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page 1 of 3

K. If Additional Comments, Please Attach Separate Sheet

Plutonium Finishing Plant Treatment and Storage Unit Interim Status Closure Plan

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

Project Hanford Management Contractor for the
U.S. Department of Energy under Contract DE-AC06-96RL13200

Fluor Hanford

P.O. Box 1000
Richland, Washington

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Signature	Date
AUTHORIZED CLASSIFIER	

page 2 of 3

Prignano, Andrea L

From: Williams, Joel F Jr
Sent: Wednesday, July 05, 2000 8:49 AM
To: Bartlett, Wilmer D (Dean)
Cc: Prignano, Andrea L; Bramson, Jeffrey E (Jeff); Engelmann, Richard H; Brunke, Ronald C
Subject: RE: PFP WAP and Closure
Importance: High

Dean

Thanks for the review and yes RL will be reviewing these documents.

Thanks for your time and help - Joel ☺

-----Original Message-----

From: Bartlett, Wilmer D (Dean)
Sent: Wednesday, July 05, 2000 6:51 AM
To: Williams, Joel F Jr
Subject: RE: PFP WAP and Closure

From a ADC point of view, I see nothing that would make this document classified. You will need to go through DOE before you give this to Ecology.

-----Original Message-----

From: Williams, Joel F Jr
Sent: Monday, July 03, 2000 1:24 PM
To: Bartlett, Wilmer D (Dean)
Cc: Prignano, Andrea L; Bramson, Jeffrey E (Jeff); Christensen, Claire
Subject: FW: PFP WAP and Closure
Importance: High

Dean

Hi Jeff asked me to forward the attached documents for you to look at as the as the ADC. Could be review and see if it meets the ADC requirements, if not call me on **539-1728**. These documents are going to Ecology for approval of startup of the waste processes at PFP so we need your blessing as soon as possible..

Thanks for your time and patience - Joel

-----Original Message-----

From: Prignano, Andrea L
Sent: Friday, June 30, 2000 3:22 PM
To: Williams, Joel F Jr
Subject: FW: PFP WAP and Closure

here are the latest versions

THANKS,

Andrea L. Prignano

FH/Waste Management Project/Environmental Services
376-1057

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P.O. Box 1000

Richland, Washington

Plutonium Finishing Plant Treatment and Storage Unit Interim Status Closure Plan

Date Published
July 2000

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

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Fluor Hanford

P.O. Box 1000
Richland, Washington

<i>Chris Hillingford</i>	<i>7-17-00</i>
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GLOSSARY

1		
2		
3		
4	CFR	Code of Federal Regulations
5		
6	Ecology	Washington State Department of Ecology
7		
8	HNF	Hanford Nuclear Facility (document identifier)
9		
10	PE	professional engineer
11	PFP	Plutonium Finishing Plant
12		
13	Tri-Party Agreement	Hanford Federal Facility Agreement and Consent Order
14	TRU	transuranic
15	TRUM	transuranic mixed
16		
17	WAC	Washington Administrative code
18	WIPP	Waste Isolation Pilot Plant
19		

METRIC CONVERSION CHART

Into metric units

Out of metric units

If you know	Multiply by	To get	If you know	Multiply by	To get
Length			Length		
inches	25.40	millimeters	millimeters	0.0393	inches
inches	2.54	centimeters	centimeters	0.393	inches
feet	0.3048	meters	meters	3.2808	feet
yards	0.914	meters	meters	1.09	yards
miles	1.609	kilometers	kilometers	0.62	miles
Area			Area		
square inches	6.4516	square centimeters	square centimeters	0.155	square inches
square feet	0.092	square meters	square meters	10.7639	square feet
square yards	0.836	square meters	square meters	1.20	square yards
square miles	2.59	square kilometers	square kilometers	0.39	square miles
acres	0.404	hectares	hectares	2.471	acres
Mass (weight)			Mass (weight)		
ounces	28.35	grams	grams	0.0352	ounces
pounds	0.453	kilograms	kilograms	2.2046	pounds
short ton	0.907	metric ton	metric ton	1.10	short ton
Volume			Volume		
fluid ounces	29.57	milliliters	milliliters	0.03	fluid ounces
quarts	0.95	liters	liters	1.057	quarts
gallons	3.79	liters	liters	0.26	gallons
cubic feet	0.03	cubic meters	cubic meters	35.3147	cubic feet
cubic yards	0.76456	cubic meters	cubic meters	1.308	cubic yards
Temperature			Temperature		
Fahrenheit	subtract 32 then multiply by 5/9ths	Celsius	Celsius	multiply by 9/5ths, then add 32	Fahrenheit
Energy			Energy		
kilowatt hour	3,412	British thermal unit	British thermal unit	0.000293	kilowatt hour
kilowatt	0.948	British thermal unit per second	British thermal unit per second	1.055	kilowatt
Force/Pressure			Force/Pressure		
pounds per square inch	6.895	kilopascals	kilopascals	0.14504	pounds per square inch

Source: *Engineering Unit Conversions*, M. R. Lindeburg, PE., Second Ed., 1990, Professional Publications, Inc., Belmont, California.

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PLUTONIUM FINISHING PLANT TREATMENT AND STORAGE UNIT INTERIM STATUS CLOSURE PLAN

This document describes the planned activities and performance standards for closing the Plutonium Finishing Plant (PFP) Treatment and Storage Unit. The PFP Treatment and Storage Unit is located within the 234-5Z Building in the 200 West Area of the Hanford Facility. Although this document is prepared based upon Title 40 Code of Federal Regulations (CFR), Part 265, Subpart G requirements, closure of the unit will comply with Washington Administrative Code (WAC) 173-303-610 regulations pursuant to Section 5.3 of the *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement) Action Plan (Ecology et al. 1996). Because the PFP Treatment and Storage Unit manages transuranic mixed (TRUM) waste, there are many controls placed on management of the waste. Based on the many controls placed on management of TRUM waste, releases of TRUM waste are not anticipated to occur in the PFP Treatment and Storage Unit.

Because the intention is to clean close the PFP Treatment and Storage Unit, postclosure activities are not applicable to this closure plan. To clean close the unit, it will be demonstrated that dangerous waste has not been left onsite at levels above the closure performance standard for removal and decontamination. If it is determined that clean closure is not possible or is environmentally impractical, the closure plan will be modified to address required postclosure activities.

The PFP Treatment and Storage Unit will be operated to immobilize and/or repackage plutonium-bearing waste in a glovebox process. The waste to be processed is in a solid physical state (chunks and coarse powder) and will be sealed into and out of the glovebox in closed containers. The containers of immobilized waste will be stored in the glovebox and in additional permitted storage locations at PFP. The waste will be managed to minimize the potential for spills outside the glovebox, and to preclude spills from reaching soil. Containment surfaces will be maintained to ensure integrity. In the unlikely event that a waste spill does occur outside the glovebox, operating methods and administrative controls will require that waste spills be cleaned up promptly and completely, and a notation will be made in the operating record.

Because dangerous waste does not include source, special nuclear, and by-product material components of mixed waste, radionuclides are not within the scope of this documentation. The information on radionuclides is provided only for general knowledge.

1.0 SYSTEM DESCRIPTION

The PFP Treatment and Storage Unit includes Glovebox HA-20MB in Room 235B, Glovebox HC-46F in Room 170, Room 170, and Room 192D. Packaging and repackaging activities occur in Glovebox HC-46F. Treatment (a cementation process) occurs in Glovebox HA-20MB. Storage occurs in Glovebox HA-20MB in Room 235B, Glovebox HC-46F in Room 170, Room 170 and Room 192D.

The treatment process glovebox (Glovebox HA-20MB) measures approximately 4.7 meters long, by 1.5 meters wide, by 1.6 meters high. Varying forms of mixed waste will be treated in Glovebox HA-20MB using a cementation process. The cementation process is performed by mixing a standard cement material with appropriate amounts of the mixed waste and water to form a slurry that will solidify into a chemically stable material. Following mixing, and within the same glovebox, the slurry will be placed in approximately 3-liter billet cans for solidification before loadout. Following loadout, the containers of immobilized waste will be transferred to container storage locations in Rooms 170 and/or 192D. In addition, the storage locations in Rooms 170 and 192D could store waste from other packaging processes conducted at the 234-5Z Building.

2.0 MAXIMUM EXTENT OF OPERATION

Process design capacities and operation locations are described in the PFP Treatment and Storage Unit Part A, Form 3, permit application (DOE/RL-88-21).

3.0 CLOSURE PLAN

The following sections address performance standards, waste removal, and decontamination standards.

3.1 CLOSURE PERFORMANCE STANDARD

Clean closure of the PFP Treatment and Storage Unit will be accomplished by using the closure standard in WAC 173-303-630(10) as referenced by WAC 173-303-610(2)(b). Mixed waste or mixed waste residues will be removed from the containment system. Remaining containers and liners contaminated with mixed waste or mixed waste residues will be decontaminated or removed.

The clean closure performance standard for Gloveboxes HA-20MB and HC-46F will be removal of the gloveboxes. The removed gloveboxes either will be reused or designated in accordance with WAC 173-303-070, and disposed at an onsite disposal location or at the Waste Isolation Pilot Plant (WIPP) in Carlsbad, New Mexico. Mixed waste or mixed waste residues will not exist outside of the gloveboxes. Decontamination of either glovebox (HA-20MB or HC-46F) might occur for radiological reasons or to allow reuse of the glovebox. If decontamination occurs, the performance standard of a clean debris surface as defined in 40 CFR 268.45 will be considered in the designation of each glovebox (HA-20MB and HC-46F) if the glovebox is a hazardous debris matrix.

The clean closure performance standard for the storage areas will be confirmation that the container storage areas are not contaminated with mixed waste or mixed waste residues from treatment and storage unit operations. A detailed records search will be conducted to confirm that no spills of dangerous waste occurred to the container storage areas. If records indicate that spills did occur to container storage areas, the records will be reviewed to verify that spills were cleaned properly. After the records review, the container storage areas will be inspected. If inspection of the container storage areas does not indicate visible contamination, clean closure will be obtained. In the unlikely event that clean closure cannot be obtained, the remaining closure activities will be conducted under the requirements of Section 8.0 of the Tri-Party Agreement.

3.2 CLOSURE ACTIVITIES

Closure activities will entail removal of Gloveboxes HA-20MB and HC-46F and decontamination of each glovebox as appropriate. Closure activities also will entail waste inventory removal, a records review, and, if necessary, a visual inspection of the container storage areas. The unit will be closed in a manner that protects human health and the environment, and that minimizes or eliminates the escape of waste constituents to the ground, to surface water, groundwater, or to the atmosphere.

1 This closure plan provides for the following:

- 2
- 3 • Waste inventory removal [I-1b(2)]
- 4 • Operating records review
- 5 • Visual inspection of container storage areas
- 6 • Process equipment decontamination and/or removal [I-1b(3) and I-1b(4)]
- 7 • Structure decontamination [I-1b(3) and I-1b(4)]
- 8 • Certification that closure activities were completed in accordance with the approved closure plan.
- 9

10 The PFP Treatment and Storage Unit is located in processing areas extensively used in the past. It is
11 assumed that spills of process materials have occurred in these areas in the past, and that residues of such
12 spills might be found in the concrete flooring. Such residues, if existing, are likely to contain chemical
13 constituents similar to those that will be processed through the PFP Treatment and Storage Unit. Closure
14 of the permitted unit will not include removal of imbedded pre-existing contamination in the process area.
15 Any pre-existing contamination that might exist in the flooring will be managed and removed as
16 appropriate during the stabilization and transition of PFP, which will be conducted under Section 8.0 of
17 the Tri-Party Agreement.

18
19 Before startup of treatment or storage, areas and equipment associated with the permitted unit will be
20 walked down, and any areas of obvious previous process spills will be noted in the unit operating record.
21 During operation of the PFP Treatment and Storage Unit, activities undertaken in response to spills will
22 be recorded in the unit operating record. Spill and cleanup records will be reviewed at the time of unit
23 closure to determine the extent of additional clean up (if any) that would be required before unit closure.

24
25 Closure of the permitted unit will consist of actions discussed in the following sections.

26 27 28 **3.2.1 Waste Inventory Removal**

29 At the end of the operating period, the waste inventory in the PFP Treatment and Storage Unit will be
30 removed and transferred to an onsite disposal unit or shipped to WIPP. Any remaining waste inventory
31 will be removed before removal of Glovebox HA-20MB or Glovebox HC-46F.

32 33 34 **3.2.2 Operating Records Review**

35 An operating records review will be conducted and cognizant operations personnel interviewed to obtain
36 an inventory and spill history for the PFP Treatment and Storage Unit. A spill history is necessary to help
37 determine the need for and extent of decontamination activities necessary for clean closure of the unit.
38 The records review will entail a review of all available records related to waste management in and
39 around the PFP Treatment and Storage Unit. The records review will include operations logbooks,
40 weekly inspection records, and a search for 'offnormal' event reports. Former and current cognizant
41 operation personnel could be interviewed.

42 43 44 **3.2.3 Visual Inspection of Container Storage Areas**

45 After the records review, the storage areas will be inspected. If inspection does not indicate visible
46 contamination other than that documented before PFP Treatment and Storage Unit operation began, clean
47 closure will be obtained. In the unlikely event that clean closure cannot be obtained, the remaining
48 closure activities will be conducted under the requirements of Section 8.0 of the Tri-Party Agreement.

3.2.4 Process Equipment Decontamination and/or Removal

Gloveboxes HA-20MB and HC-46F will be decontaminated (as necessary), removed, and either reused or properly disposed. Supporting equipment in the rooms (e.g., the conveyer glovebox) would have the potential to become contaminated in the event of a leaking or ruptured container. Documentation of the spills and cleanup actions would have been placed in the unit operating record.

Before closure of the unit, the operating record will be reviewed for indications of contamination remaining in supporting equipment. Equipment containing residual contamination could be decontaminated for reuse or could be removed, designated, and disposed as waste during the stabilization and transition of PFP. Decontamination procedures might consist of wiping, washing, or sweeping, as possible, to remove any waste or waste residues and the decontamination standard will be a visual inspection and comparison to pre-operations description. Decontamination will be documented on a decontamination and inspection checklist. All decontamination waste will be designated and managed appropriately.

3.2.5 Structure Decontamination

The waste will be in a solid state during storage in the container storage areas. Therefore, potential spills are not expected to penetrate into the floors of the storage areas or painted walls before spill cleanup during operation of the permitted unit. If decontamination is necessary to achieve clean closure, these activities will be deferred to activities occurring under Section 8.0 of the Tri-Party Agreement.

3.2.6 Closure Certification

Within 60 days of completing the closure activities, a certification of closure will be signed by the owner/operator and an independent registered professional engineer (PE). The PE certification of closure will cover only the portions of PFP covered by the proposed closure activities. The PE certification will occur upon disposition of decontamination generated-waste and completion of closure activities. The PE will provide a signed statement that meets the applicable requirements of WAC 173-303-610(6), certifying that the closure activities were performed in accordance with the technical specifications of the approved closure plan. A copy of the PE certification will be transmitted to Ecology and placed in the Administrative Record. The PE certification will confirm that the activities took place as described. The PE will not be responsible for corroborating information on any part of the closure plan not addressing activities completed in support of closure.

4.0 SCHEDULE FOR CLOSURE

Initiation of closure of the PFP Treatment and Storage Unit is expected to occur approximately 10 years after the start of operations. The actual year of closure is unknown but will be based, among other things, on availability of waste requiring processing and operational requirements. Completion of closure will be timed to coincide with the overall stabilization and transition of PFP to be conducted under Section 8.0 of the Tri-Party Agreement. Hence, completion of closure might not be possible within 180 days after receipt of the final volume of waste in the unit.

When a closure date is established for the permitted unit, a revised closure plan and schedule will be evaluated, including any additional closure activities required for clean closure. If closure plan revisions are necessary to achieve clean closure, a revised schedule will be proposed. For partial closure of the

permitted unit, Ecology will be notified in writing that partial closure activities are beginning. The written notification will indicate which portions of the unit will be closed.

5.0 REFERENCES

- DOE/RL-88-21, *Hanford Facility Dangerous Waste Part A Permit Application*, Vol. 1-3, U.S. Department of Energy, Richland Operations Office, Richland, Washington, updated periodically.
- Ecology, EPA, and DOE-RL, 1996, *Hanford Federal Facility Agreement and Consent Order*, Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Richland Operations Office, Olympia, Washington, amended periodically.

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