
(for additional details, refer to HNF-13971).

Nitric acid
Sulfuric acid
Hydrofluoric acid
Aluminum nitrate nonahydrate
Potassium permanganate
Potassium hydroxide
Oxalic acid
Sodium hydroxide
Hydrogen peroxide
Magnesium oxide
Calcium, metal
Iodine, crystals
Calcium fluoride
Calcium iodide
Polychlorinated biphenyl
Hydraulic fluid
Polystyrene
Nitrogen gas
Argon gas
Helium gas
Hydrogen gas
Propane
Ethylene glycol
Liquid nitrogen
Carbon tetrachloride
Tributyl phosphate
Ethanol

This list is not intended to be all-inclusive, but is intended to present the range of types of chemicals used at PFP. These chemicals represent solids, liquids, and gases; acids and bases; oxidizers; carcinogens; and flammables.

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**APPENDIX E**

**PUBLIC COMMENTS AND DOE RESPONSES**



**Oregon**

Theodore R. Kulongoski, Governor



OREGON OFFICE  
OF ENERGY

625 Marion St. NE, Suite 1  
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[www.energy.state.or.us](http://www.energy.state.or.us)

July 17, 2003

Paul F. X. Dunigan, Jr.  
NEPA Compliance Officer  
Richland Field Office  
U.S. Department of Energy  
P.O. Box 550  
Richland, WA 99352

Dear Mr. Dunigan:

Re: Predecisional Draft Deactivation of the Plutonium Finishing Plant, Hanford Site,  
Richland, Washington, DOE/EA - 1469, May 2003.

We appreciate the opportunity to provide comments on the Predecisional Draft Plutonium Finishing Plant Environmental Assessment (PFP-EA).

We support the increased emphasis the Department of Energy has placed on deactivating the Plutonium Finishing Plant. Reducing the risks posed by the facility has long been a priority for the State of Oregon.

We are concerned that the EA may not provide a sufficiently detailed account for the safety analysis and associated criticality concerns. PFP contains a large amount of extremely dangerous material in the form of dispersed plutonium on the floor of the canyon of the Plutonium Reclamation Facility, in the ducting and exhaust systems, in glove boxes and in other systems. These pose very large risks for worker exposure, and yet unknown risks for criticality accidents. We support moving forward with cleanout, albeit very cautiously.

We are concerned about the timing of the PFP-EA. The Hanford Advisory Board (HAB) acts as a focus for involvement of interested members of the public and organizations to provide review and advice to the Tri-Parties on Hanford cleanup work. The PFP-EA was released for comment shortly after the HAB went on summer break. The comment period closes before the HAB or its committees will meet again.

This reduces the opportunity for members with widely varying views to talk through any potential policy issues the proposed action may raise. This denies the Tri-Parties the benefit of a considered review by the HAB. Offering important documents for review in this manner injures DOE's credibility and harms the trust that has developed between the board and DOE staff.

Oregon Comments on the draft EA for deactivation of the Plutonium Finishing Plant

DOE/EA -- 1469

July 17, 2003

Page 2 of 3

We recommend DOE provide a one-year look ahead for future documents, and work with the HAB and the various public organizations to ensure that careful considered reviews can occur that allow for the sharing of views.

We contacted your office early in the comment period in regard to this policy issue to ask for clarification and explanation. We received no substantive reply to these inquiries until you called and left a voice message after close of business Friday, July 11th indicating that DOE had decided not to extend the comment period.

To be clear, the primary issue is the lack of opportunity for the Board members to jointly review potential policy issues. The need to extend or for another solution to remedy this particular comment period is secondary.

If you have questions about these comments, please contact Mr. Dirk Dunning on my staff at (503) 378-3187, or m

Sincerely,



Ken Niles  
Assistant Director

**Oregon Comments on the draft EA for deactivation of the Plutonium Finishing Plant  
DOE/EA - 1469  
July 17, 2003  
Page 3 of 3**

**Cc: Mike Wilson, Washington Department of Ecology  
Nick Ceto, U.S. Environmental Protection Agency  
Marla Marvin, DOE  
Armand Minthorn, CTUIR  
Russell Jim, Yakama Nation  
Patrick Sobotta, Nez Perce Tribe  
Shelley Cimon, Chair, Oregon Hanford Waste Board  
Todd Martin, Chair, Hanford Advisory Board**



Department of Energy  
Richland Operations Office  
P.O. Box 550  
Richland, Washington 99352

**AUG 11 2003**

03-RCA-0349

Mr. Ken Niles, Deputy Administrator  
Nuclear Safety Division  
Oregon Office of Energy  
625 Marion Street N.E., Suite 1  
Salem, Oregon 97301

Dear Mr. Niles:

**DRAFT ENVIRONMENTAL ASSESSMENT (EA) ON THE DEACTIVATION OF THE  
PLUTONIUM FINISHING PLANT (PFP) HANFORD SITE, RICHLAND, WASHINGTON,  
DOE/EA—1469**

This is in response to your July 17, 2003, letter to me on the same subject. Your letter provides comments on the PFP EA expressing concerns about the timing of its comment period vis a vis the Hanford Advisory Board (HAB) meeting schedule, and recommends a "look-ahead" for this and similar documents.

We appreciate your comments on the draft PFP EA regarding the safety analysis. We will respond to these specific comments in a separate letter and in the final EA that we expect to issue in September 2003. We will provide a copy of the final PFP EA to you.

It is unfortunate that the comment period for the PFP EA did not coincide with the HAB's meeting schedule, as the U.S. Department of Energy (DOE) values the HAB's advice on cleanup issues. It is our understanding that the committees chose not to meet during June and July but would consider calling a meeting if appropriate. The PFP EA was scheduled to support ongoing cleanup activities at PFP and could not be delayed to meet the HAB's schedule, although we would have supported a meeting and provided briefing information had it been requested.

We believe we made proper and timely notification of availability of the draft PFP EA. We sent a hard copy to your office on June 10, 2003. Notification of the PFP EA comment period was distributed electronically to you and several members of your staff who are on the Hanford listserv on June 13. In addition, the scheduled release of the PFP EA has been on the Richland Operations (RL) Decisions Summary document since March, and the June 1 revision stated that we expected to issue it the first week of June. The RL Decisions Summary is available to you on the web at <http://www.hanford.gov/pubinvolve.html> and is updated monthly. In addition to this "look ahead" document, the RL and the DOE Office of River Protection issue the "Annual National Environmental Policy Act (NEPA) Planning Summary" in the early spring that includes a forecast of upcoming Environmental Assessments. The NEPA summary is another planning tool available on the Web at <http://tis-nt.oh.doe.gov/nepa/planningsummaries.html>.

Mr. Ken Niles  
03-RCA-0349

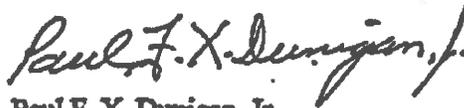
.-2-

AUG 11 2003

I regret that Mr. Dunning, of your staff, and I were not able speak directly. Had we done so, we could have discussed his concerns about the timing of the PFP EA. Mr. Dunning left a message when I was unavailable and he was not available when I returned his call.

If you have any questions, please contact me on (503) 376-6667.

Sincerely,



Paul F. X. Dunigan, Jr.  
NEPA Compliance Officer

RCA:PFXD



Department of Energy  
Richland Operations Office  
P.O. Box 550  
Richland, Washington 99352

OCT 10 2003

03-AMCP-0057

Mr. Ken Niles, Assistant Director  
Nuclear Safety Division  
Oregon Department of Energy  
625 Marion Street N.E., Suite 1  
Salem, Oregon 97301

Dear Mr. Niles:

**DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR DEACTIVATION OF THE  
PLUTONIUM FINISHING PLANT (PFP), HANFORD SITE, RICHLAND, WASHINGTON  
(DOE/EA-1469)**

This is in response to your comments regarding the safety analysis in the draft PFP EA in your July 17, 2003, letter to me on the same subject. I responded to your comments regarding the timing of the PFP EA on August 11, 2003. The response to your comment is as follows:

**Comment.** We are concerned that the EA may not provide a sufficiently detailed account for the safety analysis and associated criticality concerns. PFP contains a large amount of extremely dangerous material in the form of dispersed plutonium on the floor of the canyon of the Plutonium Reclamation Facility, in the ducting and exhaust systems, in glove boxes and in other systems. These pose very large risks for worker exposure, and yet unknown risks for criticality accidents. We support moving forward with cleanout, albeit very cautiously.

**Response.** The EA addresses potential environmental consequences associated with deactivation activities as well as postulated accident scenarios. Operational experience and actual personnel exposure data were used in developing projected consequences. The analyses are bounding and include consideration of reasonably foreseeable accidents including a criticality event.

Thank you for your comments on the draft EA. We will provide a copy of the final EA to you. If you have any questions, please contact me on (509) 376-6667.

Sincerely,

A handwritten signature in cursive script that reads "Paul F. X. Dunigan, Jr.".

Paul F. X. Dunigan, Jr.  
NEPA Compliance Officer

AMCP:RSO



STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

1315 W. 4th Avenue • Kennewick, Washington 99336-6018 • (509) 735-7581

July 15, 2003

Mr. Paul F. X. Dunigan, Jr.  
Richland Operations Office  
United States Department of Energy  
P.O. Box 550, MSIN: A5-15  
Richland, Washington 99352

Dear Mr. Dunigan:

Re: Washington State Department of Ecology Review of Draft Environmental Assessment (EA) for Deactivation of the Plutonium Finishing Plant, Hanford Site, Richland, Washington (DOE/EA-1469)

The Washington State Department of Ecology, Nuclear Waste Program, reviewed the subject draft EA. We noted several areas where information necessary to fully understand the impacts of the proposal is absent, unclear, or incomplete. These include the following:

- Unclear description of the scope of the proposal
- Lack of differentiation between the two alternatives considered but not preferred by the United States Department of Energy
- Lack of information about grading to be conducted as part of the project and origin of fill materials
- Lack of a biological review specific to demolition of the buildings listed in Appendix B as part of the scope of the EA
- Insufficient information about chemical hazards

We have enclosed our detailed comments for your review and response.

We urge the United States Department of Energy Richland Operations to review the requirements in the State Environmental Policy Act Rules (WAC 197-11) to ensure that information provided to us in support of requests for our approval of your proposal meets the requirements.

RECEIVED

JUL 18 2003

DOE-RL/RLCC

Mr. Paul F. X. Dunigan, Jr.  
July 15, 2003  
Page 2

If you have any questions concerning our review, please contact Ms. Melinda J. Brown on (509) 736-3027 or Mr. Rick Bond on (509) 736-3007.

Sincerely yours,



Michael Wilson  
Program Manager  
Nuclear Waste Program

cc: Mike Gearheard, EPA  
Keith Klein, USDOE/RL  
Rudy Ollero, USDOE-RL  
Todd Martin, HAB  
Lauri Vigue, DFW  
The Honorable Gary Burke, CTUIR  
Stuart Harris, CTUIR  
The Honorable Samuel N. Penney, NPT  
Patrick Sobotta, NPT  
Russell Jim, YIN  
The Honorable Robert Wahpat, YIN  
Ken Niles, OOE  
Administrative Records: PFP EA

WASHINGTON DEPARTMENT OF ECOLOGY COMMENTS

SECTION

<p>Sec. 1.0, p. 1-1</p>	<p>It is unclear from the purpose and need statement what the purpose of the draft <i>Plutonium Finishing Plant Environmental Assessment</i> is. Ecology suggests that a precise description of the scope of the accelerated effort should be added. That statement should include the number of buildings to be demolished to slab on grade, the number of large systems to be dismantled/flushed out (e.g. FMC Line, chemical sewer), and the number of buildings to be decommissioned and placed in surveillance and maintenance mode. As the scope is presented in Section 1.0 and elsewhere, the reader cannot understand that the focus of the effort is demolish support buildings to concrete slab-on-grade, to decommission and decontaminate certain buildings, and systems, and to send some wastes to disposal and others to long-term storage.</p>
<p>Sec. 1.0, p. 1-1</p>	<p>Use of the term "transition" to describe the efforts evaluated in the Draft PFP EA does not include dismantlement, which is also described in the EA. Ecology suggests that the term transition be combined with decontamination/decommissioning/dismantlement to describe efforts that exceed placement of facilities in a "safe, stable, and environmentally sound condition, suitable for an extended period of surveillance and maintenance pending final disposition" accurately.</p>
<p>Sec. 2.0 Background</p>	<p>Ecology requests that the USDOE add a map of the PFP facility to the EA. The map should pinpoint the facilities listed in Appendices A and B to help readers understand the breadth of the proposed actions. The map should also pinpoint the 241-Z and 232-Z facilities, which are also described in this EA.</p>
<p>Sec. 2.2, p. 2-2</p>	<p>Ecology views the accelerated deactivation activities described in the three categorical exclusion documents, the proposed deactivation activities, and the material stabilization and hold-up removal activities as related actions. As such, these activities have some potential for significant adverse environmental impacts. Ecology appreciates that the U.S. Department of Energy has decided to perform an Environmental Assessment of the proposed deactivation activities and suggests that the USDOE consider expanding the scope of its environmental document (DOE/EIS-0244-FS/S/SA8) to address the combined actions.</p>
<p>Sec. 3.1, p. 3-2</p>	<p>Ecology noted that the USDOE proposed to conduct final process operations, including flushing piping systems. Ecology could not determine how the USDOE proposes to dispose of the flush water or whether the USDOE proposes to treat the flush water before disposal. Ecology requests that the USDOE provide more information about the disposal of flush water, including any information about any dangerous wastes that may be present.</p>

<p>Sec. 3.1, p. 3-2</p>	<p>Ecology notes that the proposed action includes "stabilizing, consolidating, or removing outside contaminated areas within the PFP complex" that is not described specifically. Extensive removal of soil from around a building would appear to be appropriate for regulation under CERCLA as a removal action or RCRA as a corrective action. Such actions would be covered under a CERCLA/RCRA decision document, rather than this EA. Please provide the USDOE's rationale for performing extensive soil removal before conducting other CERCLA actions planned for PFP.</p>
<p>Sec. 3.1, p. 3-2</p>	<p>Ecology requests that the USDOE describe the "other closeout actions" that will be part of the conduct of final process operations described briefly in text. Please identify those activities that will generate dangerous wastes and/or toxic air emissions.</p>
<p>Sec. 3.2, p. 3-2 and 3-3</p>	<p>Ecology cannot readily determine the differences between the Terminal Cleanup of Systems alternative (see Sec. 3.2.2) and the Cleanup to Remove All Radiological Hazards and Dangerous Waste (see Sec. 3.2.3) from the brief descriptions provided. Ecology cannot therefore conduct a complete analysis of all alternatives to judge the merits of each against the preferred alternative. The difference between the Terminal Cleanup and the Cleanup alternatives appears to be in the extent of equipment removal and facility decontamination. Ecology suggests that the USDOE present the differences among all of the alternatives in an easily understandable form (i.e., tabular, process flow diagram) to aid the public in understanding their differences.</p>
<p>Sec. 4.0, p. 4-1</p>	<p>Paragraph 4 cites PNINL-0415 discussions of threatened and endangered plant and animal species on the Hanford Site, as well as migratory birds that have been identified at PFP. It is not clear in the discussion whether the two species of birds on the Federal list of threatened and endangered species (Aleutian Canada goose and bald eagle) would be affected by the proposed actions at PFP. Ecology requests that additional explanation be added to explain the USDOE's inclusion of those species in relation to the proposed action.</p>
<p>Sec. 4.0, p. 4-1</p>	<p>Paragraph 5 discusses aquatic organisms in the Columbia River and other water bodies on the Hanford Site. As was true with the two bird species, the text is not clear as to why the USDOE considers them to be part of the environment affected by the proposed action. Ecology requests that additional explanation be added to explain the USDOE's inclusion of the aquatic habitat as it relates to actions planned at PFP.</p>
<p>Sec. 4.0, p. 4-1</p>	<p>Paragraph 6 provides a general discussion of the plant communities on the Hanford Site, but does not specify the natural plant communities that are part of the environment affected by the proposal. Ecology requests specific information be added to describe the communities affected by the proposal.</p>

Sec. 5.0, p. 5-1	Paragraph 4 describes in general terms a toxicological hazard that would exist because of the presence of residual process chemicals, citing the Plutonium Finishing Plant Residual Chemical Hazards Assessment Report. Ecology requests that a list of those residual process chemicals be appended to the EA to provide information to the public.
Appendix C, p. C-5	Ecology noted that the USDOE received concurrence from the State Office of Archaeology and Historic Preservation "to mechanically grade to eliminate irregular surfaces to no more than 1 foot to bring the PFPF facility to slab-on-grade." Ecology did not see any description of grading activity in Sec. 3.2; therefore, we were unable to identify the sources of any fill material to be used. Should the USDOE use fill material extracted from existing borrow pits on the Hanford Site, Ecology requests a list of those pits with a description of mitigation measures that will be taken to avoid adverse impacts to any State or Federal candidate, threatened, or endangered species present in or near them.
Appendix C, pp. C-13 to C-15, Appendix A, p. A-2.2, p. 2-2.	Ecology noted that the demolition of buildings described in Sec. 2.2 as part of a categorical exclusion for ancillary buildings, and listed in Appendix A, underwent a blanket biological review (reference Appendix C, letter, Michael R. Sackschewsky to Brita Nelson-Maki, "Blanket Biological Review of Plutonium Finishing Plant, 200 West Area, ECR #2003-200-036," dated May 14, 2003. Within the report, the author cites demolition of the buildings in Appendix A as one of the specific causes for conduct of the biological review. No parallel biological review of the buildings listed in Appendix B for demolition was included in the draft EA. Ecology cannot determine what impacts to plants and animals may occur from demolition of the buildings that are the subject of this EA. Please provide Ecology the written report documenting the biological review for demolition conducted for the buildings listed in Appendix B.
Sec. 5.1.1, p. 5-4	Ecology requests that the USDOE provide more specific information about the dangerous waste constituents and characteristics of the 130 m <sup>3</sup> mixed waste that will be generated as a result of PFP deactivation activities.
Sec. 5.2.1, p. 5-7	Statements made about injury rates are confusing: "...injury rates that averaged 8.0 (per 200,000 hours) during early months of 1999 and only 2.3 for all of 2002..." do not clearly identify units of comparison. Ecology requests that the USDOE clarify that units of comparison are in terms of 200,000-hour increments or annual hours.
GENERAL	Ecology requests that the USDOE provide maps that show the location of the facilities that are the subject of this EA, the layout of the PFP complex, and the relation of the PFP complex to the rest of the Hanford 200 West Area and nearby areas with public access (e.g., State Route 240).
GENERAL	Ecology requests that the USDOE include Appendix C in the Table of Contents in the Final EA and perform other revisions needed to lend consistency to the document (e.g., headings).



03-AMCP-0056

Department of Energy  
Richland Operations Office  
P.O. Box 550  
Richland, Washington 99352  
OCT 10 2003

Mr. Michael Wilson, Program Manager  
Nuclear Waste Program  
State of Washington  
Department of Ecology  
1315 W. Fourth Avenue  
Kennewick, Washington 99336

Dear Mr. Wilson:

**DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR DEACTIVATION OF THE  
PLUTONIUM FINISHING PLANT (PFP), HANFORD SITE, RICHLAND, WASHINGTON  
(DOE/EA-1469)**

This is in response to your July 15, 2003, letter to me on the same subject. The responses to your comments are as follows:

**Comment 1.** (Section 1.0, p. 1-1). It is unclear from the purpose and need statement what the purpose of the draft Plutonium Finishing Plant Environmental Assessment is. Ecology suggests that a precise description of the scope of the accelerated effort should be added. That statement should include the number of buildings to be demolished to slab on grade, the number of large systems to be dismantled/flushed out (e.g. RMC Line, chemical sewer), and the number of buildings to be decommissioned and placed in surveillance and maintenance mode. As the scope is presented in Section 1.0 and elsewhere, the reader cannot understand that the focus of the effort is demolish support buildings to concrete slab-on-grade, to decommission and decontaminate certain buildings, and systems, and to send some wastes to disposal and others to long-term storage.

**Response 1.** The Purpose and Need section in the EA is intended to be a concise, precise statement identifying DOE's need to perform an action and the purpose in doing so. The overall scope and specifics of the proposed action are addressed in Section 3.0 of the EA.

The Purpose and Need section has been revised as follows for clarity:

**"The U.S. Department of Energy (DOE) needs to transition the Plutonium Finishing Plant (PFP) complex in the 200 West Area of the Hanford Site to a state of low-risk, low-cost, long-term surveillance and maintenance pending final disposition. The purpose of this transition is to mitigate radiological and chemical hazards associated with structures (and any remaining processing equipment and ancillary hardware) in the PFP complex such that the PFP Complex's main plutonium processing structures would be ready for final disposition to be determined under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980."**

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**Comment 2. (Section 1.0, p. 1-1).** Use of the term "transition" to describe the efforts evaluated in the Draft PFP EA does not include dismantlement, which is also described in the EA. Ecology suggests that the term transition be combined with decontamination/decommissioning/dismantlement to describe efforts that exceed placement of facilities in a "safe, stable, and environmentally sound condition, suitable for an extended period of surveillance and maintenance pending final disposition" accurately.

**Response 2.** The reader is directed to the Glossary wherein dismantlement, as well as deactivation, decontamination and decommissioning, facility transition, and stabilization, are defined. The descriptions in the EA are consistent with these definitions.

**Comment 3. (Section 2.0, Background).** Ecology requests that the USDOE add a map of the PFP facility to the EA. The map should pinpoint the facilities listed in Appendixes A and B to help readers understand the breadth of the proposed actions. The map should also pinpoint the 241-Z and 232-Z facilities, which are also described in this EA.

**Response 3.** The EA has been revised to include figures of the Hanford Site and a callout for a detailed layout of the PFP Complex (referring to a map in Appendix C).

**Comment 4. (Section 2.2, p. 2-2).** Ecology views the accelerated deactivation activities described in the three categorical exclusion documents, the proposed deactivation activities, and the material stabilization and hold-up removal activities as related actions. As such, these activities have some potential for significant adverse environmental impacts. Ecology appreciates that the U.S. Department of Energy has decided to perform an Environmental Assessment of the proposed deactivation activities and suggests that the USDOE consider expanding the scope of its environmental document (DOE/EIS-0244-FS/SSA9) to address the combined actions.

**Response 4.** The action proposed in this EA was not within the scope of the Plutonium Finishing Plant EIS (DOE/EIS-0244F), and therefore, does not lend itself to analysis in a supplement analysis to the PFP EIS. Therefore, an EA was prepared. The text in Section 5.5 addressing cumulative impacts has been revised as follows to reflect the incremental contribution of the proposed action to existing risk associated with ongoing activities related to material stabilization and hold-up disposition to support consideration of potential for significant environmental impacts.

"It would be expected that the proposed action would provide a small contribution to existing radiological risks already present at PFP. That is, the ongoing stabilization and hold-up retrieval activities (as addressed in DOE/EIS-0244-FS/SA9) would continue while deactivation is initiated. For perspective, the consequences associated with the aforementioned activities were based on retrieval of 50 kilograms (110 pounds) of plutonium, which is a subset of the 100 kilograms (220 pounds) providing the basis for

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calculations in this EA. The total calculated PFP Facility worker dose for retrieval of the 50 kilograms (110 pounds) of plutonium was approximately 200 person-rem. In this EA, the calculated dose-to-worker for retrieval of 100 kilograms (220 pounds) is 300 person-rem. Thus, an additional worker dose of approximately 100 person-rem conservatively is calculated to result from the proposed action. Based on a dose-to-risk conversion factor of  $6 \times 10^{-4}$  LCFs per person-rem (DOE 2002), no additional LCFs would be expected (specifically, this equates to 0.06 LCFs)."

Comment 5. (Section 3.1, p. 3-2). Ecology noted that the USDOE proposed to conduct final process operations, including flushing piping systems. Ecology could not determine how the USDOE proposes to dispose of the flush water or whether the USDOE proposes to treat the flush water before disposal. Ecology requests that the USDOE provide more information about the disposal of flush water, including any information about any dangerous wastes that may be present.

Response 5. Section 5.1.1.2 has been revised as follows for clarity addressing water quality.

"No direct discharges of contaminated liquid effluents to the environment would occur as a result of planned deactivation activities. The management of aqueous contaminated waste generated during cessation of stabilization activities and throughout deactivation would be similar to, and consistent with, current practices at PFP. That is, liquid effluents would be sampled to verify waste composition and subjected to any necessary processing to meet applicable acceptance criteria before being routed to existing permitted waste treatment and/or disposal facilities. Sanitary waste would be routed to existing onsite 200 Areas sanitary sewer system(s)."

Comment 6. (Section 3.1, p. 3-2). Ecology notes that the proposed action includes "stabilizing, consolidating, or removing outside contaminated areas with the PFP complex" that is not described specifically. Extensive removal of soil from around a building would appear to be appropriate for regulation under CERCLA as a removal action or RCRA as a corrective action. Such actions would be covered under a CERCLA/RCRA decision document, rather than this EA. Please provide the USDOE's rationale for performing extensive soil removal before conducting other CERCLA actions planned for PFP.

Response 6. The scope of the EA does not include "extensive" excavation. Stabilizing, consolidating, or removing outside contaminated areas within the PFP Complex are meant to refer to small areas of surface contamination or "hot spots." The text has been clarified to reflect minimal excavation. Additionally, excavation associated with planned disconnecting of utilities, piping, and network service systems (Section 3.1, p. 3-2) would not be "extensive." The potential impacts associated with air emissions from excavation were addressed in Section 5.1.1.1; i.e., "Specific emission estimates from excavation were not calculated because particulate matter emissions would be controlled by using appropriate wetting procedures and surfactants, resulting in compliance with federal and state air quality standards."

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**Comment 7. (Section 3.1, p. 3-2).** Ecology requests that the USDOE describe the "other closeout actions" that will be part of the conduct of final process operations described briefly in text. Please identify those activities that will generate dangerous wastes and/or toxic air emissions.

**Response 7.** The term "other close-out actions" has been deleted since all activities generating dangerous waste and/or toxic waste have already been described.

**Comment 8. (Section 3.2, p. 3-2 and 3-3).** Ecology cannot readily determine the differences between the Terminal Cleanout of Systems alternative (see Sec. 3.2.2.) and the Cleanout to Remove All Radiological Hazards and Dangerous Waste (see Sec. 3.2.3.) from the brief descriptions provided. Ecology cannot therefore conduct a complete analysis of all alternatives to judge the merits of each against the preferred alternative. The difference between the Terminal Cleanout and the Cleanout alternatives appears to be in the extent of equipment removal and facility decontamination. Ecology suggests that the USDOE present the differences among all of the alternatives in an easily understandable form (i.e., tabular, process flow diagram) to aid the public in understanding their differences.

**Response 8.** A table highlighting differences between alternatives has been added and titles of the alternatives have been changed for clarity in the final EA.

**Comment 9. (Section 4.0, p. 4-1).** Paragraph 4 cites PNNL 6415 discussions of threatened and endangered plant and animal species on the Hanford Site, as well as migratory birds that have been identified at PFP. It is not clear in the discussion whether the two species of birds on the Federal list of threatened and endangered species (Aleutian Canada goose and bald eagle) would be affected by the proposed actions at PFP. Ecology requests that additional explanation be added to explain the USDOE's inclusion of those species in relation to the proposed action.

**Response 9.** The text has been clarified to indicate that although these two species of birds are known to be on the Hanford Site, neither has been observed within the PFP Complex.

**Comment 10. (Section 4.0, p. 4-1).** Paragraph 5 discusses aquatic organisms in the Columbia River and other water bodies on the Hanford Sites. As was true with the two bird species, the text is not clear as to why the USDOE considers them to be part of the environment affected by the proposed action. Ecology requests that additional explanation be added to explain the USDOE's inclusion of the aquatic habitat as it relates to actions planned at PFP.

**Response 10.** The text has been clarified to indicate that no species of aquatic organisms are found within the PFP Complex.

**Comment 11. (Section 4.0, p. 4-1).** Paragraph 6 provides a general discussion of the plant communities on the Hanford Site, but does not specify the natural plant communities that are part of the environment affected by the proposal. Ecology requests specific information be added to describe the communities affected by the proposal.

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**Response 11.** The text has been clarified to indicate that no natural plant communities are found within the PFP Complex.

**Comment 12.** (Section 5.0, p. 5-1). Paragraph 4 describes in general terms a toxicological hazard that would exist because of the presence of residual process chemicals, citing the Plutonium Finishing Plant Residual Chemical Hazards Assessment Report. Ecology requests that a list of those residual process chemicals be appended to the EA to provide information to the public.

**Response 12.** A representative list of chemicals based on data in HNF-13971 has been added as Appendix D in the final EA.

**Comment 13.** (Appendix C, p. C-5). Ecology noted that the USDOE received concurrence from the State Office of Archaeology and Historic Preservation "to mechanically grade eliminate irregular surfaces to no more than 1 foot to bring the PFP facility to slab-on-grade." Ecology did not see any description of grading activity in Sec. 3.2; therefore, we were unable to identify the sources of any fill material to be used. Should the USDOE use fill material extracted from existing borrow pits on the Hanford Site, Ecology requests a list of those pits with a description of mitigation measures that will be taken to avoid adverse impacts to any State or Federal candidate, threatened, or endangered species present in or near them.

**Response 13.** DOE does not anticipate that fill material will be required to complete this action.

**Comment 14.** (Appendix C, p. C-13-15; Appendix A, p. A-; Section 2.2, p. 2-2). Ecology noted that the demolition of buildings described in Sec. 2.2 as part of a categorical exclusion for ancillary buildings, and listed in Appendix A, underwent a blanket biological review (reference Appendix C, letter, Michael R. Sackschewsky to Britta Nelson-Maki, "Blanket Biological Review of Plutonium Finishing Plant, 200 West Area, ECR #2003-200-036, dated May 14, 2003. Within the report, the author cites demolition of the buildings in Appendix A as one of the specific causes for conduct of the biological review. No parallel biological review of the buildings listed in Appendix B for demolition was included in the draft EA. Ecology cannot determine what impacts to plants and animals may occur from demolition of the buildings that are the subject of this EA. Please provide Ecology the written report documenting the biological review for demolition conducted for the buildings listed in Appendix B.

**Response 14.** Those structures identified in Appendix B will not be demolished under the scope of this EA.

**Comment 15.** (Section 5.1.1, p. 5-4). Ecology requests that the USDOE provide more specific information about the dangerous waste constituents and characteristics of the 130 m<sup>3</sup> mixed waste that will be generated as a result of PFP deactivation activities.

**Response 15.** The specific composition of the mixed waste would be identified during deactivation.

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Comment 16. (Section 5.2.1, p. 5-7). Statements made about injury rates are confusing," injury rates that averaged 8.0 (per 2000,000 hours) during early months of 1999 and only 2.3 for all of 2002 . . ."do not clearly identify units of comparison. Ecology requests that the USDOE clarify that units of comparison are in terms of 200,000-hour increments or annual hours.

Response 16. Text has been rewritten to indicate that recordable injury rates averaged 2.3 (per 200,000 work hours) for all of 2002.

Comment 17. (General). Ecology requests that the USDOE provide maps that show the location of the facilities that are the subject of this EA, layout of the PFP complex, and the relation of the PFP complex to the rest of the Hanford 200 West Area and nearby areas with public access (e.g., State Route 240).

Response 17. See Response 3.

Comment 18. (General). Ecology requests that the USDOE include Appendix C in the Table of Contents in the Final EA and perform other revisions needed to lend consistency to the document (e.g., headings).

Response 18. Appendix C has been added to the Table of Contents. The final EA will undergo appropriate technical editing to provide consistency after incorporation of comments.

Thank you for your comments. We will provide a copy of the final EA to you. If you have any questions, please contact me on (509) 376-6667.

Sincerely,



Paul F. X. Dunigan, Jr.  
NEPA Compliance Officer

AMCP:RSO

cc: D. A. Isom, Admin Record, H6-08  
R. F. Stanley, Ecology

State of Washington  
**DEPARTMENT OF FISH AND WILDLIFE**Mailing Address: 600 Capital Way N, Olympia, WA 98501-1091 • (360) 902-2200; TDD (360) 902-2207  
Mets Office Location: Natural Resources Building, 1111 Washington Street SE, Olympia, WA

July 7, 2003

Mr. Paul F.X. Dunigan, Jr.  
NEPA Compliance Officer  
U.S. Department of Energy  
Richland Operations Office  
P.O. Box 550  
Richland, WA 99352

Dear Mr. Dunigan;

**RE: DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR DEACTIVATION OF THE  
PLUTONIUM FINISHING PLANT, HANFORD SITE, RICHLAND WASHINGTON  
(DOE/EA-1469)**

The mandate of WDFW is to preserve, protect, perpetuate, and manage the wildlife and food fish, game fish, and shellfish in the state waters and offshore waters. Wildlife, fish, and shellfish are the property of the state (RCW 77.04.012). The Washington Department of Fish and Wildlife (WDFW) has completed review of the draft EA for the deactivation of the Plutonium Finishing Plant, and comments are detailed below.

**2.0 Background**

Please provide a map that identifies the location of the Plutonium Finishing Plant within the 200 Area. It is difficult to determine the full ecological impacts from this proposed action when a site map is not provided.

**5.0 Environmental Impacts**

Page 5-1, fourth paragraph, discusses the possibility of a toxicological hazard because of the presence of residual process chemicals, and further states that these chemicals have been identified in the *Plutonium Finishing Plant Residual Chemical Hazards Assessment Report (HNF-13971, Rev. 0)*. For evaluation purposes, please include a list of these chemicals within the appendix of the EA.

Page 5.4, this section focuses on radiological impacts to the public; and avoids a thorough discussion on radiological impacts to the environment. Further, this section omits discussion regarding the Draft Central Plateau Ecological Evaluation (DOE/RL-2001-54 Draft B). How will this EA tie into this ecological evaluation? The purpose of this ecological evaluation is to complete a screening-level ecological risk assessment for the Central Plateau in accordance with

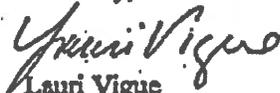
Paul F.X. Dunigan, Jr.  
July 7, 2003  
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EPA guidance. If this project is exempted from the Central Plateau Ecological Evaluation is there another ecological evaluation being conducted in its place?

In Appendix C, a May 14, 2003 letter to Britta Nelson-Maki, Fluor Daniel Hanford, Inc. references outdated Washington Department of Fish and Wildlife Species of Concern and Priority Habitats information. Please refer to our web site for the most accurate WDFW species listings: <http://www.wa.gov/wdfw/>

WDFW appreciates the opportunity to comment on this EA. I may be reached at (360) 902-2425 if you have questions.

Sincerely,



Lauri Vigue  
Fish and Wildlife Biologist

Cc: Ted Clausing, WDFW  
Melinda Brown, WDOE  
Larry Goldstein, WDOE

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DOE-RL/RLCC



Department of Energy  
Richland Operations Office  
P.O. Box 550  
Richland, Washington 99352

03-AMCP-0055

OCT 10 2003

Ms. Laura Vigue  
State of Washington  
Department of Fish and Wildlife  
600 Capitol Way N  
Olympia, Washington 98501

Dear Ms. Vigue:

**DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR DEACTIVATION OF THE  
PLUTONIUM FINISHING PLANT (PFP), HANFORD SITE, RICHLAND, WASHINGTON  
(DOE/EA-1469)**

This is in response to your July 7, 2003, letter to me on the same subject. The responses to your comments are as follows:

**Comment 1. (Section 2.0, Background). Please provide a map that identifies the location of the Plutonium Finishing Plant within the 200 Area. It is difficult to determine the full ecological impacts from this proposed action when a site map is not provided.**

**Response 1. The EA has been revised to include figures of the Hanford Site and a callout for a detailed layout of the PFP Complex (referring to a map in Appendix C).**

**Comment 2. (Section 5.0, Environmental Impacts, p. 5-1). Page 5-1, fourth paragraph, discusses the possibility of a toxicological hazard because of the presence of residual process chemicals, and further states that these chemicals have been identified in the Plutonium Finishing Plant Residual Chemical Hazards Assessment Report (HNF-13971, Rev. 0). For evaluation purposes, please include a list of these chemicals within the appendix of the EA.**

**Response 2. A representative list of chemicals based on data in HNF-13971 has been added as Appendix D in the final EA.**

**Comment 3. (Section 5.0, Environmental Impacts, p. 5-4). Page 5-4, this section focuses on radiological impacts to the public, and avoids a thorough discussion on radiological impacts to the environment. Further, this section omits discussion regarding the Draft Central Plateau Ecological Evaluation (DOE/RL-2001-54 Draft B). How will this EA tie into this ecological evaluation? The purpose of this ecological evaluation is to complete a screening-level ecological risk assessment for the Central Plateau in accordance with EPA guidance. If this project is exempted from the Central Plateau Ecological Evaluation is there another ecological evaluation being conducted in its place?**

Ms. Laura Vigue  
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Response 3. There is no specific ecological evaluation associated with the deactivation of the PFP Complex. The EA focused on the near-term radiological and toxicological impacts to the directly involved workers, the onsite workers, and the offsite population. Final disposition of the PFP Complex (i.e., end state) has yet to be determined. The attendant ecological impacts will be evaluated as part of the implementation of the recommendations delineated in the final *Central Plateau Ecological Evaluation* (DOE/RL-2001-54). From that assessment, a data quality objectives process for the Central Plateau will be developed. A sampling and analysis plan will be prepared to support data collection. These data will be used to support ecological risk assessments (ERA) under the CERCLA remedial investigation/feasibility study process for demolition of the PFP Complex. The ERAs may be performed for geographical portions of the 200 Areas or for groupings of the more than 700 contaminated waste sites into operable units. The PFP Complex will be included as an entity in the overall assessment.

Comment 4. (Appendix C). In Appendix C, a May 14, 2003 letter to Britta Nelson-Maki, Fluor Daniel Hanford, Inc. references outdated Washington Department of Fish and Wildlife Species of Concern and Priority Habitats information. Please refer to our web site for the most accurate WDFW species listings: <http://www.wa.gov/wdfw/>

Response 4. Although an outdated reference was used in the May 14, 2003, correspondence, the basis for the determination was the most current information regarding State of Washington Department of Fish and Wildlife Species of Concern and Priority Habitats (as identified in <http://www.wa.gov/wdfw/>).

Thank you for your comments. We will provide a copy of the final EA to you. If you have any questions, please contact me on (509) 376-6667.

Sincerely,



Paul F. X. Dunigan, Jr.  
NEPA Compliance Officer

AMCP:RSO

**FINDING OF NO SIGNIFICANT IMPACT**

**DEACTIVATION OF THE PLUTONIUM FINISHING PLANT,  
HANFORD SITE, RICHLAND, WASHINGTON**

**OCTOBER 2003**

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**AGENCY:** U.S. Department of Energy

**ACTION:** Finding of No Significant Impact

**SUMMARY:** The U.S. Department of Energy (DOE) has prepared an Environmental Assessment (EA), DOE/EA-1469, to assess environmental impacts associated with the deactivation of the Plutonium Finishing Plant (PFP) on the Hanford Site, Richland, Washington. Based on the analysis in the EA, and considering public comments, DOE has determined that the proposed action is not a major federal action significantly affecting the quality of the human environment within the meaning of the *National Environmental Policy Act of 1969* (NEPA), 42 U.S.C. 4321, et seq. Therefore, the preparation of an Environmental Impact Statement (EIS) is not required.

**ADDRESSES AND FURTHER INFORMATION:** Single copies of the EA and further information about the proposed action are available from:

U.S. Department of Energy  
Richland Operations Office  
Rudy S. Ollero, Document Manager  
Project Management Support Organization  
P.O. Box 550, MS A6-39  
Richland, Washington 99352  
Phone: (509) 376-0663  
e-mail: [Rodolfo S Rudy Ollero@rl.gov](mailto:Rodolfo_S_Rudy_Ollero@rl.gov)

For further information regarding the DOE NEPA process, contact:

U.S. Department of Energy  
Richland Operations Office  
P. F. X. Dumigan, Jr., NEPA Compliance Officer  
P.O. Box 550, MS A5-58  
Richland, Washington 99352  
Phone: (509) 376-6667  
e-mail: [Paul F Jr Dumigan@rl.gov](mailto:Paul_F_Jr_Dumigan@rl.gov)

Ms. Carol M. Borgstrom, Director  
Office of NEPA Oversight  
U.S. Department of Energy  
1000 Independence Avenue, S.W.  
Washington, D.C. 20585  
Phone: (202-586-4600)  
e-mail: [Carol.Borgstrom@eh.doe.gov](mailto:Carol.Borgstrom@eh.doe.gov)

**PURPOSE AND NEED:** The U.S. Department of Energy (DOE) needs to transition the Plutonium Finishing Plant (PFP) complex in the 200 West Area of the Hanford Site to a state of low-risk, low-cost, long-term surveillance and maintenance pending final disposition. The purpose of this transition is to mitigate radiological and chemical hazards associated with

structures (and any remaining processing equipment and ancillary hardware) in the PFP Complex such that the PFP Complex's main plutonium processing structures would be ready for final disposition to be determined under the *Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980*.

**BACKGROUND:** Historically, the PFP Complex was used to conduct plutonium processing, storage, and support operations for national defense. As a result of plutonium processing activities, the PFP Complex contained an inventory of approximately 3,600 kilograms (7,900 pounds) of a variety of reactive plutonium-bearing materials. In addition to the listed plutonium-bearing materials, the PFP Complex contains approximately 50 kilograms (110 pounds) of plutonium-bearing materials in systems (e.g., ventilation, process equipment, piping, walls, floors, etc.). This material accumulated gradually over approximately 40 years of processing; the accumulated material is referred to as hold-up material.

Completion of the ongoing stabilization and packaging of plutonium-bearing materials is expected to be completed by March 2004. Deactivation planning has targeted the PFP Complex to be deactivated, including vaults being de-inventoried, by 2014.

**PROPOSED ACTION:** The proposed action is to deactivate the PFP Complex, involving those activities necessary to take the PFP Complex to a state suitable for long-term, low-risk/low-cost surveillance and maintenance pending final disposition. The scope of this EA includes deactivation of systems no longer necessary when stabilization and storage activities and planned legacy holdup removal have been concluded; removal/disposition of equipment/components; contamination characterization and reduction/mitigation; packaging plutonium holdup material meeting waste acceptance criteria; maintaining and running muffle furnace operations, as needed, to stabilize removed plutonium holdup material; and demolition of non-process ancillary buildings.

The proposed action includes deactivation activities or activities to prepare and place a facility in a safe and stable condition to minimize the long-term cost of a surveillance and maintenance program while being protective of personnel, the public, and the environment until demolition of former processing and material storage buildings occurs. These activities would include those actions foreseeably necessary for implementation of the proposed action, such as associated transportation activities, waste removal and disposal, and award of grants and contracts.

Specific actions could include the following:

- Draining and/or de-energizing systems as appropriate
- Stabilizing contaminated areas (e.g., with fixatives, sealants, paint)
- Stabilizing or removing gloveboxes, process equipment, tanks, piping, fume hoods, and support equipment
- Removing fencing and paved parking areas adjacent to facilities if required
- Installing alternate environmental monitoring, surveillance, and safety components (e.g., lighting, fencing) if required

- Removing/packaging radioactive and hazardous materials and waste, including stabilization and/or removal of asbestos, and removal, cleanup, and disposition of polychlorinated biphenyls and other regulated materials and transportation to waste management facilities
- Removing equipment and system components
- Size-reducing process equipment for disposal as waste
- Performing physical or chemical treatment processes (e.g., neutralization, solidification, filtering) to render a material less hazardous or to reduce the volume
- Excessing surplus equipment
- Removing excess combustible material
- Disconnecting utilities, piping, and network service systems (if the systems are not necessary to maintain required environmental monitoring or building safety systems), including associated excavation. Note that potential excavation would be minimal and limited to the immediate vicinity of utilities and piping
- Ensuring adequate freeze and heat protection
- Stabilizing, consolidating, or removing small outside contaminated areas within the PFP Complex
- Sealing cracks, gratings, and openings to the building exterior, and repairing roofs
- Removing or reducing radioactive or hazardous contamination from facilities and equipment by washing, heating, chemical or electrochemical action, mechanical cleaning, or other techniques
- Removing residual plutonium holdup material, which might remain throughout the PFP Complex after stabilization activities described in the PFP EIS have been completed; packaging residual plutonium holdup meeting waste acceptance criteria for shipment to an onsite waste management facility<sup>1</sup>, or thermally stabilizing material in muffle furnace operations and packaging for storage in existing PFP Complex vaults
- Designing and executing modifications to operating systems and/or structures necessary to place a facility in surveillance and maintenance, pending demolition
- Conducting final process operations to stabilize or eliminate residual operational materials or effluents, such as final process runs; cleaning vessels, pits and trenches; operation of small evaporators; flushing piping systems; and removal or replacement of filters
- Demolishing non-process ancillary buildings.

<sup>1</sup>The ultimate disposition of transuranic waste would be shipment to the Waste Isolation Pilot Plant (WIPP) for disposal. These materials are within the estimated waste stream volume from Hanford analyzed in the 1997 Final WIPP Supplemental EIS (DOE/EIS-0026-S2).

The proposed action also might require actions to conserve energy, demonstrate potential energy conservation, promote energy efficiency, or provide routine maintenance of operating portions of PFP.

**ALTERNATIVES CONSIDERED:** The EA discussed a variety of alternatives as well as the No-Action Alternative.

**No-Action Alternative.** Under the no action alternative, after stabilization and holdup removal activities under the PFP EIS and the deactivation activities (described in Section 2.0 for 232-Z, 241-Z, and ancillary buildings) are complete, the PFP Complex would be subjected to minimal system deactivation and decontamination activities, leaving residual contaminants in tanks, vessels, piping, and on interior surfaces of structures. Some individual systems would be shut down and de-energized. Surveillance and maintenance activities would be conducted while CERCLA documentation is prepared and final disposition decisions are made.

**Alternatives.** Alternatives addressed in the EA included: cleanout of systems to minimize surveillance and maintenance and complete cleanout to remove all radiological hazards and dangerous waste.

**ENVIRONMENTAL IMPACTS:** Activities associated with deactivation of the PFP Complex would not result in any significant environmental impacts.

**Routine Operations** The proposed action is expected to occur in or adjacent to existing PFP Complex facilities in previously disturbed areas, and is not expected to result in substantial radiological or hazardous material releases to the environment. It is projected that potential personnel exposure to both radiation and hazardous materials during deactivation activities would be no greater than existing conditions at the PFP Complex. As materials continue to be removed and stabilized, background dose rates would be expected to decrease. No significant impacts to air quality, water quality, land use, or ecological, cultural and aesthetic and visual resources would occur.

There would be radiation exposure associated with residual plutonium in equipment and structures. However, the relatively low level of radioactivity associated with the PFP Complex after cessation of stabilization activities makes the risks associated with the deactivation of the plutonium processing systems small when compared to ongoing current stabilization activities. Based on the analysis in the EA for material recovery/deactivation and material disposition, the collective dose to PFP workers is projected to be 300 person-rem from deactivation and material recovery activities and approximately 25 person-rem for material disposition. Based on a dose-to-risk conversion factor of  $6 \times 10^{-4}$  latent cancer fatalities (LCF) per person-rem, no LCFs would be expected (specifically, this equates to 0.2 LCFs).

A toxicological hazard also would exist because of the presence of residual process chemicals. The current potential storage configurations would not release chemicals that would create a potential health hazard.

**Accident Scenarios** Accident consequences have been considered for the proposed action. Postulated accidents associated with the deactivation of the PFP Complex have been considered, and are believed to be bounded by those potential events associated with management of

plutonium-bearing materials present on the Hanford Site. It is expected that disposition of materials would not contribute substantial additional risks to ongoing onsite transport.

**Socioeconomic Impacts** The proposed action would not result in significant socioeconomic impacts. It would be expected that the existing Hanford Site workforce would provide the bulk of necessary personnel to support deactivation of the PFP Complex. There would be no significant impact to employment levels within Benton and Franklin counties.

**Environmental Justice** Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, directs federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of their programs and activities on minority and low-income populations. The analysis in this EA indicates that there would be minimal impacts to both the offsite population and potential workforce during deactivation of the PFP Complex, under both routine and accident conditions. Therefore, it is not expected that there would be any disproportionately high and adverse impacts to any minority or low-income populations.

**Cumulative Impacts** Cumulative environmental impacts were considered but no significant cumulative impacts are expected from implementation of the proposed action.

**DETERMINATION:** Based on the analysis in the EA, and after considering the public comments received, I conclude that the proposed action for deactivation of the PFP Complex on the Hanford Site does not constitute a major federal action significantly affecting the quality of the human environment within the meaning of NEPA. Therefore, an EIS is not required.

Issued at Richland, Washington, this 20 day of October, 2003.

  
Keith A. Klein  
Manager  
Richland Operations Office