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Plutonium Finishing Plant (PFP) Complex End Point Criteria DRAFT

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

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Richland, Washington

Contractor for the U.S. Department of Energy
Richland Operations Office under Contract DE-AC06-96RL13200

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Plutonium Finishing Plant (PFP) Complex End Point Criteria DRAFT

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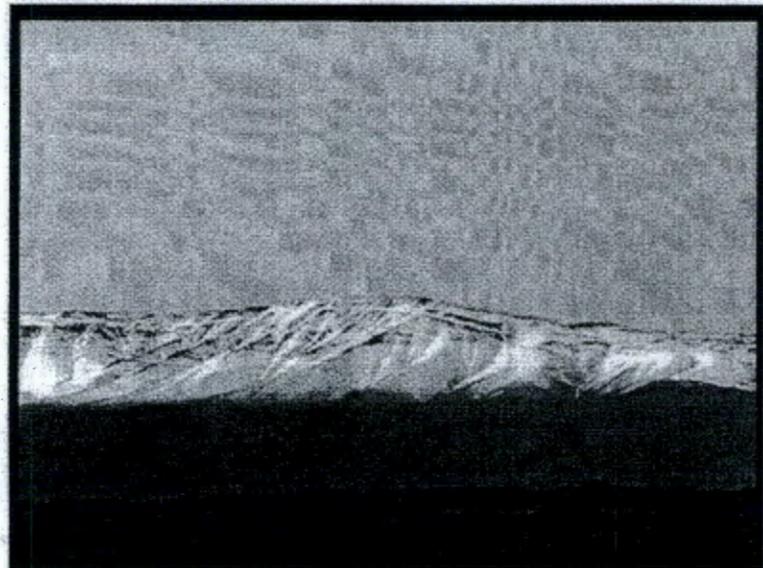
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PLUTONIUM FINISHING PLANT (PFP) COMPLEX END POINT CRITERIA



September 2003

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I. Executive Summary

In 1996, the Department of Energy (DOE) issued a formal shutdown order for the Plutonium Finishing Plant complex at DOE's Hanford Site. The order directed that PFP complete ongoing plutonium stabilization activities and then transition the complex to a safe and stable condition suitable for long term, low cost surveillance and maintenance (S&M) pending final disposition. Plutonium stabilization and repackaging activities are now nearing completion and subsequent transition activities have been initiated.

In accordance with Section 8.5.3 of the Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement), this document proposes a set of Transition End Point Criteria to be applied by the Department of Energy, Richland Operations Office, and its contractors in detailed planning for the first – or “Transition” - phase of decommissioning the Hanford Site Plutonium Finishing Plant (PFP) complex.

To ensure all required tasks are clearly identified and completed to transition a facility from operations to S&M, completion criteria are developed by DOE and agreed to by the regulators. These criteria, called “end point criteria,” are then applied to specific buildings, and building-specific end points are established. By comparing the as-is condition of the facilities with the transition end points, the scope of work required to transition the facility to the S&M phase can be clearly defined, planned and executed. Once all end points are completed and verified, the facility transition is complete and the facility is transferred to the S&M phase. The end point criteria proposed herein for PFP are generally consistent with the project planning basis in effect since May 1999, as documented in the Integrated Project Management Plan for the Plutonium Finishing Plant Stabilization and Deactivation Project (HNF-3617). The scope of the project currently includes cleanout, deactivation, decontamination and dismantling of the complex to a “clean slab-on-grade” condition prior to transition of the facility into the second – or “Surveillance and Maintenance” – phase of decommissioning.

This document and the end point criteria proposed herein are intended to be subjected to formal review by DOE's primary cleanup regulators – the Washington State Department of Ecology (WDOE) and the U.S. Environmental Protection Agency (EPA) – and then by other stakeholders through public review, comment and comment disposition processes. Once approved by DOE, WDOE and EPA, the end point criteria will be utilized for detailed planning and execution of the project pending development of the Engineering Evaluation/Cost Analyses and associated decision documents (Action Memoranda) that will evaluate alternative removal actions under the Comprehensive Environmental Response, Compensation and Liability Act and definitively authorize the end points for acceptance of the PFP site into the Surveillance and Maintenance phase, pending final disposition of the PFP region of the Hanford Site.

PFP Vision

Pending final remediation, the PFP will be dismantled to a “clean-slab-on-grade” no later than September 30, 2009

The overriding objective of the Department of Energy's Hanford Site cleanup mission is to “protect the health and safety of the public, workers, and the environment; control hazardous materials; and utilize the assets (people, infrastructure, site) for other missions”. To achieve this mission, the Hanford Strategic Plan (DOE/RL-96-92) calls for facilities, which have no future mission, to be “transitioned to low-cost, stable deactivated conditions (requiring minimal surveillance and maintenance) pending eventual D&D and removal or closure.”

DOE has supplemented the Hanford Strategic Plan with their “Performance Management Plan for the Accelerated Cleanup of the Hanford Site” DOE/RL-2002-47, Revision D which is currently in the approval process. This Performance Management Plan consists of six strategic initiatives for the cleanup of Hanford. Two of these initiatives, Strategic Initiative 3 -

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Accelerate Stabilization and De-Inventory of Nuclear Materials and Strategic Initiative 5 – *Accelerate Central Plateau Cleanup*, address the PFP complex. Strategic Initiative 3 addresses the disposition of the above-grade structures of the PFP complex. Strategic Initiative 5 addresses the remediation and closure of the PFP footprint.

The PFP Complex End Point Criteria document defines the completion criteria for the transition of the PFP complex to meet the goals of Strategic Initiative 3. The PFP End Point Criteria document does not address actions covered in Strategic Initiative 5 which will perform actions necessary to close the PFP site using a proposed industrial use scenario (e.g. environmental industries).

Since the PFP transition is not a site closure, the end points are not driven by closure criteria. They are instead driven by the requirement to prepare the site for eventual closure actions. Therefore, the scope and end points for the transition of Hanford's Plutonium Finishing Plant complex are based on achieving the following end objectives:

1. Prevent the theft, sabotage, or diversion of special nuclear material,
2. Prevent a criticality accident from occurring,
3. Prevent the inadvertent contamination or injury of workers and visitors,
4. Prevent the spread of contamination to the environment, taking into account natural phenomena such as the weather, earthquakes, fires, and plant and animal intrusion,
5. Prevent adverse impact on the ground water,
6. Minimize the cost of the surveillance and maintenance phase, pending final remediation/disposition, and
7. Ensure no harm is done to ongoing and follow-on remediation work that may need to be performed for final closure of the PFP consistent with the Hanford Site land use plan.

Previous process facilities at Hanford have been transitioned to a deactivated state of "cold, dark,

and dry" for long term S&M pending final disposition. Unlike the canyon facilities the PFP structures (Figure 1) are not inherently robust. The Plutonium Uranium Extraction (PUREX) facility, for example, is a reinforced concrete structure with a thick-walled concrete canyon with a significant portion of the canyon being below ground level (below grade). These structural features clearly differentiate the durability of the PUREX facility for an extended period of surveillance and maintenance from that of the braced steel-frame structure of PFP. The application of end points to establish the final condition of the PFP facilities prior to entering the S&M phase must recognize these fundamental differences. In the case of PFP, where the physical structure and nature of contamination is significantly different from most of the process facilities previously transitioned at Hanford, the "cold, dark, and dry" deactivated end points applied to the canyon facilities would not provide the low risk, low cost condition envisioned in DOE's planning or the Tri-Party Agreement.

The key differences between the previously deactivated facilities and PFP have been acknowledged for some years. As early as 1994 DOE-RL and its contractors concluded that the low durability and high residual S&M costs associated with simply deactivating the PFP processes and buildings would drive the need for an alternative set of end point criteria for transition of the PFP complex. Based on subsequent studies and project planning, the end point target for the project was formally revised in 1999 to include dismantling the facilities (Figure 2) to a "clean slab-on-grade" condition prior to entering the S&M phase.

The goal of the PFP Project is to dismantle all structures to their ground level concrete slab leaving no exposed radiological contamination. To ensure there is no exposed radiological contamination, the concrete slab of each dismantled building will be covered with a contamination fixative that is suitable for exposure to the weather for 20 years. PFP will therefore pour a new concrete contamination control cap (or alternate fixative suitable for the

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application) over the ground level slab of all potentially contaminated structures.

Since the transition objective for PFP is slab-on-grade, the complexity of describing the intended condition of the few remaining structures, spaces, systems, and components is greatly reduced when compared to a facility transitioned to a deactivated state. As a result the end point criteria are also simplified to the point where a checklist method of end point development is appropriate. For PFP two general checklists have been proposed to describe the end points that apply to the physical structures and the project. These sets are:

1. One checklist pertaining to above ground structures, below ground structures and grounds
2. One checklist pertaining to administrative completions, project closeout and programmatic transfer of the PFP complex for S&M

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II. PFP Background

The PFP complex is a Hazard Category II, non-reactor nuclear facility that has been in use since 1949. The complex covers approximately 5 acres and includes 61 buildings, with underground waste tanks, cribs, etc. PFP contains chemical processing facilities, laboratories, storage vaults, support facilities, and offices to support plutonium operations. The facilities were designed to provide shielded, ventilated, and specially equipped rooms with gloveboxes to provide worker safety for plutonium processing. The initial mission of PFP was the conversion of plutonium nitrate to plutonium metal and metal fabrication. Follow-on missions for PFP included reactor fuel manufacturing and defense material processing. Safe storage of plutonium-bearing materials and new missions necessitated later construction of the PFP vaults. These vaults provide floor, rack, and pedestal storage capabilities; an adjacent facility constructed later provides for plutonium stabilization, packaging, non-destructive assay and interim storage pending shipment.

In 1996, DOE issued a shutdown order to PFP with direction that PFP complete its ongoing plutonium stabilization and packaging activities and then transition to a low risk, low cost condition suitable for long term surveillance and maintenance pending final remediation.

As a result of the 50+ years of processing, there are approximately 57 kg of plutonium holdup in the process gloveboxes, the PRF canyon, process exhaust ducts, filter boxes, process vacuum piping, solution storage and process tanks and transfer lines. In addition to this holdup, there is radiological contamination (typically alpha contamination) in and around all of the processing buildings and many of the ancillary facilities. Some of the contamination is exterior to the building structure and some is down stream of the final exhaust filters (e.g. in the stack plenum). As part of the Hanford Site cleanup mission, these conditions will ultimately be remediated to meet the as-yet undefined end state criteria for cleanup of Hanford's Central Plateau.

III. PFP Transition Mission

With the stabilization and packaging activities nearing completion, the mission of the PFP project is shifting to the transition of the PFP complex to a safe, stable, low hazard, low cost state suitable for surveillance and maintenance pending final remediation as part of the Hanford Central Plateau. Included in the transition mission are stabilizing and packaging PFP's inventory of plutonium-bearing materials for offsite shipment or disposal to WIPP and de-inventorying the PFP complex.

PFP has developed an accelerated transition plan to achieve a low cost, low risk state by September 30, 2009 based on the currently envisioned project end point of clean slab-on-grade. These end points need to be formalized and subjected to regulator and public review in accordance with Section 8 of the Tri-Party Agreement. Toward that end, this document proposes:

- The PFP transition end point objective
- The scope of PFP transition
- The end point criteria that must be met to ensure the end point objective has been accomplished.

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IV. Transition Project Objectives

The overriding objective of the Department of Energy's Hanford Site cleanup mission is to "protect the health and safety of the public, workers, and the environment; control hazardous materials; and utilize the assets (people, infrastructure, site) for other missions". To achieve this mission, the Hanford Strategic Plan (DOE/RL-96-92) calls for facilities, which have no future mission, to be "transitioned to low-cost, stable deactivated conditions (requiring minimal surveillance and maintenance) pending eventual D&D and removal or closure."

DOE has supplemented the Hanford Strategic Plan with their "Performance Management Plan for the Accelerated Cleanup of the Hanford Site" DOE/RL-2002-47, Revision D which is currently in the approval process. This Performance Management Plan consists of six strategic initiatives for the cleanup of Hanford. Two of these initiatives, Strategic Initiative 3 - *Accelerate Stabilization and De-Inventory of Nuclear Materials* and Strategic Initiative 5 - *Accelerate Central Plateau Cleanup*, address the PFP complex. Strategic Initiative 3 addresses the disposition of the above-grade structures of the PFP complex. Strategic Initiative 5 addresses the remediation and closure of the PFP footprint.

The PFP Complex End Point Criteria document defines the completion criteria for the transition of the PFP complex to meet the goals of Strategic Initiative 3. The PFP End Point Criteria document does not address actions covered in Strategic Initiative 5 which will perform actions necessary to close the PFP site using a proposed industrial use scenario (e.g. environmental industries).

Since the PFP transition is not a site closure, the end points are not driven by closure criteria. They are instead driven by the requirement to prepare the site for eventual closure actions. Therefore, the scope and end points for the transition of Hanford's Plutonium Finishing Plant complex are based on achieving the following end objectives:

1. Prevent the theft, sabotage, or diversion of special nuclear material,
2. Prevent a criticality accident from occurring,
3. Prevent the inadvertent contamination or injury of workers and visitors,
4. Prevent the spread of contamination to the environment, taking into account natural phenomena such as the weather, earthquakes, fires, and plant and animal intrusion,
5. Prevent adverse impact on the ground water,
6. Minimize the cost of the surveillance and maintenance phase, pending final remediation/disposition, and
7. Ensure no harm is done to ongoing and follow-on remediation work that may need to be performed for final closure of the PFP consistent with the Hanford Site land use plan.

V. End Point Target

At this time it appears that the correct end point target for the PFP Complex is to transition the facilities to a dismantled condition described as "clean-slab-on-grade". This end point target fully implements the transition criteria listed above and results in a very low cost, very low risk site suitable for S&M pending final remediation. It is understood that this end point target is presumptive pending completion of all required environmental documentation. Any change in direction resulting from completion of these environmental documents will in turn result in revising this end point criteria document.

PFP Vision

Pending final remediation, the PFP will be dismantled to a "clean-slab-on-grade" by September 30, 2009

A "clean-slab-on-grade" is defined as a concrete slab (typically the first floor of a building) resting on grade (earth) that is free of dispersible radiological contamination.

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The clean slab-on-grade end point is compatible with the goal of the Hanford Strategic Plan (DOE/RL-96-92) for the Central Plateau. The scope includes all PFP facilities within the outer PFP security fences, as well as 2904-ZA, 2904-ZB, 225-WC and the 216-Z-9A, B, & C Facilities that are outside the security fence.

This project does not include efforts to remediate soil or remove any buried systems, utilities, tanks, ducts or piping within the PFP complex. Soil remediation will be addressed in the broader scope of the Hanford Strategic Plan for the Central Plateau. This project also excludes remediation of the 241-Z-361 Waste Tank, which has been assigned to the Central Plateau Project for remediation.

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Figure 1 – Plutonium Finishing Plant Pre-Dismantlement

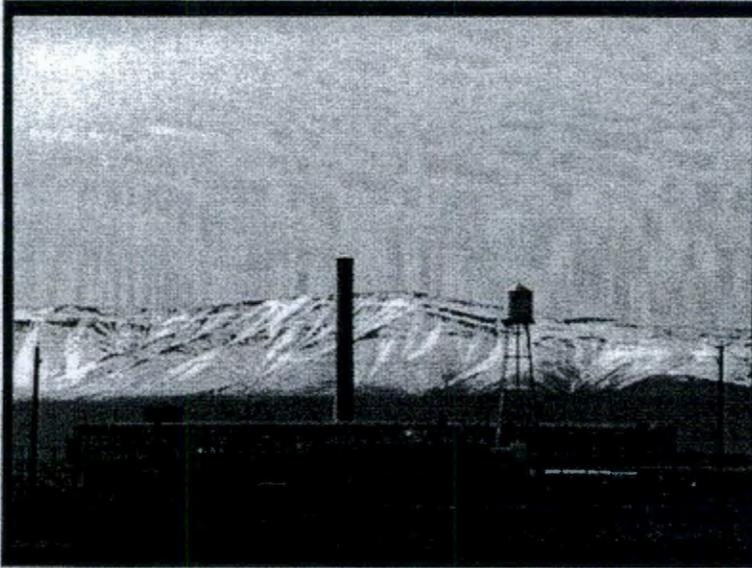


Figure 2 – Plutonium Finishing Plant Clean-Slab-On-Grade



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VI. PFP Transition End Point Objective

The end point objective for the PFP transition is "clean-slab-on-grade". End point criteria supporting this objective are provided for each building in the appendix to this document, along with a description of those conditions acceptable for acceptance of the PFP into the S&M phase.

The PFP clean-slab-on-grade end point meets the following DOE and Hanford Advisory Board values:

- Reduce risk to workers and public;
- Reduce impact on environment;
- Reduce mortgage thus freeing up funding for other remediation.

It is also consistent with recent end point decisions for the 233-S Facility and with ongoing planning for groundwater cleanup and protection.

End points for each building will provide:

- A demonstration of conformance to agreements negotiated with third parties;
- A demonstration of compliance to both state and federal regulations.

The following statements summarize the PFP Transition Project "clean-slab-on-grade" end points:

- The end point criteria will be updated as necessary to reflect the outcome of environmental documentation that will be developed in the future to include EE/CA and Action Memorandum decisions.
- All above-grade structures are removed.
- The portion of concrete slab that is exposed to the weather shall be free of dispersible radiological contamination. (The traditional method of fixing contamination using conventional paint is not sufficient).
- The exposed surface of the slab shall be free of tripping and puncture hazards.
- The exposed surface of the slab shall be suitable for exposure to the weather for at least 20 years.
- Subsurface radiological areas will be posted per regulations.
- All penetrations through the slab (e.g. piping, conduits, etc) shall be sealed with

grout or equivalent suitable for exposure to the weather for 20 years.

- All wastes are removed from the PFP (200-Z) compound.
- No exposed surface soil contamination areas are allowed. (Concrete caps or equivalent type covers are acceptable barriers and contamination fixatives.)
- As-left conditions shall be documented and stored in a retrievable format and location.
- On completion of the transition project, the PFP complex will be transferred to the Central Plateau Remediation surveillance and maintenance function for S&M pending final remedial action and closure of the PFP zone of the Central Plateau.

VII. Why Clean Slab-on-Grade?

Traditional deactivation would eliminate risks associated with process operations and would reduce the consequences of design basis events. For the PFP complex, the most significant design basis events remaining after traditional deactivation would result from natural phenomena, such as earthquakes, snow and water damage.

While the 234-5Z Building is shown to survive a 0.13-g earthquake, there would be significant damage and the PFP Final Safety Analysis Report (FSAR) shows significant plutonium release to the environment as a result. Much of this postulated release is the result of dispersal of plutonium holdup in process equipment. Much of this plutonium would still be at risk after traditional deactivation. The 232-Z Building, however, would not survive a design basis earthquake and thus would release its remaining plutonium (~238 grams (high value)) to the environment. Under traditional deactivation, all of this plutonium would remain at risk. Snow loading and roof drainage are areas of concern for the 234-5Z and 242-Z buildings if they were left unheated. Snow loading in neighboring Yakima County resulted in the collapse of around 50 industrial structures in the winter of 1996-7. The buildings that collapsed were typically unheated warehouse type structures that experienced loading that was beyond code requirements. This type of beyond

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design code snow loading is credible at PFP and if left in an unheated condition the snow loads could exceed capacity resulting in roof damage or collapse (Note: current administrative controls reduce the likelihood of exceeding design capacity). The resultant water intrusion would likely free trapped contamination and result in environmental releases to the soil.

Compounding these problems is the general porosity of the 234-5Z Building. The 234-5Z is a steel structure with sheet metal siding. The joint between the floor slab and the walls are neither airtight nor watertight as are those of the canyon buildings. This joint along with all the joints between the sheet metal panels and the gaps in the exterior doors allow significant airflow into the building. Without constant controlled airflow, PFP could lose contamination confinement control and environmental releases could occur.

Numerous areas at PFP have contamination that has been fixed in place with paint. Many of these painted over contamination areas are exposed to the weather. As a result of weathering, the paint flakes and the flakes are blown around by the wind resulting in potential contamination spreading. In addition to the painted over contamination, PFP has contamination that is not fixed but is trapped inside walls, ceilings, joints, etc. This trapped contamination could migrate out of the building to the environment.

After completion of dismantlement, essentially all the above grade hazards and risks associated with the PFP complex will be eliminated. Below ground hazards would be remediated (as required to an end condition that has yet to be established) as a follow-on project. These remaining risks will be to the environment, not to the workers or to the public. The risks will be those associated with contamination that has already migrated to the soil column, contamination that is holdup in underground pipes and ducts, and contamination that is trapped in the concrete foundations and structures left in place. The risks associated with the remaining contamination will be further

reduced by installation of concrete caps or other methods of soil stabilization that minimize the chance for natural phenomena (wind, rain, vegetation growth, animal intrusion, earthquakes, lightning, snow, range fire etc) to release contaminants.

VIII. PFP Project Scope

The scope of the Project is as follows:

- Clean out and dismantle all above-grade structures inside the outer security fence at PFP plus the above-grade portion of the 2904-ZA, 2904-ZB, 225-WC and 216-Z-9 buildings.
- Clean out, and stabilize, the following below-grade portions of the following buildings:
 - 216-Z-9 A, B, & C
 - 234-5Z
 - 241-Z
 - 241-Z Retention Basins
 - 243-ZA
 - 291-Z and Stack
 - 2902-Z
- Stabilize the below grade portion of 216-Z-9 Crib
- Close State permitted facilities:
 - Radiation air emission stacks and related permits
 - Underground fuel storage tank
 - Septic Fields
 - Resource Conservation and Recovery Act of 1976 (RCRA) treatment, storage and disposal units (TSD's)
- Stabilize soils inside the PFP protected area and around the in-scope buildings outside the PFP protected area.
- Decontaminate or stabilize all remaining concrete slabs exposed to the weather, followed by the installation of a new concrete cap or sealant if required for safety, environmental protection, and/or runoff control.

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The PFP Transition project dismantlement activities concentrate on reduction, stabilization and removal of the radioactive and chemical materials remaining at the facilities and the dismantlement of structures to enable follow-on soil remediation. Specifically excluded from the overall project scope are:

- Disposition of contaminated soils, cribs, ponds, and ditches associated with PFP is assigned to the Central Plateau Remediation Project.
- Carbon tetrachloride (CCl₄) plume remediation is an ongoing project of the Groundwater Protection Program, separate from the PFP and will not be affected by PFP transition and dismantlement.
- Remediation of buried systems, equipment and materials associated with PFP is assigned to the Central Plateau Remediation Project.
- Remediation of 231-Z Building is a separate remediation project and is outside the scope of the PFP transition.
- Removal of mobile office trailers located just east of the PFP fences will be coordinated with other 200 West Area remediation needs. These trailers may be of use to follow-on soil remediation forces.
- Remediation of 241-Z-361 Waste Settling Tank is assigned to the Central Plateau Remediation Project.

When transition is complete, PFP will be left in a clean-slab-on-grade condition, suitable for low risk, low-cost surveillance and maintenance

pending final remedial actions for Hanford's Central Plateau.

IX. End Point Completion and PFP Turnover

Following approval of the PFP end point criteria (appendix), the criteria will be applied to each of the PFP facilities and specific end points will be developed and issued as a document. These end points will include facility specific details as required to ensure completion of the criteria (e.g. number and location of pipes to be capped). The end point document will also include hold points, where required, such that end point verification can be performed before follow-on building dismantlement or stabilization renders verification impractical (e.g. verify end points in below-grade parts of a building before applying the contamination control cap). Verification of end point completion will be a joint effort between PFP and the receiving organization, Central Plateau Surveillance and Maintenance.

Upon completion of all actions required to comply with the end point criteria, PFP complex will be turned over to the Central Plateau Surveillance and Maintenance organization of the Central Plateau Remediation Project. This organization will have responsibility for performance of surveillance and maintenance of the PFP complex in accordance with the to be developed PFP Surveillance and Maintenance Plan until such a time as final site closure is completed.

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Appendix

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X. Introduction to End Points

The Department of Energy (DOE) is proceeding with the formidable task of decommissioning those nuclear defense facilities that are no longer used or needed. There are many such facilities at DOE sites around the nation. Ultimately, all facilities will be transitioned, reducing the threat to the public and the environment. With so many facilities requiring near term attention, DOE has been moving aggressively to assess the condition of the affected facilities, and to deactivate them on a prioritized basis, thus achieving the maximum degree of risk reduction in the shortest possible period.

For each facility, the overall objective of transition is to reach a safe, stable and environmentally sound condition, suitable for an extended surveillance and maintenance period, as quickly and economically as possible. Once transitioned, the facility is kept in its safe and stable condition by means of a methodical S&M program, pending ultimate site remediation.

Transition work, as defined in Section 8 of the Tri-Party Agreement, involves a range of tasks, such as removal of hazardous material, elimination or shielding of radiation fields, reducing the complex to a slab-on-grade, contamination control to permit access for inspection, soil stabilization, etc. It is important that the end point of each of these tasks be established clearly and in advance, for the following reasons:

- End points must be such that the central element of the Transition objective - to achieve a safe and stable condition - is unquestionably achieved.
- Much of the Transition work involves worker exposure to radiation or dangerous materials. Avoiding unnecessary work can minimize this.
- Each transition task is, in effect, competing for resources with other transition tasks and other facilities. By assuring that each task is appropriately bounded, DOE's overall resources can be used fully and effectively. This includes, utilization of facility infrastructure (i.e., operating equipment,

trained staff, etc.) required to support the removal of contaminated equipment prior to deactivation avoiding the lay-up, maintenance, and reactivation costs.

- To provide a basis for development of the surveillance and maintenance plan for the as-left site.
- To provide the foundation for an EE/CA that evaluates future remedial alternatives for final disposition of the site.

XI. End Point Process

The term "end point" is defined as the attribute(s) that describes the completion of a project or task. The end point development method for the PFP complex will follow the guidance published in DOE, Office of Environmental Management Facility Deactivation, Methods and Practice Handbook, Emphasizing End Points Implementation, DOE/EM-0318 (Revision 0), December 1996. These methods of defining end points for facility stabilization and deactivation have been utilized at several other Hanford facilities and have proven to be effective in planning work and interacting with other contractors, the regulators, and the public.

Just as design specifications are essential to a construction project, specifying "end points" is the key to answering the question of "How do you know when a transition project is complete?" The end point development method is a logical process of determining the final conditions for the PFP, conditions which are acceptable for transfer to the second phase of decommissioning, the S&M phase.

It is important to reiterate that the purpose of developing end points is to facilitate the DEFINITION AND APPROVAL OF THE PROJECT FINAL DELIVERABLE. Therefore, the "clean-slab-on-grade" end points must define, for approval by the client, regulators, and affected Tribal Nations, the characteristics of the PFP at the time of turnover to S&M pending final remediation.

The PFP Transition Project will follow end point development guidance, as discussed previously.

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However, as can be seen in the following pages, the complexity of defining end points can be significantly reduced, and the clarity increased, when the clean-slab-on-grade dismantlement option is selected. The proposed clean-slab-on-grade end point development methodology provides:

- A noticeably simpler, more concise picture of the PFP Transition Project end point;
- A clear goal to the PFP work force;
- Less likelihood of ambiguities and misunderstanding;
- A more effective document to market the project and gain consensus;
- A simpler way to document the derivation of the specific end points;
- Reduce the need to define specific end point closure methods;
- A clear end point obtained without the expense of the traditional end point development process;
- A more concise, understandable end point document.

XII. End Point Principles

The checklist method of end point documentation is consistent with a tailored approach to deactivation and transition planning, in which the level of detail is appropriate to the complexity and risks of the as-left condition of the project. End points are developed with the slab-on-grade approach to define the as-left condition of the complex.

There are several guiding principles (ground rules) that form the foundation of the end point process. These ground rules are:

- The decision to create an end point should be driven by, and clearly linked to, top tier program requirements and objectives, not by feasibility or capability. This is the central principle of the logic-based approach. End point determinations, along with allocation of resources and selection of methods should stem directly and clearly from program goals and top-tier objectives.
- The end point condition of the transitioned facility should employ defense-in-depth as a

fundamental safety approach. As applied here, defense-in-depth involves three layers of protection: elimination/stabilization of hazards, effective facility containment, and facility monitoring and control.

- End point decisions are integrally linked to decisions (and constraints) on resources and methods. Cost effectiveness is important.
- A successful end point development requires ownership "buy-in" by all affected organizations including project planners, those who implement the plans, and the client and regulators. This should be an explicit part of the process.
- Work teams in the field need clear, quantitative End Points. They can't work effectively with vague or functional objectives.

It is not known when or what the ultimate site disposition will be. Therefore, dispositioning presumptions should not drive end point decisions. This does not preclude insightful decisions being made to prevent hindrance during the final dispositioning process.

End point development is an iterative process. Most end point decisions can be made during the planning stages early in the project, however, some will have to be revisited as the Transition Phase proceeds. The end point document will be updated to reflect the outcome of environmental documents that will be developed in the future including EE/CA and Action Memoranda decisions.

XIII. End Point Methodology

The transition of the Plutonium Finishing Plant requires deactivating and dismantling PFP Complex systems and structures. The buildings associated with the complex are primarily constructed of materials that will not cost effectively support an extended surveillance and maintenance period. Leaving these buildings would require substantial, continuing surveillance and maintenance costs associated with operating equipment (i.e., ventilation) and frequent worker surveillances to verify containment. In addition, for the former plutonium processing buildings, the removal of

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accessible residual materials and equipment will reduce radiation exposure to personnel by limiting americium buildup. The removal of these items will also take advantage of the current facility infrastructure (ventilation, trained staff, etc.). At the completion of transition activities the following will remain: foundations covered with barriers designed for exposure to the weather, below grade structures, and buried systems. This end point will significantly limit the potential for contamination migration to the environment.

The End Point Criteria Checklist method was used to define and describe the as-left condition of the PFP Complex. Two checklists were developed to define the criteria for PFP transition. The first checklist addresses the criteria for completion of facilities. The second checklist addresses the administrative requirements and documents for completion the transition project:

Upon approval of the criteria, the checklists will be applied to each facility identified in Table 1. This will result in facility specific end points and where required facility specific verification and signoff instructions and/or hold points. The resultant end points will be issued for implementation and will be updated and reissued after completion of the transition project as part of the administrative turnover package.

XIV. Special Provisions

Where general criteria do not fully define the requirements, building or area specific criteria are added to the general criteria. These added criteria are called special provisions. The special provisions applicable to PFP are listed below.

200-Z PFP Compound

- The end points for the 200-Z PFP Compound will address all structures, systems, and grounds inside the outer PFP fence that are not addressed by specific building end points.
- Develop and issue an EE/CA to evaluate remediation alternatives for follow on PFP

site disposition and closure. An Action Memorandum will be issued. Although final remediation is not part of the PFP Project, the remediation alternatives will be explored as part of the PFP Project to take advantage of process history and experienced staff prior to entering the S&M phase.

216-Z-9 Crib

The 216-Z-9 Crib will be stabilized to preclude release of contamination in case of structural collapse. This may include application of a fixative to the walls, ceiling and exposed soil in the mining chamber. Additionally, a structural assessment will be performed of the cover slab. If structural integrity is questionable, then the crib may be backfilled or the cover existing cover slab reinforced.

241-Z Waste Storage and Treatment Facility

Actions required by the RCRA Closure Plan will be completed, except for those actions that are deferred for completion under CERCLA. Those remaining CERCLA actions will be completed consistent with an associated CERCLA Action Memorandum following completion of the PFP Transition.

241-Z-361 Underground Waste Tank

Tank 241-Z-361 will be managed like other underground waste sites at PFP with the following additions:

- An EE/CA will be performed to evaluate remediation options and an Action Memorandum will be issued.
- The structural integrity of the tank will be re-evaluated
- The HEPA filter will be tested

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Table 1 Facility Listing

Facilities/Buildings	Comments
200-Z PFP Compound	The end points for the 200-Z PFP Compound will address all structures, systems, and grounds inside the outer PFP fence that are not addressed by specific building end points.
216-Z-1D (Backfilled ditch within PFP Exclusion zone)	
216-Z-13 Dry Well	
216-Z-14 Dry Well	
216-Z-15 Dry Well	
216-Z-9 Crib	See special provisions Below grade space
216-Z-9A (Contaminated Soil Removal Bldg.)	
216-Z-9B (Z-9 Mining Facility)	
216-Z-9C (216-Z-9 Weather Enclosure)	
225-WC (PFP Wastewater Sampling Facility)	
232-Z (Waste Incinerator Facility)	
234-5Z (PFP Pu Processing & Storage)	Includes below grade space
234-5ZA (PFP Change Room Addition)	
234-ZB (Waste Material Storage Building)	
234-ZC Waste Drum Storage Facility	
236-Z (Plutonium Reclamation Building)	
241-Z (Waste Storage & Treatment Facility)	See special provisions Includes below grade space
241-Z-361 Tank	See special provisions Below grade tank
241-ZA (Waste Disposal Sample Load out Building)	
241-ZB (Bulk Chemical Storage Tank)	
241-ZG (Change Facility for 241-Z)	
241-Z-RB (Retention Basins)	Also known as 207-Z Includes below grade space
242-Z (Waste Treatment Facility)	
243-Z (Low-Level Waste Treatment Facility)	
243-ZA (Low Level Waste Treatment Facility Tanks and sump pit)	Below grade tank
243-ZB (Cooling Towers and Concrete Pad)	

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Facilities/Buildings	Comments
2607-WA Septic tank/drain field	Below grade tank
2607-Z Septic tank/drain field	Below grade tank
2607-Z1 Septic tank/drain field	Below grade tank
267-Z (Fire Riser #9 Valve House)	
2701-ZA (Patrol Central Alarm Monitoring Station /Z-Plant)	
2701-ZD (PFP Badgehouse)	
2702Z (Microwave Tower and Support Building)	
2704Z (Office Administration Building)	
2705-Z (PFP Operations Control Facility)	
270-Z (PFP Operations Support Bldg)	
2712-Z (Stack Sampling & Monitoring Station)	
2715-Z (Oil & Solvent Storage Building)	
2721Z (Emergency Generator Service Building)	Includes below grade tank fuel tank
2727-Z (Supply Storage Building)	
2729-Z (Storage Building)	
2731Z (PR Can Storage Building)	
2731ZA (Container Storage Building)	
2734-Z (Gas Cylinder Storage Building)	
2734-ZA (Gas Storage Shed)	
2734-ZB (Gas Storage)	
2734-ZC (Gas Storage)	
2734-ZD (Process Gas Storage)	
2734-ZF (Gas Storage)	
2734-ZG (Gas Storage)	
2734-ZH (Gas Storage)	
2734-ZJ (Liquid Nitrogen Storage Pad & Tank)	
2734-ZK (Gas Cylinder Storage)	
2734-ZL (Hydrogen Fluoride Facility)	
2735-Z (Chemical Storage Tanks and Catch Basin)	
2736-Z (Plutonium Storage Support Facility)	
2736-ZA (Plutonium Storage Ventilation Structure)	
2736-ZB (Plutonium Storage Vault Bldg.)	
2736-ZC (Cargo Restraint Transport Dock)	
2736-ZD (Fuel Storage Cask Structure)	
2902-Z (Elevated Water Storage Tank and Tower)	Includes below grade space

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Facilities/Buildings	Comments
2904-ZA (Liquid Effluent Monitoring Station)	
2904-ZB (Monitoring Building)	
291-Z (Ventilation Exhaust Fan House)	Includes below grade space
291-Z-001 (Main Exhaust Air Stack (234-5Z, 236Z, 242Z))	Includes below grade space
MO-014	
MO-264	
MO-428	
MO-429	
MO-432	
MO-834	
MO-839	
200-West Area Unplanned Release Sites assigned to PFP (e.g. UPR-200-W-23, UPR-200-W-58, UPR-200-W-59, UPR-200-W-74, UPR-200-W-75, UPR-W-79, UPR-200-W-89, UPR-200-W-90, UPR-200-W-91, UPR-200-W-103, UPR-200-W-159, and others that may be assigned or identified)	Included in 200-Z End Points

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XV. End Point Closure

On completion of an end point, a facility field representative will initial complete on the field copy of the end point document. A S&M field representative will then verify acceptable completion of the applicable activity.

Verification may be performed by reviewing documents, letters, photos, work packages, work plans or by visual inspection. When all the end points for a specific area of the facility have been completed and verified, designated facility management along with S&M organization management will sign for completion and acceptance of that area. A filing system will be in place for storing the documentation closing end points and will be retained by the receiving S&M organization.

- Compliance with the Hazards Communication Program, if applicable;
- Compliance with the Asbestos Control Program, if applicable;
- Compliance with the Confined Space Program, if applicable.
- As left configuration drawings
- Descriptions/photos of inaccessible spaces
- Electrical distribution isolation drawings
- Structural and Roof studies for Below ground structures
- Fire Hazard Analysis Requirements (FHA), if applicable
- Authorization basis reflecting the as-left condition
- S&M Plan
- Environmental documentation to support S&M as well as an EE/CA with Action Memorandum for 241-Z-361 remediation and an EE/CA and Action Memorandum for future site remediation of the PFP compound.

XVI. Administrative End Points and Turnover Package

Administrative end points are a compilation of supporting documentation for the transfer of the PFP complex to the S&M organization pending final site remediation. The administrative end points for the PFP Project are included in Section XX. The compilation includes those documents required by law, Tri-Party Agreement, DOE Orders, facility management, or the DOE.

Additional supporting documentation is included under the requirements of a turnover package. The turnover package support the physical "hands on" activities documentation required to perform future surveillances and audits and to assist in final disposition planning (i.e., "Final Radiological Surveys and Maps").

Turnover Package

The turnover package will contain, but is not limited to, the following items:

- Essential diagrams and drawings required to describe the as-left condition and to support S&M and end state planning;
- Certified vendor information, if applicable;
- Chemical and hazardous substance inventory, if applicable;
- High-level deactivation & dismantlement work plans;
- Final radiological surveys and maps;
- Industrial safety hazards identified, if applicable;

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XVII. Contamination Control Cap Functional Goals

That portion of the slab of a contaminated or potentially contaminated structure that is exposed to the weather shall be protected to ensure contamination does not migrate. To prevent contamination from migrating, a contamination control cap will be installed over the old slab. This contamination control cap will provide a highly weather resistant contamination barrier over the old contaminated or potentially contaminated slab during the interim between dismantlement and ultimate site disposition. This interim period (surveillance and maintenance period) is assumed to be less than 20 years. This cap is not intended to meet the requirements of a RCRA cap since it serves as an interim protective measure and is not intended for final site closure.

The primary goal of the contamination control cap that is placed over the demolished building's slab is to ensure confinement of residual contamination. Confinement is to be maintained under the following conditions for 20 years:

- Hanford's extreme weather (-25F to +120F air temperature, +180F surface temperature)
- Sunlight
- Wind and water erosion
- Water intrusion
- Icing and ice spalling/cracking/splitting
- Range fires
- Animal intrusion (including insects)
- Plant growth

Secondary goals include:

- Elimination of tripping hazards and other industrial hazards
- Run off control (slope the cap to prevent pooling of rain water)
- Stabilizing the soil around the building (soil within a foot around the foundation is the most likely to be contaminated if there were any contamination spreads in the building)
- Minimize the maintenance required between facility dismantlement and final dispositioning of the site.

- Minor maintenance of the contamination control cap after several years is acceptable (i.e. reapplication of a concrete sealer).

Features not required from the cap:

- There is no requirement to be able to separate the contamination control cap from the existing slab. It is assumed the contamination control cap will be dispositioned as part of the slab.
- There is no maximum thickness limit, however the thickness should be kept reasonable
- There are no planned live loads beyond foot traffic.
- There is no restriction from having multiple elevations on the contamination control cap (it may be stepped and it may have local built-up areas to cover slab features, pipes, etc)
- The contamination control cap is not intended to be a RCRA cap.

One method of providing a contamination control cap would be to pour a new concrete cap (minimum 4" thick) over the existing slab, extending nominally 1 foot beyond the edges of the existing slab. This would meet the intent of the contamination control cap. Conceptually, this new concrete cap would have structural features similar to a good sidewalk. It is also envisioned that the new cap would be sealed with a good grade of concrete sealant. Methods other than a concrete cap may be used.

Generally, items that penetrate the old slab (such as rebar, pipes, conduits etc.) will be cut off (and plugged if required) as close to the exposed surface of the slab as possible. Occasionally, it may be wise to encase a contaminated pipe (or other item) at an existing flange or other point a few inches above the slab. In these cases, two options exist. The first option is to increase the thickness of the contamination control cap to encase the pipe. This may be done either by increasing the thickness of the entire slab or by locally increasing the thickness. The second option is to provide an equivalent contamination barrier for the capped pipe. This could take the form of a metal cover that is placed over the

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item prior to pouring the concrete cap. This metal cover would need to meet the same functional goals as the contamination control cap (listed below) and the joint between the metal cover and the contamination control cap must be such that it does not create a path for contamination migration or a path for water to enter the cap and cause freeze cracking etc.

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XVIII. Facilities Checklist

1. Remove SNM inventory from buildings

Description: PFP currently stores significant quantities of special nuclear materials in the PFP vaults. All this material must be transferred to alternate approved storage location(s) prior to completion of the PFP transition. A walk down around the structure will be performed to verify stored SNM have been removed.

2. Remove structures, equipment, piping, ducting etc above the foundation/slab.

Description: This end point includes activities to complete the structures dismantlement to the slab/foundation. A walk down will be conducted to verify removal of the structure and internal equipment (building and equipment is gone, equipment connecting building to building is gone).

3. Cleanout or remove equipment, piping, ducting etc from accessible below-grade spaces such that the remaining equipment, piping, ducting etc could be dispositioned as low-level waste as part of the building rubble during the final remediation of the PFP Zone, if needed to satisfy the end state criteria for the Central Plateau. This criteria applies to 234-5Z Tunnels, 241-Z Cells, 241-Z-RB Valve Room, 291-Z, 216-Z-9 Control Room, and 243-ZA Tank Pit."

Description: This end point includes activities to complete the removal of TRU (or decontamination to low-level waste criteria) of

plutonium-contaminated equipment, piping, ducting etc. A walk down combined with work package and radiological survey data reviews will be conducted to verify removal or decontamination to low-level waste criteria of the plutonium-contaminated equipment, piping, ducting, etc prior to sealing the space (refer to criteria 17).

4. Isolate/seal ventilation ducting at building boundaries (foundation/slab/grade).

Description: Ventilation ducting exiting the structures boundaries will be plugged/capped or otherwise isolated to prevent material from both entering and exiting the remaining items. A walk down of the structure will be performed to verify ducting isolation.

5. Buried piping that enters/exits a building will be flushed or allowed to drain to minimize hazardous constituents prior to capping/isolating. All recovered liquids will be dispositioned through approved methods.

Description:

- Underground drain lines and piping associated with sanitary services (water, storm drains, and sewer) will be drained. No flushing will be performed.
- Abandoned underground drain lines and pipes to cribs, ditches, retention basins, and underground tanks (e.g. 241-Z-361 Tank, 216-Z-8 Tank, etc) will be checked for liquids and drained if needed at the lowest point accessible from within buildings (e.g. lines will be checked/drained from inside 234-5Z Tunnels, 241-Z

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- cells, 241-Z-RB Pump Room etc). No flushing of these lines will be performed due to prohibitions associated with provisions of the State Waste Discharge Permit No. 4508.
- Drain lines and pipes from process facilities to 241-Z, not associated with the 241-Z TSD permit, will be flushed to minimize hazardous constituents. However, flushing will not be performed if the line is a failed line or it is determined that flushing creates a greater hazard to worker safety or the environment than would leaving the line as-is for action during the final remediation of the PFP Zone. Lines that are not flushed will be checked for liquids and drained if needed at the lowest point accessible from within 241-Z.
 - Drain lines that are part of the 241-Z TSD will be dispositioned as part of the RCRA closure plan's required actions. Lines will be flushed to minimize hazardous constituents. However, flushing will not be performed if the line is a failed line or it is determined that flushing creates a greater hazard to worker safety or the environment than would leaving the line as-is for action during the final remediation of the PFP Zone. Lines that are not flushed will be checked for liquids and drained if needed at the lowest point accessible from within 241-Z.
 - Drain lines and pipes from process and process support facilities to 243-Z/ZA will be flushed to minimize hazardous constituents
 - All other underground drain lines and pipes will be drained at the facility boundary prior to capping.
6. **Isolate/seal drain lines (including floor drains) at building boundaries (foundation/slab/grade).**
Description: Process piping and drains exiting the structures boundaries will be plugged/capped or otherwise isolated to prevent material from both entering and exiting the remaining pipe. A walk down of the structure will be performed to verify piping isolation.
7. **Isolate/seal vents and penetrations to the environment.**
Description: In addition to ventilation ducting and piping, items may exit the facility boundary and require isolation. These items will be plugged/capped or otherwise isolated to prevent material from both entering and exiting the remaining items. A walk down of the structure will be performed to verify isolation.
8. **Identify/label remaining tubing/piping/ducting/drain lines containing radiation/contamination.**
Description: Tubing/piping/ducting remaining after transition & dismantlement will be documented and provided to the oncoming project/contractor. Labeling will be done in accordance with site procedures.

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9. **Obtain characterization data for remaining tubing/piping/ducting/drain lines and ventilation ducting.**

Description: Characterization data will be compiled utilizing process knowledge in cases where that knowledge is likely to bound the remaining condition. When process knowledge will not bound the remaining condition, samples will be obtained with the analysis included in the data package placed in the completion package files. Process knowledge will be used to identify analytical analyses to be performed on the samples obtained.

10. **Verify remaining plutonium in the below grade/buried systems (e.g. ducts, drain lines, etc.) does not pose a significant security risk nor does it pose a potential for criticality.**

Description: This end point addresses two concerns. The first is the need to eliminate significant security risks with the second being to eliminate any potential of a criticality. To complete this end point, material will be removed or remediated as required to preclude the potential of criticality or significant security risk. Any remaining material shall be designated as waste or contamination.

11. **Housekeep and remove, excess/dispose unattached materials and equipment.**

Description: A walk down of the structure will be conducted prior to the seal/cover/fill being installed to verify that loose materials have been removed. This end point applies to both above grade and below grade spaces.

12. **Remove portable and loose equipment/piping within the structures boundary (inside the building structure but below grade).**

Description: This end point includes activities to complete the interior stabilization and demolition (if required) of below grade spaces (e.g. 234-5Z Tunnels, and 291-Z). A walk down will be conducted to verify removal of the portable and loose internal equipment (equipment is gone, building shell and fixed equipment remains).

13. **Fire extinguishers, radioactive sources from exit signs and smoke detectors, and emergency lantern batteries are removed from inside the below grade structures and reused/disposed in accordance with site procedures.**

Description: Radioactive sources from exit signs and smoke detectors, fire extinguishers, and emergency lantern batteries contain hazardous materials and therefore are removed. A walk down is conducted to verify the removal of the previously identified items.

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14. Remove/reuse/excess/dispose unused chemicals.

Description: This end point ensures the removal and disposition of stored chemicals. A walk down of the structure will be performed to verify stored chemicals have been removed.

15. Stabilize below grade spaces in buildings to preclude release of contamination, to preclude structural collapse and eliminating need for surveillance and maintenance entries.

Description: This may include application of a fixative to the walls, ceiling, floors, equipment, piping, ducting, etc as well as of any exposed soil. Additionally, a structural assessment will be performed on the cover slab. If structural integrity is questionable, then the space may be backfilled and/or the existing cover slab reinforced

16. Remove/fix/contain radioactive contamination.

Description: This end point ensures the project has mitigated the potential for contamination migration. A review of the structure's final radiological survey report and map will be conducted to verify mitigation of contamination areas (CA) has been complete.

17. Seal structure foundation/slab (or roof in the case of 291-Z) with material having a minimum twenty-year life with minimal maintenance.

Description: It is expected that the remaining foundation/slab will remain for several years. A contamination control cap may be installed to inhibit the potential for radiological or hazardous material migration. In the case of 291-Z, 234-5Z, and 216-Z-9 this includes sealing below-grade access doors and backfilling the stairwells and applying a contamination control cap over the stairwells at grade level. When finished, no entry to below-grade spaces will be possible in any building.

18. Verify that the portions of the remaining slab that are exposed to the weather are free of radiological contamination (contamination may be fixed and below a contamination control cap) to ensure that contamination will not migrate to the environment during the surveillance and maintenance phase.

Description: A final radiological survey will be conducted and the results reviewed. Any identified exposed radiological contamination will be removed or fixed and covered with a contamination control cap.

19. Perform radiological survey and post radiological conditions in accordance with site radiological requirements.

Description: A walk down will be conducted with the final radiological survey to verify postings are in compliance with site procedures.

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- 20. Remove/dispose of non-hazardous, radioactive, hazardous, and mixed waste in accordance with approved waste handling procedures and regulatory requirements**

Description: A final review of waste handling and disposal paperwork will be conducted to validate compliance.

- 21. Slab is labeled/posted for radiological conditions (dose/contamination) and industrial hazards in accordance with site procedures.**

Description: After the structures as left condition is met, cognizant personnel will perform an audit to verify site required posting are in place. This audit may be conducted to verify that there are not any postings as none are required.

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In addition to the 21 criteria above the following apply to the 200-Z Compound:

- 22. Remove miscellaneous above grade structures/materials (e.g. camera towers, security monitoring systems, conex boxes, lay down yards, guard pill boxes, staging area shelter, dumpsters, etc.)**
Description: To meet the project objective, above grade structures/materials will be removed. These miscellaneous structures/materials removal will be verified by a complex walk down.
- 23. Remove the inner fence to alleviate the collection of tumbleweeds.**
Description: The exclusion area fence is a known tumbleweed accumulation point. One fence will be removed to limit the need to remove the collected tumbleweeds.
- 24. Post and isolate below grade systems and building foundations/slabs with subsurface void areas to prohibit vehicle traffic.**
Description: Signs will be posted over below grade voids unable to support vehicle traffic. A review of as-left drawings will identify the locations requiring postings. A walk down will be conducted to verify proper postings are in place.
- 25. Isolate/seal manhole covers to prevent solution from entering liquid effluent stream and inhibiting personnel access to eliminate the confined space.**
Description: Manhole covers will be sealed to inhibit water intrusion. The manhole covers will be secured in place to prevent personnel access and allow removal from confined space listings.
- 26. Document compliance with confined space program for inclusion in the transition & dismantlement completion package.**
Description: A cognizant representative will walk down the PFP complex and document compliance with site confined space requirements.
- 27. Document compliance with the site asbestos program for inclusion in the transition & dismantlement completion package.**
Description: A cognizant representative will walk down the PFP complex and document compliance with site asbestos requirements.
- 28. Verify Waste Accumulation Areas are eliminated.**
Description: Documented waste accumulation areas will have stored waste removed and documentation submitted to reflect that waste is no longer actively stored/staged in the identified areas. A copy of the paperwork reflecting the cessation of active use will be placed into the completion package files.

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- 29. Isolate 200-Z (PFP Complex) electrical supply at a point minimizing electrical dead legs.**

Description: Electricity will be isolated from the PFP complex. Electrical system modifications may be required to continue to provide power to non-PFP systems located within the complex (e.g. lift station). Isolation will be done to limit the isolation points and electrical dead legs. Drawings will be updated to reflect the as-left condition. Work package(s) and essential drawings will be reviewed to verify they reflect the as-left electrical isolation.

- 30. Isolate 200-Z (PFP Complex) water supply, at a point minimizing dead legs, and drain to the extent possible utilizing existing configuration.**

Description: Water will be isolated from the PFP complex. Water system modifications may be required to continue to provide water to non-PFP systems located within the complex. Isolation will be done to limit the isolation points and dead legs. Drawings will be updated to reflect the as-left condition. Work Package(s) and essential drawings will be reviewed to verify they reflect the as-left water isolation.

- 31. Backfill 200-Z (PFP Complex) specific septic tanks.**

Description: Septic tanks associated with the PFP complex only will be backfilled prohibiting further use. Identified septic tanks are; 2607-Z, 2607-Z1, 2607-WA. Ownership of 2607-WB will be transferred to the landlord organization.

- 32. Remove 200-Z (PFP Complex) specific above ground steam lines.**

Description: Steam lines run throughout the PFP complex and are insulated with asbestos containing materials. These lines will be removed were they run above grade inside the outer PFP fence to prevent the potential of insulation degradation. All loose ends of the steam line will be properly encapsulated to protect any remaining asbestos insulation and will be properly supported to eliminate industrial hazards.

- 33. Remove 200-Z (PFP Complex) specific utility poles.**

Description: Unused/unneeded utility poles associated with only the PFP complex will be removed and disposed.

- 34. Remove vegetation from radiologically contaminated areas.**

Description: Vegetation will be removed from contaminated areas. The area will be sprayed to inhibit new vegetation growth.

- 35. Grade soil to promote drainage away from remaining below grade structures.**

Description: The soil shall be graded to promote drainage away from below grade structures utilizing good management practices. The distance away from the structure and slope angle will be evaluated for each below grade structure with underground ducting and other below grade structures taken into consideration.

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36. Complete soil stabilization to mitigate dust/erosion.

Description: Where structure removal or grading leaves newly exposed soil, the area will be stabilized. Review of work packages and complex walk downs will be completed to verify the completion of this end point.

37. Post locations of below grade equipment (e.g. buried ducting).

Description: Below grade equipment remaining after transition and dismantlement will be posted/documentated and provided to the oncoming project/contractor.

38. Transfer ownership of PFP WIDS Sites to the Central Plateau S&M organization.

Description: WIDS sites associated with the PFP complex will be transferred to the oncoming project/contractor. WIDS sites database will be updated to reflect the condition as of transfer to the S&M phase.

39. Develop and issue an EE/CA to evaluate remediation alternatives for follow on PFP site disposition and closure.

Description: Develop and issue an EE/CA to evaluate remediation alternatives for follow on PFP site disposition and closure. An Action Memorandum will be issued by RL.

40. Transfer ownership of Tank 241-Z-361 to the Central Plateau S&M organization.

Description: Tank 241-Z-361 will be treated like other underground waste sites at PFP. To support the S&M of the Tank the following information actions will be provided to the S&M organization:

- An EE/CA will be performed to evaluate remediation options and an Action Memorandum will be issued.
- The structural integrity of the tank will be verified
- The HEPA filter(s) will be tested and shown to be compliant

41. Provide administrative/ physical controls to prevent unauthorized access and to prevent unauthorized storage of hazardous/radioactive materials.

Description: The intent of this end point is to prevent post transition and dismantlement accumulation of materials. A single fence will remain around the PFP complex with access gates locked. The keys will be controlled by PFP complex personnel and subsequently transferred to the S&M organization to prevent unauthorized access.

42. Document radiological conditions in final survey report for inclusion in the transition & dismantlement completion package.

Description: A final radiological survey will be conducted and documented in accordance with a survey plan.

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- 43. Document remaining industrial hazards and compliance with site industrial safety requirements for inclusion in the transition & dismantlement completion package**

Description: A safety representative will walk down the remaining structure and document compliance with site requirements and remaining hazards.

- 44. Utilizing current process knowledge and historic information, document amount and location of remaining radiological issues/hazardous substances/dangerous wastes for inclusion in the transition & dismantlement completion package.**

Description: Remaining hazardous substances/dangerous wastes will be documented and placed into the completion files. Utilization of historic knowledge of spills and process upsets will be used to develop the document.

- 45. Transition & dismantlement completion package items are provided: Final radiological surveys, work plans/packages, description/photos, modified configuration management docs, historical info, compliance docs that define the as left state.**

Description: The items identified in the end point will be compiled and placed in the completion package files.

Plutonium Finishing Plant (PFP) Complex End Point Criteria
NMS-16404 Revision 0

Administrative Checklist DRAFT

XIX. Administrative Checklist

Admin-1. Complete/close outstanding audit findings and occurrence reports

Description: A review of facility and site action tracking systems and open occurrence reports will be conducted and items will be closed.

Admin-2. Document configuration management performed in accordance with site standards

Description: The final configuration of the 200-Z (PFP Complex) will be reviewed against controlled drawings to verify proper incorporation of structure and utility modifications/isolations.

Admin-3. Provide essential drawings and a list of all facility drawings necessary for S&M

Description: This end point will be done in conjunction with the development of the draft S&M Plan. The essential drawing list will be updated to reflect the as left condition of the 200-Z area. A separate list containing both the essential drawing and those required to support S&M.

Admin-4. Document remaining industrial hazards and compliance with industrial safety requirements

Description: This end point compiles the individual end points into one report reflecting the remaining industrial hazards.

Admin-5. Document compliance with confined space program

Description: This end point compiles the individual end points into one report reflecting the remaining confined spaces.

Admin-6. Document compliance with the asbestos program

Description: The as left condition of the 200-Z area will be assessed for compliance with the site asbestos program.

Admin-7. Document amount and location of remaining hazardous substances and/or dangerous wastes

Description: This end point compiles the individual end points into one report reflecting the remaining hazardous substances/dangerous wastes.

Admin-8. Complete and provide current Fire Hazard Assessment (FHA)

Description: An FHA will be completed reflecting the as left condition of the 200-Z area.

Admin-9. Transfer facility physical property records

Description: The property records for the 200-Z area will be updated as the transition & dismantlement effort removes excess' and or disposes of property.

Admin-10. Provide a S&M Plan

Description: The transition & dismantlement project/contractor has the historic and current knowledge of the 200-Z area. Therefore, they will develop a S&M Plan for the S&M organization. The oncoming project/contractor has the responsibility to release the S&M Plan under their document release procedures.

Admin-11. Provide a current/updated building emergency plan

Description: The 200-Z area building emergency plan will be updated (or cancelled) to reflect the as left condition.

Admin-12. Provide S&M procedures and files

Description: Procedures utilized by the transition & dismantlement project/contractor to conduct surveillance and maintenance at the end of the project will be copied and placed in the completion package files.

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Administrative Checklist DRAFT

Admin-13. Provide identified regulatory commitments and regulatory documentation

Description: The transition & dismantlement project/contractor has the historic and current knowledge of the 200-Z area's existing commitments and documentation. As such, the transition & dismantlement project/contractor will compile outstanding commitments and documentation to support the S&M organization to complete the commitments/ documentation. These along with recently (within the last year of the project) completed commitments documentation (closure/completion letters) will be included in the completion package files.

Admin-14. Transfer classified documents to repository

Description: All classified documents will be removed from the 200-Z area and placed in a site approved repository.

Admin-15. Verify transition & dismantlement completion package contents are complete

Description: This is a final review of the document log for the completion package files. This will ensure that the intended documentation provided in the files have not been removed or checked out and not returned.

Admin-16. Provide existing regulatory permitting documentation

Description: The remaining regulatory permits and supporting documentation will be compiled and provided to the S&M organization.

Admin-17. Compile available historical data including chemical and plutonium spills, holdup, releases, and constituents associated with building processing to support final remediation.

Description: This end point is designed to capture useful information on the remaining structures/systems that has been kept by facility personnel (i.e. engineers, health physics, operations, etc.) and is not available through other sources prior to their leaving the facility. This data will be compiled and placed in the completion package files. Documentation already maintained by the Hanford site document control system and/or libraries will be referenced only.

Childers, Heather M

0060512
[D2984190]

From: Konzek, Glenn R
Sent: Monday, February 05, 2018 11:15 AM
To: Cox, William G (Bill)
Cc: Childers, Heather M; Dornfeld, Jill M
Subject: RE: Resolving Correct Document Number for PFP's Endpoint Criteria Document

Bill,

I concur with the recommendation to add HNF-22401 to the search criteria for the PFP End Point Criteria Document. I also support setting up HNF-22401 as the primary number instead of NMS-16404.

Please contact me if you would like to discuss further or have questions.

Regards,

Glenn R. Konzek
(509) 376-8399
DOE-Richland Operations Office

From: Cox, William G (Bill)
Sent: Monday, February 05, 2018 9:23 AM
To: Konzek, Glenn R <glenn.konzek@rl.doe.gov>
Cc: Childers, Heather M <Heather_M_Childers@rl.gov>; Dornfeld, Jill M <Jill_M_Dornfeld@rl.gov>
Subject: Resolving Correct Document Number for PFP's Endpoint Criteria Document

Glenn,

I have been told that the easy and doable fix to this reference issue we discussed on the phone this morning is to add HNF-22401 to the search criteria for the document. It can also be set up as the primary number instead of NMS-16404.

All I need to make this happen is concurrence from the DOE Project (you). If this is acceptable to you, you can simply reply-all to this message with your approval.

If you would like justification for adding the HNF-22401 number to the search criteria, I have attached the Engineering Document Change (EDC) form that actually changed the document number from NMS-16404 to HNF-22401.

Thanks very much
Bill Cox

Childers, Heather M

From: Cox, William G (Bill)
Sent: Monday, February 05, 2018 9:48 AM
To: Childers, Heather M
Subject: RE: Resolving Correct Document Number for PFP's Endpoint Criteria Document

Let's add it to both, please.

Bill

From: Childers, Heather M
Sent: Monday, February 05, 2018 9:41 AM
To: Cox, William G (Bill) <William_G_Bill_Cox@rl.gov>
Subject: RE: Resolving Correct Document Number for PFP's Endpoint Criteria Document

Bill:

I will need a clarification from you. Will we be adding the new HNF # to both documents (2003 & 2004) or just the latest document (2004).

Where	Document Number			like	"NMS-16
Document Details	Date of Document	Document Number	Revision	Document Title/Description	[Click to retrieve document.]
D6455017	01-Aug-2004	NMS-16404	000	PLUTONIUM FINISHING PLANT PFP COMPLEX END POINT	
D2984190	09-Sep-2003	NMS-16404	000	PLUTONIUM FINISHING PLANT PFP COMPLEX END POINT CRI	

Heather
376-2530

From: Cox, William G (Bill)
Sent: Monday, February 05, 2018 9:23 AM
To: Konzek, Glenn R <glenn.konzek@rl.doe.gov>
Cc: Childers, Heather M <Heather_M_Childers@rl.gov>; Dornfeld, Jill M <Jill_M_Dornfeld@rl.gov>
Subject: Resolving Correct Document Number for PFP's Endpoint Criteria Document

Glenn,

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All I need to make this happen is concurrence from the DOE Project (you). If this is acceptable to you, you can simply reply-all to this message with your approval.

If you would like justification for adding the HNF-22401 number to the search criteria, I have attached the Engineering Document Change (EDC) form that actually changed the document number from NMS-16404 to HNF-22401.