



DEC 16 2002

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Retention: Cutoff at end of fiscal year.
Destroy 15 years after cutoff.

Mr. J. M. Allison, Acting Manager
U. S. Department of Energy
Savannah River Operations Office
Aiken, SC 29802

Dear Mr. Allison:

NUCLEAR MATERIALS MANAGEMENT AT THE SAVANNAH RIVER SITE (U)

Refs: 1) Letter, WSR-2002-00103, R. A. Pedde to J. M. Allison, 11/08/02.
2) Letter, UC-03-008, J. M. Allison to R. A. Pedde, 10/30/02.

In response to your direction and discussions between our staff, WSRC is supporting the following objectives:

1. Maximize disposal of EM-owned nuclear materials and complete processing/stabilization by the end of Fiscal Year (FY) 2006;
2. Prepare for consolidation of select EM-owned materials at SRS;
3. Transfer custody of identified programmatic nuclear materials to a non-EM office; and
4. Prepare for transfer of select SRS facilities to NNSA by FY06.

WSRC has begun to develop a plan (termed the AT-06) that includes an aggressive cost and schedule approach to these objectives across the site. The nuclear materials portion of the plan is presented in Attachment 1 and details are discussed in the next section. Attachment 2 includes a listing of 'EM-Owned Nuclear Materials at SRS' with recommended dispositions and associated justifications. Attachment 2 also contains listings of both 'EM-Owned Nuclear Materials Planned to Come to SRS' and 'Non-EM-Owned Materials Proposed to Come to SRS'. Reference 2 also tasked WSRC with initiating several activities to support the revised program direction. These activities are underway and progress is described in Attachment 3.

Discussion of the AT-06 Approach for Nuclear Materials Management

WSRC has begun development of an integrated plan that supports the Department's objectives of deactivating or transitioning EM nuclear material facilities by the end of FY06. Detailed execution strategies have not been worked out, the cost reductions and schedule accelerations are considered aggressive containing a measure of programmatic risk, and implementation will require executive decisions within the Department.

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The highlights of this plan include:

- Early deactivation of F-Area facilities; [FY06 versus FY10]
- Early deactivation of HB Line; [FY05 versus FY08]
- Early dissolution of SRS HEU materials; [FY06 versus FY08]
- EM material consolidation in KAMS/235-F; and
- Disposition of EM-owned nuclear materials currently at SRS by end of FY06.

Key Department of Energy decisions include:

- Deactivation order for F Canyon; [by 1/31/03]
- Storage (vs. processing) of Pu contaminated HEU; [by 2/1/03]
- Processing (vs. INEEL discard) of HEU oxides; [by 2/28/03]
- Definition of how much, if any, Np oxide is required and any scope required for transfer of custody; [by 3/15/03]
- Discard of heavy water inventory; [by 3/15/03]
- Shipping schedule for FFTF materials; and [by 6/30/03]
- Definition of transition readiness scope for KAMS, 235-F, L-Basin and H-Area facilities.

These decisions will allow cost critical path adjustments assuring material disposition is accelerated and EM facilities are either deactivated or transitioned by the end of FY06. Multiple B&Rs continue to provide challenges to such adjustments and effective acceleration of these closure activities.

WSRC and DOE-SR need to converge on a path forward so that Baseline Change Proposals and fee structures can be submitted. Questions may be directed to my office or Bill Johnson at 725-1124.

Sincerely,



R. A. Pedde, President

DCW/wcc
Att.

c: C. A. Hansen, DOE, 703-A
G. M. Nichols, 703-F
H. A. Gunter, 703-F
S. W. McAlhany, 703-F
H. T. Conner, WSRC, 703-A
W. J. Johnson, 703-F
S. F. Piccolo, 703-H
W. A. Condon, 703-F
C. E. Armitage, 703-F
P. J. Breidenbach, 703-F
J. E. Dickenson, 703-F

L. D. Olson, 704-2H
C. G. Reynolds, 703-F
L. K. Sonnenberg, 221-H
R. M. Sprague, 705-K
D. C. Wood, 703-F
M. R. Beckmeyer, 707-F
J. B. Hay, 703-A
Records, 773-52A

AT-06 VISION FOR NUCLEAR MATERIALS MANAGEMENT
Accelerated, Risk-Based Cleanup and Closure Roadmap

FACILITIES	WAFB YEAR				BUDGET YEAR				OUTYEAR				PLANNING YEARS																																											
	FY03				FY04				FY05				FY06		FY07		FY08		FY09		FY10		FY11		FY12																															
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4																																								
1 F-Canyon	Deact Plan																												F-Canyon Deactivation *																											
2 Am / Cm	Sol Prep		Transfer to HLW																																																					
3 Spent Solvent	Remove Spent Solvent																																																							
4 Cold Feed Chem	Relocate Cold Feed Chemicals to Other Facilities																																																							
5 Lab Waste	Relocate Lab Waste Processing for CLAB & SRTC Waste												Supports F-Area Closure in FY06																																											
6 DU Solutions	Disposition of DU Solutions																																																							
7 HLW Interface	Shutdown Evaporator and Isolate Transfer Piping to F Tank Farm																																																							
8 DU Oxide	Disposition 720-F & 730-F DU Oxide								Disposition Remaining DU Oxide																																															
9 FB-Line	Mechanical Line - Prep Residues for Stabilization												FB-Line Deactivation																																											
10 Char. Cabinets	Characterize / Repackage Residues for Dissolving / Disposal																																																							
11 Bagless Transfer	Pkg Remaining / Classified Meta																																																							
12 3013 Capability	Construction		Package Pu Metal		Package SRS Pu Oxide & Oxide And 20 LTR from 3013 Containers																																																			
13 Vaults	Deinventory SRS Residues and Stabilized Pu																																																							
14 235-F Vaults	Store SRS And Non-SRS Special Nuclear Material																																																							
15	Ship to LLNL																																																							
16 3013 Surv.	Develop CDR				3013 Container Surv. Project								3013 Surv. DR								Transition 3013 Container Surveillance To NNSA																																			
17 H-Canyon	Irradiated Mk 16/22's								Unirradiated Mk-22 Tubes																				Transition H-Canyon To NNSA																											
18	Sterling Forest Oxide				Irradiated Mk 16/22's		Prep		SRS HEU Residues And Denitrator Oxides																																															
19 HLW Interface	Eval Discards to HLW				Targeted Pu, DU, and Np to HLW (if feasible)																																																			
20 HA-Line	HEU Solution Storage				Blend 94.1 HEU Solution & Transfer to TVA																Blend Adm. HEU Sol. & Trans to TVA				Transition LEU Loadout To NNSA																															
21 HEU Blend Down	Genat & SU LEU I				Construction & SU LEU II																																																			
22 HB-Line - Ph I	Dissolve SRS Pu Residues																																																							
23 Ph. II	Residue Pu Solution to Oxide or HLW								HB-Line Deactivation **																Transition HB-Line To NNSA																															
24 Pu Disposition	DOE Non-Movable Pu Disposition Decision								Implementation of Disposition Program (Divest From EM)																																															
25 K-Area	KAMS Receive & Store Complex SNM																																																							
25 Basin	Deactivation				Heavy Water Disposition																																																			
27 Assembly	Ship HEU Ingots Offsite																																																							
28 Misc Fuel	Develop Disposition for Cobalt Slugs, and Other Misc Fuel / Targets																Disposition																																							
29 RBOF	De-Inventory All SNM To L-Area																Deactivation																																							
30 L-Area	Receive FRR/DRR Legacy SNM																																																							
31 SNF Disposition	DOE SNF Disposition Technology Decision								Implementation of Disposition Program (Divest From EM)																																															

* Note: Assumes Authorization to proceed with F-Canyon deactivation

** Note: Assumes Disposal of Np solution to HLW system

EM Owned Nuclear Materials at SRS

QUANTITY	DESCRIPTION	DISPOSITON PLANS	JUSTIFICATION
<i>MATERIALS TO BE DISPOSITIONED AS WASTE</i>			
3,800 gal	Am/Cm solution in F-Canyon	Transfer to Sludge Batch #3 by 3/03	Most cost effective disposal
60,000 gal	Pu-239 solution heels in F-Canyon	Flush to F-Area Tank Farm in FY03	Most cost effective disposal
20,000 gal	Pu-239 solution in H-Canyon	Transfer to a Sludge Batch in FY03	Most cost effective disposal
9,800 gal	Neptunium solution in H-Canyon	Transfer to a Sludge Batch in FY04	Most cost effective disposal, if no programmatic value
50	Plutonium / Uranium bearing scrap and residues	Dissolve in H-Canyon/HB-Line and transfer solution to HLW system by FY04	Most cost effective disposal
132,828 gal	Depleted uranium solution in F & H-Areas	Grout onsite or vendor disposal by FY06, interim storage outside F-Area may be beneficial	More cost effective than restart of the F Canyon's FA-Line
790	Cobalt and thulium slugs and Pu-242 flux monitor pins	Package for LLW or TRU disposal by FY06	Most cost effective disposal, avoids processing in H-Area
100	HEPA filters and pre-filters	Package as waste by FY06	Most cost effective disposal
296,328	Natural and Depleted Uranium slugs/cores	Transfer to Envirocare by FY06	Most cost effective disposal, no beneficial reuse identified
35,924	Drums of depleted uranium oxide	Transfer to Envirocare by FY06	Most cost effective disposal, pilot in progress
328	Thorium and Pu/U scrap/residues	Package for WIPP disposal by FY06	Most cost effective disposal
17	Thorium elements	Consolidate into L-Basin by FY04 pending future disposition to Yucca Mountain	Within scope of the SNF EIS
1,729	SNF in RBOF	Consolidate into L-Basin by FY04 pending future disposition to Yucca Mountain	Within scope of the SNF EIS
8,508	Domestic and Foreign SNF	Consolidate into L-Basin by FY04 pending future disposition to Yucca Mountain	Within scope of the SNF EIS

EM Owned Nuclear Materials at SRS (Continued)

QUANTITY	DESCRIPTION	DISPOSITON PLANS	JUSTIFICATION
MATERIALS INCLUDED IN HEU BLENDDOWN PROGRAM			
180,000 gal	HEU solution in H-Area	Solution shipments will continue beyond FY06 (transition to NNSA)	In scope of existing TVA agreement
2,298	Unirradiated Mark 22 tubes	Accelerate dissolution from 12/07 to 9/06.	In scope of existing TVA agreement
544	Irradiated Mark 16 assemblies	Dissolution and blenddown	In scope of existing TVA agreement
5,655	HEU/Al ingots, plates & rods	Ship to NFS by FY06	In scope of existing TVA agreement
MATERIALS PROPOSED FOR OFFSITE USE			
24	Pu-238 sources	Ship to Lawrence Livermore in FY03	LLNL has disposition capability
4	Neptunium standards	Ship to Oak Ridge by FY06	Oak Ridge has long term Np mission
9,396	Drums of heavy water	Ship to federal or commercial users by FY06 or determine alternate disposal	Avoids the storage S&M costs
MATERIAL TO BE STABILIZED AND PACKAGED IN 3013s FOR STORAGE			
819	Pu metal	Package in 3013 containers and store in 235-F/KAMS pending transfer to PDCF and MOX	In scope of existing agreements
300	Pu oxide (MOX-able)	Package in 3013 containers by FY06 and store in 235-F/KAMS pending transfer to MOX Facility	In scope of existing agreements
684	Pu alloys & oxide (Non-MOX-able)	Package in 3013 containers by FY06 and store in 235-F/KAMS pending future disposition (transition to NNSA)	Least S&M cost option
CONTINUED USE			
20	Pu sources and standards	Continue in storage and transition to NNSA by 9/06 to support PDCF and MOX Facilities	New facilities will require sources and standards
1,583	SRTC/CLAB Standards & Samples	Continue active use to support Laboratory operations & Sources	Laboratories require to support both EM and NNSA missions

EM Owned Materials Planned to Come to SRS

QUANTITY ¹	DESCRIPTION	DISPOSITON PLANS	JUSTIFICATION
ROCKY FLATS			
(X)	Pu/HEU Items	Package in 3013 containers at SRS by FY06 and store in 235-F/KAMS pending transfer to PDCF and MOX	Most cost effective disposal, avoids processing in H-Area
1900	3013 containers of Pu and Pu/HEU	Receive and store in KAMS by 9/03; transfer MOX-able items to PDCF and MOX Facility	Supports RFETS de-inventory, store non-MOX-able items pending future disposition (transition to NNSA)
283	Pu contaminated HEU items	Receive and repackage at 235-F and store in KAMS by 9/03; store pending future disposition (transition to NNSA)	Most cost effective to disposition with other similar non-EM-owned materials
INEEL			
45	Drums of HEU oxide (includes RFETS oxides)	Receive at 235-F; dissolve in H-Area by FY06 and blend HEU with TVA stream	Most cost effective disposal, minor expansion of existing agreement
1	Drum of University of Washington material	Receive at SRS and Package for LLW disposal by FY06	Most cost effective disposal
HANFORD			
2550	3013 containers of Pu and Pu/HEU	Expand 235-F capacity and receive at 235-F by FY06; transfer MOX-able items to PDCF and MOX Facility	Supports Hanford de-inventory and consolidation, store non-MOX-able items pending future disposition (transition to NNSA)
79	Casks of FFTF material	Expand K-Area storage capacity and receive at K-Area by FY06	Store pending future disposition (transition to NNSA)
LANL & LLNL			
211	3013 containers of Pu (MOX-able)	Receive and store in KAMS by FY04 pending transfer to MOX Facility	In scope of existing agreements

¹ An 'X' is shown were quantities may be sensitive information.

Non-EM Owned Materials Proposed to Come to SRS

QUANTITY ²	DESCRIPTION	DISPOSITON PLANS	JUSTIFICATION
<i>Y-12</i>			
(X)	Pu contaminated HEU items	Receive and store in KAMS pending future disposition	Most cost effective approach is to disposition with similar items
(X)	U-233 and Neptunium items	Receive and store pending future disposition	Supports inventory consolidation
<i>LABS (LLNL, LANL & OTHER)</i>			
(X)	Pu contaminated HEU items	Receive and store in KAMS pending future disposition	Supports inventory consolidation, Most cost effective approach is to disposition with similar items
600	3013 containers of Pu and Pu/HEU	Receive and store in 235-F/KAMS; transfer MOX-able items to MOX Facility	Supports inventory consolidation, Most cost effective disposal, store non-MOX-able items pending future disposition
470	HEU/Pu scrap metal & oxide items	Receive and store in KAMS pending future disposition	Supports inventory consolidation, Most cost effective disposal, store non-MOX-able items pending future disposition
<i>FUTURE</i>			
(X)	Pu contaminated HEU from PDCF	Integrate disposition with similar items	Most cost effective approach is to disposition with similar items

² An 'X' is shown were quantities may be sensitive information.

Activities

The direction tasked WSRC with initiating several activities to support the revised program direction. These activities are ongoing and a status is provided below. In some cases, WSRC has identified even more aggressive approaches to the closure of EM activities at SRS. The more aggressive approaches will be the topic of separate correspondence.

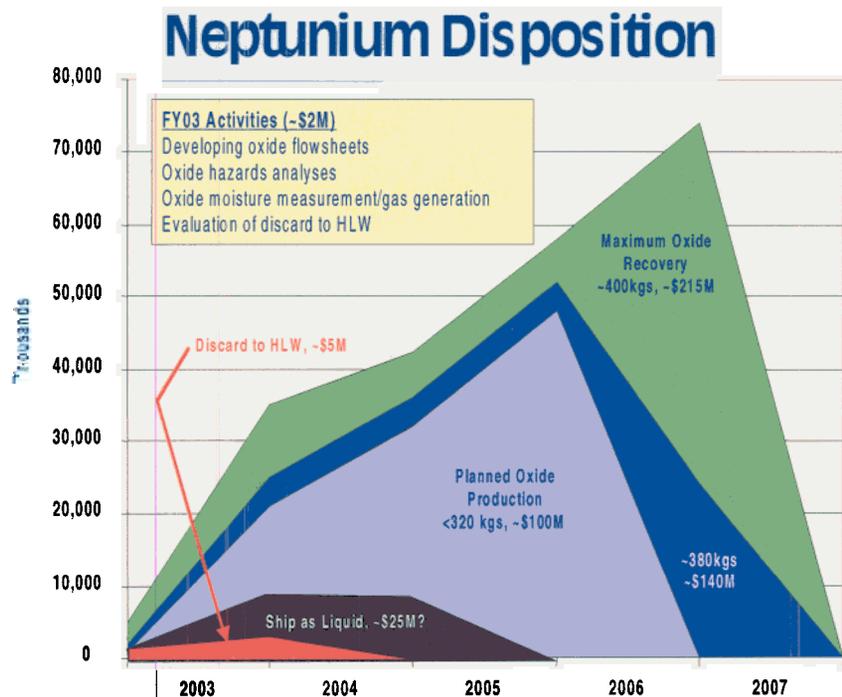
1) HB Line Material Disposition Plans

WSRC has completed a review of the material processing plans for HB Line. We have identified alternative processing methods for some SRS residues that will reduce the HB Line Phase 1 dissolution work load and potentially facilitate early suspension of Phase 1 activities. This alternative approach is already being implemented.

The neptunium oxide mission is the technical cost critical path driving HB Line operations to the end of FY06. The neptunium bearing solution (~9800 gallons) is currently stored in H Canyon and has been identified as a potential programmatic resource by DOE-NE. The chart illustrates the cost profiles for options associated with the neptunium program. Each option contains some level of risk that will need to be resolved, but all are believed technically feasible. As a baseline, EM could potentially discard the solution as High Level Waste

for minimum cost (~\$5M) based on preliminary rough order of magnitude analyses. If the solution is determined to be programmatic, a liquid shipment and storage option may be viable. This option would require changes to NEPA and 94-1 documentation. Additionally, the DOE needs to define what actions, if any, need to be taken to support the transfer of custody.

The last EM mission being considered for HB Line is the dissolution of HEU oxides from other sites. The early analysis indicates that these materials could be processed within the FY06 timeframe. However, if the neptunium solution is discarded, acceleration of the receipt and processing of oxides in HB Line is possible. Alternatively, DOE could consider adjusting the H Canyon mission to allow processing of these materials in the canyon dissolvers which would allow complete suspension of HB Line operations and reallocation of resources.



2) H Canyon Material Disposition Plans

WSRC has completed a review of the material processing plans for H Canyon. Select spent nuclear fuel and targets can be diverted to solid waste and other materials can be stored for later shipment to the repository. This approach will limit H Canyon processing to the legacy irradiated Mk 16s and un-irradiated Mk 22 assemblies.

The technical cost critical path in H Canyon operations is the dissolution of un-irradiated materials for disposition (blenddown) to the Tennessee Valley Authority (TVA). No other feasible disposition path (i.e. disposal as waste) has been identified for these highly enriched materials. By accepting more processing risk (i.e. removing any contingencies for equipment down time), EM-owned SRS HEU materials could be dissolved by the end of FY06.

WSRC believes that EM should consider the transfer of custody for un-irradiated Mk22s and the Pu contaminated HEU items to NNSA. The Mk22s are feed to the NNSA program and the Pu contaminated HEU items are similar to many other NNSA items that will need future disposition. Even the HEU oxides, which are from defense related production and are proposed as feed to the NNSA blenddown program, could be transferred. These initiatives would allow EM to transfer H-Area facilities (H Canyon and HB Line) to NNSA prior to FY06.

3) FB Line Material Disposition Plans

WSRC has completed a review of the material processing plans for FB Line. This effort is integrated with the HB Line plans discussed previously and involves the stabilization and packaging (DOE-STD-3013) of SRS residues. By applying additional resources, WSRC can accommodate the packaging of the RFETS composite items within the current schedule. The FB Line facility will be de-inventoried to a Category 3 level by the end of FY06.

4) Material Consolidation

WSRC has been working with your staff and other key sites to plan for the consolidation of plutonium and non-weapons HEU materials at SRS. Your guidance included an additional level of detail on this effort and our progress to date is described below:

- (a) Support of RFETS de-inventory continues. To date, the SRS receipt capacity has not been challenged. IAEA material has been received, counted, and placed under IAEA control.
- (b) The increase in KAMS capacity from 4,000 to 5,000 will be accomplished before the target date of 9/30/03.
- (c) Re-racking of the 235-F vaults is in pre-conceptual development and funding strategies are being assessed by our staffs. Uncertainty, associated with safety and security issues, still exists in our ability to have these racks operational by 12/31/04.
- (d) The 3013 surveillance system for 235-F is in pre-conceptual development. Similar to re-racking, several risks associated with security and safety basis issues need to be resolved to assure the target of 9/30/06 can be met.
- (e) WSRC has been working with your staff to provide the information needed to support the Department's need for a CD-0 package for the storage racks by 1/6/03.

- (f) A preliminary analysis³ to support the Department's NEPA evaluation of the 235-F modifications was completed and provided to your staff.
- (g) The revisions necessary to support SAFEKEG storage in KAMS will be accomplished before the target date of 9/30/03. This assumes funding is provided by Hanford and that the SAFEKEG certification is approved by 1/31/03.
- (h) The 235-F facility can receive up to six safe secure transport trailers per month on a sprint basis. In order to be able to sustain this receipt rate and the maximum KAMS receipt rate, personnel will need to be cross-trained between facilities. This capability can be available by 12/31/04.
- (i) The Fast Flux Test Facility fuel can be stored in K-Area assuming that the shipping container is defined/certified at least 18 months before shipment. The shipping containers will also be used for long term storage.
- (j) Neptunium oxide processing was discussed previously. If oxide is produced, WSRC is planning for direct shipment to Oak Ridge, though a limited (~40) staging capacity is planned.

5) Other SRS EM-Owned Nuclear Materials

WSRC has completed a review of EM-Owned nuclear materials located at SRS (see the attachment for a complete listing). The majority of these materials can be fully dispositioned by FY06. Others (such as spent nuclear fuel and 3013 materials) will be safely stored awaiting final disposition. Two material types are worth noting:

- Heavy Water – Other than a small amount reserved for others, the Department needs to determine what, if any, of the EM-owned heavy water inventory needs to be preserved. Additionally, the Department needs to realize that future negotiations for shipment/disposal may have zero return to the government (note that all previous negotiations, which have not yet come to fruition, treated the heavy water as a significant asset).
- Sources, Samples and Standards – The final disposition for these materials both at SRS and around the Complex is unknown. Many of the SRS items could be used in future facilities.

³ WSRC-TR-2002-00528, 11/13/02.