



The Secretary of Energy

Washington, DC 20585

July 21, 1997

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DNF SAFETY BOARD

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

Dear Mr. Chairman:

Enclosed are the proposed modifications to provisions in the Implementation Plan for the Defense Nuclear Facilities Safety Board Recommendation 94-1 associated with plutonium stabilization and packaging at the Lawrence Livermore National Laboratory.

The proposed modifications to the Implementation Plan reflect changes in Lawrence Livermore's technical plans and schedules and are supported by the Plutonium Ash Residue Trade Study and an independent analysis of available bagless transfer technologies. The results of the Ash Residue Trade Study were presented to you in October 1996. The main modifications to the Implementation Plan are as follows:

- Assessment of plutonium packaging will now be completed in October 1997. This represents a 6-month slip from the current commitment of April 1997.
- Repackaging of plutonium will commence in April 1998. This represents a 23-month slip from the original commitment of May 1996.

The enclosure to this letter further addresses the proposed modifications. Parts A and B describe the specific changes to the Implementation Plan text; Part C explains the causes for the schedule slips and the impacts of the proposed modifications.

We expect to propose further modifications to the Implementation Plan in the near future to address other technical developments that will affect the current commitments at Hanford, Rocky Flats, Savannah River, and Los Alamos National Lab. We continue to closely track progress on all Recommendation 94-1 commitments and will keep your staff apprised of progress. If you have any further questions, please contact me or have your staff contact Mr. John Tseng, Acting Director, Nuclear Materials Stabilization Task Group, at 202/586-0383.

Sincerely,

A handwritten signature in black ink, appearing to read "Federico Peña".

Federico Peña

Enclosure

United States Government

Department of Energy

memorandum

DATE: APR 23 1997
REPLY TO:
ATTN OF: DOE Oakland Operations Office (NSPD)
SUBJECT: Changes the DNFSB Rec. 94-Implementation Plan for Lawrence Livermore National Laboratory.
TO: John C. Tseng; EM-66:NMSTG

As requested, the Oakland Operations Office is pleased to submit the attached Lawrence Livermore National Laboratory (LLNL) proposed changes to the Implementation Plan for DNFSB Rec. 94-1. LLNL proposes these changes to reflect the current status at LLNL and to clarify some confusing items. The Oakland Operations Office has reviewed the attachment and concurs with these changes.

Please review and submit these changes for DNFSB approval. If you have any questions, please call me at (510) 422-2567.



Randal Thomas
Program Manager
National Security
Programs Division

Attachment

cc: Roxanne Fournier, EM-66:NMSTG
Rob Price, EM-66:NMSTG
Dawn Wechsler, DOE/OAK/NSPD
Tom Grim, DOE/OAK/NSPD
Don Wilhelm, DOE/OAK/WRD

**Lawrence Livermore National Laboratory
94-1 Implementation Plan Modifications
April 29, 1997**

Enclosure 1 shows the specific changes to the Implementation Plan text. Enclosure 1, Part A lists the milestone date changes. Enclosure 1, Part B describes the changes to the IP plan narrative where LLNL is referenced, Enclosure 1, Part C outlines the causes and impacts associated with the proposed changes.

Part A: Milestone Date Changes

Below are milestone and schedule date changes with reference by page number and section of where these dates appear in the Plutonium Vulnerability Management Plan and the Implementation Plan. The changes affect key dates for initiating and completing the bagless transfer system needed to begin the stabilization and packaging of plutonium on site to meet DOE-STD-3013-96. These milestone changes do not affect LLNL's ability to meet the DNFSB date of May 2002 or pose health or safety problems from the materials in storage. Some milestones are reported as complete where appropriate.

Page Number	Commitment	Original	Proposed
<u>Management Plan</u>			
1. p. A-3	Complete characterization program implementation	Jan 1997	October 1997
2. p. 13	"The characterization program will be complete by..."	Jan 1997	October 1997
<u>Implementation Plan</u>			
1. p. 4	Ash residue stabilization complete	April 1998	April 1999
2. p. 49	"..identify, characterize, and non-destructively assay..."	Jan 1997	October 1997
3. p. 49	"Repackaging of the material to meet the metal and oxide storage..."	May 1996	April 1998
4. p. 50	Ship all excess items to LANL		
5. p. 71	Stabilization and packaging of ash residue completion	April 1998	April 1999
6. p. 72	Ship all excess items to LANL	May 02	Remove

7. p. 73	10. Identify, characterize and non-destructively assay all Pu items	Jan 1997	October 1997
8. p. 73	11. Ship all excess items to LANL	May 02	Remove
9. p. 73	13. Conduct trade studies for ash/residue materials	April 1996	Complete
10. p. 73	14. Stabilize, process, and package all other residue materials	New	April 2000
11. p. 73	14. Stabilize, process, and package all ash residue materials	April 1998	April 1999

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Below are the Section revisions to the Implementation Plan as needed. Part B describes changes to narrative section of the Plan.

Pg. 25 - Sec. 2.7.3.1, Equipment Design and Automation

Remove the reference to LLNL development of dustless transfer equipment.

Pg. 49 - Sec. 3.2.6

Para. 2, first sentence - A project to ensure adequate packaging knowledge of all plutonium items (metal, oxide and residues) in inventory is identified in the plutonium ES&H Corrective Action Plan (LLNL/B322-02).

Para. 3, last sentence - Repackaging of material to meet the metal and oxide storage standard will begin in September of 1997 when LLNL establishes the bagless transfer capability. Ash materials that are reprocessed to meet the oxide criteria, according to the DOE-STD 3013-96, will be the first materials to be repackaged at LLNL.

Pg. 50 and 72 - Sec. 3.2.6 and 3.3.6

These two sections refer to an option that was investigated in 1995 by LLNL, LANL, DOE/OAK-AL, DP-13 and DP22. It was found that this option would lead to higher cost and increased worker dose. Additionally, because LLNL has a working plutonium facility, it will need the capability to stabilize and package plutonium in the future. Since this option is no longer viable, both references to it in the Implementation Plan should be removed.

Pg. 71 - Sec 3.3.6

Para. two, third bullet - second sentence, replace remaining paragraph with:

These methods will be applied for two residue categories namely LLNL ash residue and other residue. The ash residue is material that is known as the batch (111 cans) which encountered a bulging problem in 1994. This material will be stabilized and packaged by April 1999 and is tracked in IP milestone #IP-3.3-041.

The stabilization and packaging of the second residue form (other residues) will proceed directly upon completion of the ash residues and estimated to be complete in April 2000. The stabilization and packaging of other residue materials at LLNL should be specifically designated with a new milestone for the LLNL program which will be tracked separately from the ash residue materials.

Pg. 73 - Table

LLNL has identified the need to add a milestone which separates our residue materials into two discreet categories. Ash residue stabilization and packaging is represented by milestone #IP-3.3-041 and will be completed in April 1999. LLNL proposes a new

milestone for the Packaging and Stabilization of Other Residues materials, a project that will be completed in April 2000.

Entry #10 - LLNL proposes that the name of this milestone change to reflect the actual work that will be done and is relevant to the 94-1 commitment. It is proposed that the name be "Identify and Characterize the Packaging of All Plutonium Items in the LLNL Inventory, including residue materials". Mention of Non-destructive assay is not related to the 94-1 stabilization and packaging commitment.

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Management Plan

1. & 2. - Delay in completion of characterization program

Reason:

LLNL has added 600 items to the scope of the characterization assessment. These plutonium items are under 40 elemental gram in weight and add to the assessment which was formerly comprised of 1000 items, 275 of which were metal. The new total is 1600 plutonium items. Most of these items are small analytical samples of <40 ele. grams of plutonium. These items were not part of the original scope of the corrective action plan because non-destructive assay was required for all items and these items are quite difficult to measure. Upon reconsideration the LLNL plutonium inventory assessment project, a review of the Pu ES&H Corrective action plan and the intent of the DNFSB in 94-1, LLNL has decided to review the packaging of all plutonium items in inventory. This subsequently changes the completion date from April 1997 to October 1997.

Impact:

These items are considered stable and do not pose a stabilization vulnerability within the timeframe of project completion.

Implementation Plan

1. - Ash residue stabilization delay

Reason:

LLNL has recently made the decision to use the BNFL bagless transfer, inner and outer can welder sub-system for their 94-1 packaging system. The cost of this system is substantially more than the budgeted amount for bagless system. The cost difference has caused the delay of LLNL having the bagless transfer capability operational until April of 1998. Since the ash materials will not be stabilized until the bagless transfer system is operational the schedule for stabilizing and packaging ash material must be delayed until then. Ash residue will be the first category of material to be stabilized at LLNL.

Impact

Ash materials are the first materials to be stabilized at LLNL. These items are of the batch (111 total, 8 of which bulged) that exhibited bulging in the primary cans in 1994. They have since been vented and are considered safe from pressurization. LLNL has been performing surveillance over these items. In January of 1997, LLNL selected a representative sample of the items for

surveillance. While some discoloration of the innermost can was detected, no other sign of instability or degradation was detected. LLNL believes that these items are safely stored and adequately stable for the timeframe of project completion in April 1998. These items will be stabilized and packaged in PuSAP inner and outer cans or, in some cases solidified for WIPP disposal by April 1999.

2. - Delay in completion of characterization program

See Reason and Impact of #1&2 in Management Plan above.

3. - Delay in repackaging of material to meet the metal and oxide standard.

See Reason and Impact in #1 above.

4. - Stabilization and packaging of ash residue completion

See Reason and Impact of #1 above.

5. - Delay in the completion of characterization program.

See Reason and Impact of #1&2 in Management Plan above.

6. - Remove option to ship all excess items to LANL

Reason:

LLNL, LANL and DP have studied the option for shipment of LLNL material to LANL and have found that the option is more expensive, risky and difficult for many reasons. LLNL has reported the outcome of this study many times at all levels with concurrence.

Impact::

LLNL has the equipment or funding to procure the equipment necessary to stabilize and package the materials in inventory. LLNL believes that until a consolidated storage location is determined the material is best stored under LLNL surveillance once stabilized. No impact.

7. - Complete

8. - Delay in the start of the stabilization, processing and packaging of residue materials.

See Reason and Impact of #1 above.

9.a. Addition of a **new milestone** for the Stabilization and Packaging of Other Residue Materials.

Impact - LLNL has identified the need to add a milestone which separates our residue materials into two discrete categories. Ash residue stabilization and packaging is represented by milestone #IP-3.3-041 and will be completed in April 1999. LLNL proposes a new milestone for the Packaging and Stabilization of Other Residues materials, a project that will be completed in April 2000. The addition of this milestone will add to the level of detail for LLNL to report residue stabilization progress. The overall project schedule is not impacted by this action, other residue materials were always planned as part of the LLNL remediation program.

9.b. Change milestone name-

Impact - the proposed name change will add to the clarity of actual 94-1 related work being performed at LLNL. In addition, it will allow easier tracking of the milestone tracking without the additional burden of the non-destructive assay work.