



## Department of Energy

Washington, DC 20585

**JUL 22 1999:**

The Honorable John T. Conway  
Chairman  
Defense Nuclear Facilities Safety Board  
625 Indiana Avenue, NW, Suite 700  
Washington, D.C. 20004-2901

Dear Mr. Chairman:

This letter provides you with an update and notification of activities related to the Department's implementation of Defense Nuclear Facilities Safety Board Recommendation 94-1 at the Hanford Plutonium Finishing Plant (PFP).

The Integrated Project Management Plan (IPMP) for the PFP was provided to the Richland Operations Office (RL) on April 29, 1999. The IPMP and its related appendices represent an integrated, resource-loaded project plan that includes all work at the PFP such as plutonium stabilization activities, material shipping activities, and final deactivation of the plant. Enclosed is a copy of the IPMP for your review. You will notice a number of plutonium material stabilization systems and commitment dates do not align with those contained in Revision 1 to the Recommendation 94-1 Implementation Plan (IP) that was submitted in December 1998. Enclosure 2 provides a crosswalk between the IP Revision and the IPMP, and serves to explain the differences.

The most significant difference is that the IPMP does not plan for all stabilized plutonium to be in DOE-STD-3013 compliant containers until 2008. The stabilization of the metals and oxides is planned for completion in March 2001, and October 2004, respectively, but the DOE-STD-3013 compliant packaging is not completed until 2008. As mentioned in the Secretary of Energy's letter to you on July 2, 1999, a 2008 date for a planning basis is not acceptable to me so the IPMP will be modified with an approach for ensuring Hanford achieves DOE-STD-3013 compliant packaging by December 2004.

Another difference between the IPMP and the IP is the change in path forward for solution stabilization which impacts an IP commitment previously scheduled for completion this fiscal year. The milestone, IP commitment number 105, "Complete installation and testing of the production vertical denitration calciner" due September 1999, will not be completed due to the change in path forward from the vertical denitration calciner to magnesium hydroxide precipitation for solution stabilization. The magnesium hydroxide precipitation process is a high confidence stabilization process used successfully at the Rocky Flats Environmental Technology Site. Not only is it a proven system, but we are hoping to accelerate solution stabilization by optimizing its

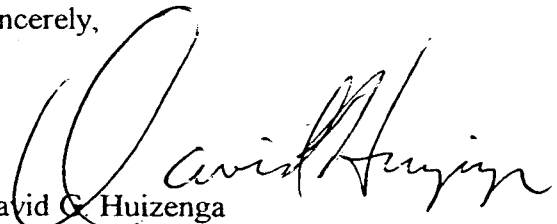


operations. It should be noted that our commitment date for plutonium solution stabilization has not changed. Regarding the prototype vertical denitration calciner, on July 2, 1999, we completed the restart readiness activities and began phased restart operations. At this point in time we are completing equipment checks and will soon be running surrogate solution through the system. We hope to begin actual plutonium nitrate solution processing in the very near future, but our July 31 deadline, previously communicated to you, may be in jeopardy. Please be assured that we are doing everything we can to begin plutonium nitrate stabilization with the prototype, but we must follow our disciplined restart process.

Also, as mentioned in the July 2, 1999 letter, final DOE-STD-3013 packaging of material will not be accomplished using the Plutonium Stabilization and Packaging System (PuSPS) that is described as the path forward in the IP revision. We are optimistic that the IPMP greatly improves confidence in the baseline and based on feedback from independent IPMP reviews and lessons learned from the successful PUREX and B-Plant projects, the Department and site contractors will pursue improved efficiency and other areas for improvement on the stabilization and deactivation schedules. Our intent is that by October 1, 1999, we will complete validation of the IPMP and incorporate the changes mentioned here into the site baseline that is subject to formal change control and contractual implementation. Along with the formal site baseline change, the Department will prepare a revision to the 94-1 IP related to the PFP work for the Secretary's approval and submittal to the Board. We are making every effort to ensure your staff is kept up to date on each decision affecting the IP.

As always, we continue to closely track progress on all Recommendation 94-1 commitments and will keep you and your staff apprised of our progress. If you have any questions, please contact me or have your staff call me on 202-586-5151.

Sincerely,



David G. Huizenga  
Acting Deputy Assistant Secretary for  
Nuclear Material and Facility Stabilization  
Office of Environmental Management

Enclosures

cc:

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# Integrated Project Management Plan for the Plutonium Finishing Plant Stabilization and Deactivation Project


Prepared by

**B&W Hanford Company**



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## IP/IPMP CROSSWALK FOR PFP

The December 1998, revision to the Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 94-1 Implementation Plan (IP) specified that the Hanford Plutonium Finishing Plant (PFP) will develop a resource-loaded schedule by April 1999. The PFP Integrated Project Management Plan (IPMP) and supporting documentation serve to perform this function. The IPMP was developed by establishing a "Tiger Team" to rebaseline the PFP project, utilizing a system engineering/projectization approach to significantly improve confidence in the project schedule. Additionally the IP emphasized a path forward for development of the IPMP by formalizing key decisions and interim actions necessary to produce the IPMP. These key decisions were also milestones. Those completed milestones are summarized as follows:

IP COMMITMENT	COMPLETION DATE
(IP-101) Complete an optimization study for the shipping/processing of materials at alternate sites	February 1999
(IP-102) Complete categorization of plutonium (Pu) solutions	February 1999
(IP-103) Complete options analysis to determine if magnesium hydroxide (Mg-OH <sub>2</sub> ) should be used in lieu of Ion Exchange) pretreatment prior to calcining	February 1999
(IP-108) Complete analysis of options for using the Hanford convenience can vice a welded seam repackaging system prior to packaging in the Plutonium Storage and Packaging (PuSAP)	February 1999
(IP-109) Complete evaluation of options for mitigating hazards with unalloyed metal nitride and hydride formation	February 1999
(IP-112) PFP will identify the technical approach for stabilizing ash residues.	January 1999

It is also important to note that the stabilization completion dates shown in the IPMP reflect packaging the stabilized material into Savannah River (SR) style bagless transfer cans, which are single-wall welded containers, for temporary storage in PFP vaults. The assumption used when the IPMP was being developed was that the Actinide Packaging and Storage Facility (APSF) would be delayed for three years and costly vault upgrades could be avoided with temporary storage in bagless transfer system (BTS) and just-in-time packaging to DOE-STD-3013 requirements prior to shipment to APSF. However, it is becoming apparent that this delay could extend well beyond three years and the most prudent path would be packaging the stabilized material into DOE-STD-3013 can configuration as soon as practical. While a detailed plan to achieve DOE-STD-3013 compliant containers as soon as practical is not available at this time, we are preparing that plan and are confident that DOE-STD-3013 packaging and subsequent storage can be achieved by the IP final commitment date of December 2004. The IPMP will be revised to reflect this new plan and meet the DOE-STD-3013 packaging commitment in the Department's IP.

The following table, sorted by IP commitment, summarizes the significant differences between the IP and the IPMP. Rationale is provided where stabilization processes changed and where priorities drove significant schedule changes:

SUMMARY OF 94-1 IP COMMITMENTS

IP COMMITMENT	IP DATE	IPMP DATE	DELTA (MONTHS)	COMMENTS
Complete Stabilizing and packaging of oxides >50 wt% (IP-111)	DEC 2004	OCT 2004 <sup>1</sup>	-2	The path forward and priority for stabilizing plutonium (Pu) oxides remains the same except the category now includes oxides down to 30 wt% Pu material. Operation of the thermal stabilization furnaces remains critical path for completion of the stabilization effort. The oxides will be stabilized when higher priority feeds (i.e., product from the Mg(OH) <sub>2</sub> process) are not occupying the furnaces. Three additional furnaces will be installed this fiscal year in 234-5Z Building and will be available prior to June 2000. Also two triple capacity furnaces will be installed as part of the Project W-460 (Pu Stabilization and Packaging System) in building 2736-ZB. Also, PFP is in the process of increasing the boat charge size for the single capacity muffle furnaces.
Complete brushing and repackaging of metal inventory (IP-110)	MAY 2002	MAR 2001 <sup>1</sup>	-10	The IP identified conversion of metal to oxide as a stabilization process but recognized the potential stabilization approach of brushing metals identified in commitment statement 109, "Complete evaluation of options for mitigating hazards/concerns of stored unalloyed plutonium metal nitride and hydride formation." This brushing approach offers a ten-month schedule advantage as well as reducing handling and dose consequences. The current schedule is being driven by how quickly we can get the bagless transfer packaging system in place.

<sup>1</sup> The IPMP date is for completion of stabilization and packaging into a single bagless transfer can and not DOE-STD-3013 compliant packaging. As described in the 2<sup>nd</sup> paragraph of this attachment

IP COMMITMENT	IP DATE	IPMP DATE	DELTA (MONTHS)	COMMENTS
Complete stabilizing and packaging solutions (IP-106)	DEC 2001	DEC 2001 <sup>1</sup>	0	The process for stabilizing the Pu-bearing solutions has changed from using the vertical denitration calciner (VDC), and ion exchange for impure solutions, as reflected in the IP, to using a magnesium hydroxide precipitation process similar to that used by Rocky Flats. This process offers a simple, less costly process for stabilizing all of the solutions. The schedule is being driven by design/fabrication/installation and startup of the precipitation glovebox and equipment. Although there is no identified schedule advantages, this process is considered more reliable and offers more opportunity for schedule acceleration. The VDC will remain in place to serve as a back-up in case there are problems with the magnesium hydroxide precipitation process.
Complete pyrolyzing (stabilization) and packaging of Polycubes (IP-115)	AUG 2002	MAR 2004 <sup>1</sup>	+19	The stabilization process for polycubes remains consistent between the IP and the IPMP. However, new information has been received from Pacific Northwest National Laboratory tests run on polycubes. The preliminary results indicate that the polycubes have undergone radiolytic degradation where only about a third of the polystyrene remains. Tests also indicate that very minimal off-gassing is occurring. This means the polycubes are of lower risk than indicated in the IP and may be stabilized in an air environment furnace in lieu of the pyrolysis furnaces. Testing is ongoing to determine the most cost and schedule effective path forward. Due to the lower risk and uncertain path forward, the stabilization was deferred where there was competition for resources. This deferral resulted in a schedule completion, which was 19 months after the IP commitment.

<sup>1</sup> The IPMP date is for completion of stabilization and packaging into a single hearse transfer can and not DOE STD 2012 compliant packaging. As described in the 2<sup>nd</sup> paragraph of this commitment

IP COMMITMENT	IP DATE	IPMP DATE	DELTA (MONTHS)	COMMENTS
Complete Residues stabilization (IP-116)	JUN 2003	MAY 2004	+11	The path forward and the priority for the majority of the residues remains the same as specified in the IP. Due to the lower priority (and risk) of residues, stabilization of residues is deferred when there is competition for resources. It is the intent to use residue stabilization as a filler work when gaps in the other stabilization processes occur. This deferral resulted in schedule completion 11 months after the IP commitment. The IP recognized the potential stabilization approach of pipe-and-go similar to RFETS in IP commitment 112, "PFP will identify the technical approach for stabilization of ash residues." As a result of the study, pipe-and-go will be used for ash residues as an IPMP planning basis and considered for all residues.
Complete VDC installation (IP-105)	SEP 1999	N/A		As discussed above, the solutions originally destined for the VDC for stabilization will now be stabilized in the magnesium hydroxide precipitation process.
Complete Pyrolysis installation (IP-113)	DEC 1999	APR 2000	+4	Hanford is on track to receive the pyrolysis equipment in September 1999, and complete installation April 2000. However, as discussed above (IP-115), the path forward for polycube stabilization is uncertain. Testing is in progress which may allow thermal stabilization in a muffle furnace.
Ship Pu-A1/F to SRS (IP-114)	JUN 2001	JAN 2001	-5	In addition to the shipments of Pu-A1 and Pu-F to SRS, the IPMP currently includes the high assay portion of the Slag and Crucible in this category.

<sup>1</sup> The IPMP date is for completion of stabilization and packaging into a single bagless transfer can and not DOE-STD-3013 compliant packaging. As described in the 2<sup>nd</sup> paragraph of this attachment, new assumptions on the availability of APSF are driving the DOE to revisit the IPMP and revise the plan to achieve DOE-STD-3013 compliant packaging for all stabilized plutonium by December 2004.