DOE/EA-1469

Environmental Assessment

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

PREDECISIONAL DRAFT

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

May 2003

This page intentionally left blank.

CONTENTS

CONTENTS (cont)

APPENDICES

TABLES

GLOSSARY

Acronyms and Initialisms

ALARA	As low as reasonably achievable
CERCLA	*Comprehensive Environmental Response, Compensation, and Liability Act of 1980*
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	*National Environmental Policy Act of 1969*
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	*Hanford Federal Facility Agreement and Consent Order*
WAC	Washington Administrative Code
WIPP	Waste Isolation Pilot Plant

DEFINITIONS

The following definitions are found in the *Hanford Federal Facility Agreement and Consent Order.*

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 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 DOE-STD-3013.

METRIC CONVERSION CHART

If you know	Multiply by	To get
Length		
centimeters	0.39	inches
meters	3.28	feet
kilometers	0.54	nautical miles
kilometers	0.62	statute miles
Area		
square kilometers	0.39	square miles
Mass (weight)		
grams	0.035	ounces
kilograms	2.2	pounds
kilograms	0.001	metric tons (tonnes)
metric tons (tonnes)	0.984	tons (long)
Volume		
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

This page intentionally left blank.

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. This would mitigate radiological and chemical hazards associated with structures (and any remaining processing equipment and ancillary hardware) in the PFP complex.

This page intentionally left blank.

2.0 BACKGROUND

The PFP complex is located on the Hanford Site in the 200 West Area, 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).

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. This inventory contains materials that chemically and physically are dissimilar. 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 ongoing stabilization, accelerated deactivation, and the proposed deactivation activities described in this EA are being conducted, appropriate CERCLA documentation, including applicable or relevant and appropriate requirements, 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
- 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[1], 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; removal or replacement of filters; and other closeout actions
- 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 activities, leaving residual contaminants in tanks, vessels, piping, and on interior surfaces of structures.

[1]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).

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 TERMINAL CLEANOUT OF SYSTEMS (E.G., FLUSHING) TO MINIMIZE SURVEILLANCE AND MAINTENANCE

Under the terminal 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 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.

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 (50 FR 13708) 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. There are, however, two species of birds (Aleutian Canada goose and bald eagle) on the federal list of threatened and endangered species. 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. Additional details regarding the protection and enhancement of stocks of spring chinook salmon and steelhead within the Hanford Reach of the Columbia River are found in DOE/RL-2000-27, *Threatened and Endangered Species Management Plan: Salmon and Steelhead*.

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[2], establishing the actual number of plant taxa on the Hanford Site at 675. Cheatgrass is the dominant nonnative species.

Several species of both plants and animals are under consideration for formal listing by the federal government and Washington State. Details are provided in PNNL-6415.

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.

[2] 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.

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 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 hold-up 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[3] for residual nuclear material contained throughout the PFP complex processing systems as hold-up are estimated to be 75 kilograms (165 pounds).[4] 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 1.

Table 1. 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 6×10^{-4} latent cancer fatalities (LCF) per person-rem (DOE 2002), no LCFs would be expected (specifically, this equates to 0.2 LCFs). This

[3] Conservative values are based on the total of the upper ranges of the NDA measurements taken.
[4] 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 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)[5]. 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 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 2.

[5] 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 2. 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 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 1×10^{-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:

$(100{,}000\ g) \times (1 \times 10^{-3}) \times (0.062\ curies/g) \times (11\ millirem/curie) \times (0.0005) / (5\ years) = 0.007$ 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 6,000 cubic meters of low-level waste, 130 cubic meters of mixed waste, 4,600 cubic meters of transuranic waste, and 22,500 cubic meters of demolition waste (HNF-EP-0918, Rev. 11, Vol. 1). For perspective, in a single year (i.e., calendar year 2001)

[6] 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.

approximately 1,100 cubic meters of mixed waste and approximately 5,700 cubic meters of radioactive waste were generated on the Hanford Site (PNNL-13910)[7].

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 and surfactants, 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. Aqueous contaminated waste generated during cessation of stabilization activities and throughout deactivation would be managed appropriately; e.g., treatment-by-generator or routed to 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.

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

[7] Waste quantities in PNNL-13910 are provided in mass units. The assumed conversion factor is 3.3×10^{-3} cubic meters per kilogram.

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).

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, based on the following discussion on demolition waste. As stated in Section 5.1.1, approximately 22,500 cubic meters of demolition waste is forecasted. Assuming an average specific gravity of 1.5, this represents approximately 38,000 tons. For perspective, in November 2001, Environmental Restoration Disposal Facility (ERDF) received approximately 42,000 tons of waste. 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 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 have 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. 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 1.9×10^{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 onsite and offsite dose consequences associated with this event are calculated to be approximately 6×10^{3} rem and 16 rem, respectively[8]. These doses are due to the inhalation of radionuclides, primarily

[8] 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.

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 6×10^{-4} LCF per rem is not applicable to doses as large as the calculated dose (6×10^{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 1.9×10^{5} rem). Appropriate emergency procedures would mitigate the impacts of the postulated accident. The onsite and offsite dose consequences associated with this event are calculated to be approximately 6×10^{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 6×10^{-4} LCF per rem is not applicable to doses as large as the calculated dose (6×10^{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, in May 2001, the Environmental Restoration Contractor team attained five million accident-free miles in transporting containers of contaminated solid waste and debris from sites along the Columbia River to a disposal facility on the Central Plateau. Each day, drivers transport an average of 150 containers of contaminated material. It would be 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).

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).

This page intentionally left blank.

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.

This page intentionally left blank.

7.0 CONSULTATION AND COORDINATION

No agencies were consulted during preparation of this EA. Before approval of this EA, a draft version will be made available for a 30-day comment period. Among those provided copies of the draft EA are 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, as issued to stakeholders, will be made 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).

This page intentionally left blank.

8.0 REFERENCES

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/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.

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/RL-2000-27, Revision 0, *Threatened and Endangered Species Management Plan: Salmon and Steelhead*, U.S. Department of Energy, Richland Operations Office, Richland, Washington, April 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.

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. 11, *Solid Waste Integrated Forecast Technical (SWIFT) Report, FY2003-FY2046, 2003.0*, Vol. 1, Fluor Hanford, Richland, Washington.

HNF-SD-CP-PMP-008, *PFP Deactivation Project Management Plan*, Fluor Hanford, Richland, Washington.

HNF-SD-CP-SAR-021, Revision 3, Plutonium Finishing Plant Final Safety Analysis Report, January 2002, Fluor Hanford, Richland, Washington.

ICRP (International Commission on Radiological Protection), 1991, "1990 Recommendations of the International Commission on Radiological Protection", ICRP Publication 60, Annals of the ICRP, Pergamon Press, Elmsford, New York.

Lloyd 1995, Letter to A. Huston, NPS, "Final Submittal of the Historic American Engineering Record (HAER) Documentation of Building 232-Z Waste Incinerator, Hanford Site, Richland, Washington", Correspondence No. 95-TEP-216, dated May 25, 1995.

Look 1995, Letter to D. W. Lloyd, RL, No Subject, Correspondence No. H40 (WR-RRP), dated June 2, 1995.

Nissley 1994, Letter to K. V. Clarke. RL, "Memorandum of Agreement regarding the demolition of Buildings 232-Z and 233-S, Hanford Site, Washington", Advisory Council on Historic Preservation, dated December 29, 1994.

PNNL-6415, *Hanford Site National Environmental Policy Act (NEPA) Characterization*, Rev. 14, Pacific Northwest National Laboratory, Richland, Washington.

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.

This page intentionally left blank.

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)

This page intentionally left blank.

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

This page intentionally left blank.

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, 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, 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.

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,

Joel Hebdon, Director
Regulatory Compliance and Analysis Division

RCA:ALR

Enclosure

cc: See page 2

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 Hebdon
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. Hebdon:

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 2 3 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) 586-3065 Fax Number (360) 586-3067

September 4, 2002

Mr. Joel Hebdon
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. Hebdon:

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

RECEIVED
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) 586-3065 Fax Number (360) 586-3067

September 4, 2002

Mr. Joel Hebdon
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. Hebdon:

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 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

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 -2- DEC 5 2002
03-RCA-0082

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 Hebdon, 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

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

January 15, 2003

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

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. Hebdon:

Thank you for contacting the Washington State Office of Archaeology and Historic Preservation (OAHP) 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 2009.

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 234-5Z, 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 234-5Z, 291-Z, and 2736-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 (234-5Z, 291-Z, and 2736-Z).

- 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 OAHP. 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@cted.wa.gov.

Sincerely,

Gregory Griffith
Deputy State Historic Preservation Officer

Cc: Lisbeth Henning

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

January 29, 2003

Mr. Joel Hebdon
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. Hebdon:

Thank you for your response to my letter of January 15, 2003 commenting 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 360-586-3073 or gregg@cted.wa.gov.

Sincerely,

Gregory Griffith
Deputy State Historic Preservation Officer

cc: Lisbeth Henning

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

03-PTD-0051

MAR 1 1 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 (PFP) 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 PPF 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 -2- MAR 1 1 2003
03-PTD-0051

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

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-ZJ, 2734-ZK, 2734-ZL, 2735-Z, 2902-Z, 2904-ZA, 2904-ZB, MO-834, M0-839, 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.

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

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,

Cary Sackschewsky for:

Michael R. Sackschewsky
Ecological Compliance Assessment Project

MRS:cad

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

REFERENCES

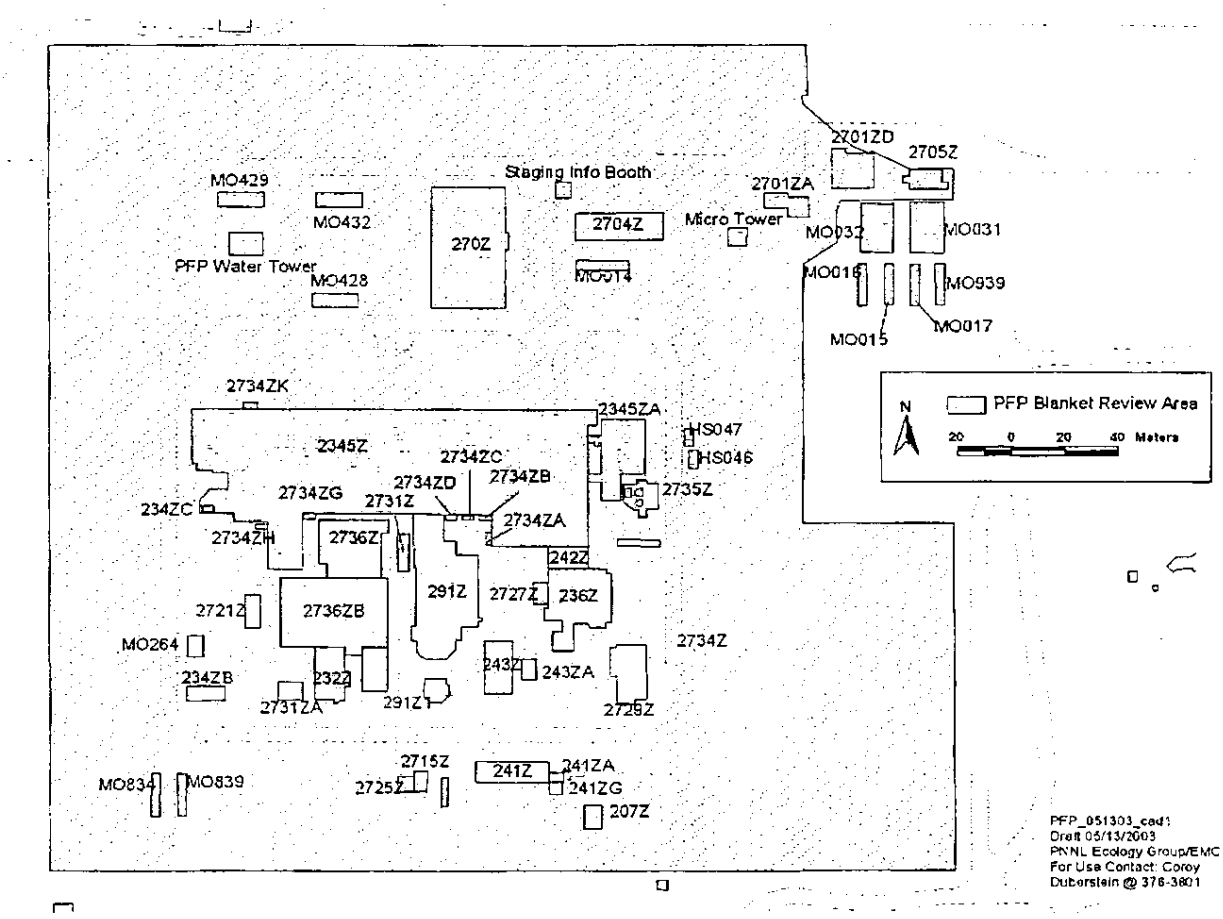
U. S. Fish and Wildlife Service. 1985. Revised List of Migratory Birds; Final Rule. 50 FR 13708 (April 5, 1985).

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).

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



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.

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

Telephone (509) 376-3801 □ E-mail: 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).