



**Department of Energy**  
Germantown, MD 20874-1290

**JUL 20 2001**

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:

The purpose of this letter is to formally notify you of a delay which has occurred in completion of one of our commitments contained in the Department's 2000-1 Implementation Plan (IP), *Stabilization and Storage of Nuclear Material*. As anticipated and discussed in our briefing to you on June 22, 2001, the following commitment has since been missed:

- 114 Package aluminum alloys at Richland for disposition to Waste Isolation Pilot Plant (WIPP). Brush and package remaining alloys at Plutonium Finishing Plant (PFP): Due June 2001

The enclosed letter from the Richland Operations Office (RL) dated June 29, 2001, gives a detailed description of the Site's progress in stabilizing and packaging the alloy materials. In summary, the 31 alloys to be dispositioned at WIPP have been packaged into pipe overpack containers. However, at the time the IP was last revised, PFP identified 42 alloy items to be brushed and packaged to meet DOE-STD-3013 by June 30, 2001. This portion of the milestone remains incomplete.

Of the 42 items identified for brushing and packaging to meet DOE-STD-3013, 11 have been brushed and packaged into inner 3013 containers. They will be welded into outer 3013 containers by the end of July 2001. Sampling of the remaining 31 items showed that they were not suitable for brushing and packaging, and that they need to be thermally stabilized as oxides.

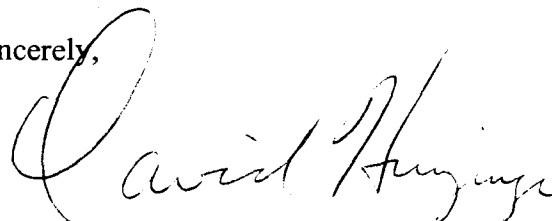
Currently, oxides cannot be packaged at RL to meet the DOE-STD-3013 criteria until a replacement for the Super-critical Fluid Extraction (SFE) moisture measurement technique is approved, qualified and operational at that Site. The Site expects to have a new method operational within the next three to six months, and will complete stabilization and packaging of these items within 60 days after the method is qualified and operational.



Several other sites have milestones which are potentially impacted by the retraction of the SFE technique. Those longer term milestones are still being evaluated for possible workarounds and to determine the scope of any necessary delays. We will keep you informed as additional information becomes available.

We continue to closely track progress on all Recommendation 2000-1 commitments and will keep you and your staff apprized of our progress. If you have any questions, please contact me at (202) 586-5151.

Sincerely,

A handwritten signature in black ink, appearing to read "David Huizenga". The signature is written in a cursive style with a large, looping initial "D".

David G. Huizenga  
Deputy Assistant Secretary  
for Integration and Disposition  
Office of Environmental Management

cc:  
M. Whitaker, S-3.1

United States Government

Department of Energy  
Richland Operations Office

# memorandum

DATE: JUN 29 2001  
REPLY TO: MDD:BLC/01-MDD-069  
ATTN OF:  
SUBJECT: IMPLEMENTATION PLAN FOR DEFENSE NUCLEAR FACILITIES SAFETY BOARD (DNFSB) RECOMMENDATION 2000-1 - ALLOYS MILESTONE NUMBER 114

TO: D. G. Huizenga, Deputy Assistant Secretary  
for Integration and Disposition, EM-20, HQ

M. W. Frei, Deputy Assistant Secretary  
for Project Completion, EM-40, HQ

- References: (1) FHI ltr. to P. M. Knollmeyer, RL, from G. W. Jackson, "Disposition of Alloy Items of Interest to the Defense Nuclear Facilities Board Staff," (FH-0103046) dtd. June 21, 2001.
- (2) DOE-HQ ltr. from B. Richardson, to J. T. Conway, DNFSB, "An Implementation Plan for Stabilization and Storage of Nuclear Material - The Department of Energy Plan in Response to DNFSB Recommendation 2000-1, Revision 1," dtd. January 19, 2001.

In Reference (2) the Implementation Plan (IP), Hanford Milestone Number 114, "Package aluminum alloys for disposition to the Waste Isolation Pilot Project (WIPP) - Brush and package remaining alloys at the Plutonium Finishing Plant (PFP)" was due June 30, 2001. This memorandum is being written to report partial completion of the milestone, provide the status of the alloys yet to be stabilized, and provide you with our path forward for completion of this milestone.

The alloys to be dispositioned to WIPP have been packaged into pipe overpack containers. Packaging of the 31 alloys was initiated on June 11, 2001, and completed on June 19, 2001. The IP stated that RL was reviewing the characterization of 53 items identified as alloys to be recategorized as miscellaneous residues. During that review, the Hanford Site Defense Nuclear Facilities Safety Board (DNFSB) representative identified a potential concern regarding stability with several of the items. Testing was done on these items and the interim results documented in Reference (1). All items tested were found acceptable for interim storage prior to disposition. However, the oil from the turnings with oil will be removed by the end of the calendar year. Reference (1) is included as an attachment for your information. These 53 items have been recategorized as miscellaneous residues and will be dispositioned under Milestone Number 116, "Complete stabilization and packaging of residues."

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01-MDD-069

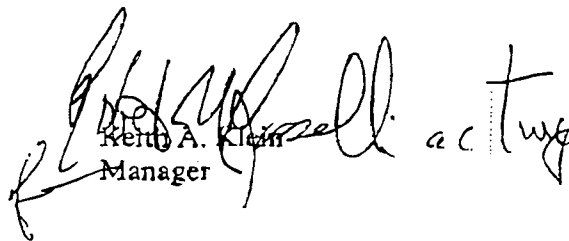
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At the time the IP was last revised, PFP identified 42 alloy items to be brushed and packaged to meet DOE-STD-3013 by June 30, 2001. This portion of the milestone remains incomplete. Factors affecting our ability to meet the milestone include: 1) the use of Super Critical Fluid Extraction (SFE) moisture measurement technique has been rescinded; and 2) recent research and characterization has shown that many of the items are mixed oxides not alloy metals.

At this time, 11 items have been brushed and packaged into inner containers per DOE-STD-3013 requirements. These items will be welded into outer 3013 containers after a 30-day waiting period to manually measure lid deflection, or after the digital radiography is operational and available. This will be completed by the end of July 2001. Testing and sampling of a representative number of the remaining 31 alloys showed they were not suitable for brushing and packaging, and need to be thermally stabilized as oxides.

Currently, oxides cannot be compliantly packaged until a moisture method for these oxides is developed and approved for use to meet the DOE-STD-3013 criteria. These items will be stabilized and packaged following the qualification and operational status of an appropriate moisture method. It is anticipated that qualification and operational status will take three to six months to complete. Stabilization and packaging of these items will be completed within 60 days after the method is qualified and operational.

Please forward to the DNFSB to inform them of the completion status. If there are any questions, please contact me, or your staff may contact P. M. Knollmeyer, Assistant Manager for Nuclear Materials and Facility Stabilization, on (509) 373-9971.

  
Kerro A. Klein  
Manager

Attachment

cc w/attach:  
G. W. Jackson, FHI  
R. L. Kaltreider, EM-43  
J. E. Newson, EM-43  
R. L. Mcquinn, WSMS  
J. E. Rhoderick, EM-43

Fluor Hanford  
P.O. Box 1000  
Richland, Washington 99352

# FLUOR

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FH-0103046  
CONTRACT NO. DE-AC06-96RL13200

Mr. P. M. Knollmeyer, Assistant Manager  
Nuclear Material and Facilities Stabilization  
U.S. Department of Energy  
Richland Operations Office A5-11  
Post Office Box 550  
Richland, Washington 99352

Dear Mr. Knollmeyer:

## DISPOSITION OF ALLOY ITEMS OF INTEREST TO THE DEFENSE NUCLEAR FACILITIES BOARD STAFF

Reference: Letter, G. W. Jackson, FH, to L. D. Romine, RL, "Plans for Disposition of Alloy Materials at the Plutonium Finishing Plant," FH-0007214, dated December 27, 2000.

The path forward for disposition of selected alloy residue materials at the Plutonium Finishing Plant (PFP) is of interest to staff of the Defense Nuclear Facilities Safety Board (DNFSB). In December 2000, FH recommended to the RL a path forward for disposition of all designated alloy materials at PFP. The plan was described in the reference.

Four groups of items that were selected for verification of stability in storage until packaging in pipe overpack containers (POCs) as described for the Group 2 materials in the reference. The four groups were as follows:

- Castings / skulls
- Chips / turnings
- Turnings with oil
- Plutonium / zirconium

The first three groups are alloys of plutonium and aluminum. A representative item was selected from each of the four groups for assessment in the Plutonium Process Support Laboratories (PPSL). The assessment has recently been completed, and PPSL personnel are now preparing a report. Results of the assessment are summarized below:

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- The castings and skulls item was all metal with no evidence of instability when exposed to air, heat, or water in accordance with the test plan. Many pieces were several square inches in size. There was no visible evidence of foreign material in this, or any other item assessed.
- The chips and turnings item was all metal chips about one-eighth to one-quarter inch in size and also showed no evidence of instability.
- The turnings with oil were coated with a thin layer of viscous oil, about the consistency of honey. All available information indicates that the material is lard oil. Neither the oil nor the turnings showed any instability when exposed to air, low heat or water per the test plan, although the oil did begin to smoke after some heating. PPSL conducted a scoping test on a sample of the material on which the oil was first pyrolyzed to char and then fully oxidized. The oil was completely removed from the turnings by this procedure. The remaining alloy turnings were completely stable and safe for disposition in POCs. Further testing will need to be done to finalize these results.
- The Pu/Zr item was x-rayed. As no fines were detected, stability was no longer a concern, so this item was not assessed by PPSL.

The test results on the casting skulls and the chips clearly support the recommendation made by the Nuclear Materials Stabilization Project (NMSP) in the reference, that these and similar items in Group 2 be packaged under the residues milestone. Radiography results for the two Pu/Zr items also support the NMSP recommendation for these materials.

The NMSP is proceeding with planning activities for further evaluation of the Pu/Al alloy turnings with oil. Testing at PPSL, to date, has demonstrated that the interim storage of these items is safe until the oil can be removed from the turnings to allow packaging in POCs. Plans for further evaluation will be finalized, prioritized appropriately, and placed into the project schedule that is reviewed weekly by the NMSP management.

In the reference, the NMSP project committed to disposition the Group 2 alloys under the residues milestone, TRP-03-500, DNFSB Commitment 116, due April 30, 2004. Clean Pu/Al alloy turnings from the planned PPSL evaluation can be returned to storage and packaged in POCs under the residues milestone, which will be safe for storage once the oil

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has been removed. Remaining alloy turnings with oil will be stabilized, using methods determined in the PPSL evaluation, under a plan and schedule to be determined once the technology and specific activities have been defined.

If you need additional information on this subject, please contact S. M. Sax on 373-5377 or B. K. Hampton on 373-1239.

Sincerely,



G. W. Jackson, Vice President  
Nuclear Material Stabilization Project  
Fluor Hanford

pjb:lrg

PNNL - S. C. Marschman P7-27

RL -	B. L. Charboneau	R3-79
	M. R. Hahn	R3-79
	S. A. Sieracki	A7-80
	J. E. Spets	T5-54
	J. W. Todd	A6-39
	J. J. Waring	T5-54
	A. K. Wright	T5-58