97-0003086

The Secretary of Energy
Washington, DC 20585

September 30, 1997

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 the Implementation Plan for Defense Nuclear Facilities Safety Board Recommendation 94-1 for the solid residues and solutions stabilization programs at the Rocky Flats Environmental Technology Site. These modifications are consistent with those discussed in your May 27, 1997, meeting with representatives from the Rocky Flats Field Office and the Office of Nuclear Material and Facility Stabilization.

The proposed modifications affect two material categories at Rocky Flats as addressed in the Implementation Plan: plutonium-bearing solid residues and high-level plutonium solutions.

Plutonium-Bearing Solid Residues:

The following proposed modifications affect residue stabilization approaches to allow for alternative treatment approaches and, for certain residues, off-site disposition rather than stabilization for interim storage at Rocky Flats. These actions will support site closure and will be analyzed in the Draft Environmental Impact Statement on Management of Certain Plutonium Residues and Scrub Alloy Stored at the Rocky Flats Environmental Technology Site.

- Completion of stabilization of high hazard pyrochemical salts will be delayed by 15 months (from June 1998 to September 1999). The technical approach for most of the salts is to concentrate the plutonium for disposition using salt distillation apparatus.

- Graphite fines and incinerator ash residues will be agglomerated in glass instead of calcined (heated) to destroy reactive constituents. This change will result in a four-month delay for completing stabilization (from May 1998 to September 1998).

- Modifications to the washing process for combustibles, to reduce the volume of waste generated, will result in a five-month delay in completing stabilization of higher hazard combustibles (from November 1998 to April 1999).

- Plutonium fluorides and sand, slag and crucible will be shipped to the Savannah River Site (SRS) for treatment and storage pending disposition. Shipments to SRS would be completed in fiscal year 1999.

High-Level Plutonium Solutions:

- The hydroxide precipitation process, which was successfully employed to stabilize low-level plutonium solutions, will be used for high-level solutions instead of starting up a new oxalate process system. Hydroxide precipitation operations will be carried out in the Caustic Waste Treatment System in Building 371. Tank draining and processing will begin two months earlier but completion will be delayed by four months (from May 1998 to September 1998).

The two enclosures further explain these changes. Attachment I shows the specific changes to the Implementation Plan text. Attachment I, Part A lists the milestone date changes. Attachment I, Part B describes the plutonium solution approach, and Part C addresses the changes to the plutonium residue program. Attachment II provides justification for Implementation Plan changes.

We will continue to 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) 586-4358.

Sincerely,

Federico Peña

Enclosures

Attachment I
Part A

Rocky Flats Environmental Technology Site
94-1 Implementation Plan Modification
May 16, 1997

Attachment I shows the specific changes to the Implementation Plan text. Part A lists the milestones date changes. Part B addresses changes to the liquids program. Part C addresses the changes to the plutonium residue program. Below are milestone date changes with reference by page number and section of where these dates appear in the Implementation Plan. The changes affect key dates for stabilization of plutonium solutions and residues. Note that in some cases the milestone dates appear more than once in the Plan so changes may be documented more than once. Some milestones are reported as complete, when appropriate.

Part A

P. 37 Section 3.1.5 - Key Milestones

For Rocky Flats:	**Current**	**Proposed**
• Begin cementing low concentration solutions in B774	Completed	
• Complete NEPA process (for solutions - Actinide Solution Processing Environmental Assessment, dated 4/95)	Completed	
• Stabilize all solutions in B771	9/98	Delete
• Stabilize all solutions in B371	06/99	Delete

<u>Building 771 Milestones</u>		
• Start draining hydroxide tanks and begin processing (B771)	11/96	Completed
• Complete draining four (4) hydroxide tanks (B771)	01/97	Completed
• Complete hydroxide precipitation process (B771)	03/97	Completed
• Start draining four (4) high level tanks* and begin processing (B771)	11/97	09/97
**This milestone has been changed from five high level tanks to four high level tanks, since the first tank has been drained, and was less than 6 gm/l.*		
• Complete processing liquids from high level tanks and bottles (B771)	05/98	Delete
• Complete processing all liquids in B771	09/98	Delete
• Complete removal of all liquids in B771	New	09/98

For Rocky Flats:	**Current**	**Proposed**
Building 371 Milestones		
• Start draining tanks and begin processing (B371)	12/96	Completed
• Complete draining six (6) Cat. B tanks (B371)	02/97	Completed
• Complete draining two (2) criticality line tanks (B371)	06/97	Delete
• Complete draining one (1) criticality line tank (B371)	New	06/97
• Complete processing liquids from eight (8) tanks (B371)	06/97	Delete
• Complete processing liquids from seven (7) tanks (B371)	New	06/97
• Complete processing liquids from the Building 771 high level tanks and bottles (B371)	New	07/98
• Complete processing all liquids (B371)	06/99	Delete
• Complete processing all liquids in B371 and B771	New	06/99

Additional B771 Milestones		
• Complete draining four (4) high level tanks	New	12/97
• Start tap and draining of rooms/system\	New	01/98

Additional B371 Milestones		
• Complete draining of remaining criticality line tank	New	07/98
• Start tap and draining of rooms/systems	New	06/98

P. 4 Sub-Recommendation (5):

Residues		
• Bulk (6,000 kg) of high-hazard pyrochemical salts	02/98	01/99
• High-hazard sand, slag, and crucible and graphite fines	05/98	Deleted
• Remainder (4,000 kg) of high-hazard pyro-chemical salts	06/98	09/99
• Begin stabilization of sand, slag, and crucible and graphite fines	09/97	Delete

Additional Residue Milestones		
• Begin stabilization of graphite fines	New	03/98
• Complete stabilizing graphite fines and high hazard incinerator ash	New	09/98
• Complete stabilization of remaining salt residues	05/02	07/01

P. 59 Section 3.3.2 through P. 63 Section 3.3.3 Change out those with Part C

P. 73 Key Milestones - Table 3.3.8: Key Milestones and Commitments

3. Stabilize by pyrochemical oxidation, and repackage 6,000 kg of higher hazard plutonium containing salts	02/98	01/99
4. Stabilize remaining higher hazard salts (4,000 kg) via chemical oxidation	06/98	09/99
5a. Begin stabilization of sand, slag, and crucible and graphite fines	09/97	Deleted
5. Stabilize all sand, slag, and crucible and graphite fines	05/98	Deleted
8. Stabilize higher hazard combustibles (11,000 kg)	11/98	04/99

Additional Key Milestones and Commitments		
4a. Complete stabilization of remaining salt residues	05/02	07/01
5b. Begin stabilization of graphite fines	New	03/98
5c. Stabilize all graphite fines and high hazard incinerator ash	New	09/98

Rocky Flats Environmental Technology Site
94-1 Implementation Plan Modification
May 16, 1997

Below is the revision of Section 3.1.2, Rocky Flats solutions, which begins on page 34 of the Implementation Plan. Also attached is a change to Figure 3.1-1. This revision reflects the movement of high level liquids from B771 to B371 for stabilization.

Replace third and fourth paragraphs on page 34 with the following:

All solutions stored in Building 559, 776/777 and 779 will be transferred to Building 771. Low-level solutions in Building 771 will then be transferred to Building 774 for cementation. Cementing the low-level solutions began in October 1993 and to date 4000 liters have been solidified. The high-level uranium and chloride solutions were processed in Building 771 using a hydroxide precipitation method. The high level plutonium solutions will be drained to bottles and processed through the Caustic Waste Treatment System in Building 371 which is also a hydroxide precipitation process. The precipitate will be calcined and placed in storage and the effluent will be transferred to Building 774 for cementing or Building 374 for further processing in carrier precipitation. All solutions in Building 771 will be removed by September 1998 and the solutions from Building 771 will be stabilized with the Building 371 solutions by June 1999.

The solutions in B371 and remaining high level solutions (>6gm/l) from other buildings will be treated in the Caustic Waste Treatment System. The precipitate will be calcined and placed in storage. The effluent will be transferred to Building 374 for processing through the carrier precipitation. The solutions in Building 371 will be stabilized by June 1999.

Plutonium Solutions Stabilization

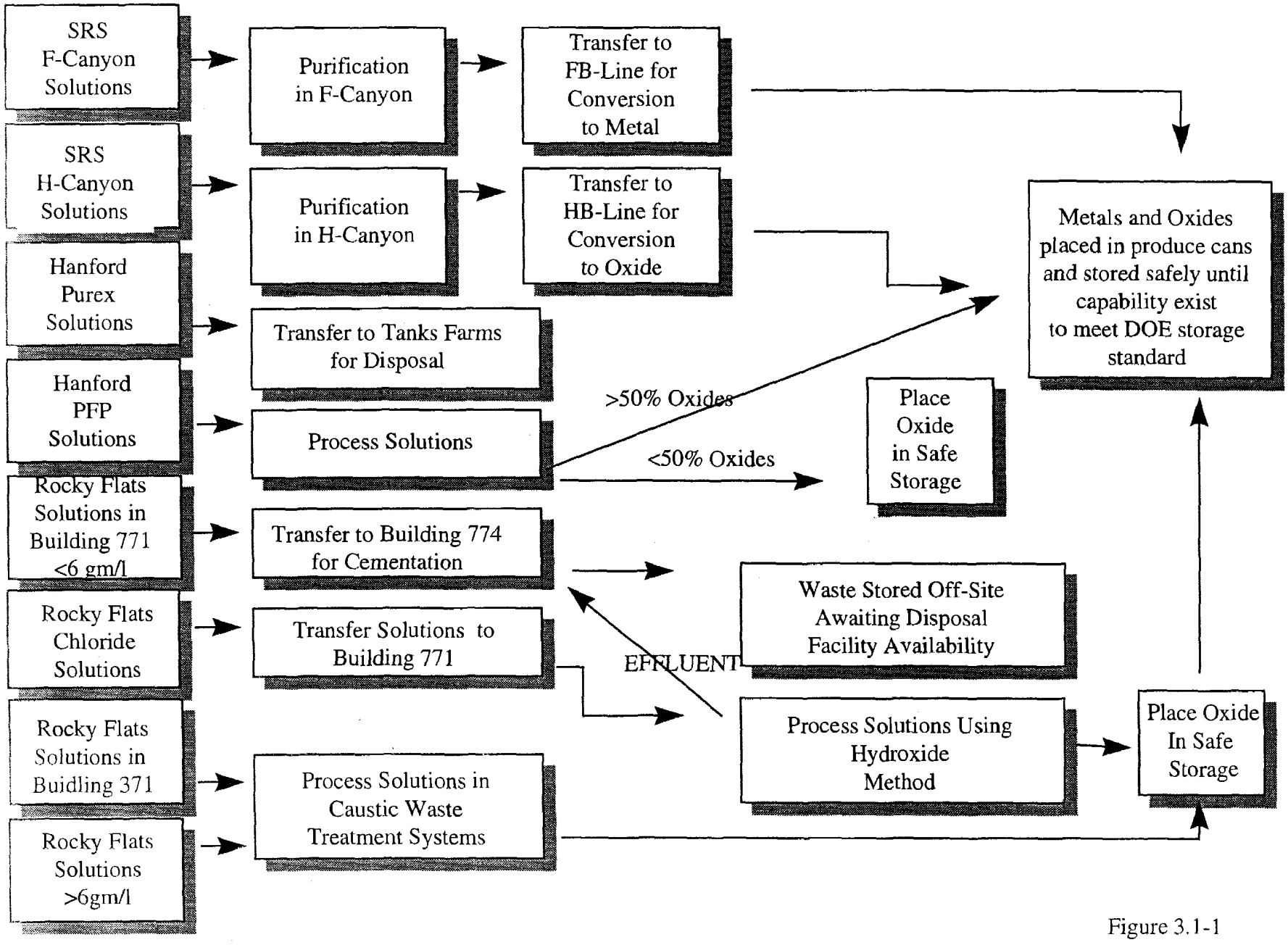

Figure 3.1-1

Attachment I
Part C

Rocky Flats Environmental Technology Site
94-1 Implementation Plan Modification
May 16, 1997

Below is the revision of Section 3.3.2, Rocky Flats Plutonium Residues, which begins on page 59 of the Implementation Plan. This section describes the Rocky Flats residue program, states the objectives of stabilization and notes milestones completed, added or changed. Change bars specify where changes have been made. Table 3.3.2-1 has been revised to better describe material classes, quantities, concerns and actions.

Part C: Residue Page Changes

Part III Individual Site Activities

3.3.2 Rocky Flats Plutonium Residues

Rocky Flats has approximately 106 metric tons of residues with low concentrations of plutonium stored in four facilities. About 3 metric tons of plutonium are contained in these residues in 3.928 drums and 3,909 cans (for a total of more than 20,000 packages) located in vaults and process areas. The plutonium in these drums and cans accounts for a large fraction of the 12.9 metric tons of plutonium and the vast majority of the more than 27,000 packages of plutonium-bearing materials at the site.

The Rocky Flats path forward for stabilization of residues was revised in May 1997 to reflect:

(a) additional data that became available during the past year to increase efficiency/reduce cost.
(b) results of RFETS rebaselining efforts for solid residues
(c) compliance with Safeguards Termination Limits promulgated in July 1996
(d) recommendation from the Headquarters residue trade studies

This revised strategy reflects an increased understanding of the path forward for the treatment of residues at RFETS.

The preferred alternative for Sand, Slag and Crucible (SS&C) and plutonium fluorides is to ship these residues to the Savannah River Site (SRS) for treatment. See Section 3.3.3 for SRS schedule for stabilizing these materials. Shipment to SRS for SS&C is projected to be complete in Fiscal Year 1999. Additional negotiation between SRS and RFETS is needed to establish mutually agreeable date for fluoride residues.

The five residue categories discussed in the original February 28, 1995 submittal of the 94-1 Implementation Plan (IP) have been regrouped according to the preferred stabilization processes required to eliminate the identified specific concerns and to meet the interim safe storage criteria. Table 3.3.2-1 shows the new residue processing groups, concerns, as well as mitigating actions. For graphite fines and incinerator ash residues, the mitigating action is to agglomerate these materials in glass. Stabilization of these materials is expected to be completed by September 1998.

Since the original submission of the IP in February 1995, the following risk reduction actions have been completed or facts that have been discovered:

- Venting of all residue drums (completed in December 1995)
- Verification that IDC 479 was empty cans.
- Verification that IDC 050 (skulls) was tantalum fixturing and oxide.
- Verification that IDC 080 was peroxide cake.
- Determination that IDCs 435 and 372 were cesium-calcium scrub salts and graphite grit, respectively, which will be processed with their corresponding processing groups.
- Characterization results as of April, 1997 have not detected the presence of the higher risk hazards of pyrophoricity and shock sensitivity suspected in salt residues.
- No significant evidence of corrosion which threatens container integrity has been found in more than 130 containers which have been opened.

Objectives

The RFETS residue management program has the following specific objectives:

- Mitigate the risk of all identified high-risk residues according to the RFETS risk categorization approach in the near term.
- Stabilize and/or repackage all residues to meet the ISSC, the WIPP Waste Acceptance Criteria, and Safeguards Termination Limits by May 2002.
- Ship processed residues off-site as soon as possible.

The following IP milestones have been completed:

	IP Milestone	**Date Completed**
IP 3.3-011	Vent residue drums with potential for hydrogen gas generation	09/95
IP 3.3-008	Vent remaining unvented residue drums	12/95
IP 3.3-015	Vent inorganic drums	12/95
IP 3.3-016	Vent wet and misc. drums	12/95

Part C: Revision to Section 3.3.2

Table 3.3.2-1: Material Classes, Quantities, Concerns, and Actions
(expansion of Table 3.3-2 from the February 28, 1995 Implementation Plan)

	Group	Description	Bulk Quantity	High Risk	Moderate Risk	Low Risk	Concern	3 Year Action	8 Year Action
1	Ion Exchange Resins	Leached & unleached ion exchange resins	268 kg 19 drums 2 cans	430,431		431	•Spontaneous combust. •Shock sensitive •Fuel/oxidizer mixture •Free liquids •Corrosive	Cement resins	None. Actions completed in 3 years.
2	ER and Salt Scrub Salts	Electro-refining salt reagents; sodium and potassium based salts	9,327 kg 223 drums 2,350 cans	363, 364, 411, 473, 654	429	411, 429, 473, 654	•Corrosive •Pyrophoric •Degradation of plastic packaging	Pyro-oxidize high risk salts	Pyro-oxidize and distill. Repackage to meet ISSC, WIPP WAC and STL. Oxide repackaged to meet 3013.
3	MSE Salts	Pyrochemical salt reagents; sodium and potassium based salts.	3,780 kg 330 drums 94 cans	044, 405, 407, 408, 409, 410		044, 405, 406, 407, 409, 410, 418	•Corrosive •Pyrophoric •Degradation of plastic packaging •Radiation exposure	Pyro-oxidize high risk salts:	Pyro-oxidize, and distill to meet ISSC, WIPP WAC and STL. Oxide repackaged to meet 3013.
4	DOR Salts & DCHP	Calcium-based pyrochemical salt reagents	2,903 kg 88 drums 512 cans	404, 414, 427	412, 413, 415, 426, 433, 435	333, 365, 413, 414, 415, 416, 427, 433. 434	•Corrosive •Pyrophoric •Degradation of plastic packaging •Deliquescent	Pyro-oxidize all salts. Ship to WIPP with STL variance or to LANL w/o STL variance	None. Actions complete in 3 years.
5	SS&C and Graphite Fines	SS&C: Graphite	4,305 kg 232 drums 255 cans		310, 390, 391, 392, 393, 394, 398	310, 387, 390, 391, 392, 394, 395, 396, 398	•Pyrophoric •Reactive metals	Vitrify graphite fines. Ship SS&C to SRS for stabilization	None. Actions completed in 3 years.
6	Wet or Nitrate-Contaminated Combustibles	Combustibles from aqueous processing	11,784 kg 460 drums 2 cans	331, 336, 339, 341, 342	490, 335	376	•Shock sensitive •Oxidizer/fuel mixture •Free liquids •Corrosive	Wash & dry high risk combustibles	Wash & dry, as required. Repack-age to meet ISSC, WIPP WAC and STL, STL Variance.
7	Organic-Contaminated Combustibles	Combustibles contaminated with organic solvents	6,579 kg 327 drums	331, 336		330, 337	•Corrosive •Exothermic reaction •Free liquids	Low temperature thermal desorption (LTTD)	LTTD, as required. Repackage to meet ISSC, WIPP WAC and STL, STL Variance.
8	Greases and Oily Sludge	Greases and oily sludges	7kg 1 drum 13 cans		332	089, 099	•Radiation exposure	Furnace vitrification/agglomeration	Furnace vitrification/agglomeration

Part C: Revision to Section 3.3.2 (continued)
Table 3.3.2-1: Material Classes, Quantities, Concerns, and Actions
(expansion of Table 3.3-2 from the February 28, 1995 Implementation Plan)

	Group	Description	Bulk Quantity	High Risk	Moderate Risk	Low Risk	Concern	3 Year Action	8 Year Action
9	Fluorides	Misc. fluorides	335 kg 2 drums 257 cans			090, 091, 092, 093, 097, 291	•Radiation exposure	None required	Ship to SRS for stabilization
10	Ash	Incinerator ash	19,682 kg 1,133 drums 29 cans		419, 420, 421, 422, 423, 428	419, 420 421, 428	•Dispersibility •Hydrogeneous matls.	None required	Vitrify/agglomer-ate to meet ISSC, WIPP WAC, STL
11	Firebrick, Graphite, & inorganics	Firebrick; Graphite, Misc. inorganics	34,479 kg 665 drums 402 cans	655	300, 303, 312, 320, 321, 360, 368, 370, 371, 372, 373, 374, 377, 378, 438, 480	197, 300, 312, 320, 334, 368, 371, 377, 378, 480, 601, 655, H61	•Packaging does not meet ISSC	None required	Vitrify as required, Repackage to meet ISSC, WIPP WAC, STL, STL Variance.
12	Sludges	Misc. sludges	642 kg 52 drums 24 cans	291	290, 292, 299, 340	292, 299	•Radiation exposure	None required	Dry or vitrify. Repackage to meet ISSC, WIPP WAC, STL
13	Glass	Misc. glass; Raschig rings	1,925 kg 56 drums 4 cans		440, 441, 442	440, 441	•Free liquids •Corrosive	Screen for free liquids	Dry or solidify free liquids. Repackage to meet ISSC, WIPP WAC, STL, STL Variance.
14	Classified Inorganics	Classified tooling, shapes, metal & graphite	6,673 kg 93 drums		301, 484, 485, 486, 489		•Classified Shapes	None required	Declassify shapes.
15	Filter Media	Filter Media without frames	3,645 kg 260 drums 8 cans		338, 326		•Oxidizer/fuel mixture	None required	Blend, repackage to meet ISSC, WIPP WAC, STL

* Venting was completed for all residue drums in December 1995, mitigating the flammable gas accumulation issue.
** Risk categories are described by item Description Code (IDC).

Attachment II

Rocky Flats Environmental Technology Site
94-1 Implementation Plan Modification
May 16, 1997

I. Liquid Stabilization IP Milestone Change Justification

These changes to the Liquid Stabilization IP Milestones support the accelerated removal of High Level (HL) liquids from B-771 (from May '98 to Dec '97). The baseline plan to process approximately 760 liters of 95 to 140 g/L Pu nitrate contained in four annular tanks in B-771 via oxalate precipitation was scheduled to finish in May '98. Draining the HL tanks was concurrent with the oxalate processing.

Based on the experience and success of draining tanks to bottles in B-771 and processing HL liquids (up to approximately 9 g/L from D55-B) in the B-371 Caustic Waste Treatment System (CWTS), the Liquid Stabilization Program developed an alternative to the baseline oxalate processing. The alternative method is to process these liquids through the CWTS in B-371. This approach vacuum-drains the liquids from the tanks to four-liter poly-bottles (in an adjacent glove box similar to the methods used for draining the Low Level (LL) tanks) then ships the bottles to B-371 and vacuum-transfers the bottle contents into shielded annular CWTS waste-receiver tanks. The HL liquids are blended to reduce Pu concentration and adjust normality for the CWTS process. The liquids are then treated as normal feed in the process. This method offers several B-771 benefits. The most significant benefits are listed as follows:

- Critical path workscope (oxalate processing) is eliminated from B-771 stabilization and closure
- The contents of the four HL liquid tanks are removed from B-771 five months earlier (from 5/98 to 12/97)
- B-771 resources are available to plan and perform other risk-reduction work (such as tap & draining process systems)
- An estimated more than $2 M is saved from the eliminated oxalate processing workscope.

The B-371 CWTS process is superior in cost effectiveness and safety. The throughput is minimally impacted by diluting the HL liquids into the LL liquid feeds that require processing. The CWTS is designed with a critically safe system that requires minimal operator handling. The support activity of handling HL liquids in bottles presents criticality and exposure risks that will be mitigated by appropriate safety controls. Dilution of the HL liquids from B-771 involves approximately 90 Kg of Pu and will require at least 18,000 liters of LL liquid for dilution to below 5 g/L. Ample dilution feed is available; however, a longer duration is incurred for processing the HL liquids than the baseline method (May '98). The specific disadvantages of the alternative are listed as follows:

- The HL liquids are processed two months later than scheduled in the baseline method (July '98 vice May '98)

- One of the criticality drain tanks is drained later (from Jun '97 to Jul '98) and the contents of both criticality drain tanks are process later in order to optimize sequencing into the HL dilution.

The benefits that result in earlier closure of B-771 outweigh the disadvantages that impact the B-371 processing commitments. The revision includes new milestones for starting tap & draining activities in B-771 and B-371 that support the original completion dates for B-771 (Sept '98) and B-371 (Jun '99).

Key Assumptions

- High-Level Liquid Draining, Transfer, and Processing

  - Building 371 availability will be 90%.
  - Wet combustible stabilization will generate 500 liters per week beginning April 1, 1998.
  - Room decontamination will generate 1100 liters every 35 work days.

- Building 771 Room Low-Point Tap and Draining

  - Three thousand liters will be drained from low-point tap and draining.
  - Building 771 availability will be 80%.

- Building 371 Room Low-Point Tap and Draining

  - Room decontamination will be successful to allow entering into the room with full face mask.
  - Receive no more than 500 liters of high-level solution from Building 771 low-point tap and draining.
  - Twelve thousand liters will be drained form low-point tap and draining.
  - Building 371 availability will be 90%.

Critical Activities

- High-Level Liquid Draining, Transfer and Processing

  - Readiness assessment
  - Blending solution availability

- Building 371 Room Low-Point Tap and Draining

  - Room decontamination

II. Solid Residue Stabilization IP Milestone Change Justification

The Department of Energy, Rock Flats Field Office (DOE, RFFO) directed Kaiser-Hill to conduct a technical evaluation of potential treatment options for solid residues stored at the Rocky Flats Environmental Technology Site (RFETS) and to provide results and recommendations. The technical evaluation was to include results of recently completed Department of Energy Trade Studies, Safeguards Termination Limits (STL) for disposal at WIPP, and increased efficiency to reduce cost and/or drums of waste produced. DOE, RFFO reviewed the resultant Kaiser-Hill recommendations and provided direction for the rebaselining of the solid residue stabilization processes. As a result, several Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 94-1 Implementation Plan milestones require revision. These Implementation Plan changes will allow for alternative residue treatment approaches and, for certain residues, off-site disposition rather than stabilization for interim storage at Rocky Flats. These actions will support site closure and will be analyzed in the Draft Environmental Impact Statement on Management of Certain Plutonium Residues and Scrub Alloy Stored at the Rocky Flats Environmental Technology Site.

Salt Residues

To reduce the number of drums of waste produced to satisfy the Safeguards Termination Limits, the Electro-refining (ER) and Molten Salt Extraction (MSE) salt residues as the preferred alternative, would be distilled to remove plutonium following pyro-oxidation. The Direct Oxide Reduction (DOR) salts would be pyro-oxidized and a variance to the STL requirements has been requested to allow shipping the DOR salts to WIPP without further processing. Pyro-oxidation is expected to begin on time in August 1997. Distillation is expected to be ready to startup in October 1999. The most efficient path for processing salt residues through pyro-oxidation and distillation while at the same time reducing risk to the worker and the public is as follows:

8/97 Commence pyro-oxidation of 10,700 kg DOR and high hazard salts using ten furnaces on a one shift per day basis.

5/98 With an STL variance, commence shipping DOR salts to WIPP (assuming WIPP opens as scheduled and waste certified).

11/98 Increase to two shift operation.

1/99 Complete stabilization of 6,000 kg high hazard salt.

9/99 Complete stabilization of additional 4,000 kg high risk salt.

10/99 Commence distillation operation.

7/01 Complete pyro-oxidation and distillation of all salts.

This schedule results in a 15-month delay in the completion of stabilization of the high hazard salts. The risk associated with this delay is acceptable in comparison to the benefits gained. The resource leveling (i.e., starting with one shift, then increasing to two shifts) will better utilize resources and post-stabilization residue storage. Additionally, the steady pace at operations will aid in reducing the material-at-risk issue in Building 707. Flammable gas accumulation has been mitigated by drum venting. No pyrophoricity or shock sensitivity have been detected through the solid residue characterization program. More than 130 containers have been opened with no evidence of significant corrosion which threatens the integrity of the container. Additionally, a statistically based surveillance program has been developed and implemented that confirms drum integrity, filter operation, and absence of external contamination.

Sand, Slag and Crucible (SS&C)/Graphite Fines:

The preferred alternative for SS&C would be to ship these residues to the Savannah River Site (SRS) for stabilization. See Section 3.3.3 for the SRS schedule for stabilizing these materials. Shipment to SRS would be completed in fiscal year 1999. Sampling results to date show no evidence of pyrophoricity and no reactive metals. Continued sampling and surveillance to check drum filter operation, drum integrity for external contamination will continue until the SS&C is shipped off-site.

To satisfy STL for graphite fines and incinerator ash, the approved stabilization process would be changed from calcination to vitrification/agglomeration. Although the furnaces currently being installed for calcination would be used for vitrification/agglomeration, the latter process uses a higher temperature which necessitates a change to the off gas system. Additionally, the batch size has been increased to improve process efficiency. These modifications would result in a six month delay in processing startup. Because of the increased throughput, completion of vitrification of graphite fines would only be delayed four months.

The risk associated with this delay is acceptable. All drums have been vented to mitigate the accumulation of a flammable gas. Limited characterization data have detected no pyrophoricity or shock sensitivity associated with these residues. The surveillance program monitors filter operation, drum integrity and the absence of external contamination.

Wet/Combustible Residues:

Most of these types meet the current STL; however, the baseline process would be modified to reduce the number of drums of waste produced by actually drying the material rather than by using absorbent and vented bags. Additionally, risk to the worker would be reduced by increasing the batch size, reducing the number of bag-outs required and by reducing the number of operations personnel required. These process improvements would also reduce the manpower needed. These measures would result in significant cost reduction as well as a significant reduction in risk to the work force. The design and implementation of the modifications are now the critical path for starting stabilization. Construction of those systems not requiring modification will continue and are no longer on the critical path. Modifications to the process would result in a 5-month delay in completing the IP milestone to stabilize 11,000 kg of higher risk combustibles.

The increased risk caused by a delay in processing is offset by the risk reduction to the worker. Additionally, the risk associated with the delay is mitigated by drum venting, results of characterization data, and the surveillance program as discussed above.

Key Assumptions

- Funding levels remain consistent with Case 5 of the Ten Year Plan.
- Process rates remain consistent as developed in SISMP Revision 7.0.
- EIS ROD issued by January 1998 (expected issuance is December 1997).
- Expected results from on-going Demonstration and Test (D&T) activities don't change the current design and construction activities.
- Operability/availability of building and equipment are maintained at 60%.
- Proposed STL waivers for DOR/Ca Salts and Misc. residues are approved.
- Waste Isolation Pilot Plant opens in FY98.

Critical Activities

- Success of D&T activities for ash solidification and salt distillation.
- Construction of Modifications.
- Operational Readiness Review for high-level salt processing.
- Readiness determinations for ash and wet combustibles.
- Initial delivery of pipe-components and drums.