



SRS Citizen's Advisory Board

SRS Citizens Advisory Board

Nuclear Materials Committee Meeting

Aiken Federal Building
Aiken, SC
October 30, 2006

The Savannah River Site (SRS) Citizens Advisory Board (CAB) Nuclear Materials Committee met on Monday, October 30, 2006, 5:00 PM, at the Aiken Federal Building. The purpose of this meeting was to discuss the CAB NM Recommendation status, SRS Plutonium Vitrification Update, SRS Neptunium Processing Campaign and to hear public comment. Attendance was as follows:

CAB Members

- Meryl Alalof
- Judy Greene
- Mary Drye
- Leon Chavous
- Manuel Bettencourt
- Wendell Lyons
- Gerald Devitt
- Alex Williams
- Art Domby

Stakeholders

- * Rick McLeod
- Jeff Allender
- Bill McDonell
- Jack Roberts
- John Bergstrom

DOE/Contractors

- Allen Gunter, DOE
- Pat McGuire, DOE
- Jay Ray, DOE
- Sheron Smith, DOE
- Paul Sauerborn, WSRC
- Ton Crouse, WSRC
- John Contardi, DNFSB
- Ron Oprea, WSRC
- Doug Lilly, DOE
- Dawn Gillas, DOE
- P.K. Hightower, WSRC
- Mindy Metz, V3
- T.R.Cowlam, WSRC
- Mark Schmitz, WSRC
- Barry Shedrow, WSRC
- Jim Bolen, DOE
- Rick Reichel, WSRC

Regulators

- NM committee members

- * CAB technical advisor

Welcome and Introduction:

Manuel Bettencourt, Chair, welcomed those in attendance and asked them to introduce themselves.

Recommendation Review: Manuel Bettencourt addressed the latest changes to the NM Recommendations status. Recommendation 235 (pending), 232 (open), 213 (open), 177 (open).

Plutonium Disposition Project: Allen Gunter stated the purpose of this presentation is to provide an update on the Plutonium Disposition Project to include a review of the DOE Project Management Acquisition System with decision drivers and key activities and dates. In addition, a review of the project concept and project building blocks.

Mr. Gunter stated the drivers as follows:

- Cleanup of EM sites
- National Defense Authorization Act for FY 2002 Public Law 107-107, Section 3155

- requires a disposition pathway out of South Carolina for all plutonium transferred to the Savannah River Site
- requires report to Congress offering disposition pathway if the Plutonium Immobilization Plant Project is cancelled
- Complete vitrification processing in K Area prior to completion of DWPF operations
- Material in form suitable for disposal in a geological repository

The concept includes the following:

- Establish capability to disposition plutonium
- Final form will be suitable for disposition in a Federal Repository
- Complete project construction and startup in FY 2013
- Complete K-Area de-inventory by the end of FY 2019

Mr. Gunter proceeded with a pictorial of the process which includes the following building blocks:

- Material receipt
- Oxidation
- Feed preparation
- Milling and mixing
- Vitrification
- Bagless transfer
- Magazine loading/storage, canister loading/shipping
- DWPF modifications
- Non-nuclear handling/loading
- Balance of plant

Mr. Gunter presented the following status:

- CD-1A, selection of preferred technology alternative location, approved by Deputy Secretary Sell on August 17, 2006
 - Approved vitrification as the preferred technology alternative for the Pu Disposition project
 - SRS is the preferred site
- CD-1, Approved Alternative Selection and Cost Range, scheduled for DOE approval on September 30, 2007
- Preliminary Design will begin after approval of CD-1
- Appropriate NEPA documentation will be developed and approved prior to CD-2

The following key activities and dates are:

- | | |
|---|---------------------------------------|
| • CD-0 (Mission Need) Approval | APPROVED 9/6/05 |
| • Cd-1A (Preferred Technology) Approval | APPROVED 8/17/06 |
| • CD-1 (Conceptual Design) Approval | 4Q FY07 Submit to DOE-HQ
July 2007 |
| • Preliminary Design Start | 1Q FY08 (proposed) |
| • CD-2 Approval | TBD |
| • CD-3 Approval | TBD |
| • CD-4 Approval | TBD FY13 (proposed) |

Mr. Gunter concluded with the following Pu Disposition summary:

- Approved Mission Need (CD-0)
- Approved preferred technology alternative and location (CD-1A)

- CD-1 is scheduled for approval in September 2007
- Preliminary design will begin after the approval of CD-1

Questions asked during this presentation consisted of the following:

Manuel Bettencourt asked if the glass project was under operational or regulatory requirements. Mr. Gunter stated that to put into glass was operational. Rick McLeod asked if the disposition path was the same for both public law 107-107 and section 3155. Mr. Gunter stated that both require a report to Congress. Mr. Bettencourt asked if the melters are in design or already exist. Mr. Gunter stated that the design was complete and the melters in fabrication. These are melters similar to those planned to be used in the Americium/Curium project. Mr. Bettencourt asked why the process requires an oxidation phase. Mr. Gunter stated that if not oxidized first, the Pu would not go into the glass mix effectively. Gerald Devitt asked if there have been any demonstrations that the technology works. Mr. Gunter stated that full scale demonstrations are scheduled. Art Dobby asked what the design life of the system would be. Mr. Gunter stated the system would produce 800 3013's per year for 10 years. Karen Patterson asked if the proposed product has been approved through the Yucca Mountain acceptance criteria. Mr. Gunter responded that there are plans to have the glass certified for acceptance into Yucca Mountain. Mr. McLeod asked where all the 3013 containers would be disposed. Mr. Gunter stated they would be disposed of in the burial ground as either Low Level or TRU waste. Mr. Dobby asked as to the location of the melter facility. Mr. Gunter stated it would be located in the basement of 105-K.

H-Area Material Disposition – Neptunium 237 Stabilization: Ron Oprea stated the purpose this presentation was to that the CAB had requested this update. Mr. Oprea identified the following key points:

- Two Campaigns
 - DNFSB 94-1 commitment
 - Post DNFSB 94-1 commitment
- Np 237 oxide product is a valuable commodity supporting future space exploration
- Converting Np 237 solution to oxide minimizes Tank Farm storage supporting waste minimization
- Interim and Long-Term material storage

Mr. Oprea offered the following on Np Campaign #1:

- Disposition pre-existing Np 237 solution
 - Approximately 325 kgs of less than 20% g/l solution
 - Accumulated into one H-Canyon storage tank
 - Because a DNFSB priority for stabilization in 94-1 Recommendation
- Removed impurities prior to its storage in late 1980's to early 1990's
- Disposition path: Conversion to Oxide
 - Completed 94-1 commitment 3 months early (9/20/06)
- K-Area Interim Storage for oxide, pending shipment to INL
- INL final storage location

Mr. Oprea offered the following on Np Campaign #2:

- Year 2004-2006 stored Np 237 solution from SRS fuel stabilization
 - Approximately 80 kgs of less than 2 g/l solution
 - accumulated into several H-Canyon storage tanks

- High impurities compared to Campaign #1; impurity reduction via H-Canyon solvent extraction process is in progress
- Two Disposition paths:
 - Initial solution disposal through Tank Farm
 - Balance of solution converted to Oxide for future use
- K-Area Interim Storage for oxide, pending shipment to INL
- INL final storage location

Mr. Oprea presented his final thoughts as follows:

- Successfully completed Campaign #1, DNFSB 94-1 commitment (12/06), three months early
- Campaign #2, Post DNFSB 94-1 Np solution, is being cycled through H-Canyon solvent extraction process to reduce impurities to make similar to Campaign #1 quality
- Campaign #2 should complete in mid-FY07
- Implement Waste Minimization by Maximizing Oxide Production
- Optimize the reservation of Np 237 oxide for future conversion to Pu-238 for NNSA use (similar to Cassini)

Questions asked as a result of this presentation are as follows:

Karen Patterson asked how long the Np 237 would remain in interim storage. Mr. Oprea stated that it could be interim stored for up to 50 years. Mr. Bettencourt asked Mr. Oprea to please come back in FY07 when the project completes and give an update.

Public Comment: Manuel Bettencourt stated that he would like the presentation on Pu disposition at the full CAB meeting in November. Mr. Bettencourt would like to consider a motion regarding the Plutonium disposition project.

Adjourn: Manuel Bettencourt adjourned the meeting at 7:00 p.m.